Development of a systematic approach to assessing quality within Australian residential aged care facilities: the Clinical Care Indicators Tool

Mary Courtney, Maria T O'Reilly, Helen Edwards and Stacey Hassall

Abstract

Recent years have seen the introduction of formalised accreditation processes in both community and residential aged care, but these only partially address quality assessment within this sector. Residential aged care in Australia does not yet have a standardised system of resident assessment related to clinical, rather than administrative, outcomes. This paper describes the development of a quality assessment tool aimed at addressing this gap. Utilising previous research and the results of nominal groups with experts in the field, the 21-item Clinical Care Indicators (CCI) Tool for residential aged care was developed and trialled nationally. The CCI Tool was found to be simple to use and an effective means of collecting data on the state of resident health and care, with potential benefits for resident care planning and continuous quality improvement within facilities and organisations. The CCI Tool was further refined through a small intervention study to assess its utility as a quality improvement instrument and to investigate its relationship with resident quality of life. The current version covers 23 clinical indicators, takes about 30 minutes to complete and is viewed favourably by nursing staff who use it. Current work focuses on psychometric analysis and benchmarking, which should enable the CCI Tool to make a positive contribution to the measurement of quality in aged care in Australia.

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What is known about the topic?

The ageing of the Australian population ensures the continued need for quality residential aged care services in this country, yet no formal system of regularly measuring quality of care has been established in Australia. The accreditation system only partially addresses quality of care concerns within residential aged care facilities.

What does this paper add?

This paper describes a tool for assessing clinical markers of quality (clinical indicators) in residential aged care which was developed in consultation with aged care clinicians and managers. When trialling the tool, it was apparent that very few areas of clinical care were specifically monitored for quality within residential aged care facilities. This further emphasises the need for a simple and reliable quality assessment that can be readily accessed by residential aged care facilities.

What are the implications for practitioners?

The CCI Tool can be easily administered, more often than accreditation assessments, providing timely feedback on the clinical status and progress of residents. Use of the CCI Tool should enable a facility to readily monitor and improve quality of care practices.

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HEALTHY AGEING was a primary theme identified by the National Strategy for an Ageing Australia as part of the work undertaken in Australia for the Year of the Older Persons.[1] Declining mortality rates and increased life expectancy have led to an extended period of life being spent in "old age".[2] In 2003, 12.8% of the Australian popula-

tion (2.6 million people) were aged 65 years and over; this is projected to rise to 18.0% (4.5 million) by 2021.[2] Further, among all older people, it is the group aged 85 years and over that is increasing at the fastest rate. It is estimated that the number of Australian people over 85 years will increase by an average of 30 032 a year from 2026 to 2041.[1] Rapid growth in the number of very old people will subsequently increase the numbers of older people with support needs.

At present there is an annual government expenditure of about $5 billion towards more than 4000 residential aged care facilities across the country.[3] With around $575 per week being spent on the cost of care for each resident, more comprehensive and objective measures of quality of care would be of great assistance in determining and monitoring the cost effectiveness of residential aged care provision, particularly as demands for accountability by consumers and their families increase.

Assessing quality in residential care

While assessment is the first step in the nursing process, serving as a foundation for selecting appropriate interventions to improve, maintain or support residents,[4] it is imperative to be able to standardise, benchmark, trend and compare such data for it to be meaningful. When facilities use facility-specific non-standardised assessment forms, comparisons of resident and facility characteristics are difficult, if not impossible. Changes cannot be tracked readily over time and outcomes are difficult to measure. To evaluate and improve care delivery, it is also important to compare resident and facility characteristics and outcomes, making it possible to identify other facilities that achieve better outcomes with similar residents. These types of comparisons encourage clinicians to question previously accepted practices, stimulate them to design and implement better ways of caring for residents, and subsequently improve outcomes.[4]

Residential aged care in Australia does not yet have a standardised system of resident assessment related to clinical, rather than administrative,

outcomes. The existing Residential Aged Care Accreditation Standards are a positive step in the process of monitoring care, but they are only considered to represent minimum (rather than optimal) standards of quality within residential care, and they do not sufficiently focus on clinical outcomes.[5] Providing high quality care requires careful assessment of each resident's functional, medical, mental and psychosocial status upon admission, with periodical reassessments necessary to ensure that care remains appropriate.[4] Numerous criteria have been suggested for such an instrument: it should be standardised, provide useful information, be usable by different agencies, allow comparisons of processes and outcomes, be valid and reliable, responsive to change and easy to administer.

The United States example

An example of an assessment tool that regulates and standardises the assessments of all aged care facility residents periodically is the Minimum Data Set/Resident Assessment Instrument (MDS/ RAI), which is in mandatory use in nursing homes in the United States. It is largely viewed by users as pivotal to improving care and care outcomes and not simply as a burdensome regulatory requirement.[4] The RAI consists of the MDS (the data collection tool) and 18 Resident Assessment Protocols focused on common resident problems, which, in their capacity as care-planning tools, assist in the identification of potential care issues.[4]

> A strength of the MDS/RAI process is that it is conceptualised as being a routine, inter-disciplinary, standardised assessment method that is sensitive to changes in resident functioning, health and well-being.[4] (p. 39)

The process also incorporates the use of Quality Indicators (QIs), a form of benchmarking, for use as a means of implementing quality assurance and improvement in nursing homes.[6] The QIs make use of data from the MDS to indicate either the presence or absence of potentially poor care

practices or outcomes;[7] as such the QIs provide valuable information identifying resident as well as facility status. Utilising data from participating facilities, the Center for Health Systems Research and Analysis (CHSRA) produces quarterly reports, called "profiles", which provide information on individual residents as well as whole of facility results. This information can be a point in time "snapshot" (prevalence) or information over two assessment periods (incidence). The individual profiles enable care staff to examine the QI status of every resident, while the overall results enable comparison of facility performance to that of other facilities.[7]

By comparing residents using a tool like the MDS, facility staff and other stakeholders can identify facilities that achieve better outcomes for similar residents.[8] There is no doubt that, at least in the United States, QIs are proving to be very meaningful tools to improve the care delivered to residents.[8] Quality can be elusive, difficult to measure and, often, multidimensional in nature. One all-inclusive measure of quality may never be found. However, quality indicators such as those derived from MDS data can serve as a reasonable first step in determining what level of quality exists in a facility.[4]

Developing an Australian quality assessment tool

While Cotter and colleagues[9] noted there was no agreed set of outcome measures considered appropriate for long-term care, with choice of outcomes dependent on organisational perspectives and values, a number of Australian researchers have attempted to identify essential elements of quality assessment in residential care. In her analysis of quality within residential aged care, Marquis[10] advocated that the focus of quality assessment in aged care should be on resident outcomes, rather than service outcomes, which tends to be the focus of the current accreditation standards. In focus group discussions with residents and staff of Victorian residential aged care facilities, Doyle and Carter[11] found the areas considered most important in meeting the Resi-

dential Care Standards (RCS) for health were "doctor of choice, food, mobility and dental care" (p.4). As a result of their research, Doyle and Carter recommended quality assessment containing objective indicators of quality, to be used in conjunction with subjective assessments. However, development of such an instrument does not appear to have eventuated, although the Victorian State Department of Health has recently introduced a set of five quality indicators developed in conjunction with the Gerontic Nursing School at La Trobe University for use within its state-run residential aged care facilities.[12,13]

In another Australian study, Courtney and Spencer[14] interviewed clinical nurses and aged care facility managers and identified a list of six measurable indicators of quality clinical care in residential aged care facilities: pressure ulcer rates, incontinence rates, hydration management, rates of infection, skin integrity, and polypharmacy. These were considered the most important indicators of quality by both groups of informants, although the rankings within each group differed. Spencer[15] also interviewed residents and families, and further to the six clinical areas already mentioned, other areas identified for quality assessment included a number related to quality of life.

> ... resident mobility, food concerns, mouth and sensory care, restraint rates, ... resident transfers ... contact with the outside world, family integration into the resident's life in the home, activities programs, complaint mechanisms, spiritual well-being, and the difficulties associated with a confined lifestyle, all featured ...[15] (p. 251)

The Australian quality matrix

In the first steps towards creating an assessment of quality for use within residential care that was focused on individual clinical outcomes, Spencer[15] utilised the opinions of registered nurses, managers, residents and families, to develop clinical indicators of high quality care. Clinical indicators were defined using Royal College of Nursing Australia criteria: "A clinical

indicator is a performance indicator that relates to the clinical practice of health care"[14] (p. 17). Spencer[15] used both the Australian National Accreditation Standards and the RCS as reference points for the development of clinical indicators for the residential aged care context. The domains of care from the accreditation standards provided the framework, and descriptors from the RCS were used to define the resultant clinical indicators. Spencer[15] then went on to develop and trial the Australian Quality Matrix (AQM) of clinical care. This system identified 18 indicators by which members of the aged care industry agreed that quality clinical care could be assessed.[15]

The AQM was specifically aimed at residents in high care facilities, so indicators were chosen on the basis of their relevance to that setting. It was also a requirement that they be measurable, and as such, measurement criteria for each indicator were based on the CHSRA QIs and the RCS.[15] To minimise any additional burden on care staff, the AQM was designed to be used in conjunction with the RCS, with the care domains adapted from the accreditation standards to maintain familiarity.[15]

> In keeping with the original plan to avoid creating further work for current care givers, but taking advantage of their existing expertise, the project proposed that the Australian Quality Matrix (AQM) encompass care domains adapted from the aged care accreditation standards. Four dimensions of care were identified … [and] … the 18 original indicators of quality care were described according to the RCS questions to which they applied … utilising measurement criteria developed by the CHSRA in the absence of an established Australian model …[15] (p. 255)

The Clinical Care Indicators (CCI) Tool

At the conclusion of her study, Spencer[15] recommended that the AQM be further developed and trialled within a wider range of residential facilities. This challenge was undertaken jointly by Queensland University of Technology (QUT) School of Nursing and Uniting Care Australia,* which used the AQM as the foundation for a Clinical Care Indicators (CCI) Data Collection Tool.[16] Indicators for inclusion in the final instrument were developed by consulting the AQM and the MDS, as well as through nominal groups held with industry representatives.[16]

Nominal groups process

Nominal group technique is a form of qualitative needs analysis, whereby a panel of experts is consulted regarding an issue. In the process, they are asked specific questions and requested to generate an agreed list of prioritised solutions.[17,18] The nominal group technique is structured in two phases: firstly, individual participants list issues pertaining to the identified problems, and secondly, the group of individuals come together to rank those issues by their level of importance.[18]

Two nominal groups were conducted in Brisbane to determine the areas considered most important for clinical indicators of quality in residential care. The first group was undertaken at BlueCare† Head Office and included representation from all the regional areas in Queensland. The 22 senior management participants were from a variety of backgrounds including nursing, allied health and respite care. The second nominal group, which was held at QUT School of Nursing, involved 12 participants; in addition to Directors of Nursing from a number of aged care facilities, there were also representatives from a number of peak bodies, as well as the Aged Care Standards and Accreditation Agency.

Participants were asked the following question: From your experience, what are essential clinical indicators for residential aged care? After discussing their responses in a round-robin fashion, each nominated indicator was listed on the whiteboard. Cards were handed to participants,

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* Uniting Care is a major not-for-profit provider of aged care services around Australia.
† BlueCare is a subsidiary of Uniting Care, based in Queensland.

I Pooled results from the nominal groups

Group 1*	Total	Group 2*	Total	Overall results	Total
depression (9+6)	21	infections (8+3)	14	depression (21+9)	30
pain management (10+4)	18	polypharmacy (9+2)	13	polypharmacy (13+1)	26
polypharmacy (9+2)	13	depression (5+2)	9	pain management (18+8)	26
nutritional status (10+1)	12	pain management (4+2)	8	nutritional status (12+5)	17
case conferences (7+1)	9	falls (4+1)	6	infections (0+14)	14
balanced lifestyle (4+2)	8	skin tears (6)	6	behavioural episodes (8+5)	13
behaviours (6+1)	8	nutritional status (5)	5	restraints (6+5)	11
restraints (6)	6	restraints (5)	5	continence rates (5+4)	9
mobility (5)	5	behaviours (5)	5	case conferences (9+0)	9
continence rates (5)	5	incontinence (2+1)	4	balanced lifestyle (8+0)	8

* The first (or only) number in every equation is the number of nominal group participants nominating this indicator in the final five; the second number of the equation is the number of nominal group participants nominating this indicator as their final sole outcome — because of the importance of the final nomination, this was weighted as being worth two points.

who then listed the five clinical indicators they thought were the most important, with their top priority circled. All responses were written on the whiteboard to arrive at a final prioritised list.

Tool development and national trial

The results of both nominal groups were pooled to arrive at a list of ten clinical areas considered essential in an assessment of quality (Box 1). These were then combined with the AQM[15] to create a set of clinical indicators, forming the basis of an assessment instrument (the CCI Tool) constituting 21 clinical indicators, within the same four care domains used in the AQM (Box 2).

To ascertain the utility of the CCI Tool, a national trial was conducted with 77 randomly selected Uniting Care facilities nationwide. Each facility was asked to complete five tools (ie, 385 individual tools were sent), and 133 responses from 27 facilities (35%) were received. Although this is a low response rate, it is probably not unexpected given the usually heavy workload experienced by residential care staff. Chi-square for independence analyses were conducted to compare respondent facilities to non-respondent facilities in terms of state, facility size, location (metropolitan/non-metropolitan), and care type.

No significant differences were found, indicating that respondent facilities had similar characteristics to non-respondent facilities. Further, the final sample of residents and facilities was quite similar in demographic composition to those in Australia generally and, more specifically, within the service provider's network.

Analysis of the clinical data confirmed that the Tool enabled collection of comprehensive and holistic clinical information that could be used to provide information on a resident population as a whole, as well as enabling comparisons between resident subgroups and facilities.[16] Variation in results occurred within indicators, as well as between residents and facilities. The most variable indicators were hydration management, sleeping patterns, and indicators of depression. Data varied more often according to facility characteristics (in particular facility size and predominant care level) than to resident characteristics; the only resident characteristic for which there were consistent statistical differences was resident care level. This suggests that organisational, rather than individual, factors had more influence on clinical outcomes, except where the baseline care needs clearly differed.

Further, respondents were asked to specify which clinical indicator data were currently collected in their facility, and it was evident that

2 Care domains and clinical indicators from AQM[14], Clinical Care Indicators (CCI) Tool (I)[16], and CCI Tool (II)[19]

| Care domains	Australian Quality Matrix	CCI Tool (I)	CCI Tool (II)
Resident health	1. Pressure ulcer rates	1. Pressure ulcer rates	1. Pressure ulcer rates
			2. Skin integrity
	2. Rates of infection	2. Rates of infection	3. Infections
	3. Poly pharmacy	3. Poly pharmacy	4. Medication
		4. Pain management	5. Pain management
			6. Cognitive status
Personal care	4. Continence rates	5. Rates of continence	7. Continence
	5. Hydration management	6. Hydration status	8. Hydration status
	6. Skin integrity	7. Skin integrity	
	7. Mobility	8. Activities of daily living	9. Activities of daily living
	8. Oral hygiene	9. Oral hygiene	10. Dental health
	9. Sensory care	10. Care of the senses	11. Care of the senses
Resident lifestyle	10. Nutrition	11. Nutrition	12. Nutrition
	11. Activities	12. Meaningful activity	13. Meaningful activity
	12. Complaints resolution	13. Sleeping patterns	14. Sleeping patterns
	13. Spiritual wellbeing	14. Communicating	15. Communicating
	14. Confined lifestyle difficulties	15. Adaptation and behaviour patterns	16. Adaptation and behaviour patterns
Care environment	15. Restraints	16. Restraints	17. Restraints
	16. Transfers	17. Falls	18. Falls
	17. Contact with the outside world	18. Depression	19. Depression
	18. Family involvement	19. Family involvement	20. Family involvement
		20. Allied health	21. Allied health
		21. Doctor visits	22. Doctor visits
			23. Multidisciplinary case conferences

routine data collection for the areas of care on the CCI Tool was low among participant facilities, suggesting the need for facilities to be prompted to monitor clinical care, as per the CCI form.[16] As seen in Box 3, there was a high level of monitoring for rates of infection (92.6%) and falls (82.4%), but much less for all other indicators. The next most common areas for data collection were skin integrity and polypharmacy (64% and 60.3% respectively), followed by pressure ulcer rates, rates of continence, and doctors' visits (58.1% each). Data least often collected were care of the senses (33.1%), hydration management (36%) and depression (36.8%).

The CCI Tool Version II

Further refinement of the CCI Tool occurred after reviewing the results and feedback from this trial, and further consulting with industry, resulting in a second version of the CCI Tool.[19] Some items were removed, some added, and others revised, with the final version consisting of 23 clinical indicators, again within the same four care

3 Data routinely collected by participating facilities
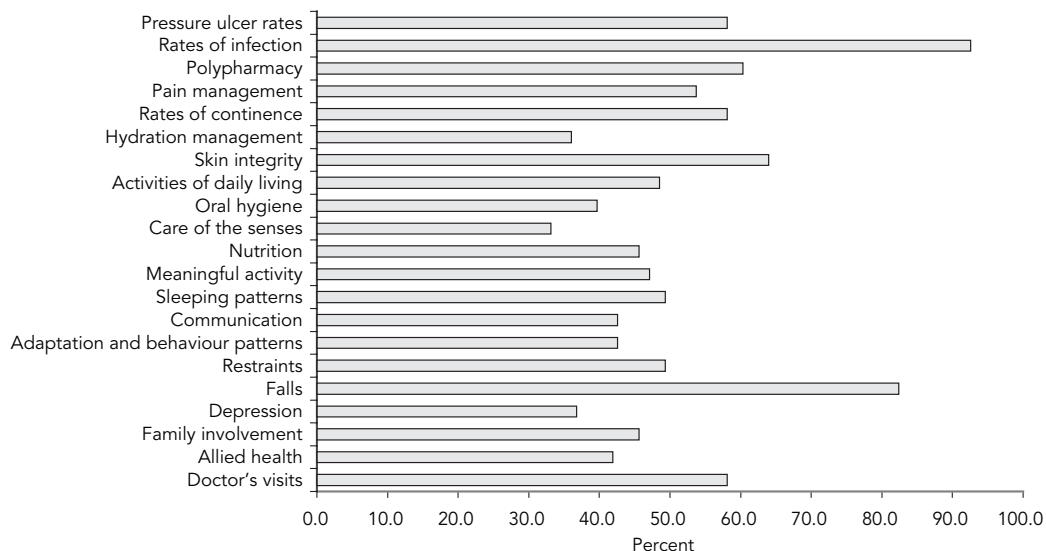
domains (see Box 2 for a list of indicators in the AQM and each version of the CCI Tool). It was then used in a small intervention study aiming to examine the value of the instrument as a quality improvement tool and to explore links between CCI outcomes and quality of life.[19]

In this latter study, CCI data were collected from four residential aged care facilities before and following an educational intervention that occurred within two of those facilities. Staff in the intervention facilities were given their CCI data to review, and on the basis of their results, they decided on an area of clinical practice for quality improvement. An education package based on evidence-based practice principles was subsequently conducted in that clinical area. Responses to this intervention were very positive, with staff particularly appreciative of the opportunity to review and act on their clinical performance through the use of the CCI Tool.[19] Further, the CCI results once again indicated that the Tool could effectively collect collatable data, providing clear indicators of resident clinical status and care outcomes.[19] The forms were usually completed in just under 30 minutes, which compares favoura-

bly with the 90 minutes required for MDS completion.[20]

Measurement criteria for each indicator, in the form of numerator/denominator ratios were developed, but in the absence of Australian benchmarks, they could only be compared with the US benchmarks (QI thresholds) derived from the MDS.[8,21] Example questions and measurement criteria from the CCI Tool are provided in Box 4 and Box 5. The CCI Tool has been shown to have potential value for use within the Australian residential aged care industry. However, in order for it to be adopted on a wider scale, further development is required in the form of establishing its psychometric properties (validity and reliability) and developing benchmarks for use within the Australian context.

Limitations of the CCI Tool

While the CCI Tool has the potential to contribute to the enhancement of quality in residential aged care, it represents a further addition to an already substantial paperwork burden for residential care staff. However, aligning it with

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4 Example question from the CCI Tool

4	Medication	Answer both questions below, in regard to medications taken by the resident
a	Poly-pharmacy	Record the number of different medications taken by the resident in the last week. ☐ If no medications used, please enter zero ('0')
b	Pharmacy review	Has a pharmacy review been conducted in the last 3 months? (tick the relevant box) 0. No ☐ 1. Yes ☐

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5 Example measurement criteria

Indicator	Numerator	Denominator
a. Poly-pharmacy Use of nine (9) or more different medications	Residents who receive nine (9) or more different medications at time of assessment	All residents at time of assessment
b. Pharmacy reviews Prevalence of medication prescription without pharmacy review	Residents who did not have their medications reviewed by a doctor or pharmacist in the 3 months before assessment	All residents at time of assessment, excluding those not currently taking medication

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accreditation categories and RCS descriptors, and limiting its length are all conscious attempts to minimise any additional workload required to complete the CCI Tool. Registered nurses who have used it to date have reported that it was simple to use, with a mean completion time of just under 30 minutes per resident. Familiarity with the CCI Tool and the residents being assessed both decreased the time required to complete the assessment and enhanced its ease of use.

A further limitation of the CCI Tool in its current form is related to its capacity to produce meaningful data. As a paper-based tool, it still requires someone to centrally manipulate the data to produce numerator–denominator results for interpretation. To this end, it is hoped that it can eventually be converted into a database program that could produce the desired results on demand.

Some might also find the CCI Tool's focus on outcomes disquieting, with a common response being that the outcomes measured can result from many factors. This is certainly true, and for this reason it is not considered an absolute measure of quality, but rather a tool that provides indications of areas of care that require further investigation.

Conclusion

While there is a high level of regulation within the Australian residential aged care system, comprehensive quality assessment and related benchmarks of care are conspicuous by their absence. "Quality of care" is a difficult concept to define and measure, particularly within aged care, but it is also a necessary concept to monitor. It is widely agreed that the key to evaluation of quality, effectiveness and outcomes of care of older people is the use of comprehensive assessment. There is a strong argument for linking data of individual assessments so that care for groups of people can be evaluated. Comprehensive assessment, specifically of the physical, social and psychological wellbeing of older people, should be able to provide potential residents, carers, providers and regulators with a sound information base about the appropriateness and effectiveness of service delivery. In addition to assessment, benchmarks of care are required to enable facility results to be compared with standards of excellence, and to provide goals of quality for which to aim. Donabedian, a pioneer in health care quality, suggested that the key to quality improvement was comprehensive

assessment and the use of quality indicators to provide targets at which to aim.[14,22-26]

A well established example of comprehensive quality assessment linked closely to clinical care is that of the MDS/RAI, in use throughout the US. The RAI was developed as a care planning tool, but the data generated by its MDS form are now used for quality monitoring in the form of quality indicators and their associated thresholds of care. The thresholds are a form of benchmarking, in that they provide a target of excellence; however, they also provide an indication of poor care, and as such they are able to discriminate between the best and the worst of care.

In recent years, the Australian Federal Government released recommended care documentation procedures,[27] and extensively reviewed the RCS.[28] The Victorian State Government has introduced quality indicators for use in its nursing homes,[12] but federally there has not yet been a stated intention to introduce universal quality monitoring extending beyond the accreditation standards.

The CCI Tool has been in development over the last 6 years (and before that in the form of the AQM) to provide quality of care assessment. The Tool collects data on 23 areas of care, and can be completed in 30 minutes. Residential care staff are often wary of new assessments, due to the extra documentation they represent, and with good cause — RNs in residential aged care facilities are currently required to complete a large amount of paperwork. However, the CCI Tool has been designed to complement the RCS, such that little extra work is required by care staff to use it. It has been trialled in two prior studies, and found to be user-friendly and capable of collecting useful clinical data. Regular use of such a tool should facilitate more comprehensive quality monitoring than accreditation alone, which occurs only at 3-yearly intervals. Further, the CCI Tool's use and the data generated by it can only enhance accreditation assessments. However, for it to be more widely implemented, it needs to have its psychometric properties assessed. Ascertaining the CCI Tool's reliability and validity constitute the first two aims of a study currently being conducted by the authors. The need for comprehensive quality assessment and monitoring within Australia's residential aged care industry is strong. Widespread introduction of a valid and reliable tool to measure quality would constitute a valuable addition to the Australian residential care system.

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Competing interests

The authors declare that they have no competing interests.

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