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How Australian residential aged care staffing levels compare with international and national benchmarks

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How Australian residential aged care staffing levels compare with international and national benchmarks

Abstract

The Centre for Health Service Development, part of the Australian Health Services Research Institute (AHSRI) at the University of Wollongong, was commissioned by the Royal Commission into Aged Care Quality and Safety (the Commission) to undertake this analysis of international and national staffing profiles for residential aged care services in order to better understand how staffing can be improved in Australia. The key activities for the project include a literature review on international and national models of staffing in residential aged care facilities and use of data from the Resource Utilisation and Classification Study (RUCS) (Eagar et al. 2019) to compare Australian practices to the standards of those models. This analysis will also contribute to a better understanding of the costs involved in delivering higher quality care through effective staffing levels in residential aged care facilities.

Authors

Kathy Eagar, Anita B. Westera, Milena Snoek, Conrad Kobel, Carol L. Loggie, and Robert Gordon

Royal Commission
into Aged Care Quality and Safety

HOW AUSTRALIAN RESIDENTIAL AGED CARE STAFFING LEVELS COMPARE WITH INTERNATIONAL AND NATIONAL BENCHMARKS

RESEARCH PAPER 1

OCTOBER 2019

The Royal Commission into Aged Care Quality and Safety was established by Letters Patent on 8 October 2018. Replacement Letters Patent were issued on 6 December 2018, and amended on 13 September 2019.

The Honourable Richard Tracey AM RFD QC, the Honourable Tony Pagone QC and Ms Lynelle Briggs AO have been appointed as Royal Commissioners. They are required to provide an interim report by 31 October 2019, and a final report by 12 November 2020.

The Royal Commission intends to release consultation, research and background papers. This research paper has been prepared by the University of Wollongong for the information of Commissioners and the public. The views expressed in this paper are not necessarily the views of the Commissioners.

This paper was published on 11 October 2019.

How Australian residential aged care staffing levels compare with international and national benchmarks

A research study commissioned by the Royal Commission into Aged Care Quality and Safety

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Key findings

- This report reviews the national and international staffing requirements for residential aged care services.

- There are two broad approaches to determining staffing requirements: (1) mandated minimum levels and (2) specification of 'appropriate' (not minimum) levels.

- Debate regarding staffing levels in aged care homes is premised on evidence in health services where a direct relationship between nursing staff mix and quality of care has been established. As with health care, quality in aged care is impacted not only by staffing levels. It is also driven by organisational culture, skill mix and consistency in staffing personnel.

- The research in this report draws on the data collected during the Resource Utilisation and Classification Study (RUCS) that underpins the Australian National Aged Care Classification (AN-ACC). It provides representative results for residents in Australian aged care homes.

- A key finding in this study is that, among comparable countries, the USA Centers for Medicare and Medicaid Services (CMS) *Nursing Home Compare* system employs the most comprehensive approach to staffing levels. This is the best system currently available internationally to evaluate existing Australian staffing levels. Further, it provides a useful model that could be progressively refined and adapted in Australia to inform future staffing requirements.

- This report also includes an overview of systems employed in British Columbia (Canada), Germany and the Victorian and Queensland public residential aged care services. Details are discussed in the body of the report (pages 17 - 32).

- The CMS system uses a 5 star rating to define adequacy of care staffing levels in residential aged care services, with ratings adjusted to take account of differences between homes in terms of the complexity of their resident's care needs ('casemix adjustment'). Refining the USA model to make it suitable for use in Australia, our judgement is that:

  - 1 or 2 stars represent unacceptable levels of staffing
  - 3 stars is acceptable
  - 4 stars is good, and
  - 5 stars is best practice.

- More than half of all Australian aged care residents (57.6%) are in homes that have 1 or 2 star staffing levels.

- Of the remaining 42.4% of residents, 27.0% are in homes that have 3 stars, 14.1% receive 4 stars and 1.3% are in homes with 5 stars.

- To raise the standard such that all residents receive at least a 3 star level of staffing:

  - Requires an average increase of 37.3% in total care staffing in those aged care homes currently rated 1 or 2 star.
  - Will result in an overall increase of 20% in total care staffing across Australia.

- To raise the standard such that all residents receive at least a 4 star level of staffing requires an overall increase of 37.2% in total care staffing.

- To raise the standard such that all residents receive 5 star level of staffing requires an overall increase of 49.4% in total care staffing.

- A weakness of the CMS model is that it does not address allied health staffing levels. However, if adapted and refined for use in Australia, it could be developed to do so.

- The staffing model in place in British Columbia Canada is one system that does include allied health staffing levels. Only 2% of Australian residents are in homes that current meet the 22 minutes of allied health services per day recommended in the British Columbia system. The current Australian average is 8 minutes of allied health care per day. Achieving the level recommended in British Columbia would require a 175% increase in allied health staffing.

- These additional resources do not take into account any increases required to address the viability of the sector. They also do not take account of any salary increases required to improve attraction and retention rates and/or improve the skill mix of staff.

- The results presented in this report apply to the sector as a whole. At the level of an individual home, staffing levels should reflect the needs of residents. Only a system that adjusts for the mix of residents (a 'casemix' system) can provide meaningful information to inform the staff numbers and skill mix required in each facility.

- The current residential aged care funding measure, the Aged Care Funding Instrument (ACFI) is not a casemix system and does not sufficiently discriminate between levels of need. Accordingly, it does not provide a basis on which to determine appropriate staffing levels.

- The Australian National Aged Care Classification (AN-ACC) is a casemix classification that will, if fully implemented, facilitate the meaningful determination of staffing requirements across classes and allow for the systematic measurement and benchmarking of quality within the sector.

1   Introduction

The Centre for Health Service Development, part of the Australian Health Services Research Institute (AHSRI) at the University of Wollongong, was commissioned by the Royal Commission into Aged Care Quality and Safety (the Commission) to undertake this analysis of international and national staffing profiles for residential aged care services in order to better understand how staffing can be improved in Australia. The key activities for the project include a literature review on international and national models of staffing in residential aged care facilities and use of data from the Resource Utilisation and Classification Study (RUCS) (Eagar et al. 2019) to compare Australian practices to the standards of those models. This analysis will also contribute to a better understanding of the costs involved in delivering higher quality care through effective staffing levels in residential aged care facilities.

The concept of quality residential aged care has changed considerably in recent years as care models have moved from institutional to person-centred principles of practice and organisational quality measures shift from a focus on inputs and outputs to outcomes for residents. A recurring theme in the evidence presented to the Commission has been that the staffing levels and skill mix within aged care has been insufficient to support quality outcomes for residents.

There is strong evidence from the health sector about the relationship between staff levels and skill mix to quality of care and safety of clients (Australian Commission on Safety and Quality in Health Care 2019). This is not the case for the aged care sector, due to a combination of data limitations as well as organisational and cultural factors (OECD/European Commission 2013a).

This report draws on data collected as part of the RUCS project which was undertaken by the Australian Health Services Research Institute (AHSRI), University of Wollongong in 2017-18 and which underpinned the development of the proposed new casemix funding model for aged care, the Australian National Aged Care Classification (AN-ACC) (Eagar et al. 2019). The RUCS included independent assessments of approximately 5,000 aged care residents, the standardised collection of operational and staffing costs associated with 140 homes across Australia, and the collection of service utilisation data from around 1,600 care staff across 30 care homes. We are confident that these data are representative of the broader Australian residential aged care sector.[1]

1.1   The changing policy context

The aged care sector has evolved in recent decades in response to challenges associated with demographic trends, resourcing constraints and consumer expectations. The introduction of the *Aged Care Act 1997* (the *Act*) sought to reframe the role of residential aged care services as being people's 'homes' and to move away from the institutionalised model of care that previously dominated the sector. The *Act* also included provisions to underpin the expansion of community aged care services to allow older people to stay living in their own homes longer which, in turn, has resulted in people having much higher levels and/or complexity of need by the time they enter residential aged care.

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[1] The sampling framework for the RUCS study data included in this report is detailed in RUCS Report 3: Structural and individual costs of residential aged care services in Australia available at
https://ro.uow.edu.au/cgi/viewcontent.cgi?article=1975&context=ahsri#page=3

The re-conceptualisation of residential aged care as a 'home' has inadvertently encouraged the development of a workforce that is less clinically skilled and oriented with greater reliance on lower skilled personal care workers. Similarly, there has been limited incentive for either government or the sector to invest in systems that routinely capture and monitor resident needs or outcomes over time.

These changes were embedded further with the 2011 Productivity Commission (PC) report 'Caring for Older Australians' and the subsequent 'Living Longer Living Better' aged care reforms of 2012. The PC report argued that the sector needed to offer 'greater continuity of care and empower older people to exercise greater choice' through consumers having access to information regarding services, including staffing levels, costs and quality of care provided (Productivity Commission 2011).

It also recommended the establishment of an Australian Aged Care Commission to consider 'the appropriate mix of skills and staffing levels' for aged care services. However, the Government did not adopt this recommendation. This did not include advocating mandatory staffing ratios which, it argued, were 'unlikely to be an efficient way to improve the quality of care' (Productivity Commission 2011, p. 206).

The convergence of these trends has resulted in a residential aged care sector that is challenged by the need to support residents with higher and more complex care needs, whose users and advocates have greater expectations regarding service standards, and a staff profile that has been increasingly de-skilled over time. Not surprisingly, there have been continuing claims regarding increased workloads for staff, particularly registered nurses, and concerns regarding compromised quality of care for residents (Mavromaras et al. 2017, p. 166), (Australian Nursing and Midwifery Federation 2019).

These are echoed in the submissions of consumer stakeholders to the numerous inquiries and reviews into aged care of recent years, particularly in regard to the care needs associated with aged care residents living with dementia who have responsive behaviours, also referred to as behavioural and psychological symptoms of dementia (BPSD).[2]

1.2 Australian residential aged care profile

Responsibility for the regulation, policy development and funding of aged care services rests with the Australian Government through the administration of the *Act* by the Department of Health (Council of Australian Governments 2011). Aged care organisations delivering services funded by the Department are expected to have 'a workforce that is sufficient, and is skilled and qualified, to provide safe, respectful and quality care and services' (Standard 7, Aged Care Accreditation Standards, Australian Government Department of Health 2019).

1.2.1 Funding

A total of $12.3 billion in funding was provided for residential aged care in 2017-18, of which $10.8 billion (87.8%) was delivered under the Aged Care Funding Instrument (ACFI) funding model for personal and nursing care services for permanent residents (Aged Care Financing

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[2] For example, see Dementia Australia https://www.dementia.org.au/submissions

Authority 2019, p. 101). In general, ACFI funding is directly translated into staffing costs of personal care assistants (PCAs), Assistants in Nursing (AINs), Enrolled Nurses (ENs) and Registered Nurses (RNs). With 180,923 permanent residents in aged care homes at 30 June 2018, this equates to approximately $163.73 per resident day (Aged Care Financing Authority 2019, p. 82).

1.2.2 Staffing

The Department of Health does not mandate minimum staffing levels for residential aged care. Rather, as noted above, the Aged Care Quality Standards require all aged care services to have a sufficient, skilled and qualified workforce. This was not previously the case. Prior to 2014 aged care places were allocated on the basis of 'high' and 'low' care places according to population based planning ratios. At this time there was a requirement for a RN to be on duty at all times for residents living in high care facilities. The removal of the distinction between high and low care also resulted in a more generalised requirements regarding staffing in the Standards.

The Australian Government does not routinely capture staffing data but monitors it through the National Aged Care Workforce Census and Survey conducted every four years by the National Institute of Labour Studies. The 2016 survey showed the national average ratio of direct care workers to operational places was 0.78, with jurisdictional differences ranging from 0.66 (Northern Territory) and 0.69 (NSW) to a high of 0.91 (SA and ACT) (Mavromaras et al. 2017 Table 4.4).

Overall, there has been a reduction in the proportion of direct care employees in the total residential aged care workforce since the first survey was undertaken, from 74% in 2003 to 65% in 2016 (Mavromaras et al. 2017, p. 12). There has also been a decline in full-time equivalent qualified nursing and allied health staff, with a reduction in RNs from 21% in 2003 to 14.6% in 2016, ENs from 14.4% to 9.3% and allied health from 7.6% to 4% during the same period. These positions have been replaced by PCAs whose representation has increased from 56.5% (n=42,293) of the workforce to 71.5% (n=69,983) (Table 1) (Aged Care Financing Authority 2019).

Table 1   Full-time equivalent (FTE) direct care employees in residential aged care

Occupation	2003	2007	2012	2016
Nurse practitioner	n/a	n/a	190	293
Registered nurse	16,265	13,247	13,939	14,564
Enrolled nurse	10,945	9,856	10,999	9,126
Personal care attendant	42,943	50,542	64,669	69,983
Allied health professional	5,776	5,204	1,612	1,092
Allied health assistant			3,414	2,862
Total number of employees (FTE)	**76,006**	**78,849**	**94,823**	**97,920**
As a % of total employees				
Nurse practitioner	n/a	n/a	0.2%	0.3%

Occupation	2003	2007	2012	2016
Registered nurse	21.4%	16.8%	14.7%	14.9%
Enrolled nurse	14.4%	12.5%	11.6%	9.3%
Personal care attendant	56.5%	64.1%	68.2%	71.5%
Allied health professional	7.6%	6.6%	1.7%	1.1%
Allied health assistant			3.6%	2.9%

1.3 Relationship between staffing levels and quality

The evidence on the relationship between staffing and quality in residential aged care lags far behind that of the health care sector. A clear relationship between hospital inputs and outcomes (patients receive safer care, have less adverse events and achieve better clinical outcomes) has been established and routine processes are in place to record and monitor outcomes over time.

Methodological, definitional and cultural challenges within aged care have limited its capacity to routinely measure quality. One stated reason is that care homes provide clinical as well as social support to residents whose functional status and autonomy are declining over time (OECD/European Commission 2013a, p. 16). As such, the measures of quality to date have primarily focused on relationships between inputs (dollars, staff numbers) and outputs (client numbers, incident rates) rather than client outcomes (quality of care).

1.3.1 International evidence

The OECD long-term care quality framework describes staffing as being pivotal to quality aged care. It identifies three core domains for quality aged care: safety and effectiveness; person-centred and responsiveness; and care co-ordination. These domains are underpinned by three key 'structural inputs': workforce (including staffing); environment; and information and communication technology (ICT) systems (OECD/European Commission 2013a, p. 48).

The OECD framework was developed following a comprehensive review of quality measures in aged care including consideration of the role of staffing levels and mix. It identified a range of workforce attributes that directly contributed to quality aged care, including staffing ratios per resident, consistency of caregiving staff, staff turnover, length of employment, education and training, and staff response times. However, the review found very few examples of countries that systematically collected indicators relating to these attributes.

Two of the earliest and most comprehensive studies were undertaken on behalf of the Centers for Medicare and Medicaid Services (CMS) in the United States, titled *The Appropriateness of Minimum Nurse Staffing Ratios in Nursing Homes Phase I and Phase II* studies (Abt Associates Inc. 2001). The *Phase I* study found 'a strong relationship between staffing and quality and concluded that there may be critical ratios of nurses to residents below which nursing home residents are at substantially increased risk of quality problems' (Institute of Medicine (U.S.) 2001, p. 192). *Phase II* explored the issue in more detail, addressing the questions of whether there was a 'ratio of nurses to residents below which nursing home residents are at

substantially increased risk of quality problems' and conversely, a ratio 'above which no additional improvements in quality are observed?'

The Phase II study confirmed a series of specified staffing levels required to meet the recommended government standards. In 2001 the minimum staffing level was 4.1 hours (246 minutes) per resident day of direct care, comprising 0.75 hours (45 minutes) of RN time, 0.55 hours (33 minutes) of Licensed Practice Nurses (LPNs – equivalent to Enrolled Nurse in Australia) and 2.8 hours (168 minutes) of Certified Nursing Assistants (CNAs – equivalent to personal care attendants). These were found to be the staffing levels beyond which point there was no evidence of improved quality outcomes for residents.

The *Phase II* study concluded that 97% of nursing homes would fail to meet one or more of the quality standards and 52 percent of all nursing homes would fail to meet all of these standards. This latter group would be at substantially increased risk of experiencing quality problems (Feuerberg 2001, p. 5). Thus, only 3% of nursing homes at that time would meet all of the thresholds and be allocated five stars under the staffing element of the CMS Nursing Home Compare system.

A 2011 systematic review concluded 'there is little evidence for the effective use of any specific model of care in residential aged care to benefit either residents or care staff' (Hodgkinson et al. 2011). More recently, however, a review of over 150 studies that had been documented in systematic reviews of nursing home staffing levels, primarily from the US, Canada, UK and northern Europe, confirmed a 'strong positive impact of nurse staffing on both care process and outcome measures' (Harrington et al. 2016). The review found several studies that highlighted the contribution of organisational factors to care quality, such as having a high professional staff mix (ratios of RN to total staffing levels), low staff turnover rates and use of agency staff, and consistency in staffing.

Several studies have highlighted the changing needs and expectations of residents that are impacting on staffing attributes and skill levels. The expansion of home care services internationally has resulted in people entering residential aged care with greater complexity of care needs, and at the same time 'demanding greater flexibility, more choice, more autonomy and a higher quality of services' (OECD/European Commission 2013a, p. 50). Together with the shift towards person-centred care, these changes require a staffing profile that can support 'residents' autonomy, daily functioning or well-being' while at the same time addressing clinical needs associated with complex health care needs and comorbidities (Backhaus et al. 2018, p. 636).

1.3.2   Australian evidence

As with the international experience, the governance, structure and culture of the aged care sector has limited the routine collection of clinical data that can be used to support arguments linking quality outcomes and staffing levels. This is expected to change, however, with the introduction of the new Aged Care Quality Standards, as Standard 8 (Organisational Governance) requires services providing clinical care to have in place a clinical governance framework (Australian Government Department of Health 2019).

All aged care providers funded under the *Act* are required to adhere to these standards, including those operated by state and territory governments. These public sector residential aged care facilities receive additional funding from relevant jurisdictional health departments and therefore also operate under the relevant guidelines, clinical governance arrangements and quality processes of the associated health system. As such, it would be expected that public sector homes would have a relatively well-developed evidence base for quality of care and, in particular, its relationship to staffing levels. Despite developments in recent years, however, the ability to measure 'quality of care' within these homes continues to be difficult 'because quality of life issues are as important as healthcare issues' (Balding 2010).

The Victorian Government was the first to introduce staff ratios in health services in 2000 through the Enterprise Agreement (State Government of Victoria - Department of Health 2012). In 2015 it became the first Australian jurisdiction to legislate mandatory staff ratios (Victorian Government 2015), on the basis that the pre-existing ratios had 'assisted in maintaining the safety of Victorian patients since they were introduced in 2000, and contribute to better outcomes for Victorians'.[3]

Other jurisdictions have since introduced their own arrangements and standards for hospitals. For example, the Queensland Government introduced minimum nurse-to-patient ratios through the introduction of the Nursing and Midwifery Workload Management Standard (Queensland Health 2016b). In 2019 it indicated that this would be extended to its public sector aged care homes.[4]

Despite the absence of contemporary aged care data, there has been an implicit acknowledgement by the Australian Government of the need for greater clinical capacity within the sector. Enhancements have been provided to support aged care services better meet the needs of aged care residents with dementia experiencing severe responsive behaviours including the (short-lived) Severe Behaviour Supplement, Severe Behaviour Response Team and Specialist Dementia Care Program. Additionally, the government has invested in knowledge translation programs such as the Encouraging Better Practice in Aged Care Program (2007-2015) and education and training programs such as Dementia Training Australia, Aged Care Education and Training Incentive and, until recently, Aged Care Nursing Scholarships.

1.4   The role of casemix

One of the main objections to the introduction of standardised staffing levels in residential aged care in Australia is that it is a 'blunt' instrument and does not take into account the heterogeneity of the residential aged care population or the service delivery context. One reason for this is that the current funding system - the Aged Care Funding Instrument (ACFI) - is an additive model and not a casemix model. It therefore does not allow for casemix adjustment. A casemix (literally, the "mix of cases") classification system provides a mechanism to group care recipients (both health care patients and aged care consumers) with similar levels of complexity and care needs which, in turn, can be used to explain the relationship between care need, activity and cost.

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[3] https://www2.health.vic.gov.au/health-workforce/nursing-and-midwifery/safe-patient-care-act
[4] Announcement by Queensland Premier as reported by the Queensland Nurses & Midwives' Union, available at https://www.qnmu.org.au/QNMU/PUBLIC/MEDIA_AND_PUBLICATIONS/News_items/2019/Ratios_nursing_homes_190719.aspx

The International Council of Nurses' position statement on nurse staffing levels recommends that 'decisions must be evidence-based and supported by information systems based on reliable real-time data, agreed metrics, benchmarking and best practice' and it recommends the use of outcome measures to underpin decision-making about safe and effective staffing practices (International Council of Nurses 2018).

Where staff ratios have been implemented internationally, the aged care system has been funded using a casemix model that classifies residents according to their clinical need and associated resource utilisation and that is adjusted for contextual factors.

The absence of a casemix adjusted funding model in aged care in Australia to date means there is currently no objective mechanism to identify the most appropriate staffing levels for different client cohorts, or to adjust for regional differences that may impact on staffing availability. This was confirmed by the ACFI review undertaken by AHSRI in 2017, which concluded it 'does not adequately focus on what drives the need for care (or) satisfactorily discriminate between residents based on their care needs' and was 'no longer fit for purpose' (McNamee et al. 2019).

1.5 Recent developments

The 2016 revelations of abuse and neglect at Oakden Older Persons Mental Health Service in South Australia have served as a catalyst for renewed attention on the protection of vulnerable older people living in residential aged care. The Oakden review recommended a series of reforms including changes to the model of care, staffing, clinical governance, organisational culture and clinical practice (Groves et al. 2017).

The subsequent inquiry into Oakden noted that, while approval of providers for Commonwealth subsidies is largely dependent on the Department of Health examining their financial management records, governance, structure and staffing, in practice emphasis has been more on financial and governance aspects (Carnell & Patterson 2017, p. 9). This was reflected in its recommendations which focused on regulatory changes. These included the establishment of an integrated safety and quality regulator; improved accreditation, compliance monitoring and complaints handling processes; and transparency of comparative information about quality to enhance consumer empowerment. Despite the considerable focus within the submissions received regarding the need for mandated and/or appropriate staffing levels, the inquiry did not include any workforce recommendations, rather noting this was being considered within the context of the workforce taskforce announced concurrently during this period.

Determining the appropriate level of staffing for aged care residents has continued to be explored through a number of parliamentary and government reviews in recent years, yet an agreed solution remains elusive. As recently as 2017 the Senate Community Affairs Reference Committee Inquiry into the Future of Australia's Aged Care Sector Workforce recommended that aged care providers publish their staff ratios (Senate Senate Community Affairs References Committee 2017 Rec. 10). However, the Legislated Review of Aged Care that same year concluded that 'ensuring the right staffing mix to deliver quality in residential care homes is not best achieved' through mandated staffing ratios (Tune 2017, p. 188). This was also echoed by

the Aged Care Workforce Strategy Taskforce (Aged Care Workforce Strategy Taskforce 2018, p. 48).

In the same year, the Australian Law Reform Commission (ALRC) Inquiry into Elder Abuse recommended that the Department of Health 'commission an independent evaluation of research on optimal staffing models and levels in aged care'. Furthermore, it recommended that 'the results should be made public and used to assess the adequacy of staffing in residential aged care against legislative standards' (Australian Law Reform Commission 2017 Rec 4-7).

More recently, the *Aged Care Amendment (Staffing Ratio Disclosure) Bill* 2018 (Cth) was introduced to the Australian Parliament requiring aged care providers to publish staff ratios on a quarterly basis. The Bill was referred to the House of Representatives Standing Committee on Health, Aged Care and Sport which was undertaking an Inquiry into the Quality of Care in Residential Aged Care Facilities at the time. The Inquiry noted that 'implementing a mandatory minimum level of staffing and/or skill mix may help to ensure quality and safety across the aged care sector' and recommended 'a minimum of one Registered Nurse to be on site at all times' (House of Representatives Standing Committee on Health Aged Care and Sport 2018b Rec 4). It also recommended that the Bill be passed by the Parliament, with the staff ratio information being published 'in a form that allows consumers to consider resident acuity levels when comparing facilities' (House of Representatives Standing Committee on Health Aged Care and Sport 2018a Recs 1 and 2). However, the Bill lapsed following the dissolution of Parliament in April 2019.

In October 2018 the Australian Government established the Royal Commission to inquire into quality of care and safety within aged care services. This was in response to an increasing number of reports regarding neglect and abuse of older people within aged care services, particularly residential aged care. A continuing refrain from consumers and their families, staff and providers, as well as unions, has been the impact of resource constraints on the provision of quality care, in particular the reduced number of qualified nursing staff in the sector. This, it is argued, directly compromises the ability of the sector to provide quality care.

2   Methods

2.1   Search strategies

This report draws on the findings of a targeted international and national search of literature and relevant websites regarding staffing models for residential aged care. The main source was the practice literature, including documents found from searches of government departments and non-government organisations and peak bodies. Other supplementary searches were also undertaken, including 'snowballing', a technique using the links in websites and pursuing the references in articles and documents to further search for relevant literature. These searches resulted in the identification of some relevant academic literature which was included in the review.

The search was limited to countries that had similar social and health care contexts to Australia to allow for comparability. In the main, this was limited to English-speaking countries or where resources were available in English; the exception was Germany due to a team member being fluent in German. In addition, we reviewed those Australian jurisdictions which were known to have in place, or planned, staffing standards for public sector residential aged care services.

2.2   Data sources

The data used to compare staffing models is a sample of Australian aged care homes included in RUCS Study Two, which involved an analysis of structural and individual costs (McNamee et al. 2019). RUCS Study Two used a stratified sample of facilities to ensure that Australian facility characteristics were well represented. Stratification was based on state, facility size (number of approved beds), ownership type and location (Australian Standard Geographical Classification - Remoteness Area, ASGC-RA).

For the purposes of this study, services that were located at the same physical location were considered one facility. Public facilities were considered in-scope for this analysis.

To estimate the potential impact of any staffing level changes, the whole stratified sample was used to estimate nationally representative results. Population estimates were calculated as weighted averages, with the weights based on the relative frequencies in various strata defined by state, size of facility, geographical location (measured by aggregated Modified Monash Model classes) and ownership.

In the results presented below, all international staffing level requirements are expressed in minutes per resident day reported in order to improve readability and facilitate comparisons across jurisdictions.

Data relating to the facility profile, costs, occupied bed days and staffing hours were collected for the 2016-2017 financial year. The chartered accountancy firm StewartBrown was involved in compiling the data and providing data quality checks. The data were further checked within AHSRI for outliers and inconsistencies.

Analysis of the different staffing models considered within this review has involved mapping staff roles and work categories of the RUCS Study Two data to international definitions. Where

international standards are limited to direct hours of staff contact, the Administration and Quality and Education roles and the 'Other hours' work hours categories were excluded.

Within RUCS, staff roles included:

- Care Management – can include Director/Deputy Director of Nursing, Facility/Clinical Manager
- Registered nurses
- Enrolled and licensed nurses
- Other: unlicensed nurses, personal care
- Allied health professionals
- Administration and Quality and Education

Work hour categories in RUCS included:

- Normal hours
- Overtime hours
- Other hours (e.g. training, leave)
- Agency hours

3   International Review

3.1   Review findings

This international review was conducted to identify potential frameworks that could be applied to the Australian residential aged care context. In particular, the review considered whether nursing staff levels were (1) mandated as minimum levels or staff-to-resident ratios or (2) expressed as 'appropriate' levels of staffing. The initial review identified twelve potential frameworks for consideration. Following further consideration, a total of five were included in the analysis (Table 2).

Table 2   Summary of review findings

Country - Province/State/Sector	Staffing standard	Inclusion in this analysis
United States (US) – Medicare/Medicaid	Appropriate	Yes
Canada – National	Minimum	No
– Provinces:		
- British Columbia	Minimum	Yes
- Alberta	Minimum	No
- Ontario	Minimum	No
United Kingdom (UK) – national	Minimum	No
– countries:		
- England	Minimum	No
- Northern Ireland	Minimum	No
Germany – national	Minimum	Yes
Japan	Minimum	No
Netherlands	Appropriate	No
New Zealand	Minimum	No
Australia – States		
- Victoria	Minimum	Yes
- Queensland	Minimum *(proposed)*	Yes

3.1.1   International frameworks

A wide range of approaches to the provision of long term care exists internationally.[5] Staffing requirements vary from facilities needing to provide 'appropriate' staffing to meet resident care needs, through to comprehensive, evidence based systems.

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[5] The OECD defines long-term care institutions (nursing and residential facilities) as those that 'provide accommodation and long-term care as a package' to people with moderate to severe functional restrictions, with the predominant service being long-term care (Organisation for Economic Co-operation and Development 2019, p. 2).

Three international frameworks were found to have potential for national application - the USA, Germany and the province of British Columbia in Canada. The care needs of residents in these countries are considered to be comparable to Australia. As is the case in Australia, the significant majority of frail older people in the USA, Germany and Canada live at home with only those unable to live at home now routinely entering residential care. Like Australia, this is resulting in an increasingly frail residential population who have significant functional, cognitive, behavioural and end of life care needs.

Descriptions of the requirements and funding arrangements and more detailed analysis and modelling against Australian standards can be found in Sections 4.1, 4.2 and 4.3.

3.1.2 Australian frameworks

Following the 'ageing in place' reforms of 2014 (Australian Government Department of Social Services 2014), there has been no mandated requirement regarding staffing levels within Australian aged care homes.

However, while not defined in a way that can be operationalised and measured systematically, the Aged Care Quality Standards require all aged care services to have 'a workforce that is sufficient, and is skilled and qualified, to provide safe, respectful and quality care and services' (Australian Government Department of Health 2019).

Minimum standards are in place for Victorian public sector residential aged care services and have been proposed for implementation in Queensland. These are discussed in more detail in Sections 4.4.1 and 4.4.2.

3.1.3 Exclusions from further analysis

While Australia removed the distinction between high and low care in residential aged care in 2014, this model is still in place in many other jurisdictions, including New Zealand and the UK. This makes staffing comparisons with Australia problematic, as the requirements around staffing differ depending on the category of care. Facilities that provide higher level care are broadly defined as those that provide registered nursing level care onsite.

In New Zealand the level of resident care need is assessed using the interRAI system, and the resident is placed accordingly into an appropriate type of care. District Health Boards are responsible for contracting providers, and different staffing requirements are detailed for 'rest homes' (low level care) and 'hospitals' (high level), including specifying the minimum number of staff and the responsibilities of the RNs (Central Region's Technical Advisory Services Limited [TAS] 2019). Standards New Zealand has published suggested amounts of time each resident should receive from care staff and RNS. It has set a guideline of a minimum of 1.14 to 2.00 hours per resident day for high level care (New Zealand Human Rights Commission 2012). This is higher than required in the provider services agreement, but compliance with this standard is entirely voluntary.

Similarly to New Zealand, the United Kingdom provides two levels of residential aged care in 'residential care homes', and 'nursing homes' (National Health Service 2019). Beyond the minimal requirements for RNs, staffing standards are not consistent across the countries.

In England the Care Quality Commission regulates and monitors care providers, including residential aged care. It publicly reports inspection ratings (outstanding, good, requires improvement, or inadequate) based on five key questions (around safety, effectiveness, caring, responsiveness to needs and leadership), as well as a total rating (Care Quality Commission 2019). Staffing is addressed in the standards, but there are no specified minimum levels.

In contrast, Northern Ireland has mandated staffing standards for both nursing homes and residential care homes, which are regulated by the Regulation and Quality Improvement Authority. While the staff numbers for nursing homes are to be 'appropriate for care', a skill mix of at least 35% RNs is required as an average over 24 hours. For residential care homes, the number and ratio of staff to residents is calculated according to a method used by the regulatory body (Department of Health Social Services and Public Safety 2011; Department of Health Social Services and Public Safety 2015). Compliance to staffing requirements is assessed as part of regular facility inspections, which are reported publicly.

Aged care homes in the Netherlands have been regulated under the Long-term Care Act (Wlz) since 2015, with funding managed by local municipalities. A quality framework was introduced that same year to respond to the increasing severity and complexity of resident care needs (Kelders & de Vaan 2018, p. 9). It includes five indicators regarding staff composition, including type of appointment, qualifications, sickness absence, inflow, throughflow and outflow and a ratio of personnel costs (Netherlands Healthcare Institute 2018). There are no mandated ratios for nursing staff, although homes are required to report annually on staffing costs (including overtime) in relation to the number of resident days. Results are published annually in the Long Term Care Monitor which is collated by Statistics Netherlands (Centraal Bureau voor de Statistiek, CBS) on behalf of the Ministry of Health, Welfare and Sport including statistics on six themes: 'population, indication, use (including the relation between indication and use), accessibility, expenditure & volume and contribution.' Information is provided in terms of outputs and access, but not outcomes or quality of care.

Two Canadian provinces were also reviewed but not included in the modelling. Long-term facilities in the province of Alberta are required to have a minimum staffing level of 'at least' two staff members on site at all times, one of whom must be an RN. Each resident is expected to receive an average 'of at least' 114 minutes (1.9 hours) of paid care per day, of which at least 22% (25 minutes) is to be provided by an RN (Nursing Homes Operation Regulation 2017). Alberta Health Services has implemented a Patient/Care-based Funding tool using the RUG-III classification to casemix adjust the funding provided for a resident based on their relative acuity and care needs. On average the facilities have been funded for 216 minutes (3.60 hours) paid care per resident day, with an additional 0.40 paid for allied health and recreational care provision, being well beyond the mandated requirement (Auditor General of Alberta 2014).

Ontario provides a high level of care (24 hour nursing and personal care) in all long-term care facilities. The government flagged a commitment to increase the provincial average of direct care per resident day (nursing and personal care staff) to four hours in 2017 (Government of Ontario 2017). However, while there have been calls to have this legislated as a minimum care standard, there are currently no mandated requirements beyond having at least one RN on duty and present in the facility at all times (Registered Nurses' Association of Ontario 2018).

Japan has mandated minimum staff ratios, with universal coverage for long-term care funded through a Long-Term Insurance program introduced in 2000. The program is managed by individual municipalities, with eligibility for entry assessed by a uniform needs assessment process across the country (OECD/European Commission 2013b). There is a national minimum staff ratio of 1:3 (nursing and care workers) mandated for all providers (Annear et al. 2016).

4 Modelling international and national frameworks

This chapter of the report uses the Australian RUCS data to model the impact of applying international aged care staffing rules to the Australian context. Countries covered by this chapter include USA, Canada and Germany.

In addition to this, the Australian data were also used to model the national impact of applying the Victorian Government legislation (Anguish et al. 2015) and the recently announced Queensland Government minimum nurse-to-resident ratios in state-owned nursing homes (Queensland Health 2016a).[6]

4.1 United States of America

The CMS *Nursing Home Compare* system is currently used to rate more than 15,000 nursing homes certified by Medicare and Medicaid. The purpose of this system is to provide an easy way to assess nursing home quality and make meaningful distinctions between high and low performing nursing homes (Centers for Medicare and Medicaid Services 2019). Facilities are rated between one to five stars across three domains: health inspections, staffing, and quality measures. Each domain has its own ratings and these are presented individually, as well as providing an overall rating which equates to a number of stars. Ratings for every home are publicly reported in the CMS Nursing Home Compare website.

The staffing domain uses casemix adjusted staffing levels to determine the star rating. This is done to account for the fact that the complexity profile of residents may differ between facilities.

The staffing domain consists of two dimensions:

(i)   Registered nurse (RN) time per resident day (50% weighting) and

(ii)   Total nursing time per resident day (50% weighting).

The reporting system captures direct care staff who are defined as 'those individuals who, through interpersonal contact with residents or resident care management, provide care and services to allow residents to attain or maintain the highest practicable physical, mental, and psychosocial well-being'.[7] This includes the following staff designations:

- RN Director of nursing

- RN with administrative duties

- RN

- Licensed practical/licensed vocational nurses (LPN/LVN) with administrative duties

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[6] Announcement by Queensland Premier as reported by the Queensland Nurses & Midwives' Union, available at https://www.qnmu.org.au/QNMU/PUBLIC/MEDIA_AND_PUBLICATIONS/News_items/2019/Ratios_nursing_homes_190719.aspx

[7] Electronic Staffing Data Submission Payroll-Based Journal (PBJ) Frequently Asked Questions, https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/NursingHomeQualityInits/Downloads/PBJ-Policy-Manual-FAQ-11-19-2018.pdf

- LPN/LVN
- Certified nurse aides
- Aides in training and
- Medication aides/technicians.

Assessment of RN time per resident day includes only the RN Director of nursing, RN with administrative duties and RN categories. The Total Nursing Time rating includes all of these categories and is equivalent to the RN, EN and Personal Care Assistant roles in Australia. Other staff, e.g. clerical, housekeeping and allied health are excluded.

Staff times are reported on a quarterly basis through extracts from the Payroll-Based Journal (PBJ) System. Only direct care staff time, reported as 'paid for services performed onsite for the residents of the facility,' is included in the calculation. Nursing homes also provide daily resident census data against which the staff times are compared.

The CMS staffing star rating system combines staff and resident profile data to calculate casemix adjusted staffing levels for each facility. The casemix adjustment accounts for differences in the resident mix across facilities. The use of casemix adjusted staffing levels creates a level playing field so that facilities can be fairly compared against each other.

Together with data from the CMS Staff Time Resource Intensity Verification (STRIVE) Study, the RUG-IV casemix classification is used to casemix adjust staffing levels. The STRIVE data includes detailed staff time requirements for each RUG-IV class and is used to estimate the daily staffing requirements by staff type given a nursing home's resident mix ("casemix hours").

A facility's casemix adjusted hours are calculated as the ratio between the hours reported (through the PBJ system) and the casemix hours (derived from STRIVE study) multiplied by the national average hours.

*Casemix-adjusted hours = (Hours reported / Casemix hours) * National Average Hours*

Both RN time and total staff time are rated separately between 1 and 5 stars and cut-off points are regularly updated (Centers for Medicare and Medicaid Services 2019). The star ratings are based on the casemix adjusted time per resident day. The cut points as at April 2019 are shown in Table 3.

Table 3   CMS staff cut points: minutes per resident day

Staff type	1 star	2 stars	3 stars	4 stars	5 stars
RN	< 19	19 – 30	30 – 44	44 – 63	≥ 63
Total	< 186	186 – 215	215 – 242	242 – 264	≥ 264

Note: Adaption of Table 3 in CMS 2019. Times expressed in portions of hours have been converted and rounded to full minutes.

The combined staffing rating is determined using both RN and Total Nurse[8] ratings (Table 4). The combined staff rating is the average between the RN and Total Nurse rating with more weight for the RN rating, i.e. the combined rating is 'rounded towards' the RN rating when necessary. For example, a facility with a RN rating of 3 and a Total Nurse rating of 2 would be given a combined rating of 3 (3+2=2.5 then rounded up to the RN rating).

As seen in Table 4, there are various combinations that result in the same overall star rating. This allows homes some flexibility around their specific skill mix.

Table 4   CMS Staff levels and Rating

RN rating and minutes		Total nurse staffing rating and minutes (RN, LPN and nurse aide*)				
		1	**2**	**3**	**4**	**5**
		< 186	186 - 215	215 - 242	242 - 264	≥ 264
1	< 19	★	★	★★	★★	★★★
2	19 – 30	★★	★★	★★	★★★	★★★
3	30 – 44	★★	★★★	★★★	★★★	★★★★
4	44 – 63	★★★	★★★	★★★★	★★★★	★★★★
5	≥ 63	★★★	★★★★	★★★★	★★★★★	★★★★★

Note: Adaption of Table 4 in CMS 2019. Times expressed in portions of hours have been converted and rounded to full minutes.
*nurse aide role equivalent to Australian Personal Care Assistant

4.1.1   Modelling Approach

The CMS staffing domain relies on routinely collected data that facilities submit quarterly. Since the measures used by the CMS staffing star rating are daily rates, it is assumed that the financial year data collected for RUCS Study Two can be used in the same way as the quarterly CMS data.

To apply the CMS methodology to the Australian data, Australian staff roles were mapped to CMS job codes (Table 5). Allied health, lifestyle personnel, administration officers and staff employed in quality and education roles are not included in the analysis since they are not used by the CMS system.

Table 5   Australian staffing roles and CMS staffing star rating

	RN rating	Total Nurse rating
Staff roles		
Care management	✓	✓
Registered nurses	✓	✓
Enrolled & licensed nurses	✗	✓
Other unlicensed nurses/personal care staff	✗	✓
Allied health professionals	✗	✗
Administration	✗	✗

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[8] As noted, the term Total Nurse includes RNs, ENs and Personal Care Assistants.

	RN rating	Total Nurse rating
Quality and Education	✗	✗
Work hour categories		
Normal hours	✓	✓
Overtime hours	✓	✓
Other hours (e.g. training, leave)	✗	✗
Agency hours	✓	✓

Evidence from RUCS Study One indicates that, for the purpose of this analysis, it is reasonable to assume that the average casemix across all facilities in RUCS Study Two is similar to the Australian average casemix. RUCS Study One facilities that specialised in homelessness had lower casemix indices when compared to other facilities (n=3). These facilities were excluded so as to not skew the analysis.

It should be noted that CMS excludes facilities from public reporting for the current quarter if staffing levels are deemed "highly improbable", i.e. either too low or too high. Because the CMS public reporting relies on routinely collected data it makes sense to apply such rules. In contrast, the Australian data used for this report are not routinely collected. Instead, the data reported in this study were specifically collected for Study Two of RUCS (McNamee et al. 2019) and the data underwent several data cleaning and data checking steps before being used for analysis. Because of this, we are confident that the Australian data used for this report are accurate.

4.1.2   Results

Data from 88 facilities was included in the analysis. Weightings were used to derive population estimates representative of the distribution of residents across all facilities in Australia.

Applying the CMS staffing methodology to the Australian data showed that 57.6% of residents receive care in facilities rated 2 stars or less. In comparison, 44.0% of residents in the USA are in facilities with 2 stars or less (see Figure 1). On the other hand, 27.1% of US residents are in facilities with 4 stars or higher while only 15.5% of residents in Australia receive care rated at this level.

Figure 1 **Comparison of CMS star rating for staffing domain (combined rating)**

	1 star	2 stars	3 stars	4 stars	5 stars
Australia	11.9%	45.7%	27.0%	14.1%	1.4%
USA	17.0%	27.0%	28.9%	19.7%	7.4%
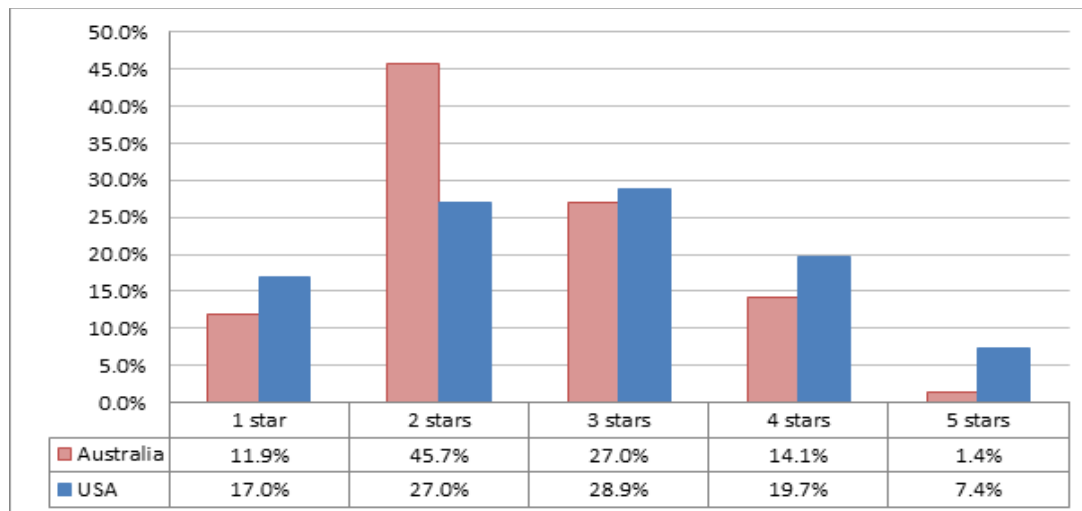
Notes: CMS resident data were obtained from https://data.medicare.gov/data/nursing-home-compare.

Figure 2 compares Australia and the USA on RN time. It can be observed that in Australia the proportion of residents in facilities with RN staff levels of 3 or 4 stars is much higher than in the USA, and the proportions with 1 star or 5 stars are much lower. Overall, 37.8% of Australian residents receive care in facilities with RN staff levels of 2 stars or less, compared to 45.6% of residents in the USA. Around 30% residents – both in the USA and in Australia – are in facilities with RN rating 4 stars or higher. But only 1.4% of Australian residents are in facilities rated 5 star for RN staffing.

Figure 2 **Comparison of CMS star rating for staffing domain (RN rating)**

	1 star	2 stars	3 stars	4 stars	5 stars
Australia	12.7%	25.1%	31.1%	29.7%	1.4%
USA	20.8%	25.8%	24.8%	18.3%	10.4%
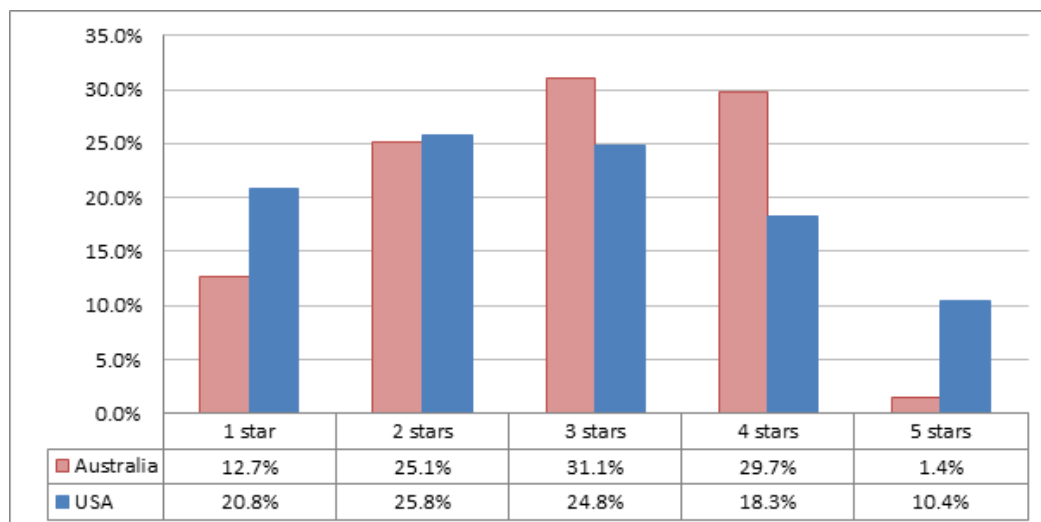
Note: CMS resident data was obtained from https://data.medicare.gov/data/nursing-home-compare .

Table 6 provides a more detailed view of staffing levels in Australia. When considering the two axes together, it can be seen that RN ratings (row totals) are much higher than total staffing ratings (column totals). While 85.9% of residents are in facilities with RN staffing rated 2 stars to 4 stars, only 23.3% of residents are in facilities with total staffing levels rated 2 to 4 stars.

Table 6   Distribution of Australian residents of CMS star rating for staffing domain

RN rating and minutes		Total nurse staffing rating and minutes					Total		
		1 star	2 stars	3 stars	4 stars	5 stars	Total		
		< 186	186 - 215	215 - 242	242 - 264	≥ 264			
1 star	< 19	11.9%	0.0%	0.8%	0.0%	0.0%	12.7%	🟥	1 star
2 stars	19 - 30	23.6%	0.3%	0.0%	1.1%	0.1%	25.1%	🟧	2 stars
3 stars	30 - 44	20.9%	7.0%	0.9%	0.0%	2.3%	31.1%	🟨	3 stars
4 stars	44 - 63	16.5%	1.4%	4.1%	7.7%	0.0%	29.7%	🟩	4 stars
5 stars	≥ 63	0.0%	0.0%	0.0%	0.0%	1.4%	1.4%	🟢	5 stars
Total		72.9%	8.7%	5.8%	8.8%	3.8%	100.0%		

On average, each Australian resident receives 180 minutes of care per day, of which 36 minutes are provided by RNs. This corresponds to a 1 star level for all care staff (6 minutes below the threshold for 2 stars) and a 3 stars level for RN staff (Table 3). The average Australian combined star rating is 2 stars. This can be seen by use of the data in Table 4.

To increase the staffing levels in all facilities that have 1 or 2 stars to the minimum cut-point of 3-stars,[9] total staffing levels in those facilities would need to increase by 59 minutes (37.3%) including 6 minutes of RN time (23.1%). The average additional staffing time required for all facilities with 3 stars or lower to achieve 4 stars is 78 minutes (47.0%) in total including 14 minutes (43.8%) of RN time.

Table 7   Average increase in staff time per resident day required to improve rating

Current combined CMS star rating		New combined CMS star rating					
		3 stars		4 stars		5 stars	
		RN	Total	RN	Total	RN	Total
1-star	Minutes	19	79	32	106	51	128
	Increase in %	158.3	57.7	266.7	77.4	425.0	93.4
2-stars	Minutes	3	57	15	84	34	106
	Increase in %	10.3	35.8	51.7	52.8	117.2	66.7
3-stars	Minutes			5	51	20	73
	Increase in %			11.6	26.2	46.5	37.4
4-stars	Minutes					11	21
	Increase in %					21.2	7.9
5-stars	Minutes						
	Increase in %						
All facilities requiring improvement	Minutes	6	59	14	78	28	90
	Increase in %	23.1	37.3	43.8	47.0	80.0	50.6

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[9] This calculation assumes an increase in staffing levels so that RN rating and total staff rating both achieve the minimum requirements for a 3 star rating. It should be noted that there are several combinations that allow a facility to achieve a combined rating of 3 stars. These are shown in Table 4.

Similarly, the average staffing increase required for facilities currently not meeting minimum requirements for 5 stars is 90 minutes (50.6%) in total including 28 minutes (80.0%) of RN time. Table 7 above provides further detail on the required staffing increases.

As a consequence of the staff increases in the lower rated facilities, the national average care time would also increase. This is shown in Table 8. For example, increasing all residential aged care facilities to be at least at 3-star would lead to an increase of the national average by 36 minutes per resident day, 4 minutes of which would have to be provided by RNs. This is equivalent to a 20.0% average increase in total care time across all facilities.

Table 8   Care time shift as result of improvements of care in lower rated facilities

	Current average care per resident day		3 stars Additional time		4 stars Additional time		5 stars Additional time	
	RN	Total	RN	Total	RN	Total	RN	Total
Minutes	36	180	4	36	11	67	28	89
Increase in %			11.1	20.0	30.6	37.2	77.8	49.4

4.2   Canada – British Columbia

Residential aged care in Canada is governed by provincial and territorial legislation, which varies in governance and funding arrangements, the level and type of care that is provided, and also what the facilities are called (includes nursing homes, long-term care homes, personal care homes and residential care). In general, people in residential care require full time supervised care, including professional health services, personal care and hotel services. Care is provided by the public, private for-profit and non-profit sectors. Most Canadian provinces use the interRAI suite of tools to collect resident assessment data.

With an absence of national staffing requirements, a range of different approaches are in place across the country. Generally there is a minimum requirement for an RN to be on duty or on call across the provinces (Harrington et al. 2012).

This section of the report discusses the application of the rating frameworks used within the province of British Columbia. The review also considered the provinces of Alberta and Ontario, but these were excluded from further modelling (see Section 3.1.3).

In British Columbia there are mixed requirements regarding staffing in long-term care. While the legislation only requires facilities to have 'appropriate' levels of staffing, a target of an 'average' 202 minutes (3.36 hours) of direct care per resident day was introduced by the Ministry of Health in 2009 as part of a staffing framework. The framework included detailed guidelines for the staffing levels by shift according to the number of beds, as well as skill mix requirement for the care time provided (British Columbia Ministry of Health 2017, pp. 40-1).

A 2017 review found that no health authority had achieved this target, despite additional funding having been provided (British Columbia Ministry of Health 2017, p. 5). The Ministry recently committed to investing funds so that each health authority could achieve the average direct care hours target by 2021 (Office of the Premier 2018).

4.2.1 Modelling Approach

The Ministry recommends an average of 3.36 hours of direct care worked hours per resident day per health authority. We have assumed that each facility within a health authority will aim to achieve this recommendation and therefore have applied the recommendation to individual facilities rather than using a grouped average.

We assume that to reach the recommended target of direct care per resident day, facilities must also achieve the nursing care and allied health care minimum hours per resident day. Achieving 3.36 hours per resident day in itself is not sufficient to achieve the target. Facilities must also achieve the minimum requirements by staffing type.

The recommendation specifies that the 3.36 hours of direct care worked hours per resident day is made up of 3.0 hours (or 180 minutes) of nursing care (delivered by registered nurses, licensed practical nurses and care aides), and 0.36 hours (or 22 minutes) of allied health care (including physiotherapists, occupational therapists, activity workers and others).
Table 9 provides a mapping of the Australian staffing roles to the nursing care and allied health care roles as specified by the British Columbian recommendations. The recommendation specifies direct care hours worked. Training and leave hours are not included.

Table 9   Australian staffing roles mapped to British Columbian aged care roles

	Nursing Care	Allied Health Care
Staff roles		
Care Management	✓	✗
Registered nurses	✓	✗
Enrolled & licensed nurses	✓	✗
Other unlicensed nurses/personal care staff	✓	✗
Allied health professionals	✗	✓
Administration	✗	✗
Quality and Education	✗	✗
Work hour categories		
Normal hours	✓	✓
Overtime hours	✓	✓
Other hours (e.g. training, leave)	✗	✗
Agency hours	✓	✓

4.2.2 Results

Australian residents on average receive 180 minutes of nursing care per day. This means that, overall, Australia achieves the British Columbian recommended minimum amount of nursing care. At the resident level however, only 31% of residents receive the recommended amount (Figure 3).

Figure 3　　**Australian residents whose care achieves British Columbian recommendations**

	At least 180 mins of nursing care per resident day	At least 22 mins of allied health care per resident day	Both recommendations
■ Achieved	31%	2%	2%
■ Not achieved	69%	98%	98%
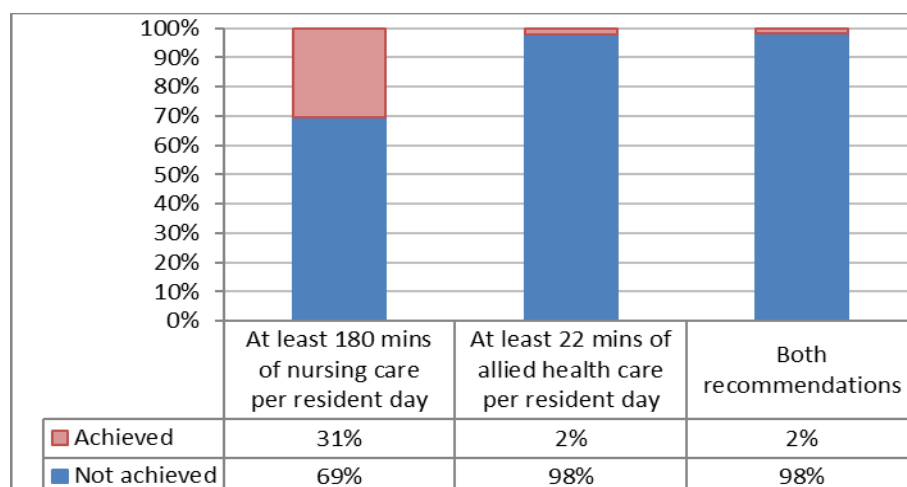
In relation to allied health, Australian residents receive an average of 8 minutes of allied health care per resident day. The British Columbian recommended amount is 22 minutes. Only 2% of Australian residents receive the allied health care recommendation (Figure 3).

The results of the analysis indicate that, to increase the staffing levels in the 98% of facilities that currently do not meet one or both of the British Columbian recommendations, nursing staff would need to increase by 17 minutes per resident day (9.6%), and allied health time would need to increase by 14 minutes per resident day (175.0%) (Table 10).

Table 10　　**Average increase in staff time per resident day to meet British Columbian requirements**

		Additional time	
		Nursing staff	Allied health
All facilities requiring improvement	**Minutes**	17	14
	Increase in %	9.6	175.0

Since only 2% of Australian residents receive the British Columbian recommendations, there is only a small difference between the increase at the facility level and the national level. The national average would increase by 17 minutes per resident day (9.4%) and allied health care would increase by 13 minutes per resident day (162.5%) (Table 11).

Table 11　　**Overall care time shift as result of improvements to meet British Columbian requirements**

	Current average care per resident day		Additional time	
	Total (excl. AH)	Allied health	Total (excl. AH)	Allied health
Minutes	180	8	17	13
Increase in %			9.4	162.5

4.3　Germany

Long-term care in Germany is funded by social health insurance as well as private insurance. Similar to Australia, there are two alternatives for receiving long-term care, either in the

community or in residential aged care. A national setting-independent classification system is used to determine care needs. However, the funding levels are setting-dependent.

Until 2017, there were three levels of care which determined the number of minutes of assistance and basic daily care needs. The classification was changed in 2017 and residents are now allocated to one of five care grades based on their degree of independence measured across six weighted modules (including physical, mental and psychological disabilities), with funding allocated accordingly (Bäcker 2016).

There are no nationally regulated standards for staffing in Germany. As part of the ongoing reform of long-term care, the University of Bremen was commissioned to develop "a scientifically founded procedure for standard personnel planning in long-term care" (SOCIUM Research Center on Inequality and Social Policy n.d.). The German government is also addressing staffing levels in long term care through new legislation passed in 2018, which will provide for an additional 13,000 nursing staff to be employed in facilities from January 2019 (Gerlinger 2018), to be mainly funded through an alternate insurance scheme.

In the absence of national staffing standards there are regulations in each of the 16 states, effectively mandating certain staffing levels. These staffing regulations are based on the resident mix as measured by the five care grades. Most states require that qualified nurses ('Pflegefachkraft') are 50% of the care staff (Harrington et al. 2012).

As part of the ongoing research, the University of Bremen has published a number of reports relevant for this project. Rothgang and Wagner have provided a compilation of the mandated staffing levels of all States (Rothgang & Wagner 2019). They have also calculated a weighted national average for Germany. Table 12 provides an overview of the care staff requirements by German State after the introduction of the new assessment and funding tool in 2017.

Table 12   Number of residents per care staff FTE

State	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
Baden-Württemberg	5.29	4.13	2.87	2.23	2.02
Bavaria	6.70	3.71	2.60	1.98	1.79
Berlin	7.25	3.90	2.80	2.20	1.80
Brandenburg	4.21	3.28	2.89	2.25	1.76
Bremen	6.27	4.89	2.98	2.12	1.88
Hamburg	13.40	4.60	2.80	1.99	1.77
Hesse	5.57	3.90	2.60	2.05	1.86
Mecklenburg Western Pomerania	5.20	4.12	3.11	2.47	2.25
Lower Saxony	6.50	4.29	3.00	2.25	2.05
North Rhine-Westphalia	8.00	4.66	3.05	2.24	2.00
Rhineland Palatinate	8.60	4.24	3.40	2.65	1.80
Saarland	2.87	2.87	2.87	2.87	2.87
Saxony	8.00	4.40	2.80	2.10	2.00
Saxony-Anhalt		4.09	3.02	2.36	1.96

State	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
Schleswig Holstein	6.34	4.94	3.64	2.84	2.56
Thuringia	2.60	2.60	2.60	2.60	2.60
Germany (weighted average)	6.90	4.14	2.91	2.24	1.99

Note: Own compilation of information provided from (Rothgang & Wagner 2019)

In a separate article Rothgang and colleagues provide some insights into the preliminary findings of their research. They expect the new staffing levels to require a significantly higher number of 'care assistants' and a small increase in 'qualified nurses' compared to current staffing levels. As a consequence they envisage a change in the role that 'qualified nurses' have in aged care (Rothgang et al. 2020). In summary, even though Germany may soon move to a new standard personnel planning tool for long-term care, the current state-based regulations and the aged-care system in general enable a comparison with Australian data.

4.3.1 Modelling Approach

As mentioned above, the staffing level regulations are state-based and take into account the resident mix in each home. The University of Bremen has estimated the required average staffing levels per state, taking into account the state-specific resident mixes. Table 13 provides an overview of these results (Rothgang et al. 2020).

Table 13 Average FTE care staff levels per 100 residents in German states

State	Care staff per 100 residents
Baden-Württemberg	39.53
Bavaria	40.46
Berlin	36.06
Brandenburg	35.49
Bremen	36.22
Hamburg	37.33
Hesse	38.49
Mecklenburg Western Pomerania	34.66
Lower Saxony	35.05
North Rhine-Westphalia	36.69
Rhineland Palatinate	36.05
Saarland	34.84
Saxony	39.24
Saxony-Anhalt	34.46
Schleswig Holstein	38.07
Thuringia	35.34
Germany (weighted average)	**37.42**

Source: Rothgang et al. (2020), more details can be found in Rothgang and Wagner (2019)

For the purpose of this analysis, the German weighted average of 37.42 FTEs of care staff per 100 residents was used. It was assumed that 1 FTE is equivalent to 1,824 hours per year (38 hours per week for 48 weeks), which equates to 1.87 hours (or 112 minutes) of care staff per

resident day. It is required that 50% of care is provided by 'qualified nurses', which equates to 0.93 hours (or 56 minutes) of nursing care per resident day.

Table 14   Australian staffing roles mapped to aged care roles in Germany

	Qualified Nursing Staff	Total care Staff
Staff roles		
Care Management	✓	✓
Registered nurses	✓	✓
Enrolled & licensed nurses	✗	✓
Other unlicensed nurses/personal care staff	✗	✓
Allied health professionals	✗	✗
Administration	✗	✗
Quality and Education	✗	✗
Work hour categories		
Normal hours	✓	✓
Overtime hours	✓	✓
Other hours (e.g. training, leave)	✗	✗
Agency hours	✓	✓

According to German regulations, a qualified nurse ('Pflegefachkraft') is someone who has received at least three years of training in a designated nursing school. In the Australia context, only registered nurses have received similar or higher levels of training. For the purposes of this analysis we have assumed that care managers and RNs are equivalent to German qualified nurses and that total care staff excludes allied health professionals (Table 14).

4.3.2   Results

In total, 93% of Australian residents receive the German requirement of at least 112 minutes of care per resident day (Figure 4). However, only 7% of residents receive the required 56 minutes of care per day from qualified nursing staff.

Figure 4   Proportion of Australian residents whose care meets each German regulation

	At least 112 mins of care per resident day	50% of care provided by a qualified nurse	Both requirements
Achieved	93%	7%	7%
Not achieved	7%	93%	93%
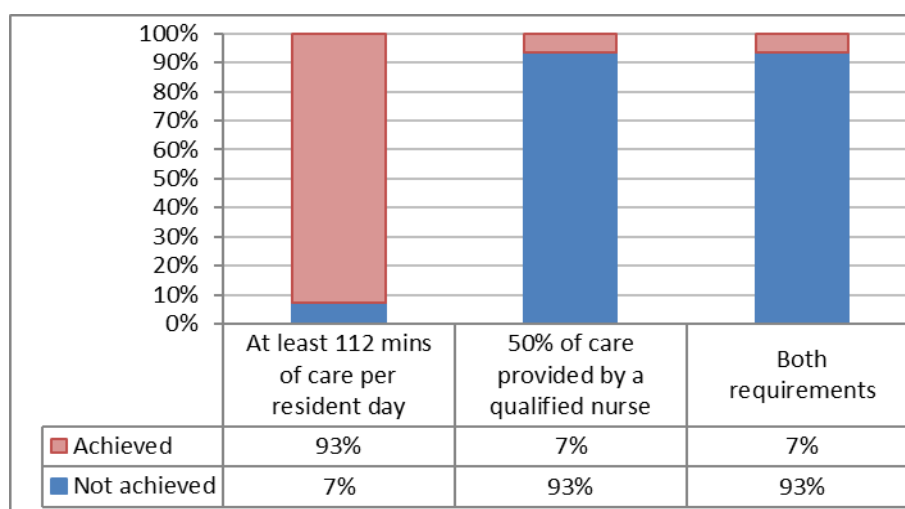
The modelled increase in RN staffing levels is sufficient to increase the overall care staffing levels to a minimum of 112 minutes of care per resident day. For this reason, an increase in RN time is sufficient to achieve both requirements. In the 93% of facilities that do not achieve the German staffing requirements, RN staffing will need to increase by 22 minutes per resident day (or 64.7%) to achieve both German requirements. This would mean an expansion of the care staff workforce by 12.4% (Table 15).

Table 15   Average increase in staff time per resident day to meet German requirements

		Additional time		
		RN	**Other**	**Total**
All facilities requiring improvement	**Minutes**	22	0	22
	Increase in %	64.7	0.0	12.4

As shown in Figure 4, only 7% of residents are currently in facilities that meet the German regulations, which means that the increase in the national average nursing time is similar to the increase at the facility level (shown in Table 16). The results of the analysis indicate that to meet the German regulations, the national average nursing would need to increase by 21 minutes per resident day (58.3%).

Table 16   Overall care time shift as result of meeting the German requirements

	Current average care per resident day			Additional time		
	RN	**Other**	**Total**	**RN**	**Other**	**Total**
Minutes	36	144	180	21	0	21
Increase in %				58.3	0.0	11.7

4.4   Australia

4.4.1   Victoria

The Victorian Government introduced the *Safe Patient Care (Nurse to Patient and Midwife to Patient Ratios) Act* in 2015, strengthening earlier commitments to staff ratios outlined in Enterprise Agreements which had been in place since 2000 (State Government of Victoria - Department of Health 2012).

4.4.1.1   Modelling Approach

The Victorian legislation specifies nursing ratios for 'high care' beds in an aged care 'high care residential ward'. As per the definition in the legislation, a "nurse" means a registered nurse or enrolled nurse. This is mapped to the staff roles of 'Care Management', 'Registered nurses' and 'Enrolled & licensed nurses' (Table 17).

The legislation specifies that there is a 1:7 nurse to resident ratio on the morning shift, a 1:8 ratio on the afternoon shift and a 1:15 ratio on the night shift. The legislation also specifies that there is one nurse in charge during the morning and afternoon shifts.

To calculate the amount of nurse care that a resident receives, the nurse time is distributed between residents based on the legislated ratios. It is assumed that all shifts are 8 hours long.

The nurse in charge is shared by all residents at the facility during the morning and afternoon shifts. The amount of 'in charge' nursing time received by a resident is therefore dependent on the number of residents in each facility.

The nurse ratios per shift are calculated as a minimum requirement. In reality, the required nursing hours will be larger than what was calculated due to handover overlap, and a rounding up effect due to minimum shift lengths.

Table 17   Australian staffing roles mapped to Victorian public aged care roles

	Nurse
Staff roles	
Care Management	✓
Registered nurses	✓
Enrolled & licensed nurses	✓
Other unlicensed nurses/personal care staff	✗
Allied health professionals	✗
Administration	✗
Quality and Education	✗
Work hour categories	
Normal hours	✓
Overtime hours	✓
Other hours (e.g. training, leave)	✗
Agency hours	✓

4.4.1.2   Results

The analysis shows that only 1% of facilities achieve the Victorian nursing hour requirements (Figure 5).

Figure 5   Proportion of Australian facilities whose care meets the Victorian standard

	Nursing Ratios
Achieved	1%
Not achieved	99%
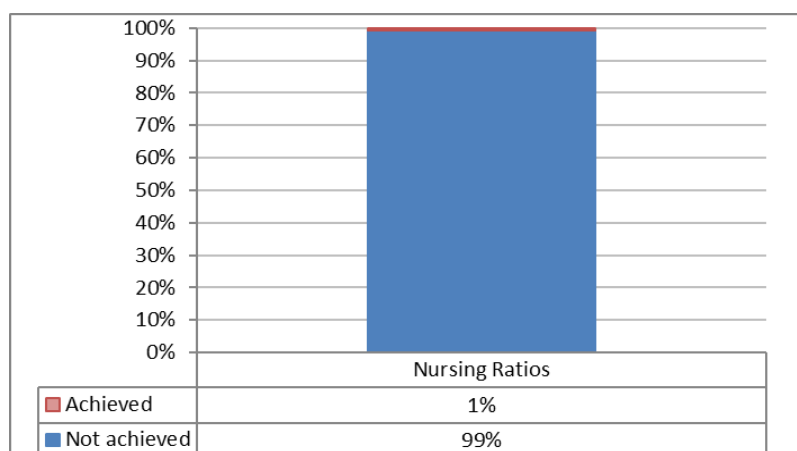
In the 99% of facilities that do not achieve the Victorian legislated nursing requirements, RN and EN staffing will need to increase by 128 minutes per resident day (or a 272.3% increase in nursing) (Table 18).

Table 18   Average increase in staff time per resident day to meet Victorian requirements

		Additional time
		Nursing
All facilities requiring improvement	Minutes	128
	Increase in %	272.3

Since the majority of facilities do not achieve the Victorian legislated nursing requirements, the overall impact on the Australian system is similar to the facility level impact, with an increase in RN and EN nursing of 127 minutes (or a 264.6% increase in nursing) (Table 19).

Table 19   Overall care time shift as result of meeting the Victorian requirements

	Current average care per resident day	Additional time
	Nursing	Nursing
Minutes	48	127
Increase in %		264.6

4.4.2   Queensland

It was recently announced that new legislation will be introduced in Queensland requiring state-owned nursing homes to provide a minimum of 3.65 hours (219 minutes) of nursing care per resident day, of which 30% (66 minutes) are to be provided by RNs, 20% (44 minutes) by ENs and 50% (109 minutes) by AINs.

4.4.2.1   Modelling Approach

To reach the proposed minimum staffing levels care per resident day, facilities must also achieve the RN, EN, and AIN minimum hours per resident day. Achieving 3.65 hrs per resident day in itself is not sufficient to achieve the minimum standard. Facilities must also achieve the minimum requirements by staffing type. Table 20 provides a mapping of the Australian staffing roles to the nursing roles as specified in the proposed legislation in Queensland.

Table 20   Australian staffing roles mapped to Queensland public aged care roles

RUCS Study 2	RNs	ENs	AINs
Staff roles			
Care Management	✓	✗	✗
Registered nurses	✓	✗	✗
Enrolled & licensed nurses	✗	✓	✗
Other unlicensed nurses/personal care staff	✗	✗	✓
Allied health professionals	✗	✗	✗
Administration	✗	✗	✗
Quality and Education	✗	✗	✗
Work hour categories			
Normal hours	✓	✓	✓
Overtime hours	✓	✓	✓

RUCS Study 2	RNs	ENs	AINs
Other hours (e.g. training, leave)	✗	✗	✗
Agency hours	✓	✓	✓

4.4.2.2   Results

The results of the analysis indicate that only 0.2% of Australian facilities meet all of the Queensland staffing requirements. Only 1% of Australian residents receive at least 66 minutes of RN care per resident day and only 3% receive at least 44 minutes of EN care per resident day (Figure 6). In contrast, 68% of residents receive the required 110 minutes of care per day from the staff equivalent of AINs.

Figure 6   Proportion of Australian residents whose care meets the Queensland standard

	At least 66 mins of RNs per resident day	At least 44 mins of ENs per resident day	At least 110 mins of AINs per resident day	All three targets
Achieved	1%	3%	68%	0%
Not achieved	99%	97%	32%	100%
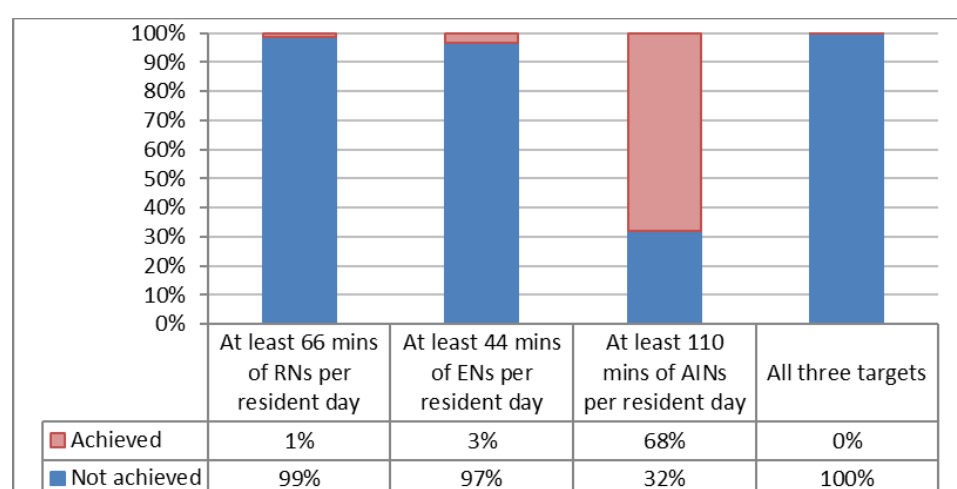
The 99.8% of the Australian facilities not currently achieving the Queensland staffing requirements would require an average increase of 30 minutes of RN care per resident day, 33 minutes of EN care per resident day and 5 minutes of AIN care per resident day. The overall staffing increase needed would be 68 minutes per resident day (or a 37.8% increase) (see Table 21). There is very little difference in the results at the national level due to the large proportion of facilities that do not meet the requirements to begin with (Table 22).

Table 21   Average increase in staff time per resident day to meet Queensland requirements

		Additional time			
		RN	EN	AIN	Total
All facilities requiring improvement	**Minutes**	30	33	5	68
	Increase in %	85.7	275.0	3.4	37.8

Table 22   Care time shift as result of improvements to meet Queensland requirements

	Current average care per resident day				Additional time			
	RN	EN	AIN	Total	RN	EN	AIN	Total
Minutes	36	12	132	180	30	33	5	68
Increase in %					83.3	253.8	3.5	37.8

5   Discussion and conclusion

There are a number of frameworks that are applied to inform staffing levels in residential aged care services internationally. The majority specifically refer to the employment of RNs, given their clinical leadership within the sector. Additionally some include reference to skill mix in terms of nursing, personal care, and allied health.

The purpose of considering staffing levels in aged care is to ensure that the needs of aged care residents are appropriately met. In addition, it provides a degree of accountability and transparency for taxpayers and government as well as to prospective aged care residents (and their families). The expansion of community care services internationally has resulted in aged care homes increasingly providing care and support to residents with much higher and more complex levels of need; at the same time, consumer expectations are rising.

Internationally, the changing clinical profile of residents has not been matched by a commensurate increase in resources, either in terms of dollars or skill mix, due to a number of historical, cultural, workforce and organisational factors. Within Australia this has been too often hampered by a culture that conceptualises residential aged care facilities simply as a person's home. This is because this philosophical approach appears to have become a justification for failing to prioritise clinical governance and care. In turn, this has hampered the development of evidence-based policy development and resourcing.

Furthermore, the Australian ACFI funding model creates incentives to maximise funding through claiming practices and disincentives to provide evidence based care (McNamee et al. 2017). Together, these factors have worked against the development of a credible evidence base regarding the needs of residents in aged care.

The RUCS research undertaken by AHSRI is the first step in the creation of an evidence-based assessment of needs of Australian aged care residents. As such, it provides a useful platform from which to consider appropriate levels and mix of staffing within the sector.

This international review has identified several potential frameworks that could be adapted to make them suitable to the Australian context. There are significant differences between the regulatory, funding and operational environments in which these frameworks are implemented and no one model is directly comparable. We have narrowed our focus to those countries and jurisdictions which have similar operational and funding models, and where we are confident that certain assumptions are met, for example, in respect to client populations and staffing criteria.

The framework that presents the most potential for informing ongoing policy and program development in Australia is the USA CMS Nursing Home Compare five star rating system. In this model, a nursing home receives a 5 star rating if its direct care staffing per resident day is at a level that has been determined as maximising quality outcomes for residents. Residents in care homes that are rated less than 5 stars are at greater risk of reduced quality of care outcomes.

The CMS system has been, and continues to be, well-researched which provides it with a strong evidence base. It is well-established having been in operation for over a decade across a large

number of aged care services. Further, there is strong acceptance within the sector of the system due to its transparency and because it is casemix-adjusted and regularly updated to ensure that ratings are contemporary.

The remaining frameworks reviewed have significant limitations. The British Columbia (Canada) model specifies an average across health authority regions rather than within individual facilities. But the absence of casemix adjustment undermines its potential to meaningful match staffing levels to resident needs.

The German model does not have national minimum staffing levels. Rather, it has state-based minimum levels and wide variation between states. It prescribes comparatively low total care requirements, while at the same time comparatively high qualified nursing requirements. Work is currently underway to reform national staffing level regulations.

The review also considered the impact of the Victorian legislation for public sector residential aged care services. This stipulates requirements for RNs and ENs, however does not consider personal care workers. The only other Australian comparator is that proposed by Queensland. However, there are no details publicly available as yet about what this includes.

After evaluating each of the national and international models, our conclusion is that the American CMS Nursing Home Compare system is the best that is currently available internationally. It provides a basis on which to build a contemporary Australian aged care staffing model that could be progressively refined and tailored to the range of care needs – nursing, personal and allied health - of Australian aged care residents.

In the CMS system the median cut-point between two and three stars is the point at which a facility is more likely than not to have quality problems. As such, our judgement is that aged care homes that have a rating of 1 or 2 stars have an unacceptable level of staffing. Those with 3 stars have an acceptable level, those with 4 stars have a good level and those with 5 stars have best practice levels of staffing.

The minimum amount of staff time per resident day for acceptable care is thus 30 minutes of RN time and 215 minutes of total care time (RNs and other care workers). These minimums apply across the sector as a whole. They require casemix adjustment to make them suitable for use at the facility level.

Using this methodology, more than half (57.6%) of Australian residents receive care in aged care homes that have unacceptable levels of staffing (1 and 2 stars).

To bring staffing levels up to 3 stars would require an increase of 37.3% more staff hours in those facilities. This translates into an additional of 20% in total care staff hours across Australia.

We have not limited our analysis to determining the additional resources required to bring facilities up to an acceptable level. We have also provided an indication of the additional resource requirements that are required to deliver staffing levels consistent with good practice and best practice care.

For all residents to receive at least 4 stars (what we consider good practice) requires an overall increase of 37.2% in total care staffing while 5 stars (best practice) care would require an overall increase of 49.4% in total care staffing.

A significant limitation of the CMS system is that it does not include allied health staffing levels. However, the system in British Columbia does include allied health and the two systems can be considered in combination. The system in British Columbia recommends that residents receive an average of 22 minutes of allied health services per day. The current Australian average (8 minutes of allied health care per day) is well below this. Achieving the level recommended in British Columbia would require a 175% increase in allied health staffing.

This research has been commissioned by the Royal Commission into Aged Care Quality and Safety against a background of numerous examples of poor quality care experienced by older people living in aged care. A recurring theme has been the lack of staffing, in particular skilled nursing staff, to meet the wide-ranging and increasingly complex needs of residents. Our results support these assertions.

It is clear from this analysis and the evidence being presented to the Commission that there is a need for additional investment in care funding, the majority of which is required to increase staffing levels to an acceptable standard. However, this should not occur in isolation from broader aged care funding reform.

In advocating for increased funding, we recommend that there be strong mechanisms in place to ensure accountability in terms of improved outcomes for residents. The introduction of AN-ACC, and implementation of the associated recommendations in the final RUCS reports, provides a clear platform for ongoing quality monitoring and improvement within the sector.

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