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Modelling the impact of the AN-ACC in Australia.The Resource Utilisation and Classification Study: Report 4

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Modelling the impact of the AN-ACC in Australia.The Resource Utilisation and Classification Study: Report 4

Abstract
A national study to develop a new methodology for determining appropriate funding for places in residential aged care homes, the 'Resource Utilisation and Classification Study' (RUCS), was commissioned by the Commonwealth Department of Health (the Department) in August 2017 and undertaken by the Australian Health Services Research Institute (AHSRI) at the University of Wollongong. This report is the fourth in a series, written to present the results of this important national study. Each report deals with a different aspect of the project, as described in Appendix 1. In this report, Report 4, the findings from Study Three of the RUCS are presented. The purpose of the casemix profiling study covered in this report was to develop a national casemix profile of residents in residential aged care facilities in Australia, to identify any differences in resident casemix by facility type (i.e. by location, ownership type and size), and to model and test the likely financial impact of implementing the blended payment model nationally. To do so, a nationally representative sample was used to model patterns of resident need and to investigate the funding implications of a new payment model based on resident casemix.

Keywords
study:, classification, utilisation, resource, report, australia.the, 4, an-acc, impact, modelling

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Modelling the impact of the AN-ACC in Australia

The Resource Utilisation and Classification Study: Report 4

February 2019

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This series of papers reports on different aspects of a major national study into needs, costs and classification of residential aged care called the Resource Utilisation and Classification Study (RUCS). The RUCS was undertaken during 2018.

This report (Report 4) models the impact of introducing the Australian National Aged Care Classification (AN-ACC) funding model nationally.

A summary of the overall RUCS work program and associated reports is provided in Appendix 1.

Report 1: The Australian National Aged Care Classification (AN-ACC)

Report 2: The AN-ACC assessment model

Report 3: Structural and individual costs of residential aged care services in Australia

Report 4: Modelling the impact of the AN-ACC in Australia (this report)

Report 5: AN-ACC: A funding model for the residential aged care sector

Report 6: AN-ACC: A national classification and funding model for residential aged care: synthesis and consolidated recommendations

Report 7: AN-ACC Technical appendices

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Finally, our thanks go to Melissa Crampton, Rob Montefiore-Gardner and the team in the Funding Reform Section within the Residential and Flexible Aged Care Division of the Commonwealth Department of Health for their ongoing support during this study.

Abbreviations

ACFI	Aged Care Funding Instrument
AN-ACC	Australian National Aged Care Classification
CALD	Culturally and Linguistically Diverse
the Department	Commonwealth Department of Health
NWAU	National Weighted Activity Unit
RUCS	Resource Utilisation and Classification Study
RVU	Relative Value Unit

Glossary of Terms

Aged Care Funding Instrument (ACFI)	The existing resource allocation instrument used to determine care subsidies in Australian residential aged care.
Australian National Aged Care Classification (AN-ACC) system	Consists of the AN-ACC assessment, AN-ACC casemix classification and AN-ACC funding model.
Casemix	A system that allocates service recipients into classes. Care recipients within a class will have similar clinical attributes and their care will involve similar levels of resource consumption.
Fixed care costs	The costs of care-related services that are not driven by the care needs of individual residents but by care costs consumed equally by all residents plus facility characteristics. These include the costs of shared care and a proportion of the costs of facility management, care co-ordination, administration and education. In a blended funding model these costs are funded through a fixed payment per day for each facility type.
Individual care	Care that is tailored to the needs of an individual resident. Differences in individual care time between residents are likely to be associated with differences in assessed function, cognition, behaviour and health status.
National Weighted Activity Unit (NWAU)	In the context of this study, a measure of relative price. An NWAU of 1.2 means that the price of the activity is 20% above the national average. An NWAU of 0.5 means that the price is 50% below national average.
Relative Value Unit (RVU)	In the context of this study, a measure of relative resource consumption (staff time or dollars). An RVU of 1.2 means that the cost is 20% above the national average. An RVU of 0.5 means that the cost is 50% below national average.
Variable costs	The costs of providing care that is in response to the assessed care needs of individual residents. These costs include a proportion of care staff salary costs that relate to individual care (as opposed to shared care) and the related costs of clinical supplies. In a blended funding model these costs are funded based on the casemix class of the resident.

Key Messages

- This report presents key results from the third Resource Utilisation and Classification Study (RUCS). This study aimed to model the introduction of the Australian National Aged Care Classification (AN-ACC) to replace the Aged Care Funding Instrument (ACFI).
- Data were sampled from randomly selected facilities within strata defined by geographic location, size of care home as measured by available beds and the ownership type (government, not for profit or private for profit).
- Data on 3,148 residents from 80 facilities were available for the analysis which focussed on the casemix profile of residents as well as the relative distribution of funding under two funding models, one based on the AN-ACC and the other on the ACFI.
- Some analysis was on the sample data but, where possible, the sample data were projected to the national scale to produce population estimates.
- Sample results showed that:
    1. Payments under AN-ACC are substantially more than under the current ACFI model for homes that specialise in (a) homeless people and (b) indigenous people.
    2. Payments under the AN-ACC model are highest for the youngest age group (age 65 years or less) and lowest for the oldest group of residents. This is the reverse relationship to the current ACFI funding model.
    3. Residents in care the longest are more likely to fall into the more complex and costly AN-ACC classes.
    4. Residents who are Aboriginal and/or Torres Strait Islander attract an average payment under the AN-ACC funding model that is more than 20% higher than the sample average. This compares with 8% lower than the sample average they attract under ACFI based funding.
    5. Residents for whom English is the preferred language fall in the more independent classes more often than those for whom English is not their preferred language (46% vs 24%). The latter group attract 7-9% more funding that the average under both payment models.
    6. Clinical complexity is measured differently in the two systems. The proportion of residents with at least one 'High' rating on ACFI is very high (85%) in the sampled data, while a much smaller proportion are in the highest weighted AN-ACC classes.
- Population projections show less clinically complex residents in remote regions, but increased funding under AN-ACC (0.8% rather than 0.5% of the total budget).
- Population projections show more clinically complex residents in government facilities, followed by not for profit facilities. This is reflected in a reduced proportional funding allocation to private for profit facilities under AN-ACC.
- Population projections show that small and medium facilities gain slightly at the expense of large facilities under the AN-ACC funding model.

1 Introduction and background

A national study to develop a new methodology for determining appropriate funding for places in residential aged care homes, the 'Resource Utilisation and Classification Study' (RUCS), was commissioned by the Commonwealth Department of Health (the Department) in August 2017 and undertaken by the Australian Health Services Research Institute (AHSRI) at the University of Wollongong.

This report is the fourth in a series, written to present the results of this important national study. Each report deals with a different aspect of the project, as described in Appendix 1. In this report, Report 4, the findings from Study Three of the RUCS are presented.

The purpose of the casemix profiling study covered in this report was to develop a national casemix profile of residents in residential aged care facilities in Australia, to identify any differences in resident casemix by facility type (i.e. by location, ownership type and size), and to model and test the likely financial impact of implementing the blended payment model nationally. To do so, a nationally representative sample was used to model patterns of resident need and to investigate the funding implications of a new payment model based on resident casemix.

1.1 Ethics

Ethical approval for all components of the RUCS was granted prior to its commencement by the University of Wollongong / Illawarra Shoalhaven Local Health District ethics committee (Approval date 21/02/2018, Ethics Number 2017/546).

2 Selection and recruitment of study sites

A sampling strategy was devised to ensure that the sample in the national modelling study would be representative of the strata defined by geographic location, size and ownership. Facilities were invited to participate in line with this sampling framework. In each participating facility, 50% of residents were assessed by qualified assessors with expertise in aged care, using the AN-ACC assessment tool.

2.1 Sampling strategy

This study was designed to include a nationally representative sample of residential aged care facilities, selected based on a stratified approach. The sample was stratified by state/territory, 'Australian Standard Geographical Classification – Remoteness Areas' and 'Business Entity Type' (i.e. ownership type) and facility size.

To calculate the required sample size for this study, the following assumptions were applied:

- The statistic of interest was the average ACFI payment per resident per day (as an indicator of resident care cost). The statistic was based on the 2014/15 Commonwealth daily funding allocation per facility. The average payment per day across all facilities for this period was \$150 with a standard deviation of \$35 ($\bar{x} \cong \$150$, $s \cong \$35$).
- The sample size was calculated to allow a 95% confidence interval for projected payment.
- It was determined that with a margin of error of \$10.00 per day, the sample size required would be approximately 80 facilities.

Our initial analysis suggested that 80 facilities would include approximately 6,000 residents. We expected that sampling 50% of these residents (3,000) for assessment would generate a dataset sufficiently large for analysis purposes. Random selection of residents for assessment within each facility would ensure a mix of residents in terms of time in care (< 3 months, 3 - 6 months, > 6 months) as well as age and other individual characteristics.

The levels of stratification identified within the sample included:

- large (100+ beds), medium (50-99 beds) and small (<50 beds) facilities
- major city, inner regional, outer regional, remote and very remote facilities
- private for profit, not for profit, and government run facilities.

2.2 Site selection and recruitment

Facilities were initially selected randomly within the stratification levels after excluding from the available pool any facilities subject to recent sanctions for issues of care quality. The overall selection was then reviewed to ensure that it contained a mix of facilities providing services to target populations such as indigenous, culturally and linguistically diverse (CALD), disability, mental health and people with a history of homelessness and drug and alcohol issues. It was also important to ensure that the sample provided a reasonable mix of facilities operated by large and small provider organisations and stand-alone facilities.

The facility list was then provided to the Department for review. This review resulted in a small number of facilities being removed due to concerns about care quality, financial viability or financial reporting irregularities.

A formal letter of invitation from AHSRI was sent to the Facility Manager for each selected facility. Where a facility declined or there was no response, another facility from the same sampling cell was invited to participate. Some organisations required more detailed information such as study protocols and ethics approval be provided for the study for internal research governance processes. The recruitment process occurred over the period from August to December 2018. Agreement to participate was confirmed in writing.

Using this approach, a total of 69 facilities were recruited to the study. As this was less than the required sample size, data from 11 facilities that had been collected in Study One were also used in the analysis. This resulted in a sample that included 3,145 residents from 80 facilities. The number of facilities included within each of the stratified sampling groups is provided in Table 1. The final list of participating facilities is provided in Appendix 2.

Table 1 The stratified sample – number of facilities by strata

State, region	Private for Profit			Not for profit			Government		
	Small	Medium	Large	Small	Medium	Large	Small	Medium	Large
ACT – All Regions	1								
NSW – Major City		3	2	2	4	5	1		
NSW – Regional	1			4	2				
NT – Regional	1								
QLD – Major city		1	1		1	3			
QLD – Regional	1			3	2	2			
SA – Major City				1	2	1	1		
SA – Regional	1								
TAS – All Regions	1				2	1			
VIC – Major City		4	2	2	4	1	1		
VIC – Regional	2			1			3		
WA – Major City	1			1	2	1			
WA – Regional	1								
Remote/Very Remote	4								

Within each of the participating facilities, 50% of residents were selected randomly. De-identified lists of residents were provided by each of the facilities. Where the care home had distinct wards or units, the residents were listed separately by unit to ensure random selection across the facility. If a resident or their family refused consent, or was not able to be assessed for another reason, the next resident on the list took their place. This strategy ensured that the sample was representative of the profile of residents across the facility.

This strategy resulted in a 50% sample of occupied beds rather than 50% of available beds. This was not considered to be a material issue as occupancy rates are typically high in residential aged care.

3 Study design

This study was designed to collect a national sample of resident data from randomly selected facilities representing various strata in the population of residential aged care homes. These strata were defined by geographic location (including state or territory), size of care home as measured by available beds and ownership type (government, not for profit or private for profit).

The purpose of this study was to estimate a national profile of residents and to investigate the redistribution of funding that would be likely to result from the introduction of the AN-ACC funding model to replace that currently ACFI model.

As per the initial assessment study, resident assessments were undertaken by expert assessors independent of the care home. Further information about the assessment process is included in Report 2.

The assessment component of the data collection was combined with profiling information about the facility in order to understand how the different facility characteristics and resident profiles affect the funding allocation. Facilities were categorised according to characteristics of:

- State/Territory
- geographical isolation
- size
- ownership
- clinical or target group specialisation (e.g. palliative care, specialist dementia, for the homeless psychogeriatric, mental health or drug and alcohol) either related to the role of the whole facility or to the presence of specialist units within the facility.

4 Data collection and analysis methodology

The data were collected and entered into a database in preparation for analysis. They were checked for accuracy and consistency at several stages to help ensure that the data to be used were "clean".

Once the data were considered to be of sufficient quality, a descriptive analysis was undertaken. Subsequently population estimates were calculated where appropriate, thereby providing an indication of the impact of the proposed methodology.

4.1 Data collection and quality review process

Assessors recorded the data for this collection on paper forms which were mailed to AHSRI. On receipt at AHSRI, the forms were checked for missing data. In addition, the forms underwent some high-level checks for clinical consistency.

If an error was detected, the form was scanned and sent back to the assessor for correction. Weekly teleconferences with assessors were held and this provided an opportunity to discuss ways to improve the accuracy of the data collection. Case studies were presented and frequently asked questions were circulated to help ensure the consistency of the data collection. In addition, assessors were encouraged to quality check each other's work before mailing back the forms.

The data were entered by two specially recruited staff members. Once the records were entered in the database, fifteen records were randomly selected from a range of facilities and checked against the paper forms. Corrections were made when required.

Additional checks on the database included completeness of records and consistency between items. A set of "fatal errors" was devised. These were errors which called into question the integrity of the record, such as scores on two different items being clinically incompatible. When such an error was detected, it was corrected whenever possible, which was usually a data entry error, or the item could be corrected by the assessor. Records with fatal errors that were not corrected had to be dropped from the analysis data set. There were 34 of these.

4.2 Data analysis methodology

The data analysis consisted of a descriptive analysis of the sample data and a projection of selected results from the sample onto the national scale.

The descriptive analysis of the data was undertaken to provide an overview of the sample. This demonstrated the distribution of residents across various strata:

- the classes of the AN-ACC classification
- geographical location
- size of facility
- ownership of the facility
- specialisation

- resident age group
- resident indigenous status
- length of time the resident had been in care
- whether English was the resident's preferred language.

To estimate the impact of the funding, the sample data were used to project the national distribution of classes and the relative financial impact. Population estimates were calculated as weighted averages, with the weights based on the relative frequencies in the various strata defined by state, size of facility, geographical location and ownership. Report 7 in this series provides more details on the weights.

For the calculation of total funding, additional occupancy rates were derived from secondary data sources (see Report 7). The relative funding impact assessment included a fixed component, a variable component and a component for the adjustment period for new residents (a one-off payment equivalent to 5.28 NWAUs). The funding model is described in detail in Report 5.

Ideally, the total ACFI payment made to each facility would have been known. This could then be compared to the expected payment under the proposed funding arrangement using the AN-ACC. However, ACFI data were available to calculate the ACFI payment to sampled residents but no others. It was therefore necessary to project the ACFI-based payments as well.

To enable comparisons between the AN-ACC funding model and the current ACFI model, all values in each model were scaled to the respective average or total and should be interpreted accordingly.

5 The profile of residents by class, clinical specialisation and resident characteristics

The dataset comprised data on 3,148 residents from 80 facilities. There were residents from all states and territories, from each of three geographic location categories, from facilities falling into three size categories and having three ownership types. Facilities with specific specialisations, such as caring for homeless people or people with dementia, were represented in the data.

Resident-level data items included resident age group, the time they had been in care, their indigenous status and whether or not English was their preferred language.

A descriptive summary of the sample data, using these variables, provided insights into the characteristics of the residents of the randomly selected facilities in the sample data. Some results are presented below. However, where it was possible and more informative to calculate population estimates, they are presented instead in Section 6.

5.1 Classes by state/territory

As a first step, records in the dataset were grouped to AN-ACC classes listed in Table 2 below.

Table 2 The AN-ACC classes

AN-ACC class	Resident description
Class 1	Admit for palliative care
Class 2	Independent without CF
Class 3	Independent with CF
Class 4	Assisted mobility, high cognition, without CF
Class 5	Assisted mobility, high cognition, with CF
Class 6	Assisted mobility, medium cognition, without CF
Class 7	Assisted mobility, medium cognition, with CF
Class 8	Assisted mobility, low cognition
Class 9	Not mobile, higher function, without CF
Class 10	Not mobile, higher function, with CF
Class 11	Not mobile, lower function, lower pressure sore risk
Class 12	Not mobile, lower function, higher pressure sore risk, without CF
Class 13	Not mobile, lower function, higher pressure sore risk, with CF

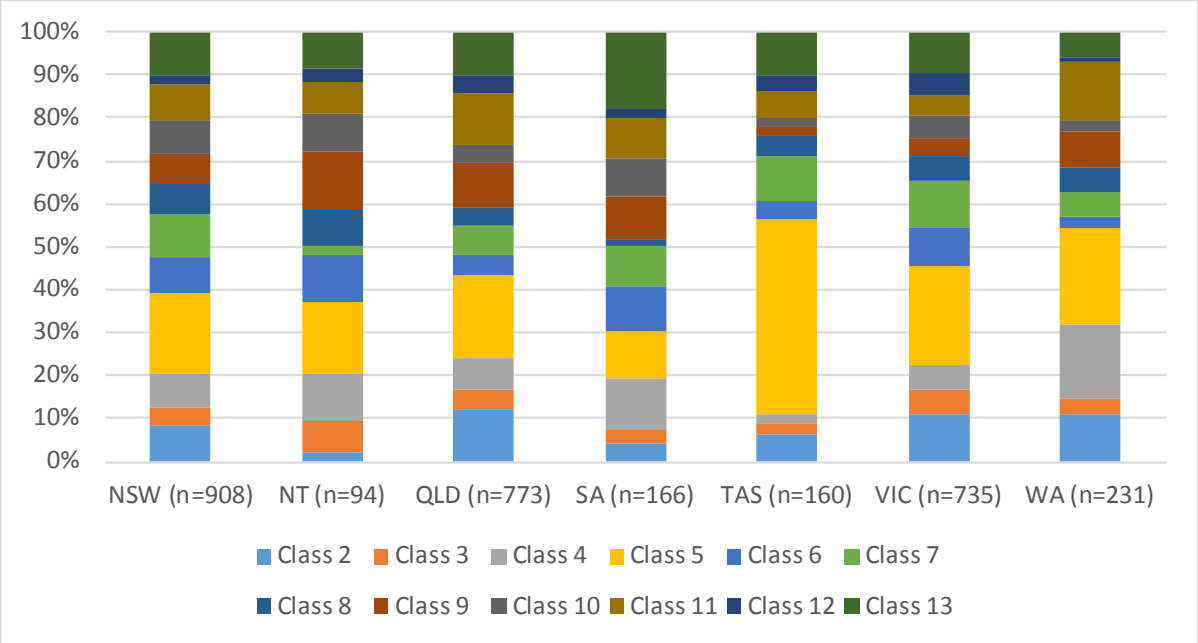
CF = Compounding Factors

In Figure 1 the distribution of classes amongst residents are presented by jurisdiction. The descriptions of the residents assigned to each AN-ACC class can be found in Table 2. Class 1 is excluded from this and all subsequent tables. This is because this study assessed residents already in care (and therefore unable to be assigned to Class 1). The ACT has been excluded from this display for confidentiality reasons; there was only one facility for the ACT in the study sample.

There are some similarities but also some clear differences in the mix of classes state by state. Class 5, (Assisted mobility, high cognition, with compounding factors) is the mode in all jurisdictions other than South Australia where Class 13 is the mode. In the other states and territories, the proportion of residents in Class 5 ranges from 17% in NT to 45% in Tasmania.

Apparent differences between the jurisdictions in their casemix as indicated by AN-ACC class are likely to have arisen from the other features of the sample. Within each jurisdiction, there is a mix of other characteristics such as remoteness, size and ownership type, factors which are likely to affect these results. The mix differs from jurisdiction to jurisdiction, so it is not surprising to see this difference in casemix.

Figure 1 AN-ACC class by jurisdiction



5.2 Clinical specialisation

Facilities participating in the study could nominate whether or not they were a specialisation home or had one or more specialised units within the facility. The options available included dementia, homelessness, palliative care and mental health (including drug and alcohol).

A summary of the AN-ACC class distribution and payment weights for occupied bed days under the two funding models is presented below. Projections for the national population have not been calculated as the location of other specialist units was not known.

In Figure 2, the distribution of AN-ACC classes within specialised units is presented. Also in the figure is the equivalent result for the full sample, as a comparison. The biggest discrepancies appear to be in the homeless and indigenous units. Mental health units also appeared to be different, though the number of residents in mental health units is small and may be an underrepresentation of the national situation.

Figure 2 Distribution of AN-ACC classes in specialist units

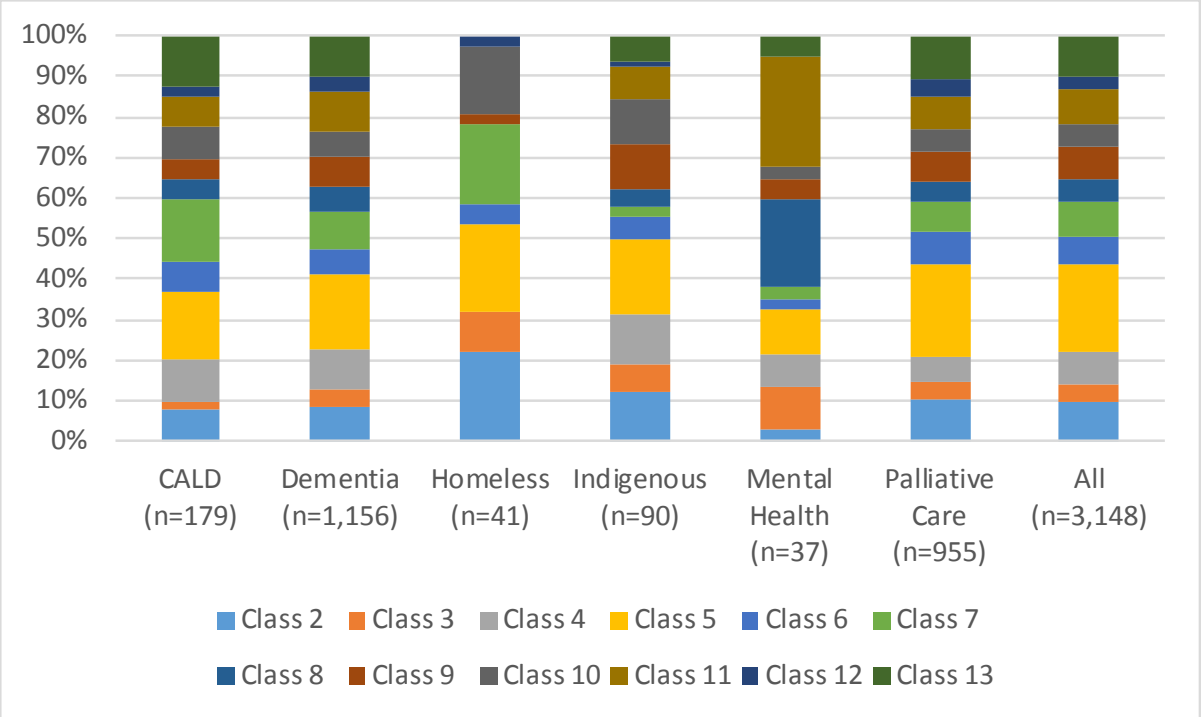


Table 3 Specialised units - payment per occupied bed day

Specialisation	No. of Facilities	No. of Residents	AN-ACC* NWAU per occupied bed day	ACFI Weight per occupied bed day
CALD	3	179	1.01	0.98
Dementia	25	1,156	1.01	0.99
Homeless	2	41	1.35	0.84
Indigenous	4	90	1.26	0.87
Mental Health	2	37	1.04	0.90
Palliative Care	21	955	1.01	1.05
Total	**80**	**3,148**	**1.00**	**1.00**

*under AN-ACC, payment in remote facilities includes a fixed component for all approved beds

Relative payments per occupied bed day for both payment models are presented in Table 3. The biggest differences are in the homeless and indigenous units. In both cases, the

payment under ACFI is substantially less than that under AN-ACC. Mental health seems to have been underrepresented in this sample.

5.3 Resident level variables

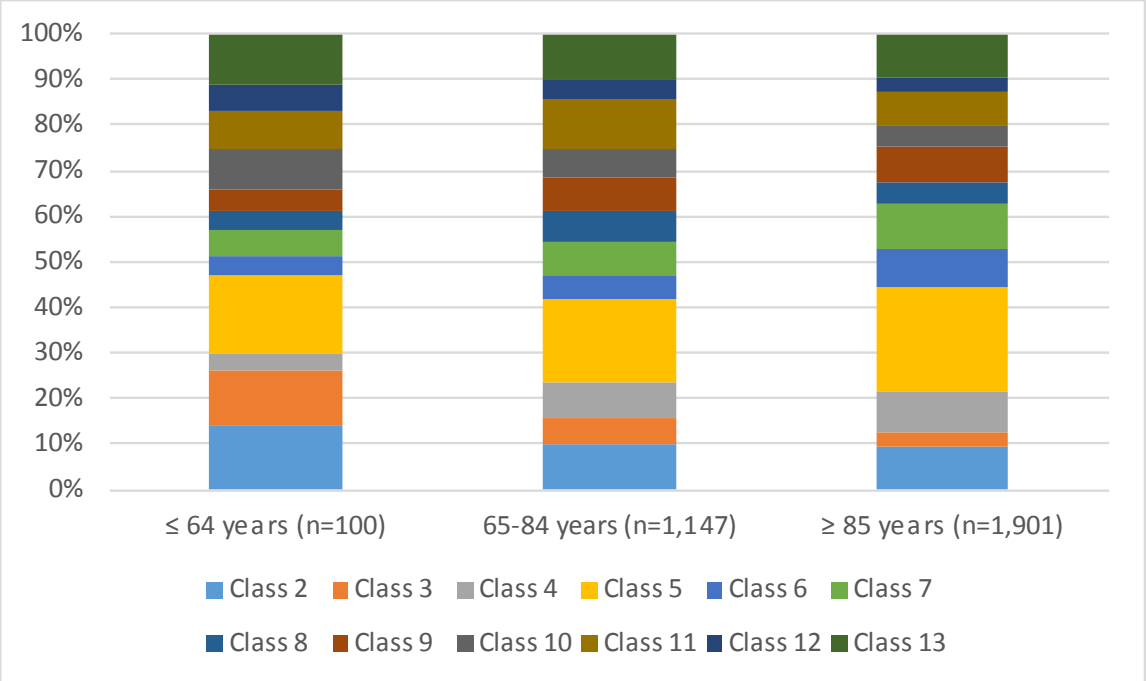
A number of resident-level variables were collected and have been used to investigate differences in casemix, as measured by the AN-ACC, as well as differences in the way the two payment models distribute funds across the strata of interest.

The funding information is presented as relative weights per occupied bed day. For the AN-ACC, the financial data are based on the cost of care as derived in the costing study (see Report 3). The ACFI financial information is based on the payments made for the resident's ACFI rating, as in the current funding arrangement.

5.3.1 Resident age

The three age groups showed some differences in the distribution of residents across classes (Figure 3). For example, Classes 6-8 specifically identify residents with medium or low cognition and they were most common amongst the 85 and older age group and least common amongst the youngest age group. Conversely, the youngest residents were more often in the two most complex classes, Classes 12 and 13. They were also more often independently mobile (Classes 2 and 3).

Figure 3 Distribution of AN-ACC classes by age group



Relative to the average in the sample, payment using the AN-ACC model are highest for the youngest age group and lowest for the oldest group of residents. The reverse relationship holds for the ACFI funding model (see Table 4).

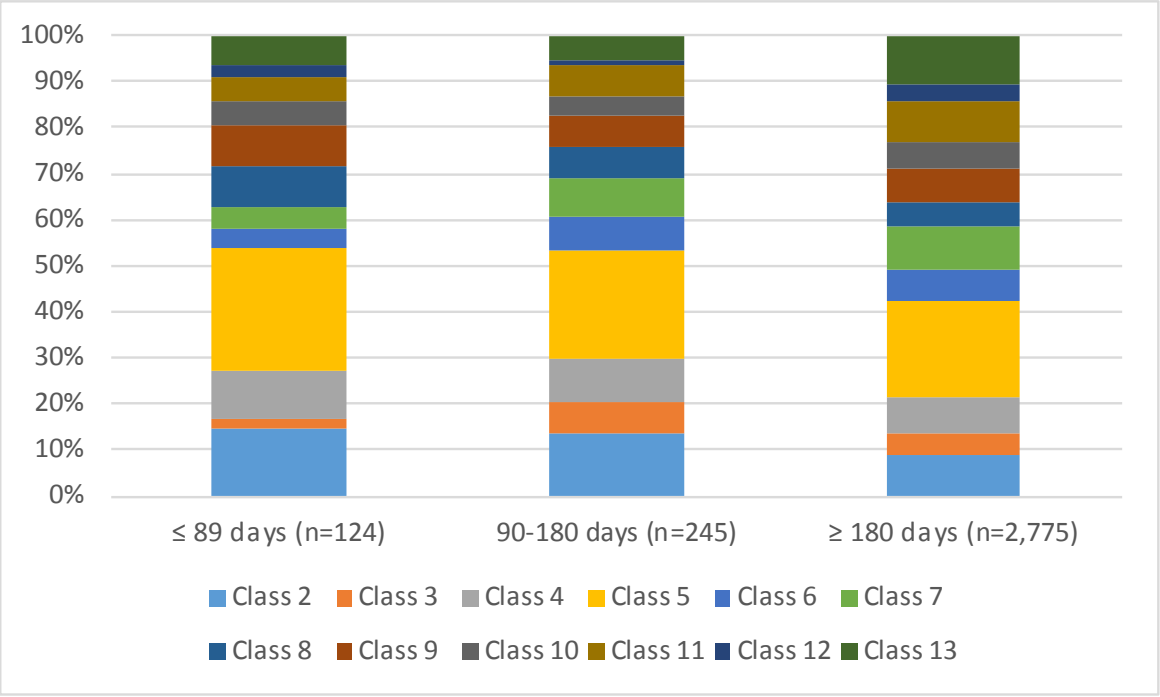
Table 4 Payment relativities by age group

Age Group	No. of Facilities	No. of Residents	AN-ACC NWAU per occupied bed day	ACFI Weight per occupied bed day
≤ 64 years	45	100	1.10	0.94
65-84 years	79	1,147	1.03	0.99
≥ 85 years	79	1,901	0.98	1.01
Total	**80**	**3,148**	**1.00**	**1.00**

5.3.2 Time in care

From Figure 4, the most striking difference between the groups defined by time in care is that those in care the longest are more likely to fall into the more complex and costly classes (generally the higher-numbered classes).

Figure 4 Distribution of AN-ACC classes by time in care



From Table 5, it can be seen that under both funding models, residents in care for six months or more attract, on average, higher payments compared to those who have been in for a shorter period of time. This is consistent with the finding above i.e., that more of this longer-staying group are in the more complex classes. It should be noted that the vast majority of residents in the sample are in this longest-staying group.

Table 5 Payment relativities by time in care

Time in Care	No. of Facilities	No. of Residents	AN-ACC NWAU per occupied bed day	ACFI Weight per occupied bed day
≤ 89 days	52	124	0.95	0.92
90-180 days	69	245	0.94	0.88
≥ 180 days	80	2,775	1.01	1.01
missing	3	4		
Total	**80**	**3,148**	**1.00**	**1.00**

5.3.3 Indigenous status

There were too few Aboriginal, Torres Strait Islander or Aboriginal and Torres Strait Islander residents in the sample to look at their distribution across the AN-ACC classes; there were classes with no, or only one or two, residents allocated.

However, an important contrast between the two funding models can be seen in Table 6 in the columns displaying the relative bed day payments. Under the AN-ACC funding model, Aboriginal and/or Torres Strait Islander residents attract an average payment more than 20% higher than the sample average. In contrast, their average payment under the ACFI is 8% lower than the sample average.

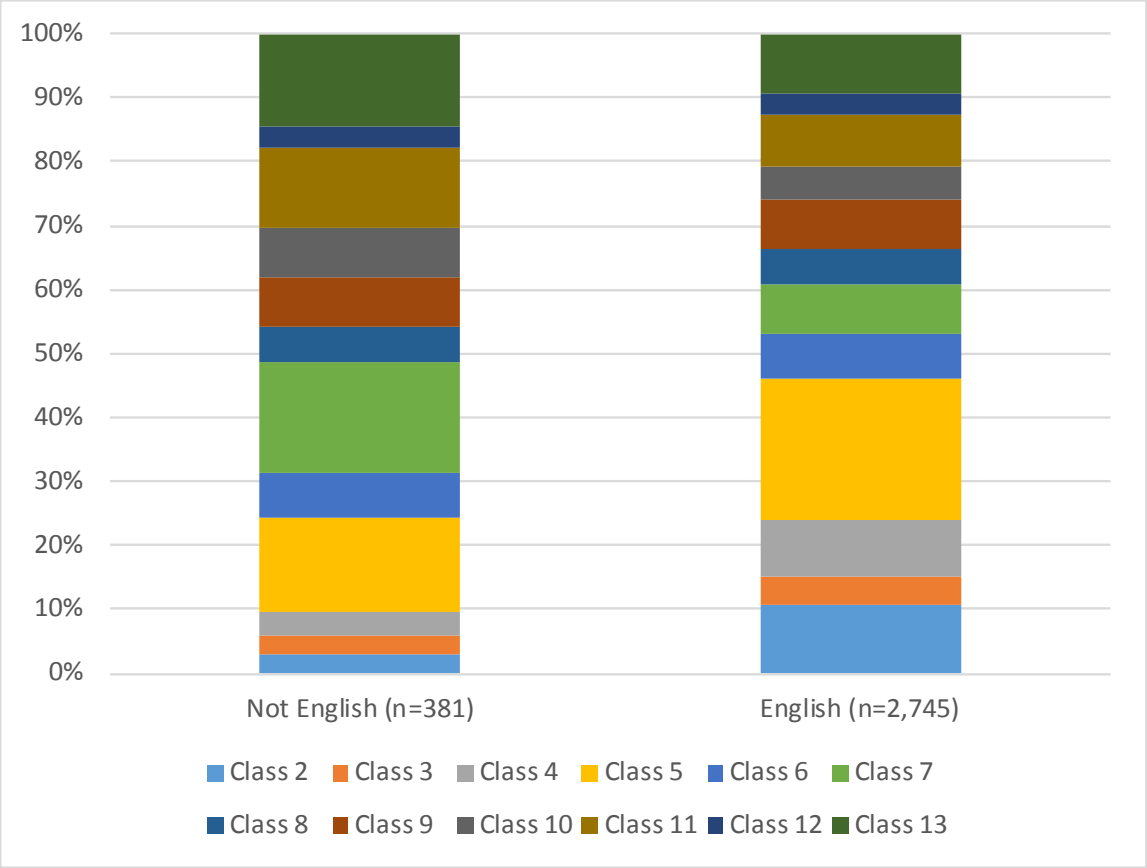
Table 6 Payment relativities by indigenous status

Aboriginal, Torres Strait Islander, Aboriginal and Torres Strait Islander	No. of Facilities	No. of Residents	AN-ACC NWAU per occupied bed day	ACFI Weight per occupied bed day
Yes	14	65	1.22	0.92
No	80	2,969	0.99	1.00
Missing	36	114		
Total	**80**	**3,148**	**1.00**	**1.00**

5.3.4 Preferred language

Residents were asked if their preferred language was English. Of those who said no, far fewer (24%) were grouped into Classes 2-5, the more independent classes, than of those who preferred to speak English (46%). The distribution of residents amongst the AN-ACC classes for both groups is shown in Figure 5.

Figure 5 Distribution of AN-ACC classes by preferred language



From Table 7 it can be seen that the relative payment for an occupied bed day is very similar under both funding models, at 9% or 7% above the sample average. Residents with English as their preferred language attract a lower payment than those for whom English is not their preferred language.

Table 7 Payment relativities by preferred language

Preferred language	No. of Facilities	No. of Residents	AN-ACC NWAU per occupied bed day	ACFI Weight per occupied bed day
Not English	57	381	1.09	1.07
English	80	2,745	0.99	0.99
Missing	17	22		
Total	**80**	**3,148**	**1.00**	**1.00**

5.4 Measuring clinical complexity

Classifying residents can be useful for a number of purposes. For example, because a casemix classification is developed using the cost of care to separate residents into groups, it can be used to allocate resources appropriately. It can also be helpful for clinical management and for understanding the clinical complexity of a group of residents.

Both the AN-ACC and the ACFI can be used to investigate clinical complexity. It is of interest to find out if they do this in an equivalent way.

It is important to note the difference between this analysis and the previous analysis that discussed difference in payments under the two different funding models.

The focus of the analysis in this section is the degree to which the AN-ACC and the ACFI classifications indicate the clinical complexity of the resident. To investigate this, only the AN-ACC class weights (RVUs) are used. This is because the AN-ACC classes are defined solely by resident characteristics, which is also the case for the ACFI classes.[1]

In Table 8 the distribution of residents across the AN-ACC classes is shown as well as the average relative value unit (RVU) of residents in the class. These RVUs represent the relative clinical complexity (as measured by cost) of each AN-ACC class. The ACFI payment RVUs have been calculated in the same way to ensure comparability between the ACFI and the AN-ACC. A more detailed description of the AN-ACC RVUs is included in Report 1.

It can be seen that these scaled RVUs covered quite a large range. With an RVU of 1.94; residents in class 13 were, on average, 94% more complex than the sample average. At the other end of the scale, residents in Class 2 (with an RVU of 0.37) were a little over one-third as complex as the sample average.

The next column shows the relative payment under the ACFI model, for residents in each AN-ACC class. Standard errors (s.e.) were calculated for these means and were found to be quite small. Payments range from approximately three-quarters of the sample average up to 17% higher than the sample average. They increase in a very similar order to the AN-ACC RVUs.

The remaining columns in this table show the percentage of residents in a class who were rated as High (H) in one, two and three domains respectively.[2] In the full sample data, 85% of residents fell into one of these categories. It can be seen that the overall proportion in these three columns is high for all classes. However, it does tend to increase roughly as the complexity measured by AN-ACC increases. This would indicate that, while the ACFI rating agreed with the general direction of the AN-ACC, there seemed to be a fairly strong tendency to rate High.

[1] The AN-ACC funding model also includes a fixed component based on facility characteristics and an adjustment factor for new residents. These other elements are excluded from the analysis presented in this section.

[2] Ratings under ACFI can be High (H), Medium (M), Low (L) or Nil (N) in each of the three domains – Activities of Daily Living (ADL), Behaviour (BEH) and Complex Health Care (CHC).

Table 8 Capturing clinical complexity by AN-ACC class

AN-ACC class	Records (%)	AN-ACC RVU (mean)	ACFI payment (mean)	ACFI payment (s.e.)	ACFI Score 1xH (%)	ACFI Score 2xH (%)	ACFI Score 3xH (%)
Class 2	9.7	0.37	0.76	0.016	39.0	14.8	7.2
Class 3	4.4	0.61	0.91	0.017	57.1	22.9	12.9
Class 4	8.2	0.41	0.80	0.017	33.3	17.1	8.9
Class 5	21.2	0.73	0.97	0.009	28.3	26.8	23.4
Class 6	7.0	0.69	0.98	0.015	37.1	25.3	24.9
Class 7	8.8	0.94	1.04	0.012	29.6	31.1	31.8
Class 8	5.5	1.04	1.03	0.014	31.0	34.5	29.3
Class 9	7.5	1.05	1.07	0.012	18.6	32.5	40.1
Class 10	5.6	1.69	1.13	0.011	14.2	33.5	50.0
Class 11	8.6	1.62	1.14	0.007	14.0	36.0	49.3
Class 12	3.3	1.58	1.17	0.012	5.7	27.6	64.8
Class 13	10.0	1.94	1.16	0.007	4.4	33.3	60.3
Total	**100.0**	**1.00**	**1.00**	**0.004**	**26.0**	**27.6**	**31.4**

Table 9 presents similar information, but this time by grouped ACFI categories. The mean AN-ACC RVU and the mean ACFI payment can be compared, as they are both scaled relative to their sample mean. It can be seen that they follow a similar pattern.

Table 9 Capturing clinical complexity by ACFI category groups

ACFI category	Records	AN-ACC RVU		ACFI payment	
	%	Mean	Standard error	Mean	Standard error
1=1xL	0.3	0.43	0.038	0.13	0.021
2=2xL	0.7	0.51	0.043	0.27	0.012
3=3xL	1.1	0.54	0.043	0.35	---
4=1xM	4.4	0.59	0.026	0.49	0.007
5=2xM	4.9	0.66	0.025	0.68	0.006
6=3xM	3.5	0.68	0.028	0.83	---
7=1xH	26	0.78	0.013	0.86	0.005

ACFI category	Records	AN-ACC RVU		ACFI payment	
	%	Mean	Standard error	Mean	Standard error
8=2xH	27.6	1.10	0.017	1.08	0.003
9=3xH	31.4	1.27	0.016	1.24	---
<missing>	0.1	0.54	0.098		
Total	100	1.00	0.009	1.00	0.004

Considering both the preceding tables, it is perhaps not surprising to note that each funding method show greater differentiation of payments between the groupings within its related classification system. The key difference is the scale of the differentiation in the two models.

A large proportion of residents in each of the AN-ACC classes are rated High on at least one domain in the ACFI tool. This indicates that clinical complexity is measured differently in the two systems.

Overall, the proportion of residents with at least one High rating on ACFI is very high at 85%. An important implication is that ACFI is not adequately discriminating between residents with varying care needs.

In contrast, a much smaller proportion of residents are in the highest weighted AN-ACC classes. The AN-ACC is more technically sensitive to the wide range of resident care needs and this is reflected in the fact that there is a fivefold variation in cost between the lowest and the highest cost groups.

6 Population estimates

Based on the sample data, population estimates of the proportion of residents in AN-ACC classes were calculated. The likely effect of funding under each of the two models, one based on AN-ACC and the other based on ACFI, was also estimated.

The results are presented by ownership type, remoteness and size. They can be used to assess the likely effect of using the AN-ACC funding model in place of the ACFI.

6.1 National casemix profile

The casemix profile of the sample data was projected to the national scale to provide insights into the distribution of residents across classes. Nationally, these projections indicate that around 14% of residents are assessed as Independent (Branch 1, Classes 2-3), 51% are classified as Assisted Mobility (Branch 2, Classes 4-8) and 35% are Not Mobile (Branch 3, Classes 9-13). Most frequently, residents are assigned to Class 5 (20%). Classes 2, 7 and 13 each account for around 10% of residents. The least frequent class is Class 12 with 3%.

When comparing the projected class distribution by ownership type, as depicted in Figure 6, it can be seen that government facilities have the most clinically complex residents. They are followed by not for profit facilities. Private for profit facilities have more independent residents (18%) and slightly fewer residents who are not independent.

Figure 6 Distribution of AN-ACC classes by ownership type

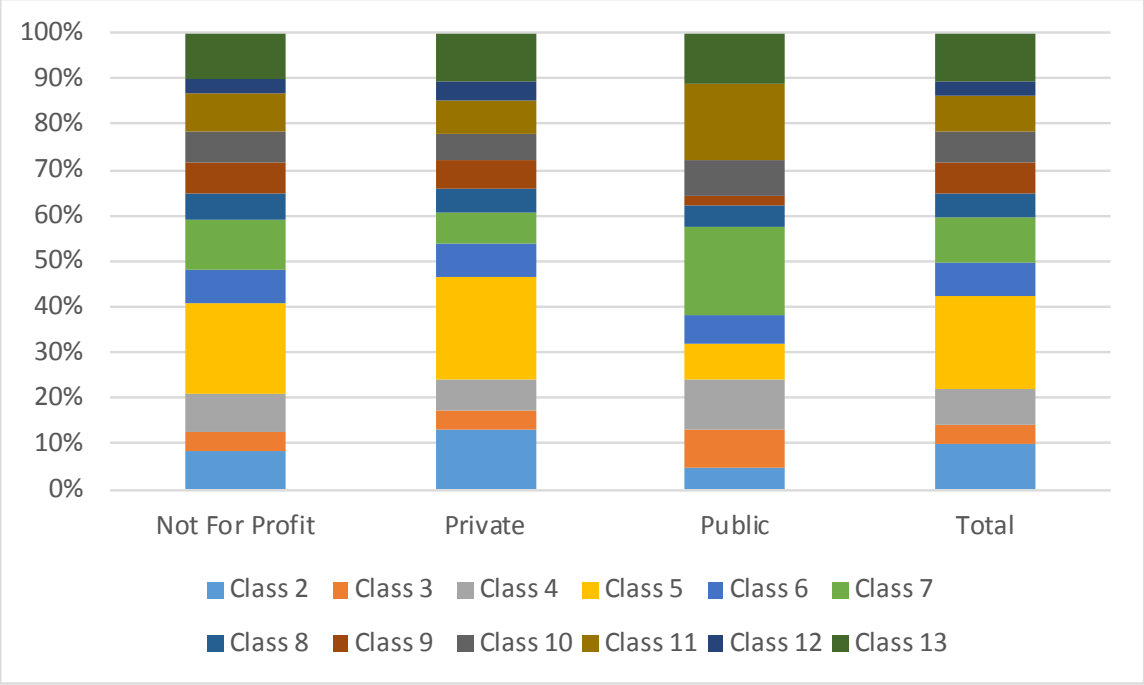
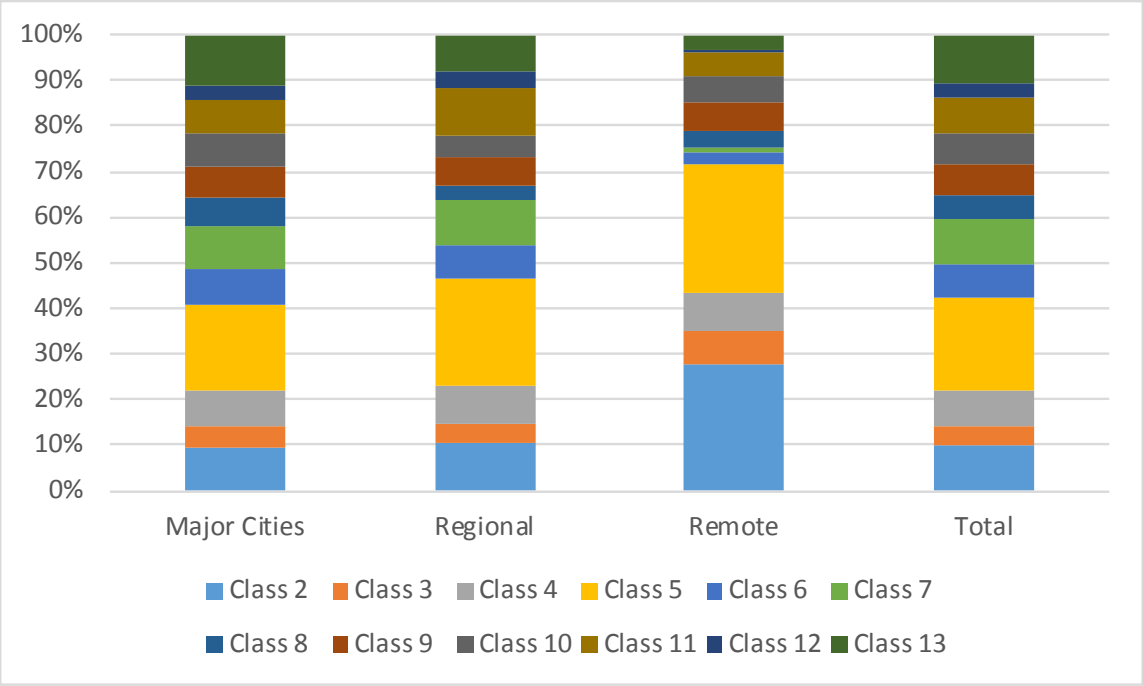


Figure 7 shows the projected class distribution by facility location. It can be seen that metropolitan and regional facilities tend to have a similar casemix, with metropolitan facilities having slightly more non-mobile residents and regional facilities having slightly more residents with assisted mobility. Independently mobile residents are much more

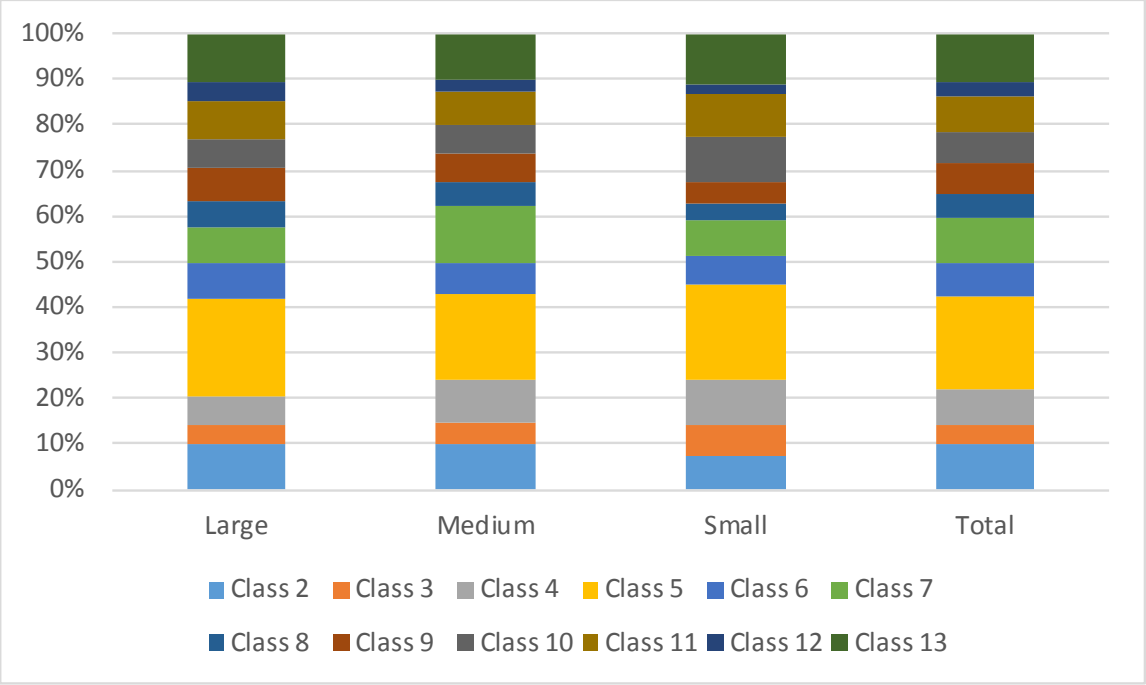
frequent in remote facilities; 35% compared to around 14%. Consequently, the proportions of residents with assisted mobility and who are not mobile are much lower, 44% and 21% respectively.

Figure 7 Distribution of AN-ACC classes by remoteness



As shown in Figure 8, the projected class distributions of facilities grouped by their size tend to be quite similar with only small differences observable.

Figure 8 Distribution of AN-ACC classes by facility size



6.2 Comparison of effect of the two funding arrangements

To estimate the relative funding effect, the average funding per occupied bed day was multiplied by the number of beds in each category. Differential occupancy rates were taken into account where available (see Report 7 for details). The AN-ACC funding includes three components - a fixed component, a variable component and a component for the adjustment period for new residents.[3] The ACFI payment includes only the payment relating to the ACFI instrument and no additional subsidies.

Table 10 shows the projected relative funding by ownership type. It can be observed that funding under AN-ACC would lead to a slightly higher proportion of funding being allocated to government and not for profit facilities at the expense of private for profit facilities.

Table 10 Relative funding impact by ownership type

Ownership type	AN-ACC (%)	ACFI (%)
Government	5.0	4.8
Not For Profit	58.3	55.9
Private For Profit	36.6	39.3
Total	**100.0**	**100.0**

A similar situation can be observed when examining funding by facility location (see Table 11). There are slight reductions for metropolitan facilities. Regional and remote facilities on the other hand would have their funding increased. The change from 0.5% to 0.8% of the budget would effectively constitute a substantial funding increase for remote facilities.

Table 11 Relative funding impact by remoteness

Remoteness	AN-ACC (%)	ACFI (%)
Major Cities	70.0	70.8
Regional	29.1	28.3
Remote	0.8	0.5
Total	**100.0**	**100.0**

When comparing projected funding based on facility size, as shown in Table 12, it can be seen that small and medium facilities would gain slightly at the expense of large facilities.

[3] The calculation for the adjustment payment is based on data from the Australian Institute of Health and Welfare 2018. GEN. Canberra: AIHW. http://www.gen-agedcaredata.gov.au. Viewed 15/01/2019. There were 73,090 new residents in 2016/2017. It had to be assumed that these new residents were equally distributed across Australia.

Table 12 Relative funding impact by size

Size	AN-ACC (%)	ACFI (%)
Small	15.0	14.1
Medium	42.7	41.5
Large	42.5	44.3
Total	**100.0**	**100.0**

7 Conclusion

This report has focused on the structural impacts of moving from the current ACFI model to the AN-ACC model. The key finding from the analysis is that there are different impacts in different parts of the residential aged care sector.

Overall, facilities that specialise in homeless people will receive proportionally more funding. So will facilities that specialise in meeting the needs of Aboriginal and/or Torres Strait Islander residents. Implementation of the AN-ACC model will also result in government and not for profit homes and smaller facilities receiving proportionally more funding.

The AN-ACC funding model is designed as a funding distribution model which applies price weightings (NWAU) to different types of facilities and residents. It does not determine the price that the Commonwealth pays. The price is a policy decision for government. The government could decide to implement the AN-ACC funding system so that it is cost neutral at the system level. Likewise, the government could use the AN-ACC to distribute a growth budget.

Irrespective, there will inevitably be some homes that will experience a funding increase with the introduction of the AN-ACC and some that would experience a funding decrease; however the vast majority will be neutral.

In transitioning to the new AN-ACC model, it is critical that no home experience the sudden loss of significant income as the result of the new funding model. Viability and sustainability are critical issues for the whole sector.

The funding report (Report 5) sets out the whole AN-ACC funding system. It includes systems and mechanisms to ensure that no home experiences the sudden loss of income as a result of the new funding model. This includes a proposed transition strategy and a stop-loss policy. These issues are also discussed in detail in Report 6.

Appendix 1

Overview of the Resource Utilisation and Classification Study (RUCS)

The RUCS comprised four separate but closely related studies. Each study included separate data collection and analysis elements that have been synthesised to produce a classification and associated funding model that is suitable for implementation across the Australian residential aged care sector.

Study One – Service utilisation and classification development study

Study One involved a prospective and comprehensive collection of resident assessment, service utilisation and financial data which were analysed to develop a casemix classification. Study One involved 30 facilities clustered in three geographic regions in Queensland, New South Wales and Victoria.

Study One was completed between October 2017 and October 2018.

Study Two – Fixed and variable cost analysis study

Study Two involved a larger nationally representative sample of 110 facilities. The purpose of this study was to understand differences in cost drivers between different types of facilities (including facility size and location) as well as differences that may result from seasonal effects. This analysis informed the design of the funding model. Study Two examined facility, rather than resident, level costs.

Study Two was completed between November 2017 and October 2018.

Study Three – Casemix profiling study

Study Three involved the collection of variables included in the classification from an additional nationally representative sample of 69 facilities. In combination with the data from Study One, the primary purpose of Study Three was to develop a national casemix profile of residents in aged care in Australia.

Study Three was completed between September 2018 and December 2018.

Study Four – Reassessment study

Study Four was added to the RUCS work program in mid-2018 in recognition of value that could be added by collecting additional information about the rate and extent of change in residents' care needs over time. Study Four involved conducting re-assessments of approximately half of the residents assessed as part of Study One four to six months after their initial assessment.

Study Four was completed between August 2018 and December 2018.

The RUCS reports

Given the complexity of RUCS, it has been written up in a series of reports as follows:

- **Report 1: The Australian National Aged Care Classification (AN-ACC)**

Report 1 covers the design and conduct of the study undertaken to develop the AN-ACC Version 1.0 (Study One). It covers the design and use of the AN-ACC Assessment Tool and the resource utilisation study undertaken to develop AN-ACC Version 1.0, including the preparation and analysis of the data collection. It discusses the results, the classification development process and key outcomes including the statistical analysis and clinical validation.

- **Report 2: The AN-ACC assessment model**

Report 2 presents detailed findings relating to the external assessment tool and assessment process (informed by Studies One, Three and Four). This includes the development of the assessment tool using expert clinical panels and a summary of feedback from assessors regarding the use of the tool and the suitability of individual instruments. The skills and competencies required for the assessment workforce and other implications for implementation of the external assessment model are considered as well as triggers and protocols for reassessment.

- **Report 3: Structural and individual costs of residential aged care services in Australia**

Report 3 presents the analysis and findings of Study Two which identified the proportions of total care costs that are fixed (including shared care) and variable (relating to individualised resident care). The analysis focused on the differences in fixed costs between different types of facilities, characterised by ownership, size, remoteness and service specialisation. It includes an analysis of the drivers of fixed care costs.

- **Report 4: Modelling the impact of the AN-ACC in Australia**

Report 4 presents an analysis of modelling the introduction of the AN-ACC across Australia. This is based on the findings of Study Three. The sampling and assessment data collection process and the casemix of residents in aged care across Australia are described. The focus of this report is on modelling the introduction of the AN-ACC to replace the Aged Care Funding Instrument (ACFI).

- **Report 5: AN-ACC: A funding model for the residential aged care sector**

Report 5 presents the design of a new funding model based on the AN-ACC. It includes a consideration of other payment issues such as existing payment supplements, a discussion of incentives in funding model design and key issues in implementing the new model.

- **Report 6: AN-ACC: A national classification and funding model for residential aged care: synthesis and consolidated recommendations**

This report syntheses and consolidates the findings presented in other reports and provides a consolidated set of recommendations.

- **Report 7: AN-ACC Technical appendices**

This report is a series of technical appendices that contain detailed data for reference purposes.

Appendix 2

Study Sites

Facility Name	Suburb	State
St Andrews Village	Hughes	ACT
Alexander Campbell House	Forestville	NSW
Anthem Care	Bowral	NSW
Brother Alberts Home	Marayong	NSW
BUPA Cardiff	Cardiff Heights	NSW
Calvary Cooinda Retirement Community	Singleton	NSW
Calvary Tanilba Shores Retirement Community	Tanilba Bay	NSW
Catholic Healthcare St John's Villa	New Lambton	NSW
Columbia Aged Care Services - Strathdale Centre	Strathfield	NSW
Corowa District Hospital	Corowa	NSW
Grace Munro Centre	Bundarra	NSW
Green Hills Residential Care	East Maitland	NSW
HammondCare - Erina	Erina	NSW
Hammondcare - North Turramurra	North Turramurra	NSW
Hammondcare - Southwood	Hammondville	NSW
Karinya	Corowa	NSW
Mayfield Aged Care	Mayfield	NSW
Oolong Hostel	Howlong	NSW
Presbyterian Aged Care - Thornleigh	Thornleigh	NSW
Presbyterian Aged Care - Wollongong	North Wollongong	NSW
Raffles Assisted Aged Care	Tweed Heads South	NSW
Scalabrini Village Chipping Norton	Chipping Norton	NSW
St George Aged Care Centre	Bexley	NSW
Uniting Narla Belmont North	Belmont North	NSW
Yallaroo	West Albury	NSW
Flynn Lodge	Alice Springs	NT
Old Timers	Alice Springs	NT
Pearl Supported Care	Fannie Bay	NT
Bolton Clarke Glendale	Mount Louisa	QLD
Bolton Clarke Rowes Bay	Rowes Bay	QLD
Bolton Clarke Farnorha	Westcourt	QLD
Bolton-Clarke Fernhill Retirement Community	Caboolture	QLD
Bolton-Clarke Westhaven	Harristown	QLD
Glenella Care	Glenella	QLD
Hope Vale Aged Hostel	Hope Vale	QLD
Lilian Cooper Nursing Home	Kangaroo Point	QLD
Lower Burdekin Home for the Aged Ayr	Ayr	QLD
Marycrest Hostel	Kangaroo Point	QLD
Ozcare Ozanam Villa - Burleigh Heads	Burleigh Heads	QLD

Facility Name	Suburb	State
Sarina Aged Residential Home	Sarina	QLD
Seabrae Manor	Rothwell	QLD
The Good Shepherd Hostel	Annandale	QLD
The Terraces Aged Care	Varsity Lakes	QLD
Acacia Court	Hendon	SA
Aminya Village Hostel	Mannum	SA
Dunbar Homes Salisbury	Salisbury	SA
Glenview Homes	Gumeracha	SA
LHI Hope Valley	Hope Valley	SA
St Basil's at St Peters	St Peters	SA
Fairway Rise	Lindisfarne	TAS
Fred French Hostel	Newstead	TAS
Peace Haven Hostel	Norwood	TAS
Sandhill Aged Care Facility	South Launceston	TAS
Baptcare Peninsula View Community	Frankston South	VIC
Capel Sands Aged Care	Rosebud West	VIC
Doncaster Melaleuca Lodge	Doncaster	VIC
Douta Galla Lynch's Bridge	Kensington	VIC
Eden Park Residential Aged Care	Whittington	VIC
Elanora	Brighton	VIC
Estia Benalla	Benalla	VIC
Estia Coolaroo	Coolaroo	VIC
Estia Health Yarra Valley	Yarra Junction	VIC
Mecwacare Simon Price Centre	Mont Albert North	VIC
Mecwacare Vincent House	Westmeadows	VIC
Northside Aged Persons Mental Health	Burwood East	VIC
P.S. Hobson Nursing Home	Wendouree	VIC
Parkland House Hostel	Willaura	VIC
Ron Conn Nursing Home	Avondale Heights	VIC
Rosanna Views Residential Aged Care Facility	Rosanna	VIC
Talbot Place Aged Care Facility	Ballarat Central	VIC
Victoria Grange Aged Care	Vermont South	VIC
Wintringham Hostel - Port Melbourne	Port Melbourne	VIC
Yackandandah Health Residential Aged Care	Yackandandah	VIC
Aegis Anchorage	Mindarie	WA
Bethanie Peel	Coodanup	WA
Castledare Retirement Village	Wilson	WA
Dr Mary Surveyor Centre	Kingsley	WA
Germanus Kent House	Broome	WA
Pam Corker House	Waroona	WA
Villa Pelletier Hostel	West Leederville	WA