Grant Thornton

Aged Residential Care Service Review

September 2010

Foreword

Aged Residential Care Service Review

This review of aged residential care services in New Zealand is the most extensive ever undertaken and had the highest provider participation rate of any comparable international study.

The issues presented are complex and far reaching. There is no escaping the fact that the impending rapid growth in the over 65 year population will exert significant pressure on aged care policies and facilities.

This review provides a comprehensive stock-take of the current range and location of aged care facilities across the spectrum of dependency care. It identifies the growth of supply and investment required in rest home, dementia and hospital care facilities and services to meet projected demand.

The public debate stemming from the findings presented in this report is an important one. It needs to start immediately and must be well informed. This report represents the commencement of that process and ensures it will be based on robust research and sound modelling.

The way in which a community treats its old people reflects on the integrity of that community. The release of this Aged Residential Care Service Review is an important step in ensuring that New Zealanders age with dignity.

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1. Executive summary

Introduction

The aging of the New Zealand population presents well-known challenges to the Crown, providers of services to the elderly and, ultimately, to society as a whole.

To address these challenges, leaders from the residential care sector and District Health Boards (**DHBs**) commissioned this Aged Residential Care Service Review (**the Review**) to comprehensively assess the cost, capacity and service delivery implications of the increasing number of elderly New Zealanders likely to require aged residential care services.

This review of aged residential care services in New Zealand is the most extensive ever undertaken and had the highest provider participation rate of any comparable international study. Based on solid survey information characterised by large representative samples, particularly on the supply side, it represents an accurate and thorough assessment of the current position and future projections.

A number of compelling points emerge from the Review. If the sector continues to operate within its current parameters, the following factors will emerge:

- **Demand for facilities:** By 2026, between 12,000 and 20,000 extra residents will require aged residential care. In the 20 years between 2006 and 2026 the New Zealand population is expected to grow by 20% (from 4.2 million to 5 million). The over 65 population, however, is estimated to increase by 84% (from 512,000 to 944,000).
- **Supply of facilities:** Sector bed numbers need to increase by 78% to 110% by 2026 to accommodate the projected increase in extra residents and to replace aging facilities.
- **Costs and investment:** Financial returns currently being generated for subsidised aged residential care operations are insufficient to support building new capacity and replacing aging stock. Approximately half of current stock is now over 20 years old.
- **Workforce implications:** The workforce employed in the aged residential care sector has doubled in the last 20 years to 33,000. Workforce demand is expected to increase between 50% and 75% (on an FTE basis) by 2026. The workforce is expected to adjust to demand through mechanisms such as remuneration and population growth.
- **Models of care:** Four alternative service configuration scenarios were considered worthy of further consideration: improvement in the current approach, an enhancement of professional services in the community, an individualised funding approach and the development of low income community housing for the elderly.

The key questions arising from this Review are not if anticipated pressures will arise, but when they will occur, and over what period, and to what degree.

These will pose challenges to the providers, DHBs, the Ministry of Health and the Government to respond in a manner that will proactively ensure a sustainable sector that meets the needs of New Zealanders into the future.

Demand for facilities

Demand for rest home care will begin to increase between 2012 and 2015. Demand for high dependency services (hospital and dementia) will continue to grow at a similar rate to that of the past decade.

Over the 20 years between 2006 and 2026, the New Zealand population is expected to grow by almost 20% from 4.2 million to 5.0 million. Similar to most developed countries the New Zealand population is rapidly aging. During the same 20 years, the population aged over 65 is estimated to increase by 84% from 512,000 to 944,000.

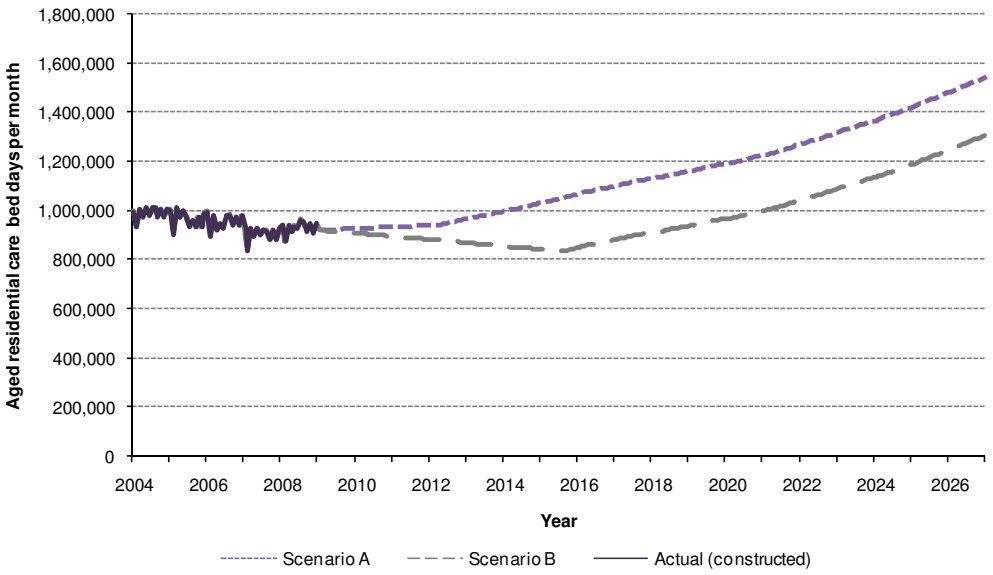
While the long term trend of aged residential care utilisation has been generally flat over the last 20 years, there have been significant changes in the mix of services required with a decline in rest home utilisation and steadily increasing utilisation of hospital and dementia facilities.

Over the last decade much of the growth in demand for aged care services has been absorbed by increasing utilisation of home support services. This substitution effect will not be able to absorb all of the future demand for aged care services.

Rising dependency levels of rest home residents indicate that the recent decline in rest home utilisation will slow. Also, the increasing levels of dependency of elderly in the community mean that remaining at home will become a less viable option as frailty levels increase.

The Review has modelled two potential future scenarios of aged residential care demand based on different rest home utilisation rates. The demand is expected to be between these two projections. These are set out in **Figure 1** below.

Figure 1
Future demand scenarios



Under Scenario A, the demand for aged residential care is projected to grow marginally until 2012 and then begin to grow more substantially. It is estimated that by 2014 the current sector capacity will be exhausted. Under Scenario B, the demand for aged residential care will continue to decline until 2015 and then start to increase.

A breakdown by service subset indicates that while the utilisation of rest home beds may continue to decline until 2012 or 2015, demand for hospital and dementia beds will increase every year from now until 2026.

Supply of facilities

Overall supply and renewal of facilities has slowed and needs to increase significantly to cope with projected demand.

Demand estimates indicate that sector bed numbers need to adjust to accommodate an extra 12,000 to 20,000 residents by 2026. This includes an anticipated change in mix toward hospital and dementia care as the average population age grows.

The number of beds is projected to rise significantly by 2026. Investment is also required to replace or renovate existing stock as it ages. Depending on assumptions for lifespan of stock and demand, total investment required by 2026 could be the equivalent of between approximately 78% and 110% of current stock, representing an average increase in overall bed numbers of between 0.8% and 1.8% per annum.

Assuming no change in service delivery, additional aged residential care capacity will be required during the period 2014 to 2021. In reality, bed shortages may start to appear much earlier as demand and supply are not evenly matched in all regions.

The projected increase in new beds signals the scale of additional investment required, although not all of this underlying demand will be met as some demand may be diverted by delaying entry into

aged care and/or the greater use of formal or informal home support when prices of aged residential care services rise.

Costs and investment

The financial returns being achieved by the majority of existing operators cover operating costs. However, returns are below those an investor would require to encourage new investment to replace aging facilities or to stimulate new capacity in rest home, hospital and dementia services.

A comprehensive industry survey was carried out on costing as part of the costing component of the Review (**the Review Survey**). This survey had the highest provider participation rate of any comparable international study. Pricing was not included, although all income sources were surveyed and included within the results. Key findings from the costing component include:

- There has been limited investment in new aged residential care building stock in the last decade with stand-alone, standard residential care developments representing less than 5% of survey respondents' facilities. Co-located facilities (i.e. developments including retirement village and aged residential care facility on the one site) developed in the last decade made up a further 14% of facilities.
- Most of the recent investment in modern aged care facilities has been targeted at those with the financial capacity to make private contributions for their aged residential care services.
- The cost of providing rest home and dementia services has resulted in the lowest financial returns.
- The most efficient-sized facility is 80 beds plus, while half the sector operate facilities of 50 beds or less.
- Approximately half of New Zealand's building stock is now over 20 years old (although 58% have been refurbished to some extent) and facilities have an expected useful life of 20 to 30 years. The oldest facilities tend to deliver the lowest financial returns. It is noted that refurbishments have generally not been undertaken to a level consistent with the Greenfield model described in this Review.
- 37% of facilities were co-located with retirement villages, offering greater potential for continuity of care.
- 43% of all facilities, and 58% of facilities built in the last decade, charge some of their residents extra fees for additional services. The numbers of facilities charging extra fees have more than doubled since 2006.
- Average bed occupancy is 91% for rest home, 93% for hospital and 96% for dementia beds.
- In aggregate, operating costs of all services are covered but there are significant variations between the different service types.
- Earnings vary significantly and are often inadequate to cover interest and depreciation and provide an adequate return on investment to the provider.
- Total Greenfield capital costs are relatively similar across types of care. Total capital costs for a Greenfield facility range between approximately $160,000 per bed to $200,000 per bed, depending on land costs.

The total cost associated with the delivery of aged residential care services in an efficient and effective environment was measured as the aggregate of operating costs and the capital charge on land and buildings incorporating the operator's return of and on investment.

A Greenfield model was constructed based on the findings from the Review Survey, site visits and discussions with providers and other sector participants. This model is a proxy for a fully

modernised facility. Average operating costs in the sector are compared to Greenfield costs as set out in the table below.

Table 1
Greenfield and average operating costs

Facility type	Greenfield site per resident per day	Review Survey average historical costs per resident per day
Rest homes	$ 78.70	$ 81.90
Hospitals	$126.60	$134.77
Dementia units	$104.25	$108.21

Greenfield analysis is based on an efficient and effective provider. It is acknowledged that very few existing providers experience exactly these costs.

An annual capital charge for a Greenfield site was estimated based on various assumptions including construction costs, land costs, occupancy, depreciation rates, asset life, return on investment requirements, tax rates and inflation.

Total capital costs per resident per day based on three different land cost levels ($200, $350 and $500 per m^2) were calculated. **Table 2** presents total costs per resident per day (operating and capital) under the three land cost assumptions for Greenfield sites:

Table 2
Total costs per resident per day

Facility type	$200 / m²	$350 / m²	$500 / m²
Rest homes	$148.33	$155.31	$162.30
Hospitals	$196.23	$203.21	$210.20
Dementia units	$173.88	$180.86	$187.85

Note: Land prices vary greatly across New Zealand and the ranges provided in this analysis may not encompass the full range.

These total costs are only representative of the modern facility and should not be utilised to infer anything other than the challenge that faces the country if it is to ensure adequate investment into the future is forthcoming.

The Review project team assessed a fair rate of return for an efficient and effective provider in the sector to be between 11.3% and 12.9% after tax. Based on these assumptions, the operating profits being achieved by a significant proportion of current industry participants are below those required to justify investment in new capacity at current costs - particularly for rest home and dementia operators.

The analysis of Greenfield operating costs and a build up of the capital costs tested against the current environment provides a set of data not previously available to the sector, that may inform pricing and policy decisions over the next decade.

Workforce implications

Despite its aging characteristic, the workforce in the aged residential care sector is expected to adjust to market demand aging through mechanisms such as remuneration and population growth.

Over 33,000 people are currently employed in the aged residential care sector.

The Review has projected baseline workforce demand to 2026 by taking projected staff ratios multiplied by projected demand for aged residential care services.

The Review findings indicate that workforce demand will remain stable or grow slowly for the next five years and then grow rapidly by between 50% and 75% (on an FTE basis) by 2026. As a result, the proportion of the total workforce employed in the aged residential care sector will increase, but the increase when considering total New Zealand workforce numbers would be manageable.

The workforce employed in the sector has doubled over the last 20 years. Workforce supply is likely to adjust to demand over time both by increasing remuneration and by new workers entering the sector from the existing domestic workforce or from overseas. Retaining the nursing workforce will require more consideration than attracting support workers.

Models of care

The term 'models of care' has many different meanings. For the purposes of this Review, models of care have been defined as service configurations that may assist in addressing the demographic challenges facing aged residential care in New Zealand. The Review was charged with 'defining a limited number of service configuration scenarios' to address the aging of the New Zealand population. Those identified should not therefore be construed as being the only possible responses. Four scenarios have been identified as worthy of consideration.

- **Improvement in the current approach:** Addressing key issues in the current model.
- **Enhanced professional services in the community:** Development of professional services in the community to promote shifts in funding for acute hospital and other services to other service delivery types focused on prevention and quality of life considerations.
- **Individualised funding:** Empowering individuals to make their own choices, thereby reducing central coordination requirements.
- **Special purpose low income housing for the elderly:** Providing joint housing options for older people between their own home and residential care.

These options are not mutually exclusive. Many participants in the Review process have identified the need for 'supporting a continuum of care', and that multi-disciplinary teams and low income housing for the elderly currently represent the two most significant gaps in that continuum.

Improvement in the current approach

Key issues to be addressed in the current approach relate to projected capacity expansion and replacement, as well as resolution of issues of cost sharing of services for those who can afford to pay for a portion of their care. Other long-standing operating issues include access to, and development of, specialist services, workforce availability and capacity constraints, and the potential to develop payment systems based on individual client acuity levels.

Enhanced professional services in the community
Aged residential care residents, and home support clients, are provided services within the context of agreed services by provider organisations. The connections between aged residential care providers and other health service providers may be not be as well developed as possible resulting in higher utilisation of other services that are provided free to clients.

Findings from this component of the Review include:

- Acute hospital days of aged residential care clients are 27% higher than an available international benchmark in 2008 and even higher for high-needs home support clients.
- Emergency Department visits of aged residential care residents are roughly twice the level of an international benchmark.
- Prescription drug usage is 42% higher than an international benchmark when measured by number of prescriptions.

Enhanced integration of aged care and other health services has the potential to improve older people's outcomes and lower costs. It is, however, a complex structural change.

Generally, however, international programmes utilising enhanced professional services in the community have not been shown to reduce costs. This is primarily because the cost savings that can be achieved are often offset by increased longevity.

Achieving reductions in utilisation would require substantial improvements in clinical and professional resources in the community organised into some form of economic unit to provide services with more effective utilisation of resources.

Individualised funding
Devolving funding to the individual so they can manage their own care is regularly identified as a mechanism for organising the aged care sector – both within New Zealand and in international research. This is not a 'discrete service delivery alternative' but has been considered for completeness in the Review.

Special purpose low income housing for the elderly
There is a gap in New Zealand in the provision of supported housing for the low income elderly. Retirement villages meet this need for those with the financial means.

In addition, supply analysis undertaken in the Review suggests that 26,500 to 37,500 new aged residential care beds will be required by 2026. Accordingly, one option is to divert some portion of the required new beds to construction of community-based housing alternatives to meet the needs of those with limited means. This would still require capital investment in building stock but the nature of investment would be different.

Basis for analysis

The survey information on which the costing analysis in this Review is based has a high level of integrity. There were 389 responses from aged residential care facilities, with the 360 useable surveys representing about 61% of all beds operated in New Zealand. The response rate from the survey is the largest percentage response to any survey of its type globally.

The high response rate and the representative sample, along with follow-up visits and interviews, allowed for statistically robust analysis. Data and analysis from the survey was enhanced by drawing upon the New Zealand Aged Care Association's 2005-2009 Member Surveys, a previous New Zealand sector study from 2000, and overseas research.

The models and analysis developed within the components of the Review will provide a valuable tool for stakeholders to utilise to ensure the sector is able to provide facilities to meet the needs and growing demands of all aging New Zealanders.

2. Key recommendations

The widely recognised demographic pressure New Zealand will face over the next two decades in the over 65 aged group will place significant pressure on all services provided to older people.

This Review focussed on aged residential care services in recognition that significant and sustainable investment is required in order to ensure supply matches future demand. Any future investment will require significant preparation time. As such, clearly articulating the priorities pertaining to costing, demand, supply, workforce and models of care will enable the sector to move forward from a robust base ensuring the appropriate environment is developed to meet the challenges ahead.

Significant time, energy and resources have been expended in developing the Costing, Supply and Demand models. Each of these models contains a number of key assumptions which are based on the best information available at the time of the Review.

Previous reviews have produced point-in-time information but have failed to take into account sector, environmental, and economic changes that have occurred over time. Importantly, the models developed in this Review allow them to be regularly maintained for future use.

> *Recommendation One: Noting the significant forecast growth in the number of older people, greater public awareness and recognition must be given to the need for additional aged residential care services and funding to meet future demand.*
>
> *Recommendation Two: The steering group should ensure on an annual basis that it updates, monitors and reviews the key assumptions in the Costing, Supply and Demand models.*

There is a gap between the Greenfield costing model and the current aged residential care sector subsidised bed day pricing. There are many factors that influence this, including the fact that the Greenfield model is based on current capital costs of developing facilities, and that the model is designed around the 'efficient' provider of an 80 bed facility. Both of these factors have a significant impact when interpreting the results and determining the path forward.

> *Recommendation Three: Note that demand for aged residential care services over the next four years will largely be able to be met from existing capacity, however from around 2014 onwards, additional capacity will be required. To be ready for this demand there is a need to develop appropriate pricing and policy settings to ensure appropriate and timely investment. The lag time between changes in policy and pricing settings and capacity development means that this work needs to commence during 2010/11.*

Recommendation Four: Note Dementia has the highest rate of demand but an unsustainable rate of return, therefore it is unlikely to attract any future investment. As such, early priority needs to be given to address this.

Recommendation Five: Ensure appropriate existing market capacity is not lost.

Recommendation Six: Evaluate the costing results to recognise the difference in performance between urban and non urban providers, and providers in different regions to inform the validity of differences in TLA pricing models.

Recommendation Seven: Undertake additional analysis around the efficient frontier for providers to further inform the development of pricing and policy settings, particularly relative to the shorter term.

Recommendation Eight: Further analyse the data set that has been developed as a part of the Review to provide demand and supply modelling by DHB and region to ensure that initiatives and strategies are reflective of the regional demographic differences that are throughout New Zealand.

Recommendation Nine: Consider options to influence the market's rate of return expectations.

Recommendation Ten: Develop appropriate service models that support care delivery to unique clientele in differing locations.

Recommendation Eleven: Review the current regulatory environment and how this influences supply and demand with a view to supporting appropriate and targeted investment and models of care development.

The Review has identified the most efficient provider configuration being 80 beds. Under the current policy settings size, location and configuration are entirely determined by investors and developers responding to the market. Previous settings have been more regulatory through having managed bed policies. There are advantages and disadvantages of both approaches.

Recommendation Twelve: Evaluate the costs and benefits to providers and funders of a managed bed policy.

The Review has identified a number of options for consideration for developing further models of care to enhance aged residential care services, some of which will influence demand both within the residential care and the acute care environment. There is, however, no silver bullet and each option may work in different ways throughout the country, particularly recognising the different implications in the urban vs non urban setting, as well as the different socio-economic settings.

Recommendation Thirteen: Undertake a structured approach to pilot options around enhancing professional services in the community and low income housing and other models of care that support the elderly. Consideration in this process could also be given to improved short term care options and rehabilitation or transition care options. The results of this process should be utilised to influence longer term policy settings.

The Review identifies that the aged residential care workforce has grown over the past decade, however with the projected increase in demand this growth pattern needs to continue.

Recommendation Fourteen: Develop and evaluate initiatives to increase participation into the aged residential care workforce including but not limited to career pathways, the use of technology, ongoing training and support, flexible work options, and fair and sustainable remuneration.

This Review is the start of a long term process of ensuring that New Zealand retains a sustainable contemporary aged residential care sector that evolves to meet the demands of its aging population.

Recommendation Fifteen: The membership of the steering group should be reviewed and then tasked with the over arching objective of ensuring the report's initial recommendations are implemented and further opportunities are identified to continue the development and evolution of services throughout New Zealand.

3. Scope and structure of this report

The Review had the following objectives.

a. To indicate what are or would be the costs for fair and reasonable service delivery models provided by an efficient and effective provider. This will provide the basis for determining affordability of the current and potential models to guide future decision making as to the configuration of aged residential care (and broader services for the older person) to meet the future needs of older people.

b. To assess the current (baseline) and future demand for services against the current and future service delivery models of care available and indicate the resources required to meet such demand including workforce requirements recognising the changing environment and significant growth in the numbers of older people that is projected to occur in the future. It will consider the timeline required to ensure that appropriate investment is made in infrastructure, both physical and staffing.

The Steering Group agreed the following problem statement for the Review to address:

> *"Given the projected needs of older New Zealanders and the limited resources available to meet those needs, how do we identify and define a limited number of future service configuration scenarios within the aged residential care sector and related service areas that meet criteria of cost effectiveness, efficiency and quality.*
>
> *This project is focused on aged residential care and will consider the impact of well grounded assumptions for changes in:*
>
> - *Home support*
> - *Housing*
> - *Acute services."*

The four broad components of the Review are as follows:

- Costing - addressing what are the costs associated with fair and reasonable service delivery models provided by an efficient and effective provider, presented in **Section 6**.
- Facilities demand and supply - forecasting to assess the current (baseline) and future demand for services and the resources required to meet such demand, presented in **Sections 7 and 8**.
- Workforce demand and supply - to address future sector workforce requirements, presented in **Sections 9 and 10**.

- Models of care - addressing the identification of service configuration scenarios, presented in **Section 11**.

The Review's findings and recommendations must be read with reference to the actual scope of the Review, limitations of the data sources available and the assumptions that necessarily need to be made in the work undertaken. Key assumptions that have been made are referred to in detail within the relevant sections of this report.

The Review has been jointly sponsored by the DHB Lead CEO for aged residential care and the Chief Executive of the New Zealand Aged Care Association. A Steering Group made up of sector and government representatives has managed the project. The Review project team has been assisted by an Expert Advisory Panel consisting of clinicians, academics and representatives from the providers and DHBs. The Review participants are acknowledged in **Section 4**.

4. Review participants

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5. Abbreviations

ACC	Accident Compensation Corporation
ACFI	Aged Care Funding Instrument
ARRC	Aged Related Residential Care
AT&R	Assessment Treatment and Rehabilitation
CAPM	Capital Asset Pricing Model
CCPS	Client Claims Processing System
CDC	Consumer Directed Care
COSE	Coordinator of Services for the Elderly
CMS	Contract Management Services
DHB	District Health Board
DHBNZ	District Health Boards New Zealand
EAP	The Expert Advisory Panel for this Review - refer Section 4
EBITDAR	Earnings before interest, tax, depreciation, amortisation and rent
ED	Emergency Department
FTE	Full Time Equivalent
GP	General Practitioner
HCPNZ	Health Care Providers New Zealand
LEED	Longitudinal Employer Employee Dataset
MOH	Ministry of Health
MSD	Ministry of Social Development
NASC	Needs Assessment and Service Co-ordination Service
NGO	Non-Government Organisation
NHI	National Health Index
NZACA	New Zealand Aged Care Association (formerly HCPNZ)
OECD	Organisation for Economic Cooperation and Development
OPAL	Older Persons' Ability Level Census
PACE	USA Programme For All-Inclusive Care for the Elderly
PHO	Primary Health Organisation
RCS	Residential Care Subsidy
Review project team	Grant Thornton led Review project team - refer Section 4
Review Survey	The provider survey conducted as part of this Review
RUGs	Resource Utilisation Groups
Steering Group	The steering group for this Review - refer Section 4
SoFIE	Statistics New Zealand Survey of Family, Income and Employment
WACC	Weighted Average Cost of Capital
YPD	Young Physically Disabled

6. Costing

6.1 Introduction

A major component of the Review is a costing study of the aged residential care sector. The primary objective associated with this component is outlined in the Review project objectives:

> *"To indicate what are or would be the costs for fair and reasonable service delivery models provided by an efficient and effective provider. This will provide the basis for determining affordability of the current and potential models to guide future decision making as to the configuration of aged residential care (and broader services for the older person) to meet the future needs of older people".*

The development of reliable costing models within this study has drawn from Grant Thornton Australia's *Aged Care Survey 2008*, the Joseph Rowntree Foundation's *Calculating the Fair Market Price for Care 2008 and 2009,* and, in New Zealand, the *PricewaterhouseCoopers/Health Funding Authority Aged Residential Care Pricing Implementation 2000*.

To ensure reasonable cost parameters, consideration has been given to the key cost elements of aged residential care, particularly:

- Staff costs in an efficient service environment
- Non-wage expenditure
- Cost variability between geographical regions
- Trend information relating to key cost and revenue drivers including occupancy, scale efficiency, rostering, agency costs, resident profile and dependency levels, construction costs, resident fees and subsidies, facility type and age.

To achieve the costing component objective, the Review project team undertook a comprehensive survey of the industry. In addition to informing the remaining sub-components of the study on resource utilisation trends, the Review Survey is intended to provide empirical evidence relating to the cost elements above.

This enabled the Review project team to define the characteristics of an 'efficient and effective provider' and establish the operating environment upon which a 'Greenfield' costing model could be developed. These concepts are explored further in **Section 6.3 – Methodology**.

The Review Survey data captures information as at 31 March 2009. To supplement the findings the Review project team has referred to the New Zealand Aged Care Association Member Surveys for 2005-2009. The financial information in this report relates to operating environments under the 2009 regulatory model. Comparative analysis for future periods must take into account any changes in the regulatory model.

The Review scope contrasts the Review's costing objectives with the pricing objectives of previous reviews:

> *"It is noted that **costing** does not equate to **pricing**. Once the costing models are clear, consideration of pricing, including various income sources will need to be considered. This is not part of the brief for the Review but information that may influence this is likely to be discussed."*

To meet this requirement, comprehensive data has been collected on income sources as well as cost elements. This empirical analysis provides insights into the working of New Zealand's aged residential care sector not previously available for policy development or investment appraisal.

The Review Survey collected comprehensive information on the earnings performance and resource consumption of operators throughout New Zealand. It also collected data on capital costs for new facilities built in the last five years, supplemented by consultation with providers who have developed facilities with the characteristics of fully modernised homes during that period. The Review project team has assessed a fair rate of return on investment, which has been applied to these costs to determine capital costs for providers of aged residential care services in modern service environments. This analysis provides invaluable information for providers regarding their investment decisions in aged residential care facilities.

The financial models developed through the research will support further examination of industry activity and trends.

6.2 Executive summary

The research undertaken in the Review costing component has been informed substantially by the Review Survey of New Zealand aged residential care providers. The promotion of this initiative by the New Zealand Government and industry representative bodies resulted in a strong response covering approximately 61% of operational beds across the country. This has allowed a comprehensive analysis of:

- Service types
- Provider sectors – For Profit and Not for Profit
- Group and stand-alone structures
- Operating models.

Analysis of survey responses was supported by extensive consultation with survey participants, major industry operators and sector experts. The research has enabled the Review project team to present critical information regarding investment trends and resources consumed in the delivery of residential aged care services in hospitals, rest homes and dementia units.

Members of the Review project team include international experts with considerable experience of aged care models operating inside and outside New Zealand. The experience of the Review project team was that New Zealand aged residential care services are of a high standard.

Importantly, the modern sites visited were found to offer superior care continuity and flexibility for residents. In more recent aged care developments, integrated solutions in retirement living, serviced apartments and residential care have led to the establishment of services and building designs that reflect contemporary consumer demand and care/accommodation priorities.

In the Review, operating and capital costs for aged residential care are presented for Greenfield sites, which represent cost profiles for efficient operators of modern facilities. The term 'Greenfield' is a descriptor for fully modernised homes. It should be emphasised that these benchmarks involve the modelling of operating conditions that will not be achievable for all operators. Average operating costs of Review Survey respondents compared to Greenfield operating costs are presented in **Table 3** below.

Table 3
Greenfield and average operating costs

Facility type	Greenfield site per resident per day	Review Survey average historical costs per resident per day
Rest homes	$ 78.70	$ 81.90
Hospitals	$126.60	$134.77
Dementia units	$104.25	$108.21

Total costs of aged residential care services are the aggregate of operating costs and the capital charge on the cost of building the facility (incorporating the operator's return of and on investment). The capital charge is a function of the capital investment and the operator's required rate of return on investment.

The Review project team has assessed a fair rate of return for an efficient and effective provider in the sector to be between 11.3% and 12.9% after tax, with a mid-point of 12.1%. Capital costs associated with the construction and fit-out of fully modernised homes modelled as Greenfield sites are shown in **Table 4**. Land costs will vary depending on the location of the facility and are not included in the figures below. Details of the profiles of the Greenfield models are provided in **Section 6.8**.

Table 4
Capital costs

	Per square metre	Cost per bed
Construction and fit out costs (excluding land costs)	$2,950	$132,750

Total operating and capital costs per resident per day under three land cost assumptions are summarised in **Table 5**, **Table 6** and **Table 7**.

Table 5
Cost summary per resident per day (land price $200/m^2)

Facility type	Operating costs	Capital costs	Total costs
Rest homes	$ 78.70	$69.63	$148.33
Hospitals	$126.60	$69.63	$196.23
Dementia units	$104.25	$69.63	$173.88

Table 6
Cost summary per resident per day (land price $350/m^2)

Facility type	Operating costs	Capital costs	Total costs
Rest homes	$ 78.70	$76.61	$155.31
Hospitals	$126.60	$76.61	$203.21
Dementia units	$104.25	$76.61	$180.86

Table 7
Cost summary per resident per day (land price $500/m^2)

Facility type	Operating costs	Capital costs	Total costs
Rest homes	$ 78.70	$83.60	$162.30
Hospitals	$126.60	$83.60	$210.20
Dementia units	$104.25	$83.60	$187.85

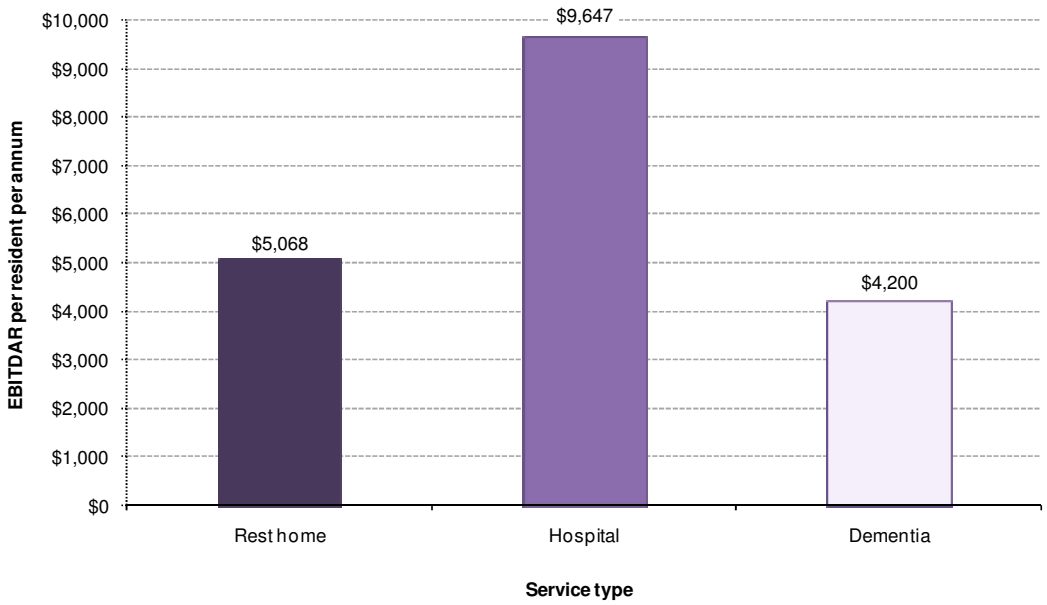
The level of investment in new residential care building stock in New Zealand remains low. While there has been investment in a declining market, the number of stand-alone, standard residential care developments in the past decade represents less than 5% of facilities surveyed. Most of these were commissioned by Not for Profit organisations (which control a minority and contracting share of the market) or by facilities co-located with retirement villages generally aimed at the privately paying end of the market.

Like Australia and the United Kingdom, most of New Zealand's investment in modern aged care infrastructure is targeted at those with the means to make private contributions towards their accommodation and services. This has only developed in the last four years due to legislative change impacting the sector and differences in how regulations for the levying of additional charges to residents are interpreted have created uncertainty around ongoing user pay arrangements. This has discouraged investment in premium facilities. Approximately half of New Zealand's building stock is now over 20 years old.

Analysis of the Review Survey reveals that financial returns for rest home and dementia operators are particularly low and redeveloping older facilities has not been a viable option for most operators. This analysis presents provider financial returns at the level of earnings before interest, tax, depreciation, amortisation and rent (**EBITDAR**). This allows comparison of operating performance in a sector-neutral way without the influence of differential tax or financing arrangements.

The Review Survey analysis confirms other recent New Zealand research that has identified increased resident functional dependence in the sector, particularly in rest homes. The survey analysis found that the costs associated with managing higher acuity levels has resulted in comparatively low returns to rest home and dementia unit operators as presented in **Figure 2**.

Figure 2
EBITDAR per resident per annum by service type



In a rapidly changing environment, the continuing evolution of New Zealand's aged care policy and funding arrangements are critical to ensuring quality and accessibility for future generations. It is also vital to encourage industry investment by providing greater certainty (even though, as noted above, some new investment has occurred). This report highlights some of the areas where focus is required to support these objectives. They include:

- The capacity to enhance service integration and continuity of care through flexible funding arrangements
- Potential sector efficiencies through consolidation and the redevelopment of smaller facilities
- The declining representation of the Not for Profit sector and the significance of this for the industry
- The need to recognise revenue and cost differentials for operators in rural/regional settings and those supporting residents with particular cultural/social needs.

These issues are discussed in **Section 6.4**.

6.3 Methodology

As outlined earlier, the principal objective of the costing component of the Review is to derive reliable information which accurately reflects the resources required to deliver aged residential care services in an efficient environment. Costing models have been developed to determine key cost and revenue elements relevant to service delivery to enable forecasting and option development for the future.

In consultation with the Steering Group, the Review project team determined that a comprehensive survey of the aged residential care industry was essential to derive these cost and revenue elements. A major national survey of provider resource utilisation and financial performance has not been conducted before in New Zealand, and is fundamental to determining current state and baseline costs within the sector.

The guiding principles for the capture of data through the Review Survey instrument and analysis of results are outlined in **Appendix B**.

Information derived from the cost and revenue data extracted from the Review Survey has facilitated the development of Greenfield fully modernised facility models, which have enabled modelling of resource requirements for efficient, effective service providers.

The Greenfield model was adopted to establish the cost of fair and reasonable service delivery by an efficient and effective provider. The capital investment associated with Greenfield sites, as specified in **Section 6.8**, is adopted as the capital base for calculating the required return on and of provider investment.

To achieve the objectives of the costing component, the Review project team:

- Designed the Review Survey instrument
- Promoted the survey initiative to aged residential care providers
- Designed and built survey models
- Reviewed and vetted the provider data submitted
- Developed Greenfield models from combined data sets and consultation with providers
- Established a fair rate of return and capital costs for the provision of aged residential care services.

This methodology is summarised below.

6.3.1 Review Survey instrument design

To ensure all components of the Review were considered the Review project team sought input from a range of stakeholders into the Review Survey content and identified information required from providers for the other components of the Review. The Review Survey instrument was developed with input from New Zealand public sector representatives, aged care providers and costing experts on the Expert Advisory Panel (**EAP**).

A copy of the final Review Survey instrument is provided in **Appendix C**.

6.3.2 Review Survey promotion and distribution of survey instrument

In collaboration with the Steering Group, a strategy was developed to encourage participation from the maximum number of participants. Key activities included:

- Correspondence from District Health Boards New Zealand (**DHBNZ**) and New Zealand Aged Care Association (**NZACA**) to all NZACA aged residential care provider members
- Subsequent follow up of providers by NZACA and other peak bodies
- Review project team follow up with other providers
- Review project team consultation with major operators and presentations at NZACA's National Conference
- Publications and media releases.

Over 60% of all New Zealand's aged care beds were covered by responses to the Review Survey. The high response rate is unprecedented when compared to other similar studies internationally and resulted in the development of costing models that produce statistically robust analysis for all target elements outlined in **Appendix B**.

6.3.3 Design and construction of costing models

The Review Survey models developed for the Review costing model were adapted from Grant Thornton models and databases previously used in Australia. This enabled more comprehensive analysis and vetting of cost and revenue drivers using benchmark information from New Zealand and Australia. The process facilitated the establishment of 'reasonable parameters' to apply to Review Survey inputs – wages, roster information, catering, laundry, cleaning, etc.

The analysis presented in **Section 6.6** relates specifically to the project objectives described earlier and represents only a part of the Review costing model's capabilities. The model has been designed to facilitate further analysis in support of strategic policy development and provider benchmarking in the sector.

6.3.4 Vetting of participant data

Survey responses were received from the majority of aged residential care facilities throughout New Zealand. Data was filtered through Grant Thornton's international aged care data bases to ensure its reasonableness. Initial tested data was then used to establish New Zealand benchmark parameters for the validation of the remaining data.

The quality of information varied considerably and the model reasonableness parameters identified numerous deviations that required direct follow up with Review Survey respondents.

6.3.5 Analysis of data and Greenfield model development

The process resulted in the production of normalised data on financial costs, revenues and financial returns of providers under a wide variety of operating scenarios. This information was subjected to comprehensive modelling procedures to establish:

- The key drivers of financial performance
- Interrelationships between financial outcomes under a variety of operating models, including:
    - Facility quality, layout, design and age
    - Geographical region
    - Facility scale
    - Portfolio scale
    - Service speciality
- Cost averages, ranges, quartile results and standard deviations.

This data was instrumental in determining the resources required under current service delivery and funding arrangements. Analysis of the data is provided in **Section 6.6**. Project parameters, cost definitions and 'efficiency' principles were defined and consultation with representatives from the Expert Advisory Panel undertaken, to ensure that modelling and analysis were focused on high priority areas.

Because the design of 'fully modernised homes' is often influenced more by consumer choice than government building standards, the modelling of the Greenfield facilities involved the 'building up' of operating costs and infrastructure by:

- Specifying industry standards for efficient, modern, purpose-built capital structures (buildings, plant and equipment)

- Establishing operating standards and expectations for each cost category. Each cost standard is dependent on two sub-components: quality standards (e.g. care hours) and pricing standards (e.g. care staff costs/hours).

To verify the data, Review project team members visited participant sites that exhibited the characteristics of the modern, efficient operations upon which the Greenfield sites were modelled. In consultation with facility managers and administrators, roster and costing data was refined to ensure the robustness of cost analysis developed from the empirical survey evidence.

The Review project team was required to determine the capital costs of building and fitting out the fully modernised facilities modelled as Greenfield sites. This process was conducted through the survey and in consultation with industry representatives responsible for recent developments.

The assumptions, definitions and parameters used in the Greenfield models are discussed in **Section 6.8**.

6.3.6 Determining a fair rate of return of and on investment

The Review project team considers that a fair rate of return on investment for the provision of aged residential care services in an efficient and effective environment is represented by the weighted average cost of capital (**WACC**) of an operator of aged care residential services in this environment.

WACC represents a weighted average of the required rates of return of debt and equity investors in the operating entity weighted by the relative amounts of debt and equity in the capital structure that is appropriate to the investment. The required rates of return of debt and equity are market-based assessments derived using traditional asset pricing models with reference to current market evidence.

The Review project team's assessment of WACC has included empirical research and analysis of the required rates of return of operators in the aged residential care sector locally and internationally. The estimation the required rate of return on equity included analysis of local and international equity return data from public and proprietary global data sources. The cost of debt was estimated from research of local debt markets and discussions with major debt providers to the sector. This analysis was supplemented by interviews with selected local operators and debt and equity investors in the sector (particularly regarding their investment return expectations), and discussions with other specialist valuers in the sector. As a cross check, the Review project team evaluated this evidence and its own assessment of WACC against the expected rates of return implied by prices paid in recent sale and purchase transactions in the sector.

The Review project team developed a methodology that applies the fair rate of return to the operating and capital costs of the fully modernised facilities modelled as Greenfield sites in **Section 6.8**. The methodology calculates the annual facility income required – once operating costs are covered – to deliver the operator a fair return on and of the capital investment. This amount is referred to as an 'annual capital charge'.

The calculation of an appropriate annual capital charge is dependent on the level of capital investment in the facility. The level of investment in existing facilities within the sector varies widely, depending on such factors as the size of the facility, design and amenity standard, age, geographical location and service mix. Accordingly, there are challenges in defining a 'standard' against which to measure the level of capital investment in existing facilities.

The prices that have been paid for existing facilities vary significantly, and generally reflect the current financial returns expected by operators along with current market expectations of rates of return in the sector. Prices can vary significantly because of the factors above. In general, prices paid for existing facilities expressed on a per bed basis are less than the cost per bed to construct new facilities.

The Greenfield model has been adopted to establish the cost for fair and reasonable service delivery provided by an efficient and effective provider. The capital investment associated with the Greenfield sites, as specified in **Section 6.8,** has been adopted as the capital base for calculation of the annual capital charge.

6.3.7 Establishing total costs of delivering aged residential care services

The total costs associated with the delivery of residential aged care services in an efficient environment is represented by the sum of:

- Operating costs attributable to the Greenfield sites modelled
- The annual capital charge incorporating a fair return on and of investment in those sites.

These costs are considered in **Section 6.8**.

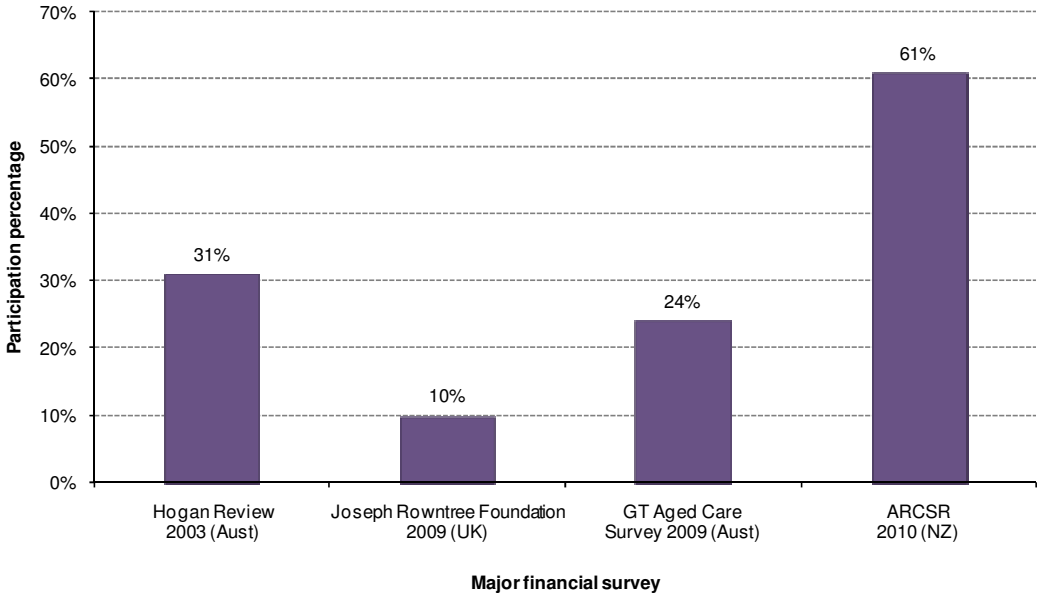
6.4 Survey participation and provider profiles

Participation levels

The methodology employed to promote participation in the Review Survey resulted in a very strong response rate. 389 aged residential care facilities participated in the Review Survey. Only 29 responses could not be used because of the quality of their submissions. Follow up with 24% of facilities helped to ensure the high utilisation rate achieved. The 360 useable survey responses represent approximately 61% of all beds operated in New Zealand.

Figure 3 presents a comparative analysis of the participation levels achieved in similar major research in Australia and the United Kingdom.

Figure 3
Survey responses in major financial surveys



A high level of participation was deemed critical for the Review Survey because reliable financial data on the operation of the sector has not previously been available in New Zealand. In the absence of robust empirical evidence, decisions regarding alternative business models have relied heavily on anecdotal experience and internal benchmarking.

A comprehensive data set for the sector is also critical in the development of costing models because of the diversity of operating models and provider structures. Overall, the Review Survey captured statistically robust information on:

- Aged residential care service types
- For Profit and Not for Profit sectors
- Geographical spread of participants
- Group and stand-alone operating structure
- Ownership models
- Mixed and discrete service facilities.

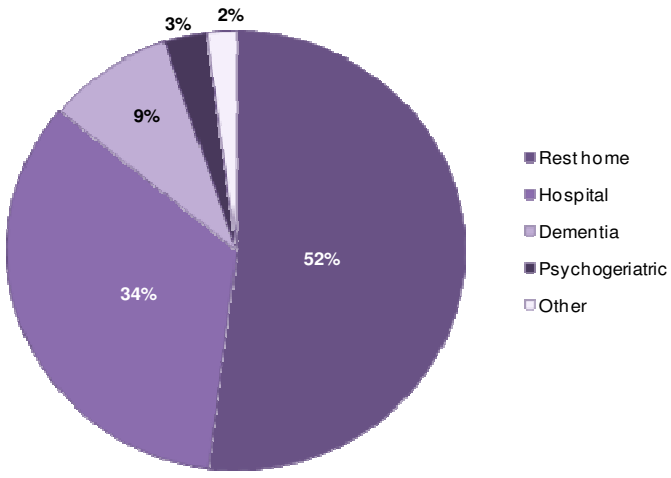
Robust data on staff resource consumption is critical because wages typically represent approximately 70% of total operating costs. To validate the roster information provided by operators, an aged residential care roster specialist from the Review project team worked with selected providers at their facilities to refine the Review Survey results.

As discussed, the information presented in this report represents a small portion of the total analysis available from the models developed in this Review. The development of strategic health policy will require more detailed analysis of the data, and the value of the models will be enhanced through an ongoing review of sector profile and performance. In this way, the impact of changing policy and consumer needs can be gauged, facilitating proactive and innovative approaches to service delivery and regulatory reform.

Service types

The representation of service types in the Review Survey was strongly correlated to the profile of aged residential bed types in New Zealand, as shown in **Figure 4**. The data is consistent with the sector profile statistics previously collected by DHBNZ and NZACA.

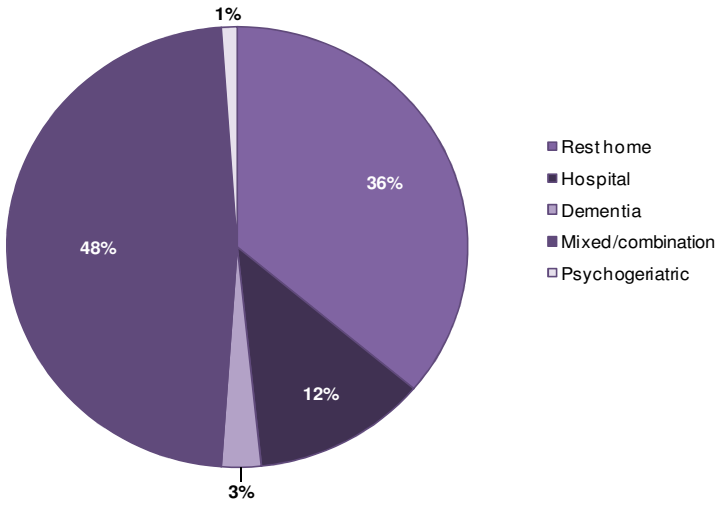
Figure 4
Analysis of beds covered in the survey



Perhaps one of the most challenging aspects of the survey involved the nearly 50% of operations with a combination of service types (rest homes, hospitals and/or dementia units) on one site (see **Figure 5**). Most such operators do not account for revenues and expenses by service type but treat the entire facility as a single cost centre.

By drawing data from stand alone sites as a basis of extrapolation, the Review project team was able to isolate performance and costing data at a service level for combined sites. This information was combined with staff resource data provided for combined facilities and roster information obtained during site visits.

Figure 5
Analysis of beds covered in the survey by facility profile



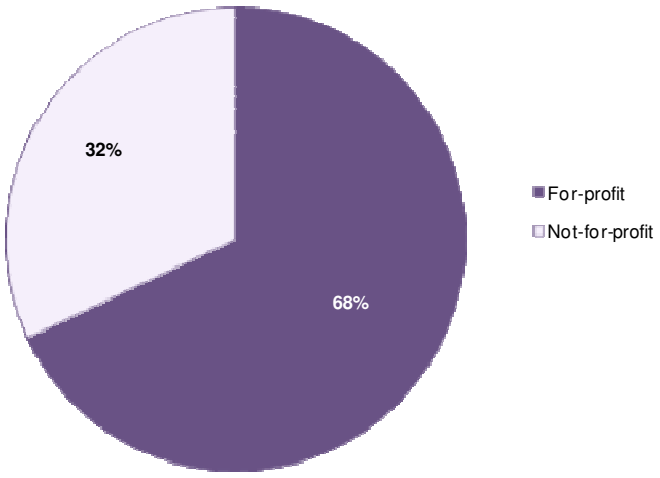
The delivery of a mixture of service types on one site is an excellent example of the adaption of service models to meet consumer demand. Providing a variety of services for people with different levels and types of functional dependency not only improves access options for new residents, it also facilitates a continuum of care for those whose care needs change after admission to the site.

These service models were a feature of most of the modern facilities visited by the Review project team. With growing social diversity and varying disabilities among future elderly generations, the sector can expect demand for greater flexibility in services delivery at residential care sites.

Industry sectors

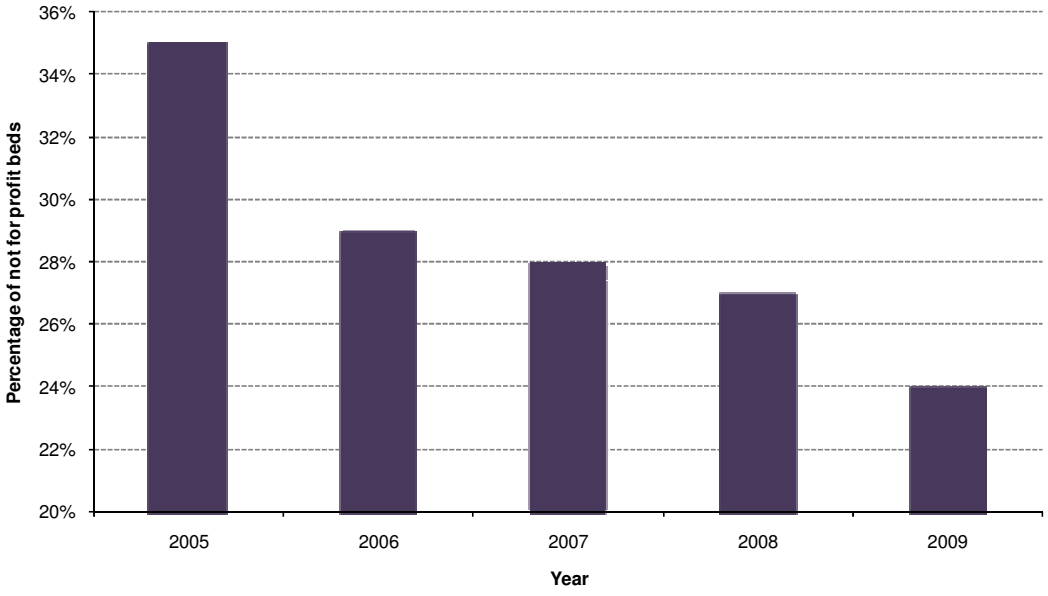
The Review Survey drew strong participation from both the For Profit and Not for Profit sectors. As shown in **Figure 6,** approximately two-thirds of aged residential care facilities in New Zealand are controlled by For Profit operators. This contrasts to Australia, where Not for Profit providers operate most facilities.

Figure 6
Representation of For Profit and Not For Profit facilities in the Review Survey



Research undertaken by NZACA among its members indicates that the level of participation by Not for Profit operators is declining – refer **Figure 7**. Note that the NZACA member base has a lower level of Not for Profit participants than the sector in general.

Figure 7
NZACA Survey – Representation of Not for Profit beds in the sector



The involvement of Not for Profit operators in the aged care industry has important implications.

Firstly, most Not for Profit operators in developed economies focus on the delivery of services to the financially disadvantaged, people in remote locations and those with needs not sufficiently met by mainstream residential care programmes. The analysis shown later at **Table 9** indicates that the majority of new stand-alone, non-extra charge facilities recently developed in New Zealand have been built by Not for Profit organisations.

Secondly, the principal goals of Not for Profit organisations tend to diminish financial returns (refer **Section 6.5**) and, without appropriate support, can reduce their capacity to rejuvenate their building stocks and asset bases.

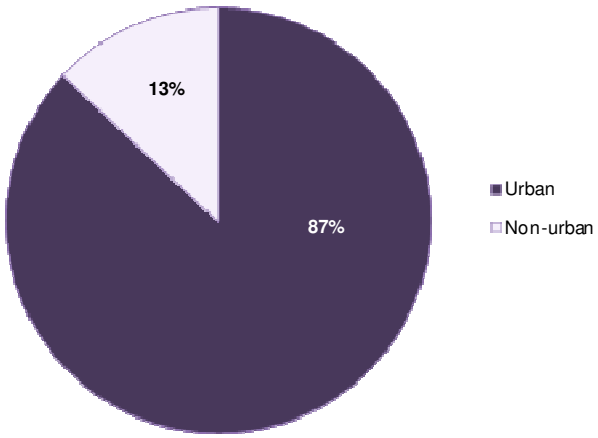
A sustainable funding system should encourage participation from both the For Profit and Not for Profit sectors. International experience indicates that the principles of equity, quality and access to appropriate aged care services can be enhanced through a strategic balance of government subsidies and consumer contributions that encourage participation from all sectors. This is considered further in **Section 6.5**.

Regional distribution

Figure 8 illustrates the distribution of survey participants between urban and non-urban facilities. Unlike Australia, New Zealand operators are not officially designated as urban, regional or rural, and respondents to the Review Survey had to indicate whether they were located in an urban or non-urban setting.

Regional location of facilities is important, as international research indicates that facilities located in, or close to, city centres tend to record stronger financial results than rural and remotely located services. This is the case in Australia and the Review Survey responses indicate it is also in New Zealand, as discussed in **Section 6.5**.

Figure 8
Regional settings for facilities



There was a high response rate to the Review Survey across all DHB regions. Although low respondent numbers in smaller regions limit the comparative value of some costing/performance results, there was generally a high degree of consistency across all major regions, as discussed in **Section 6.5**. Statistically, the metropolitan Auckland DHB was under-represented in its proportion of participants relative to other major regions. Consequently, Review project team members visited facilities in the region to ensure no regional impacts were missed in the analysis.

Figure 9 shows the participation level in each DHB region.

Figure 9
Distribution of Review Survey responses throughout New Zealand

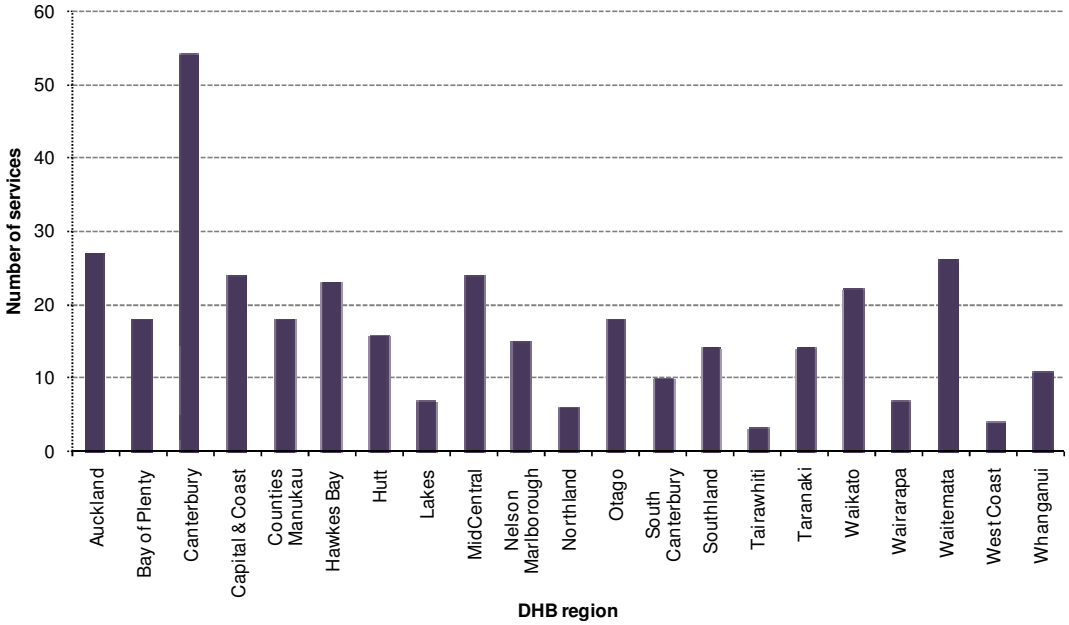


Table 8 shows the regional participation levels in the Review Survey:

Table 8
Regional participation levels

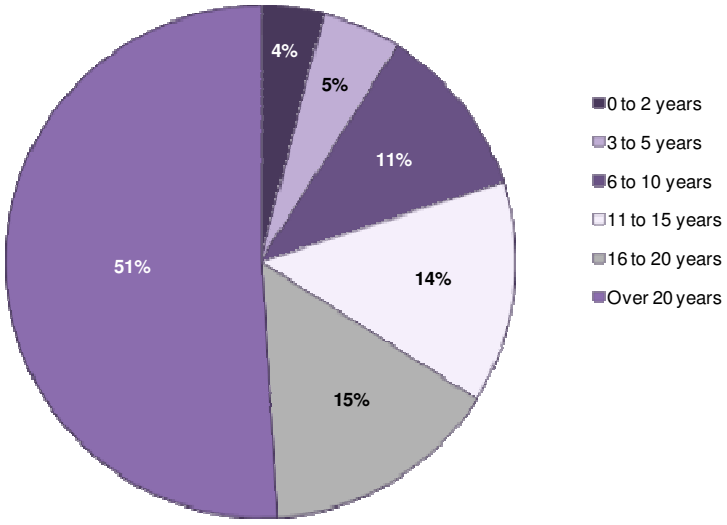
DHB region	Number of responses (by beds)	Number of beds in DHB region	% covered in survey
Auckland	1,794	4,237	42%
Bay of Plenty	1,104	1,561	71%
Canterbury	3,596	5,068	71%
Capital and Coast	1,348	1,908	71%
Counties Manukau	1,217	1,898	64%
Hawkes Bay	1,168	1,281	91%
Hutt Valley	982	1,038	95%
Lakes	388	813	48%
Mid Central	1,150	1,593	72%
Nelson Marlborough	774	1,340	58%
Northland	314	1,075	29%
Otago	1,127	1,960	58%
South Canterbury	485	633	77%
Southland	777	1,017	76%
Tairawhiti	186	314	59%
Taranaki	566	1,208	47%
Waikato	1,404	2,591	54%
Wairarapa	308	412	75%
Waitemata	1,486	2,900	51%
West Coast	228	291	78%
Whanganui	451	648	70%
Total	**20,853**	**33,786**	**61%**

Note: Bed numbers by DHB region are estimates provided by NZACA.

Facility building profiles

The age profile of facilities in the Review Survey, shown in **Figure 10,** reveals that a high proportion of New Zealand's aged residential care building stock is now dated, with over half of facilities aged over 20 years.

Figure 10
Age profile of facilities surveyed



The functionality and ambience of institutional facilities dates quickly, and most aged residential care facilities can expect a useful life of 20 to 30 years. After that time, they are due for redevelopment or major refurbishment. Of the 51% of facilities that indicated they were over 20 years old, 58% had been 'renovated' in the last five years.

As discussed above, most modern facilities in New Zealand are built to accommodate changing functional dependency levels among residents. This means that modern rest homes tend to have larger rooms designed for higher acuity residents (wider doors and corridors, more storage, etc). This allows residents to remain in the facility (or their own room) regardless of their original dependency level. This concept is explored in the context of new facility construction costs in **Section 6.8**.

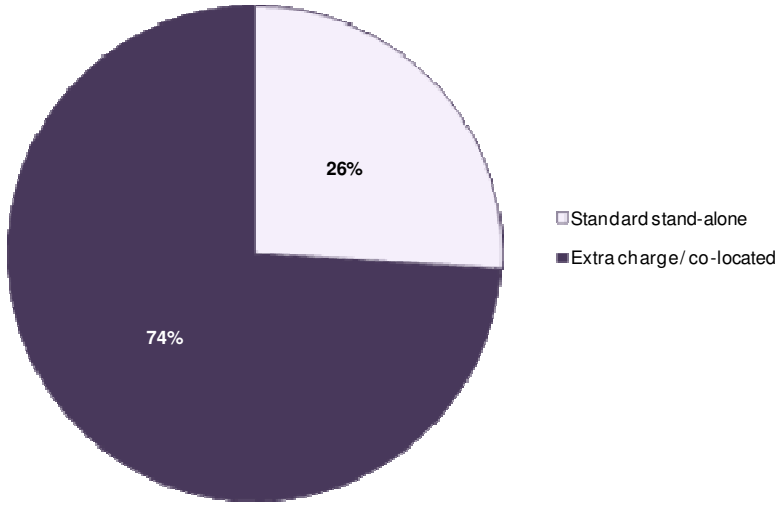
Critically, the oldest facilities tend to generate the poorest financial returns. Many operators struggle to achieve reasonable occupancy levels and many find it difficult to attract staff. The financial performance implications of this are considered in **Section 6.5**.

Given the level of aged care service substitution experienced in New Zealand (as described in **Sections 7** to **10** of this report), and depending on assumptions about future demand and the lifespan of stock, total investment required in the sector by 2026 could be the equivalent of between 78% and 110% of current stock.

The future investment required to upgrade the sector's infrastructure provides opportunities for sector participants but is a challenging prospect for the industry as a whole. Further discussion of this is presented **Sections 7** to **10**.

Figure 11 presents the profiles of the Review Survey facilities built in the past decade. 20% of the 360 facilities that responded to the Review Survey have been built since 1999 and three quarters of those are extra charge facilities or have been built as part of a co-located retirement village offering.

Figure 11
Profile of facilities constructed since 1999



As set out in **Table 9**, only 17 facilities in the survey were built as a stand-alone facility without extra charges, and over half of these were built by the Not for Profit sector.

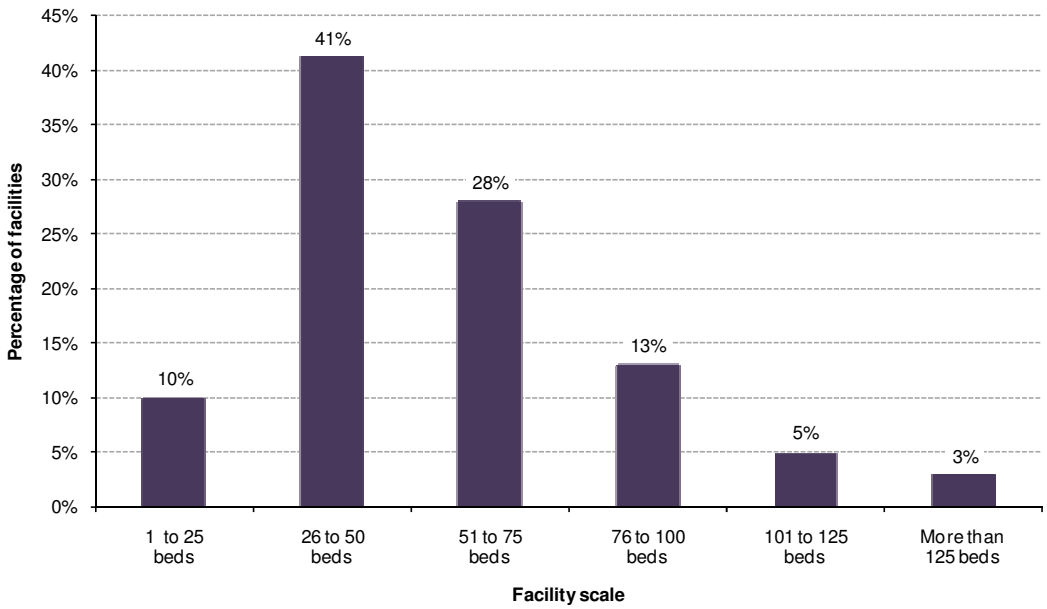
Table 9
Profile of facilities built since 1999

Sector	Stand alone: extra charging	Stand alone: no extra charging	Co-located
Profit	14	8	26
Not for Profit	1	9	15
TOTAL	**15**	**17**	**41**

These findings are consistent with trends in the United Kingdom and Australia where recent and planned developments are largely focused on higher wealth consumers.

The analysis of facility scale/size is based on combined service types (mixed operations, that are treated as a single facility as described previously). The distribution of facility sizes is shown in **Figure 12**. The Review Survey profiles are consistent with the analysis undertaken in past HCPNZ (now NZACA) Member Surveys.

Figure 12
Facility scale distribution



The analysis of service scale is critical. Grant Thornton's international research indicates that other than management proficiency, facility size and layout have perhaps the greatest influence of any factor on the financial performance of facilities.

On average, larger facilities achieve scale efficiencies which contribute to improved operating results. The Review Survey data indicates that the majority of New Zealand facilities are in the 26-50 bed range, well below the highest performing range of 76-100 beds (refer **Section 6.5**).

This suggests that there is capacity to improve efficiency through further consolidation and redevelopment of smaller facilities (assuming that appropriate consideration has been given to demand and competitive elements within the facility catchment area).

It also emphasises the need to recognise the limitations associated with operating in environments where scale efficiencies cannot be achieved, such as rural settings.

Average facility and room sizes for facilities in the survey are summarised in **Table 10**.

Table 10
Average facility and room sizes

Facility age	Average facility area per bed	Average room size
Facilities built in last 5 years	41 m^2	16 m^2
All facilities in the survey	37 m^2	14 m^2

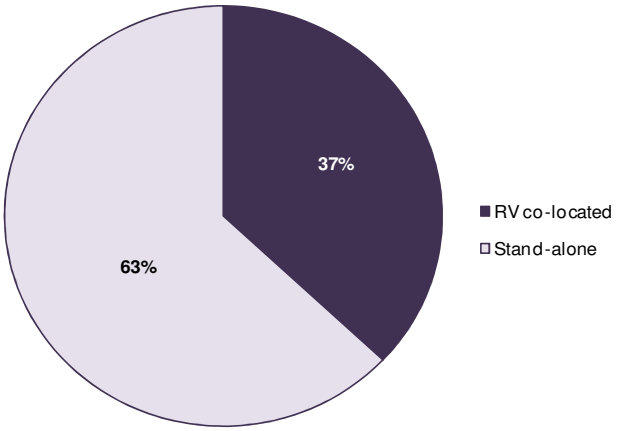
Facility operating models

In addition to the mixed/combined operating models previously discussed, a greater proportion of modern facilities are operating with swing beds, extra charge arrangements, or as part of a wider service offering within a retirement village.

Retirement villages/serviced apartments

Figure 13 shows the ratio of aged residential care facilities amongst survey respondents that are co-located with retirement villages and/or serviced apartments. Although New Zealand retirement villages were historically influenced by Australian models, the modern villages visited by the Review project team have evolved considerably from these origins.

Figure 13
Analysis of stand-alone and co-located residential care facilities



Integrated retirement villages are characterised by service models and infrastructure designs that offer greater care continuity and convenience for residents. Flexibility in client transitions between retirement living, serviced apartments and residential care has facilitated the establishment of high quality services and building designs that reflect consumer demand and care/accommodation priorities.

International experience indicates that greater certainty regarding aged care policy and funding arrangements contributes to a higher level of investment in these forms of accommodation.

Swing beds

The Aged Related Residential Care (**ARRC**) contract, which governs the current funding arrangements between providers and the DHBs, first allowed for the use of 'swing beds' by providers in 2006. A facility providing swing beds can alter its resident mix between rest home and hospital beds to accommodate demand. 61 facilities (17%) in the Review Survey had operational swing beds.

As discussed earlier, the provision of swing bed services requires the facility to be certified at hospital level and demonstrate appropriate staffing arrangements to meet care needs.

In New Zealand, swing beds can not only improve resident outcomes by enabling admission into the facility of choice, but also allow residents to remain in the same facility even when their care needs change. From the provider's perspective, expanding demand will directly improve occupancy levels.

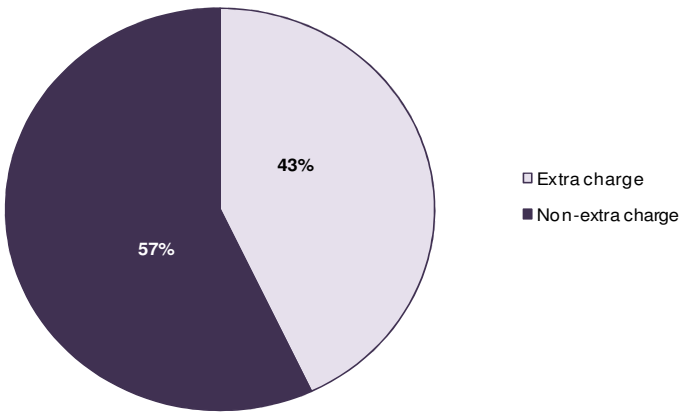
The challenge with swing beds is in managing resource allocation in the face of disparate resident functional dependency levels within a single facility. Roster management in this environment can be difficult and the staffing logistics associated with supporting residents with dissimilar acuity levels has proven more costly under similar models in Australia. The impact in the early stages for New Zealand is considered in **Section 6.5**.

Extra charge facilities

Another emerging business model in New Zealand is the provision of premium standards of accommodation and extra services (that is, in addition to, or outside of, those provided for in the ARRC contract) for which residents pay additional fees. Residents are also charged where superior accommodation standards are provided.

As outlined in **Figure 14**, 43% of facilities in the Review Survey charged extra fees to some residents (including 58% of those built in the past decade). Note that facilities do not generally charge extra fees to all residents; most provide a combination of extra charge and standard options. The number of extra-charge only facilities from the survey respondents was 13.

Figure 14
Proportion of facilities levying extra charges to residents



International experience indicates that greater resident contributions promote service innovation and improved, consumer-driven outcomes. Analysis of the recent investment trends above and operator financial performance in **Section 6.5** indicates that this service model is financially favourable to operators.

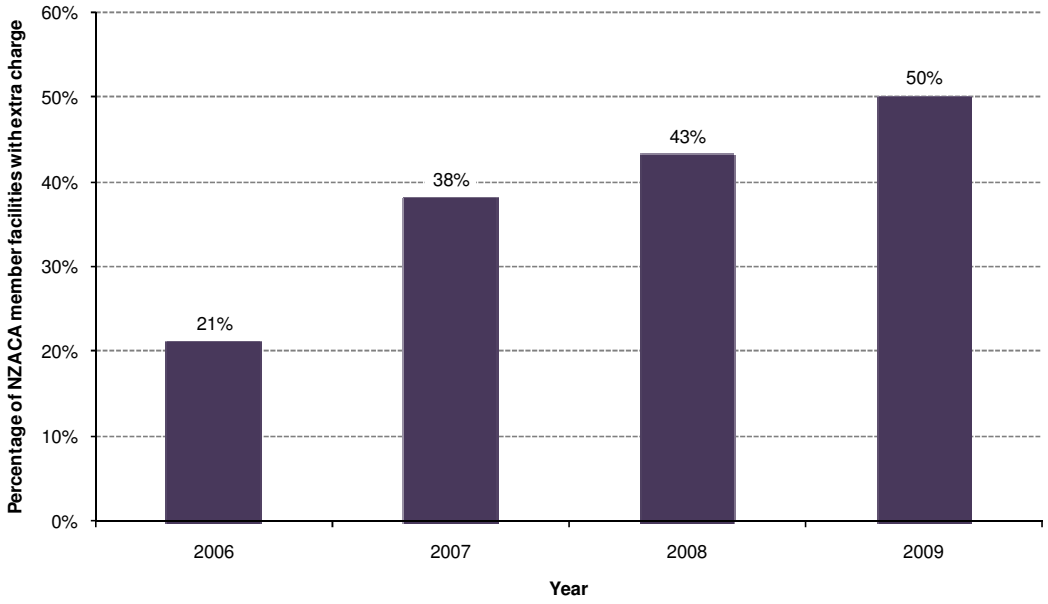
However, given the uncertainty in the industry regarding the rights of operators to levy extra charges on residents, and differences in the interpretation of regulations regarding user charges, the extra

charge model may be viewed as a temporary strategy that may discourage further investments in premium facilities. This is considered in **Section 11**.

The high proportion of extra charge facilities among those recently built suggests that these developments are targeted towards people with the financial means to command premium accommodation and extra services. Statistics collected by NZACA indicate that the proportion of facilities with extra charge contracts is steadily increasing – refer **Figure 15**. Note that the NZACA membership base contains a higher proportion of extra charge facilities than the list of respondents to the Review Survey.

While many of these facilities provide both premium and standard accommodation and services, the increase in extra charge contracts and the declining participation of the Not for Profit sector will require diligent monitoring of access and equity measures for the financially disadvantaged.

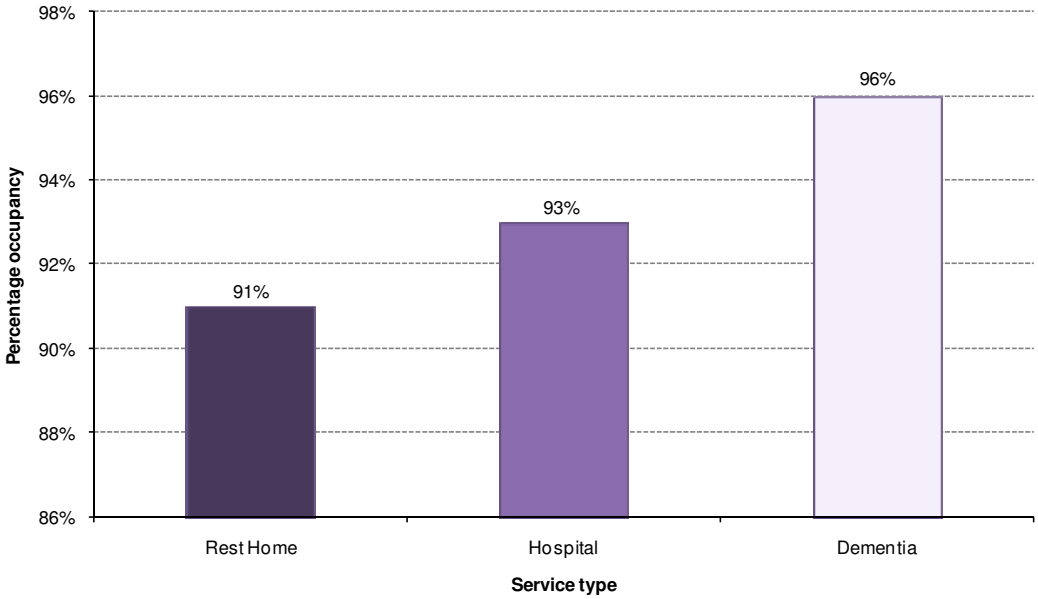
Figure 15
NZACA member facilities with extra charge contracts



Resident occupancy and staff mixes

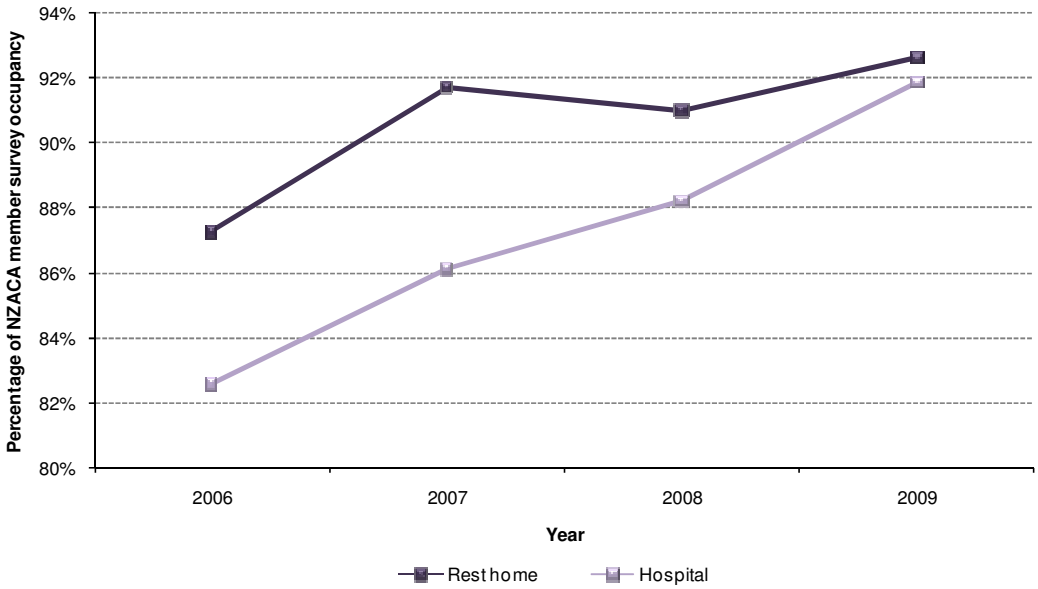
Figure 16 illustrates the Review Survey results regarding average occupancy levels for different service types.

Figure 16
Analysis of occupancy by service type



These results are consistent with the 2009 NZACA Member Survey. An analysis of rest home and hospital occupancy over time from the annual NZACA Member Survey is provided in **Figure 17**. These results and the findings from the Review research indicate that, in an environment of limited new facility developments, demand for hospital level care has continued to increase as the population ages, while demand for rest home services has been in decline. Further discussion of these trends is provided in **Sections 7** and **8**.

Figure 17
Trends in rest home and hospital occupancy



Occupancy levels have also been impacted by facility closures, as discussed in **Section 7**.

At the facility level, these demand profiles are also reflected in the dependency levels of residents, particularly within rest homes. 97% of Review Survey respondents reported a noticeable increase in the acuity levels of their residents in the last five years and 71% believed this trend had a major impact on their staffing levels (refer **Figures 18** and **19**).

Figure 18
Respondent view on resident functional dependence

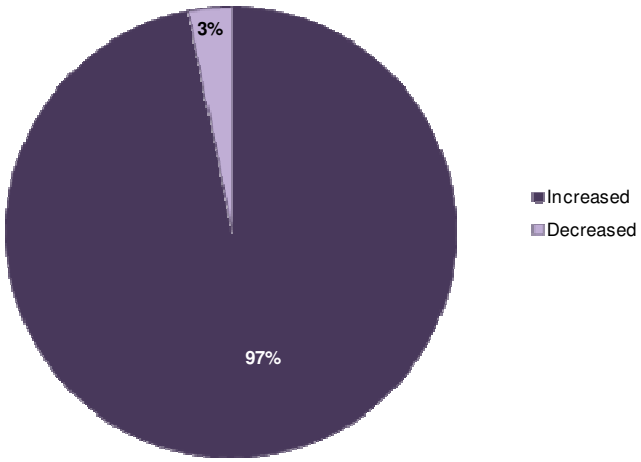
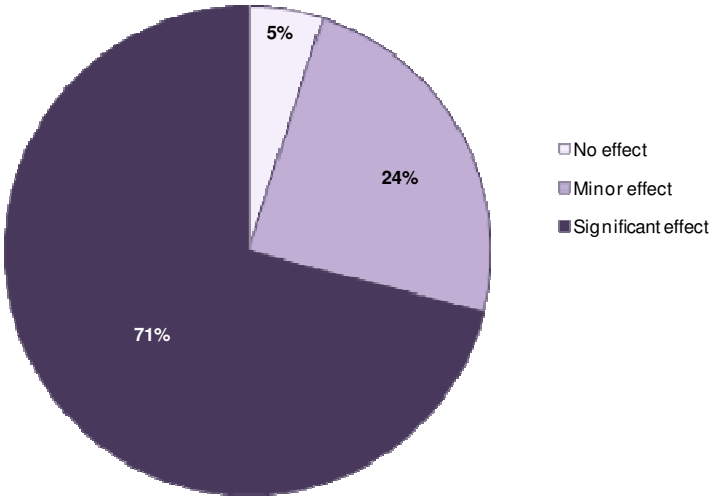


Figure 19
Respondent view on increased acuity on staffing



Similar findings are also reported in the recently published "Changes in Aged Care Residents' Characteristics and Dependency in Auckland 1998 to 2008" (**OPAL Study**) [1], which notes that:

> *"Dependency, as indicated by mobility, continence and cognitive function, has significantly increased for the total population residing in aged care facilities."*
>
> *"Any increase in dependency has a significant impact on caregiving load, particularly when individual functional domains are considered. For instance, urinary and faecal incontinence, wandering and confusion have all increased considerably in the last decade for those in rest home care."*

The OPAL Study found that increased acuity was most pronounced at the rest home level. As New Zealand lacks a resource consumption index to allocate subsidies based on resident need, the higher costs associated with increased acuity levels will directly impact operators' financial performance (refer financial analysis in **Section 6.5**). Further discussion on resident categorisation is provided in **Section 11**.

6.5 Analysis of provider performance

The empirical analysis of provider financial performance from the Review Survey provides valuable new insights into the workings of the aged residential care sector. Performance analysis is fundamental to establishing the key characteristics of 'efficient' providers, upon which the Greenfield models have been developed.

To ensure consistency and comparability within the analysis, the principal measure of financial performance is earnings before interest, tax, depreciation, amortisation and rent.

The choice of EBITDAR eliminates the impact of differences in financing decisions and taxation, in particular, between facilities. This, in turn, allows analysis of facility profitability in a sector-neutral

[1] Michal Boyd et al 2009. Changes in Aged Care Residents' Characteristics and Dependency in Auckland 1988 to 2008.

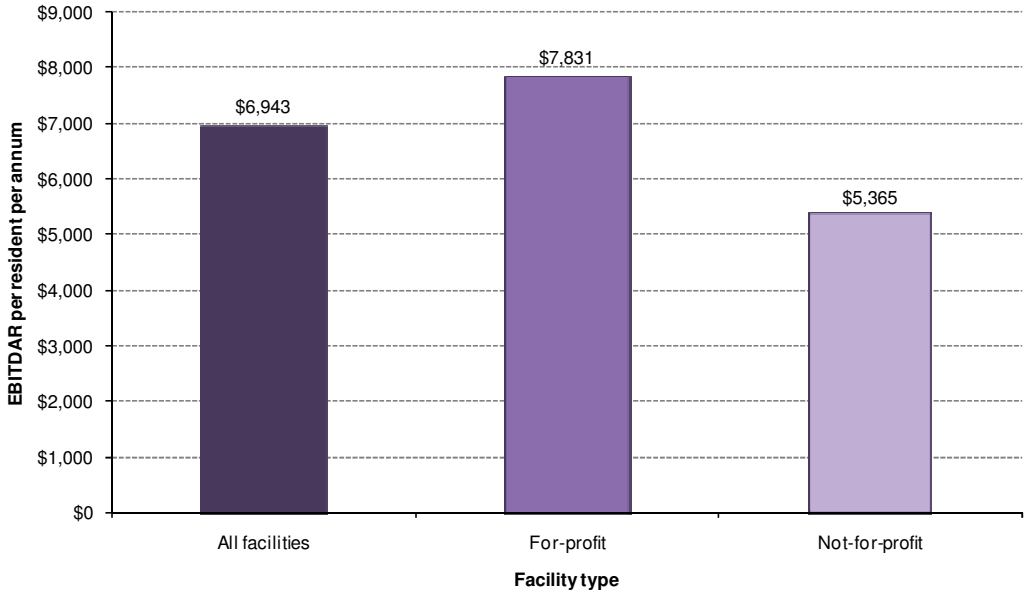
way without the influence of differential tax status or policy, capital investment, or capital structuring decisions, thus providing greater comparability of data.

The financial information presented in this report relates to operating environments under the 2009 regulatory model. Comparative analysis for future periods will require consideration of the impact of changes in the regulatory model. The analysis does not take into account the impact of variations in subsidy level due to TLA price differences.

Industry and sector performance

The average EBITDAR across all 360 aged residential care facilities in the Review Survey was $6,943 per resident per annum. For Profit operators reported an average EBITDAR of $7,831 per resident per annum, compared with $5,365 for Not for Profit operators (refer **Figure 20).**

Figure 20
Average EBITDAR by operator



As discussed in **Section 6.4**, in most developed economies Not for Profit operators generally produce lower earnings results than For Profit operators. There are a number of reasons for this:

- Religious, community and charitable organisation will usually have organisational objectives that diminish returns. These priorities may include providing services to disadvantaged people, and the activities may limit revenue streams or require comparatively higher resources levels to service.
- Few Not for Profit operators in the survey levied extra charges.
- Not for Profit organisations often operate in non-urban environments where it is difficult to achieve scale efficiency.
- Historically, some smaller Not for Profit organisations find it challenging to acquire skilled management to operate their facilities.

The Review project team met with a number of Not for Profit operators who were achieving both their mission and viability objectives through a balance of commercial and charitable activities. This

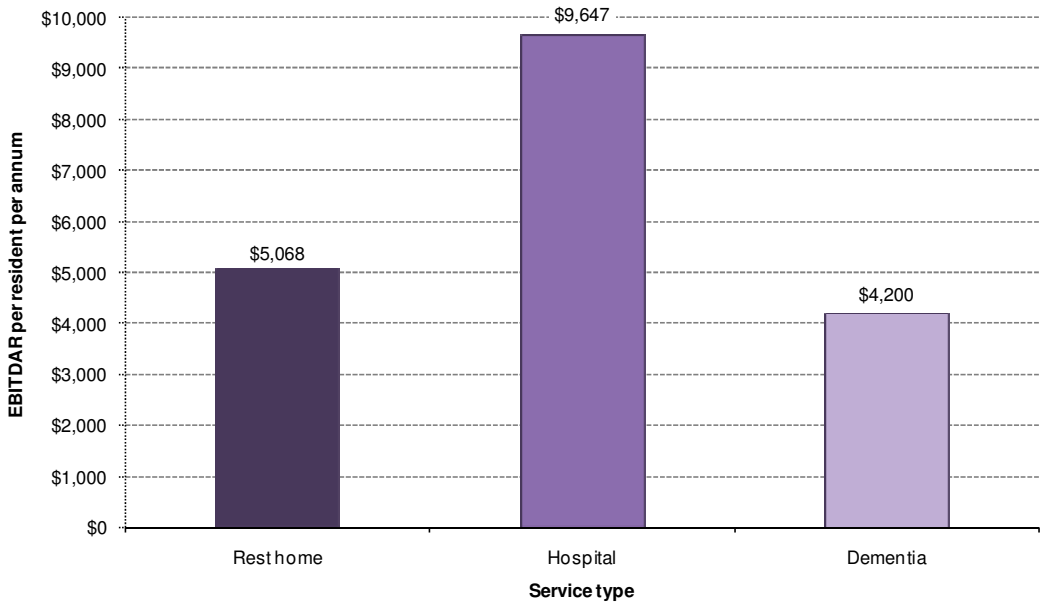
process is often enhanced through integration with serviced apartments and retirement villages, which comprise some of the most profitable sites surveyed.

As discussed in **Section 6.4**, the declining presence of Not for Profit operators is likely to have a detrimental effect on the industry generally, and future reform strategies should provide incentives to enable both sectors to participate in their target markets.

Service type

Figure 21 illustrates the comparative financial performance of survey respondents by service type, measured by annual EBITDAR per resident:

Figure 21
EBITDAR per resident by service type



As discussed in **Section 6.4**, rest homes have been most impacted by increasing levels of functional dependence among their residents over the past decade, and this has been reflected in their growing staffing costs. In the absence of a resource consumption index to allocate subsidy based on resident need, the flat subsidy rate currently applicable to all rest home residents will lose its relevance as the service environment changes.

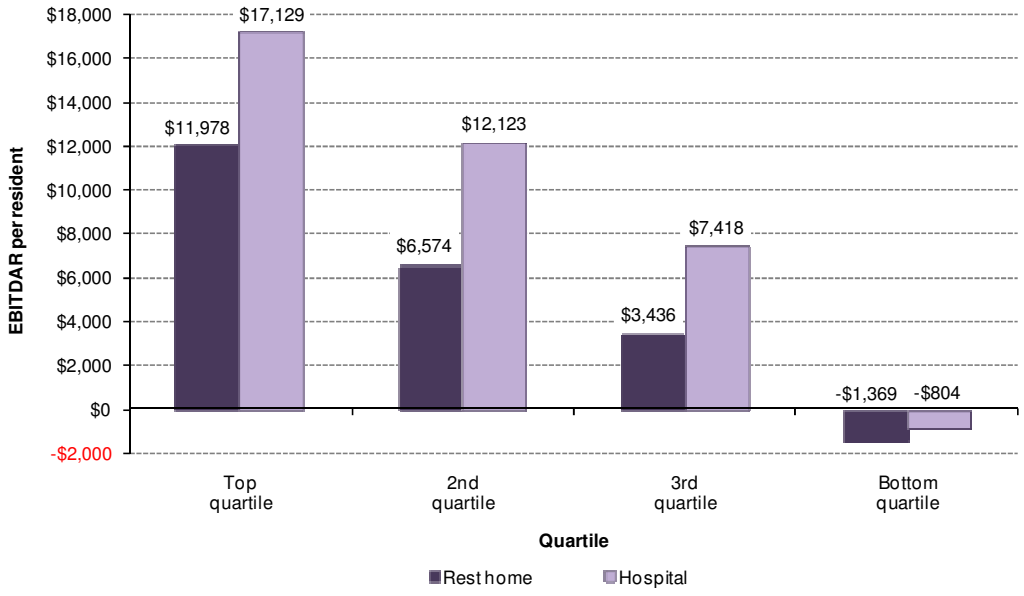
The contrast between rest home and hospital financial performance also reflects a change in comparative demand for aged residential services. The lower rate of increase in rest home occupancy compared to hospital occupancy (illustrated in **Figure 17)** is consistent with other evidence that demand for hospital level care continues to increase as the population ages, while demand for rest home services declines. In the short term, the impact of service substitution through enhanced home care and serviced apartment offerings will continue to create capacity in rest homes, while demand for hospital level accommodation is likely to absorb the limited unused capacity currently available.

The financial performance of providers also brings into focus the impact of changing consumer expectations and demand for facilities that are both functional (at all levels of dependence) and aesthetically suitable for long term care. The facilities with the poorest financial performance are

those over 20 years in age (refer **Figure 26** and commentary below). As noted in **Section 6.4**, these facilities represent over half of New Zealand's aged residential care building stock.

Figure 22 presents a quartile analysis of financial performance for rest homes and hospitals. The lowest quartile comprises predominantly older facilities and includes a high proportion of Not for Profit providers. The top quartile includes a higher proportion of extra charge facilities and services managed by For Profit operators.

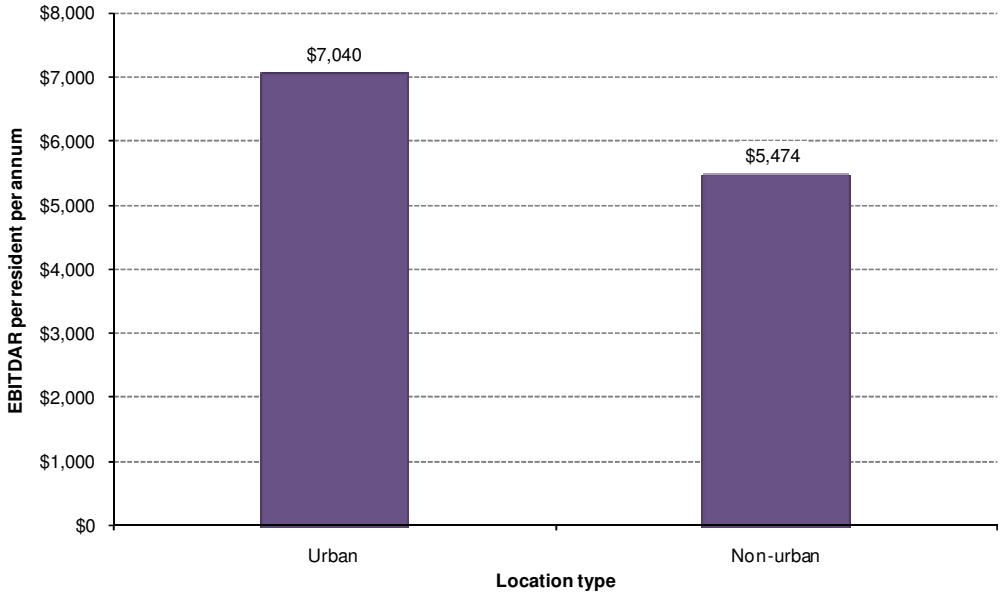
Figure 22
Quartile analysis of EBITDAR per resident for rest homes and hospitals



Regional distribution

Analysis of the financial performance of urban and non-urban based facilities is illustrated in **Figure 23**.

Figure 23
EBITDAR per resident for urban and non-urban facilities



In keeping with international experience, urban facilities achieved an EBITDAR 29% greater than non-urban services. This reflects the higher costs of delivering services and achieving scale efficiencies in regional settings (average facilities in non-urban regions were 25% smaller than urban services). It is also affected by a proportionately higher number of rest homes in the non-urban sample.

EBITDAR comparisons indicate a high degree of consistency between DHB regions. However, because of varying sample sizes and disparate ownership representation, caution should be exercised in drawing direct comparisons between regions. Lower TLA rate provisions also reduce subsidy levels for non-urban facilities.

Facility profiles

Facility scale

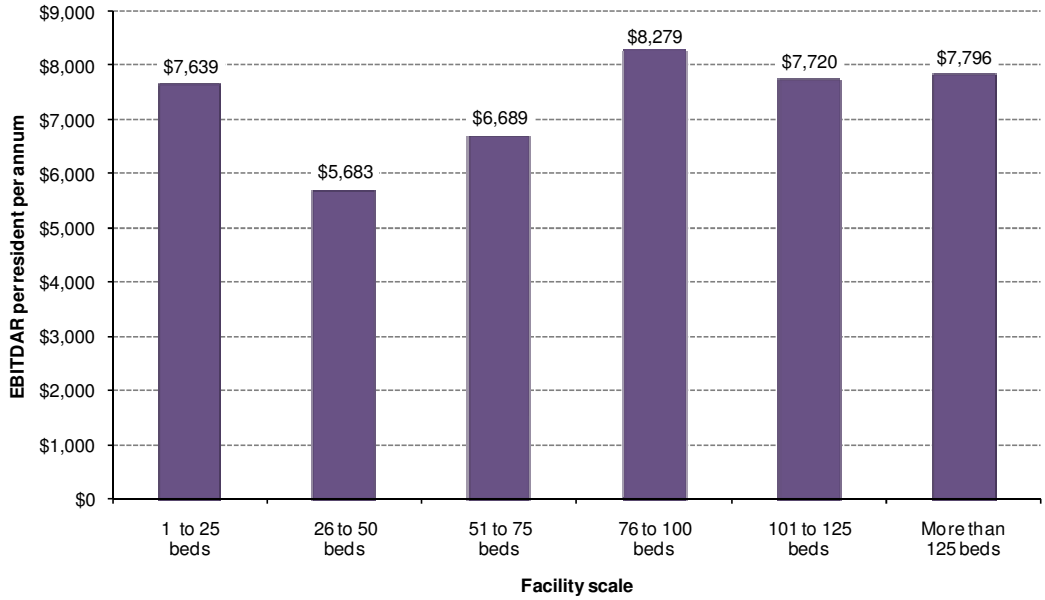
Figure 9 in **Section 6.4** presents the regional distribution of aged residential care facilities in New Zealand. The median facility size in the survey respondents is 49 beds. An analysis of EBITDAR performance by size stratum is provided in **Figure 24**.

The strongest performance was recorded in the 76 to 100 bed scale, which is consistent with the Review project team's findings in Australia and the UK. While facility design has a major impact on rostering efficiency, the Review analysis confirms that larger facilities are able to generate stronger financial returns through scale efficiency.

International research indicates that scale efficiency is not simply linear, and facility operations incorporate a complex inter-relationship between resident and staff mixes. New Zealand and Australian analysis indicates that very large facilities may experience a level of 'diseconomies of

scale'; in fact, many operators argue that a facility greater than 100 beds can be difficult for a single manager to oversee. This is particularly the case for large multi-storey facilities.

Figure 24
EBITDAR per resident by facility scale



(Note: Facilities in the 1 to 25 bed range represent a small number of facilities, predominantly run by private operators (family-owned businesses). The data should not necessarily be taken as an indication that this represents a viable business model).

Consultation with providers and visits to modern facilities revealed a high degree of sophistication in the planning and design of new aged residential care services in New Zealand. The sites visited by the Review project team were designed to maximise operating efficiency while meeting consumer expectations relating to care flexibility and resident amenities.

Most operators discussed building designs in modules of 40 beds for hospitals and rest homes. Most Australian operators, on the other hand, build in rostering models of 30 beds. As acuity levels continue to escalate in both countries, higher staff-to-resident ratios will emerge, which will also have an impact on service design planning, particularly in New Zealand rest homes.

This is particularly relevant to the establishment of Greenfield sites discussed in **Section 6.8**. While 80-bed hospitals are likely to be marketable, reduced demand for rest homes is likely to require smaller modules in combination with other service offerings i.e. hospital and dementia services.

The design and scale of most New Zealand facilities tend to create a home-like environment by international standards. It is important that this unique characteristic is preserved as providers establish larger, more operationally efficient facilities. Most operators are acutely aware of this and current facilities designs were seen to be both functional and home-like.

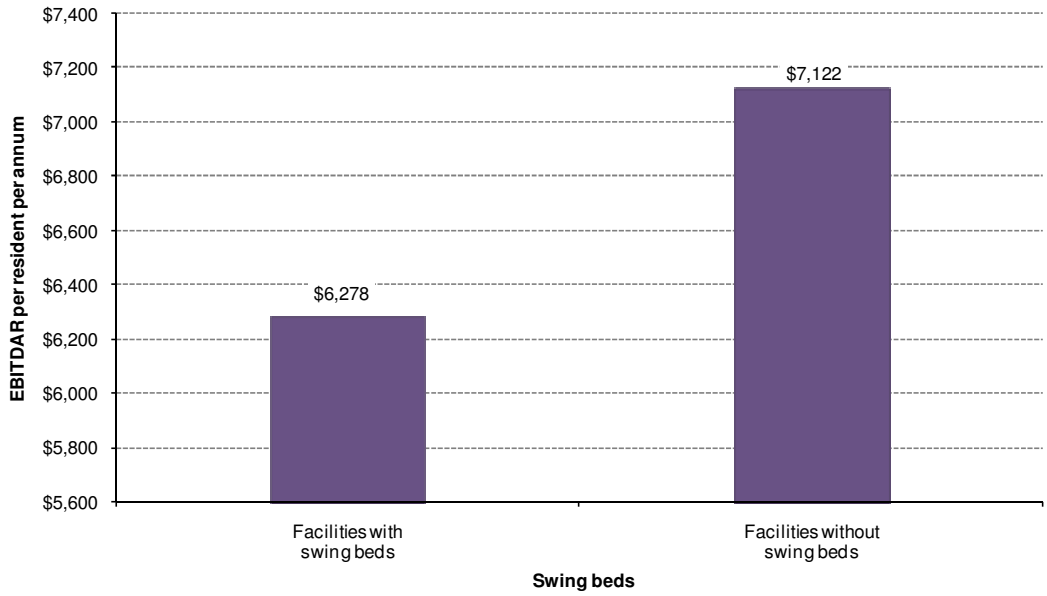
Swing beds

Another feature of modern, functional rest homes is the capacity to utilise swing beds to maximise occupancy and flexibility of service delivery for residents with changing care needs.

Figure 25 illustrates that operators of facilities with swing beds reported lower returns on average than facilities without swing beds. The number of swing beds in New Zealand is still relatively low. Future surveys will likely reveal the higher costs of delivering care in an environment of disparate resident dependency levels.

As described in **Section 6.4**, flexible service environments are a critical benefit for residents. Future policy and funding reforms should encourage operators to provide the services consumers want, and swing beds will increasingly be used to meet that need. The logistical challenges of allocating staff resources across a facility accommodating disparate resident functional dependency levels will need to be recognised.

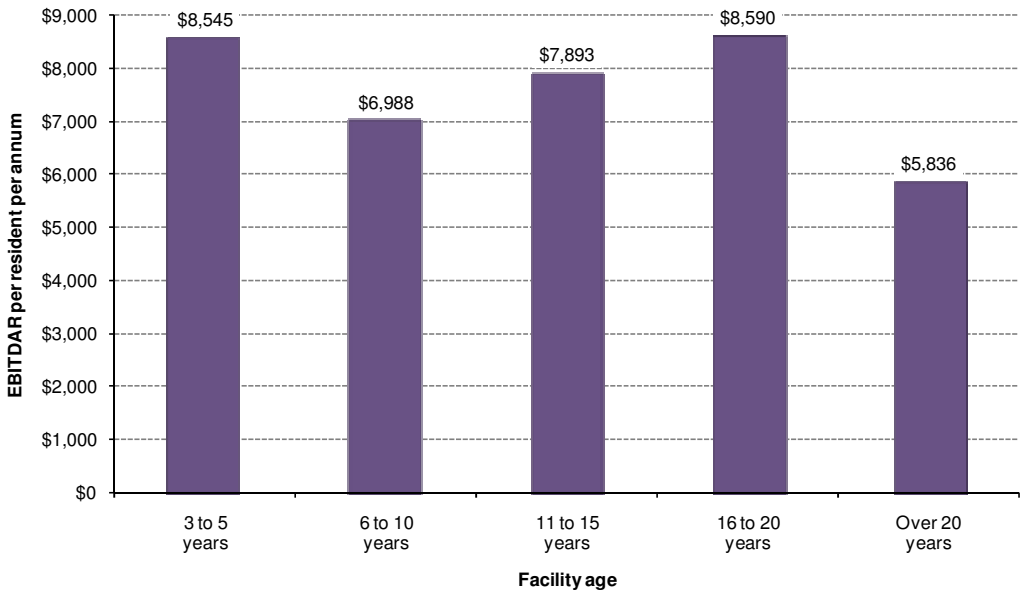
Figure 25
EBITDAR per resident for operators of swing beds



Facility age

Financial performance based on facility age is illustrated in **Figure 26**. These results are the opposite of those experienced in Australia, where older facilities achieved the strongest financial returns. The difference reflects the higher-density, institutional accommodation prevalent in Australia's older facilities, where up to four people can share a single room. These facilities create substantial process efficiencies, although the resident outcomes are questionable.

Figure 26
EBITDAR per resident based on age of facilities



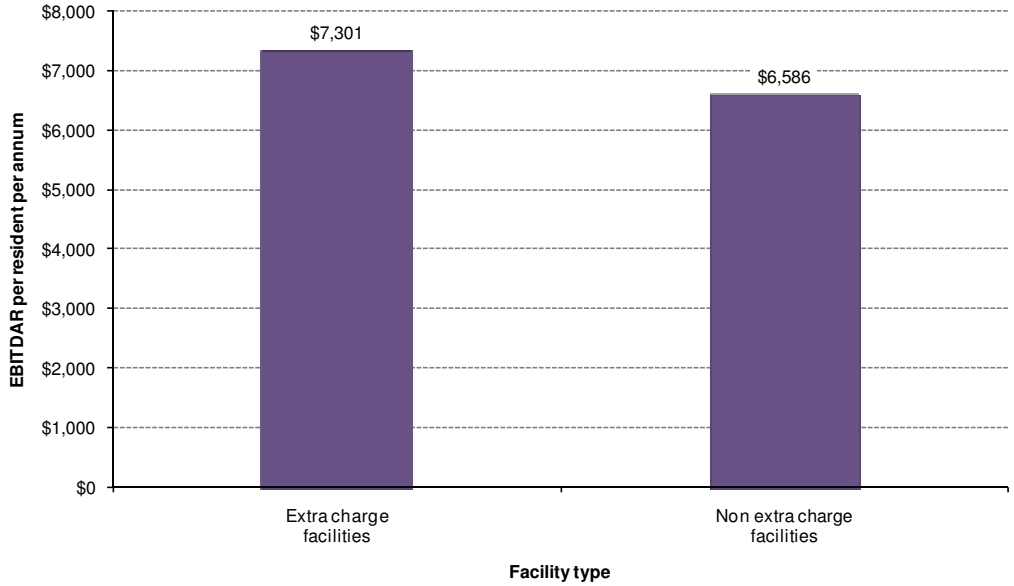
In New Zealand, both old and new facilities have predominately single rooms. However, older facilities tend to offer less care flexibility and fewer resident amenities and often struggle to maintain full occupancy. Older facilities may also have design characteristics that could hinder efficient operation.

Residents are less likely to agree to extra charges in older facilities, and operators often experience challenges in attracting and retaining staff. These factors contribute to lower EBITDAR in facilities over 20 years of age, which, as noted, represent approximately half of New Zealand's building stock.

Extra charge facilities
The growth in the number of extra charging facilities in New Zealand is discussed in **Section 6.4**. The 43% of facilities in the survey with extra charge agreements reported EBITDAR 11% higher than those without extra charge contracts – refer **Figure 27**.

The strongest results were achieved by modern facilities with some services offering only premium accommodation throughout the facility.

Figure 27
EBITDAR per resident for extra charge facilities



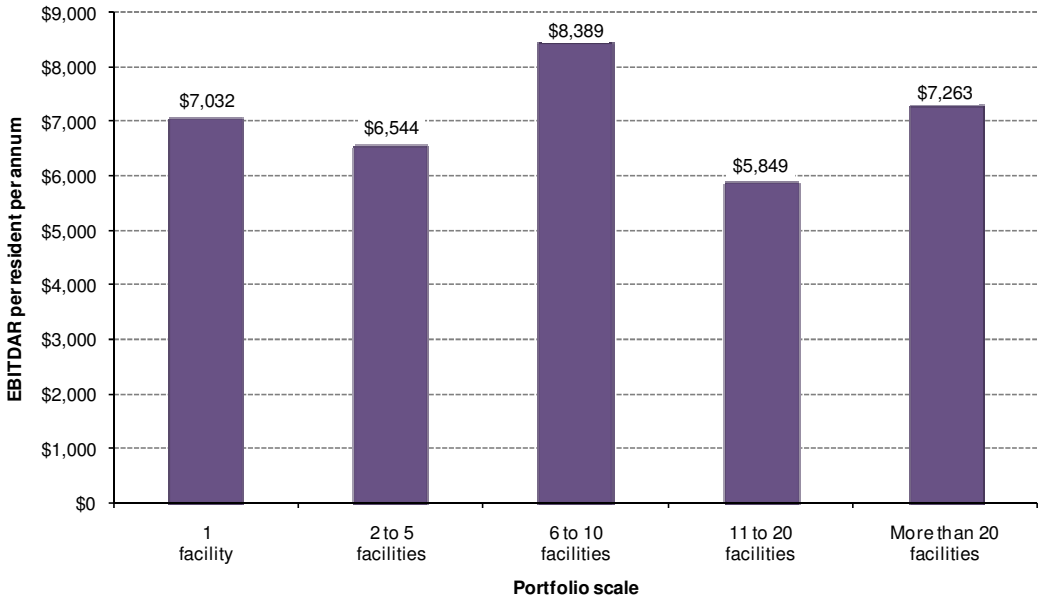
The level of extra charges levied by facilities visited by the Review project team was subject to relatively high competition. Consumers are becoming increasingly value conscious and price competition is increased where there are multiple extra charge facilities in a single catchment area.

As discussed in **Section 6.4**, competition can promote innovation and positive, consumer-driven outcomes. However, the need for certainty and a more formalised structure around these practices is imperative if these service models are to translate into new developments.

Portfolio scale

International research suggests that efficient operators of large facility portfolios can outperform smaller operators. Surprisingly, the Review Survey indicates this was not the case in New Zealand. **Figure 28** illustrates no clear indications of better financial performance for larger operators, regardless of whether they are For Profit and Not for Profit.

Figure 28
EBITDAR per resident by portfolio scale



Consultation with the Expert Advisory Panel and industry participants confirmed the Review project team's experience that the sector is in a transitional period of consolidation. Larger operators have expanded market share by acquiring Not for Profit operators, with many of these organisations now undergoing cultural change and integration processes. This has limited the scale efficiencies in New Zealand compared to those achieved by larger operators internationally.

6.6 Analysis of operating costs

The preceding section focused on the variables that contribute to provider financial performance. These variables inform the development of Greenfield models with the support of historical cost data from the Review Survey.

Costing information from the survey was collated under the following categories:

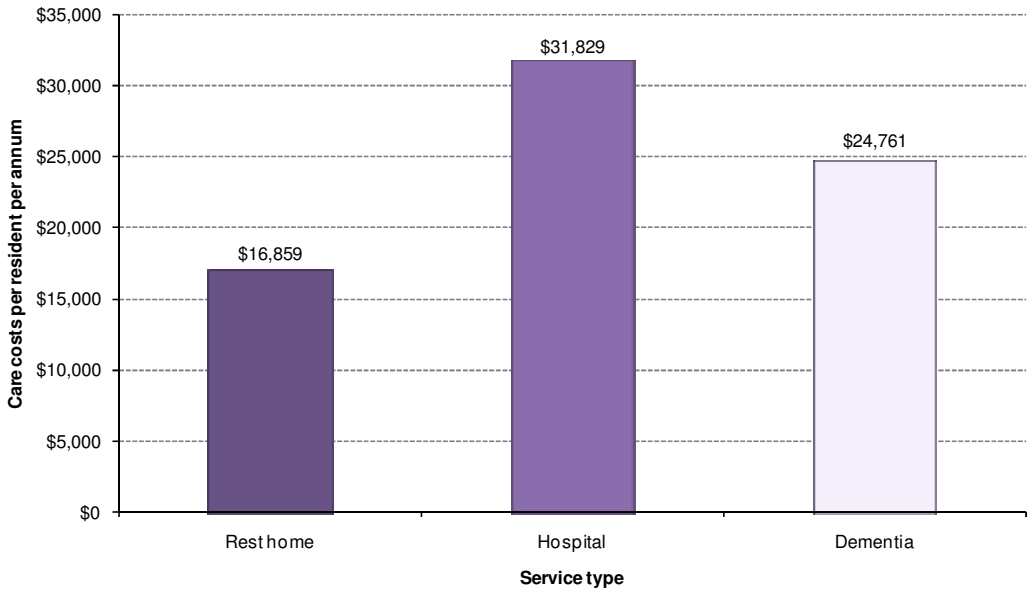
- Care
- Catering
- Cleaning
- Laundry
- Property & maintenance
- Administration.

This categorisation enables consideration of core operating expenses for aged residential care activities under hotel services (i.e. catering, cleaning and laundry), care and property costs. These are aggregate costs for all providers in the survey and include expenses incurred in the delivery of 'extra services' as described in **Section 6.4**.

Care costs

Care costs include all wages and consumables (medical supplies, continence aids, etc) directly associated with the delivery of care. **Figure 29** illustrates care costs per annum for the key service types analysed.

Figure 29
Annual care costs per resident



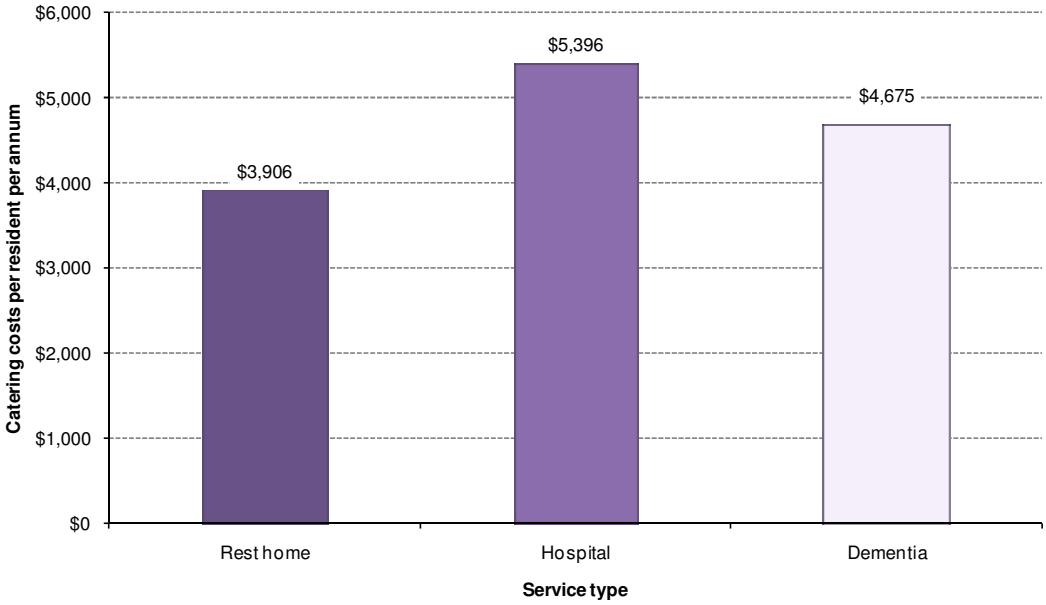
The graph illustrates a relatively predictable mix of care costs between service types and is consistent with the Review project team's expectations and analysis of resource consumption trends during site visits.

Catering costs

Catering costs include staff and supply costs as well as fees paid to external agencies for outsourced catering services.

As presented in **Figure 30**, there were variances in catering costs between different service types. Catering costs are directly impacted by the resources needed for residents with special dietary and feeding requirements. These needs are more prevalent in hospitals and dementia environments, where the costs associated with preparation and dispensing of meals are higher.

Figure 30
Annual catering costs per resident



Cleaning and laundry costs

Wages, supplies and outsourced cleaning/laundry costs are included in the expenditure presented in **Figures 31** and **32**. Managing continence problems in hospital and dementia services contribute to their higher cleaning and laundry costs.

Figure 31
Annual cleaning costs per resident

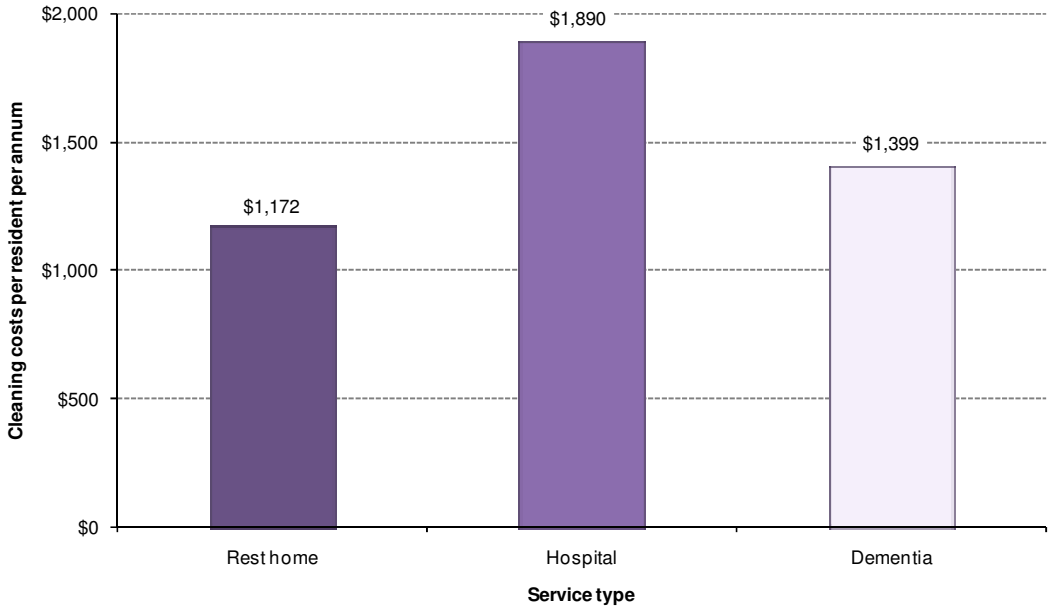
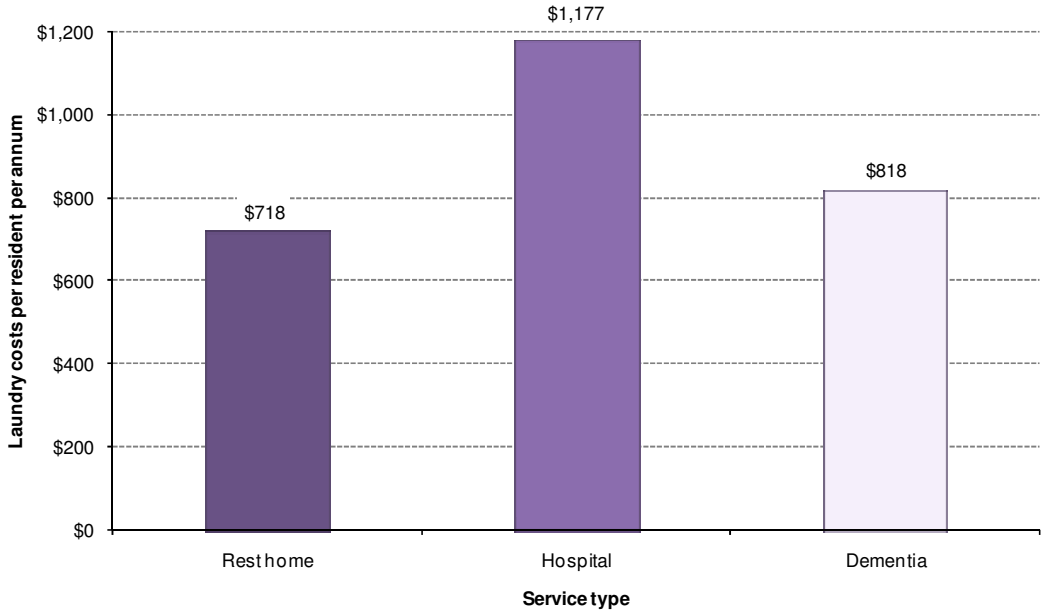


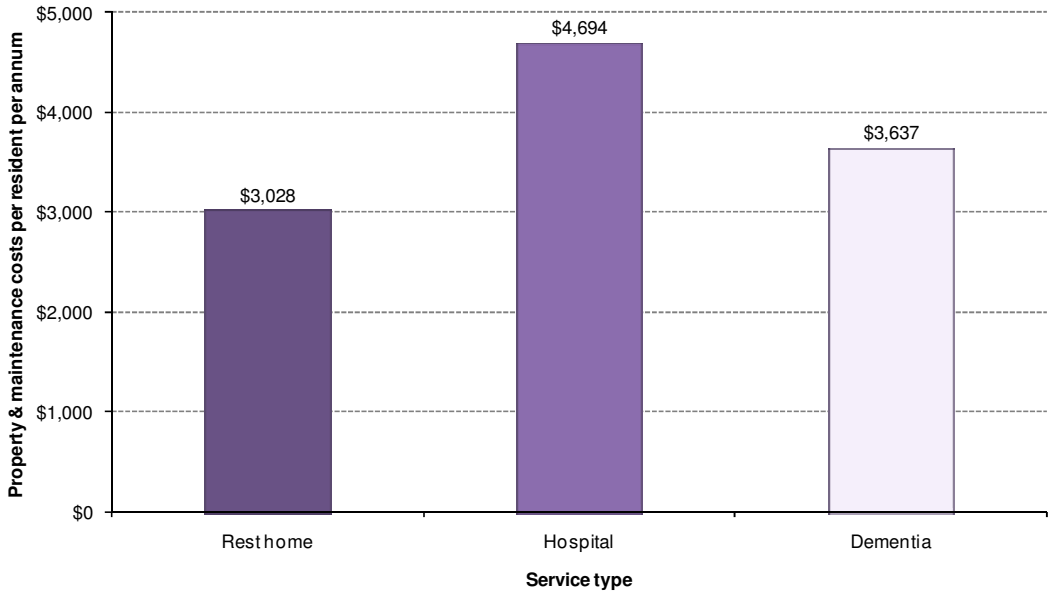
Figure 32
Annual laundry costs per resident



Property and maintenance costs

Property and maintenance costs include all costs associated with the upkeep of the residential care facility infrastructure as well as utility charges for electricity, water, gas etc. These are presented in **Figure 33**.

Figure 33
Annual property and maintenance costs per resident

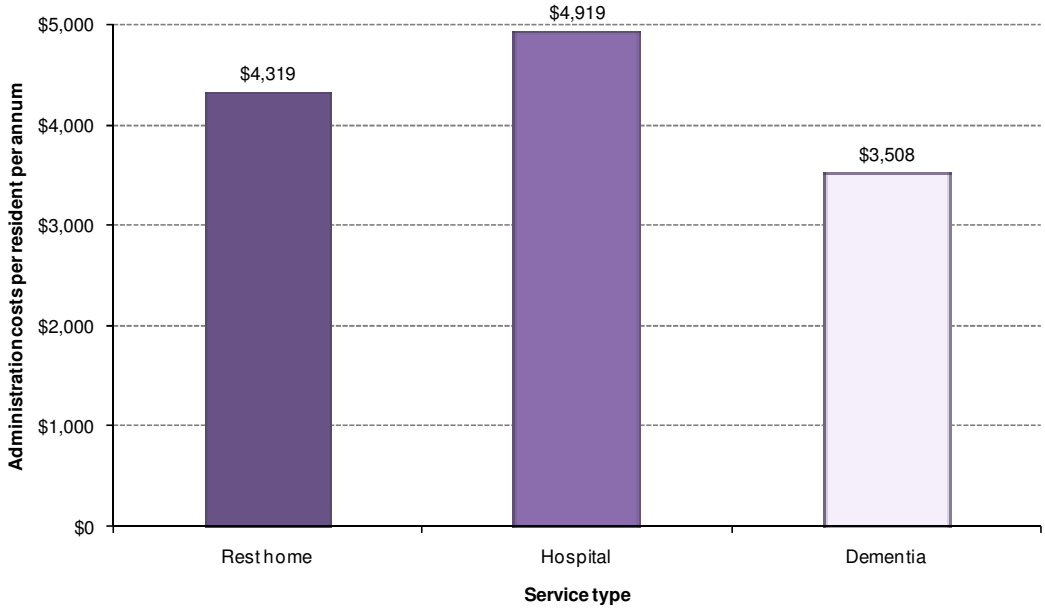


Costs associated with the maintenance of equipment (hoists, beds, mobility equipment, etc.) tend to be higher in hospitals, where their use is greater.

Administration costs

The analysis of survey expenditure responses revealed that a number of group providers did not allocate head office costs to facility cost centres. Where the Review project team was unable to derive reasonable head office cost appropriations through discussions with group survey participants, industry averages were used to populate this category. Total administration costs are presented in **Figure 34**.

Figure 34
Annual administration costs per resident

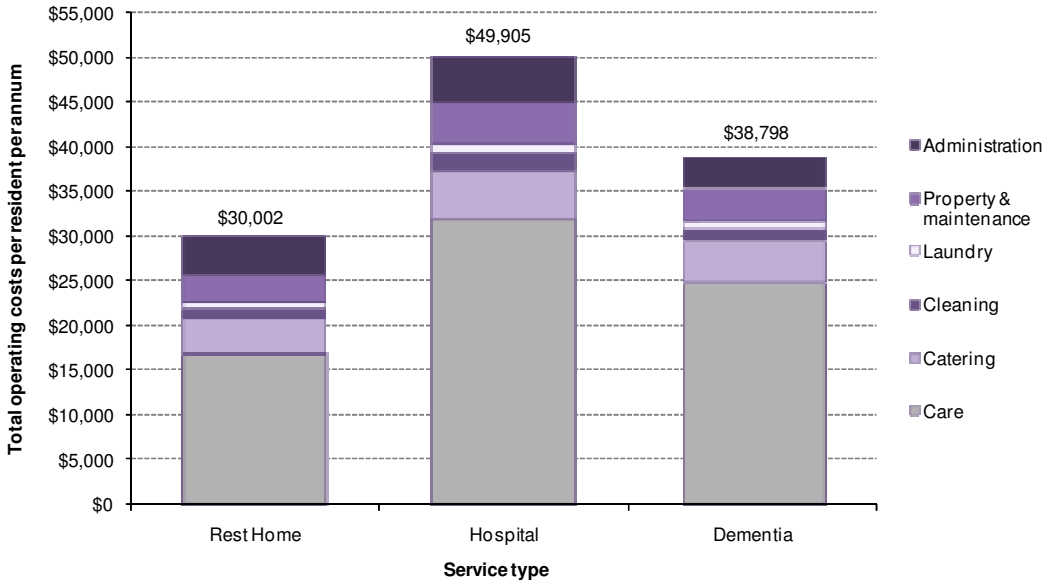


The majority of dementia units are secure areas attached to rest homes and hospitals, and subject to an allocation of total administration costs for the facility. Distortions in these allocations have resulted in the lower administration cost for dementia units recorded in the Review Survey data.

Total operating costs

The aggregate annual operating cost per resident for each service type is presented in **Figure 35**. This does not include capital costs associated with the aged residential care accommodation and fit out.

Figure 35
Total annual operating cost for aged residential care per resident



6.7 Fair rate of return on investment

The Review project team considers that a fair rate of return on investment for the provision of aged residential care services in an efficient and effective environment is represented by the weighted average cost of capital (**WACC**).

WACC is a market-based assessment that reflects the investment characteristics and expectations of the market generally, rather than those of individual investors. For this reason, the personal attributes of individual investors, such as investor tax status, access to special funding or the presence of non-financial investment motives, are not relevant except to the extent that collective individual characteristics or behaviours are considered to affect the market as a whole.

Weighted average cost of capital

WACC represents a weighted average of the rates of return required by debt and equity investors in the operating entity weighted by the relative amounts of debt and equity in the capital structure that is appropriate to the investment.

WACC is defined in nominal terms and is expressed after allowance for corporate tax but before personal tax. The rate of return required by equity investors is referred to as the cost of equity ($\mathbf{k_e}$). The rate of return required by debt investors is referred to as the cost of debt ($\mathbf{k_d}$).

WACC is formally expressed as follows:

$$WACC = k_e.E/V + k_d.(1-t_c).D/V$$

Where:

k_e and k_d are as defined above

t_c is the corporate tax rate – which is currently 30% but will decrease to 28% with effect from 1 April 2011. The Review project team have adopted the rate of 28% on the basis that the relatively short period until this rate becomes effective is not material to this analysis.

D is the market value of the entity's debt

E is the market value of the entity's equity

V is the total of the market values of debt and equity of the entity.

It is not possible to directly observe the market value of equity for an entity whose equity is not traded in a public share market. This issue is not unique to equity investment in the aged residential care sector or to New Zealand generally. Similarly, most providers do not have publicly traded debt instruments. For this reason, the generally accepted approach to establishing the relative weightings applied to debt and equity in WACC is to adopt an assumed target (or long-run) capital structure that is appropriate to the investment.

The Review project team has assumed a target capital structure of 40% debt and 60% equity in its assessment of WACC. This is based on:

- Our analysis of the five year average of the debt to equity ratios of each of the companies included in the global research sample
- Discussions with local providers of debt funding to the sector.

Although WACC can be expressed formulaically as above, and empirical data obtained to inform inputs to the calculation, a significant element of professional judgment is nonetheless required in selecting the appropriate inputs.

Cost of equity

The cost of equity in WACC is ordinarily estimated using a formal asset pricing model such as the Capital Asset Pricing Model (**CAPM**). The cost of equity has been estimated using the following tax-adjusted specification of the CAPM, which allows for the effect of investor taxes under New Zealand's dividend imputation regime.

$$k_e = r_f.(1-t_i) + \beta_e.(TAMRP) + SCRP$$

Where:

r_f is the risk-free rate of return as represented by yields on long term government stock. The risk-free rate adopted is 5.9%, which is the average of the annualised daily yield on ten year government bonds during March 2010.

t_i is the average investor tax rate on equity income. A rate of 28% has been adopted, which is the rate it is considered will apply following the reduction of the New Zealand corporate tax rate from 30% to 28%.

β_e is the equity beta, which is a measure of the systematic risk of the investment relative to the risk of the market. An equity beta range of 1.00 to 1.17 is adopted based on an estimated underlying industry asset beta in the range of 0.60 to 0.70, adjusted for the effects of leverage in accordance with the assumed target capital structure above.

The estimate of asset beta is based on the analysis of asset betas of companies operating in the aged residential care sector both locally and internationally. The asset beta is consistent with the asset beta derived in a previous study of the sector 10 years ago.

TAMRP is the tax adjusted market risk premium, which reflects the premium above the risk-free rate demanded by equity investors to compensate for systematic (or market-related) risk. A rate of 7.5% is adopted, which is considered to be the TAMRP currently applying in New Zealand.

SCRP is a 'specific company risk premium' which reflects the specific or non-systematic (non-market) risks associated with the investment. A SCRP in the range of 3.0% to 4.0% is adopted. This premium reflects an assessment of the impact of the differences in size, investor perceptions of risk and investment liquidity between aged residential care providers in New Zealand relative to the characteristics of the companies included in the global sample from which the asset beta is derived.

The application of a SCRP in this context is supported by a significant body of empirical evidence indicating that the cost of equity estimated under the CAPM does not always fully reflect investor perceptions of risk and the corresponding equity returns demanded by investors. This is particularly so in the case of investors in privately held companies, of which there are a significant number in the New Zealand aged residential care sector.

There is a similar body of evidence supporting the existence of an inverse relationship between entity size and investors' expected rate of return on equity investment. There is a significant difference in size between aged residential care providers in New Zealand and those companies included in the global sample from which the estimate of asset beta is derived.

Finally, it is generally accepted that investors dealing in non-publicly traded investments demand higher rates of return than indicated by CAPM due to the relative illiquidity of their investment compared to shares in publicly listed companies (such as those that comprise the bulk of the global sample).

Applying the above formulae and inputs results in a cost of equity estimate in the range of 14.8% to 17.0%.

Cost of debt

The cost of debt is defined as:

$$k_d = r_f + DRP$$

Where:

r_f is the risk-free rate, as defined above.

DRP is a debt risk premium, expressed as a margin over and above the risk-free rate to reflect the margin for risk demanded by debt investors from an efficient provider in the sector. A DRP of between 250 and 350 basis points is assessed, based on the assumed target capital structure.

Based on these inputs the cost of debt assessed is in the range of 8.4% to 9.4%.

Applying the costs of debt and equity above, weighted in accordance with the assumed capital structure, results in a WACC estimate in the range of 11.3% to 12.9%, with a mid-point of 12.1%. This calculation is presented below.

Table 11
Weighted average cost of capital (WACC)

Target capital structure	
D/V	40.0%
E/V	60.0%
t_c	28.0%

Cost of debt	**Low**	**High**
r_f	5.9%	5.9%
DRP	2.5%	3.5%
$k_d = r_f + DRP$	**8.4%**	**9.4%**

Cost of equity	**Low**	**High**
t_i	28.0%	28.0%
$r_f (1-t_i)$	4.2%	4.2%
β_a	0.60	0.70
$\beta_e = \beta_a (1+D/E)$	1.00	1.17
TAMRP	7.5%	7.5%
SCRP	3.0%	4.0%
$k_e = r_f.(1-t_i) + \beta_e.(TAMRP) + SCRP$	**14.8%**	**17.0%**

$WACC = k_e.E/V + k_d.(1-t_c).D/V$	11.3%	12.9%
Mid-point		**12.1%**

(figures rounded to 1 d.p.)

Applying the fair rate of return to the calculation of the annual capital charge
The total cost of providing aged residential care services includes the amount required, over and above the annual operating costs of the facility, to achieve a fair return on and return of the capital invested over the economic life of the investment. This is described as the 'annual capital charge'.

The Review project team has developed a model which calculates the annual capital charge with reference to the expected cash flows of the Greenfield facilities in **Section 6.8** modelled as a going concern based on operating and capital cost assumptions for the facilities. The resulting annual capital charge represents the annuity (expressed in current dollars) that the facility must generate to deliver the required rate of return on and of capital over the life of the investment in the facility.

The annual capital charge is calculated by discounting the forecast cash flows of the facility to a net present value applying a discount rate equal to WACC. The methodology incorporates the mid-period discounting convention, which effectively assumes that the forecast cash flows of the facility occur evenly throughout the year.

The term annual capital 'charge' is used for ease of reference and is not intended to imply that the amount is necessarily derived from a single source. In fact, it is potentially derived from a number of sources, identification of which is relevant to a discussion of the pricing of services in the sector. However, it is not relevant to the issue of costing and is not addressed in this report.

The composition of the annual capital charge
The annual capital charge is comparable to operator profit expressed at the level of EBITDAR. Operating costs in the Greenfield environments in **Section 6.8** are also expressed to the level of EBITDAR. The costs not recognised at this level of operating earnings are depreciation (and amortisation, which is not relevant in this analysis), rent, interest and tax.

Depreciation is a non-cash expense in the calculation of operator net profit and is therefore retained by the operator rather than paid as a cash operating cost. The depreciation element of EBITDAR represents an annual return of capital to the investor over the life of the investment. Some level of reinvestment of the capital returned is required if the investor is to maintain the operating asset base of the facility as a going concern. Depreciation expense is separately modelled within the capital charge methodology based on assumptions regarding facility asset mix, and the economic life and tax depreciation rates applicable to different classes of asset.

Rent is excluded from annual operating costs in this analysis because the operator of the facility is assumed to be the owner of the land and buildings. The annual capital charge implicitly includes a notional rental return to the investor, which would otherwise be incurred as an explicit rental charge if the facility was leased.

The cost of debt funding (**interest**) is accounted for by the cost of debt provided for in the calculation of WACC. It is therefore excluded from facility operating costs to avoid double counting.

The methodology for the calculation of the annual capital charge explicitly accounts for the effect of **tax** at the corporate/operator level. The calculation of return on investment based on a WACC rate of return requires the impact of corporate income tax to be explicitly considered. The tax status of operators in the sector varies, particularly between Not for Profit and For Profit operators. The capital charge methodology assumes operators pay tax at the prevailing New Zealand corporate tax

rate. The impact of any differences in the tax status of groups of providers in the sector is a matter of Government tax policy and outside the scope of this Review.

The annual capital charge is expressed in the form of a real annuity (in current dollars) that would be subject to annual adjustment for inflation over the life of the investment in order for the required return on and of capital to be achieved.

The inputs required to implement the capital charge methodology are the:

- Capital investment in the facility
- Average facility occupancy
- Expected economic life and residual value of the assets that comprise the facility
- Tax depreciation rates applicable to those assets
- Required rate of return (WACC)
- Company tax rate
- Expected rate of inflation
- Investment profile of the reinvestment of capital required to maintain the operating asset base of the facility as a going concern.

The range of assumptions that could reasonably apply to each of these inputs varies significantly. Some, such as the company tax rate, are fixed, but the tax status of different operators varies. Others, such as the expected rate of inflation, sit within a relatively confined range. Conversely, there is a range of assumptions regarding the timing and quantum of reinvestment of capital required to maintain the facility's operating asset base as a going concern. The assumptions adopted in calculating the annual capital charge are explained in **Section 6.8** along with a discussion of the sensitivity of the results to certain of these assumptions.

Additional comments on annual capital charge

The annual capital charge is expressed on a per resident basis, rather than per bed, based on assumptions about facility occupancy discussed in **Section 6.8**. The reason for this is that a per bed calculation essentially assumes 100% facility occupancy; this would effectively require the facility to maintain 100% occupancy in order to generate the 'income' from the annual capital charge needed to achieve the fair return of and on capital over the investment life. Maintaining 100% occupancy in perpetuity is not considered realistic in the context of this analysis.

The capital investment adopted in the calculation of the annual capital charge reflects the cost of construction and fit-out of the fully modernised homes modelled as Greenfield facilities in **Section 6.8**, and the cost of the land on which the facility is situated. The cost of land varies widely throughout New Zealand and is not a subject of this review. Results are therefore presented using a range of land prices for illustrative purposes. Land prices in some locations may fall outside this range.

Discussions with operators indicate that efficient operators have negligible investment in net working capital. Our conclusion is that investment in working capital is not material to the analysis of capital costs and, accordingly, no allowance for working capital is made in this analysis.

6.8 Greenfield models

6.8.1 Operating costs

The performance analysis undertaken in **Section 6.5** has enabled the Review project team to identify and quantify the key elements affecting resource consumption in aged residential care in New Zealand. The analysis of facility size, location, sector, service mix and portfolio scale is essential in establishing reasonable operating costs for efficient, modern facilities. The term 'Greenfield' is used as a descriptor for such fully modernised homes.

However, the characteristics attributed here to efficient modern facilities reflect ideal operating conditions that will not be achievable by all operators. As demonstrated in **Section 6.5**, operating costs are likely to be greater in the following circumstances:

- **Smaller facility sizes**: As noted in **Section 6.5**, larger aged residential care facilities tend to achieve greater economies of scale and cost efficiencies. Some facility developments may be influenced by resource limitations, competitive issues and population/demand factors that limit the potential scale of new services. Costs are likely to be greater for operators of such facilities. **Section 6.4** indicates that most facilities are in the 26-50 bed facility range.
- **Geographic location**: **Section 6.5** compares performance results between urban and non-urban aged residential care facilities. International research confirms that operating costs in non-urban services tend to be greater than those in urban facilities.
- **Swing beds**: While the number of swing beds in operation at the time of this study was relatively low, their use will likely increase as more operators seek to meet the changing needs of residents as dependence levels increase. As discussed in **Section 6.5**, the operation of swing beds creates logistical challenges, as staff resources must be allocated across facilities with disparate resident functional dependency levels. This tends to result in increased wage costs.
- **Mission factors**: As described in **Section 6.5**, Not for Profit operators may choose to provide services in environments that make it difficult to optimise cost efficiency.

The data collected in the Review will support the further evaluation of these limitations, should policy makers determine that provision is to be made in these instances.

In establishing the Greenfield model, the Review project team undertook extensive analysis of the cost components derived from the survey information described in **Section 6.6** against the efficiency elements for each service type. Optimum efficient operating environments were then defined and sample sites chosen from the 360 facilities represented in the survey. The selection of these sites was based upon the following criteria:

- Strong EBITDAR performance and expenditure containment
- Modern facility design and scale based on efficiency indicators and the Review project team's knowledge of market demand
- Mix of stand-alone and co-located facilities and sites from both the North and South Islands
- Effective reporting systems enabling a comprehensive examination of staff and non-staff expenditure across the core cost components.

Having defined the optimum operating models, the characteristics of each of the seven sites were used to build up profile standards (refer **Appendix D**).

The Greenfield cost components for efficient, fully modernised facilities homes were based on:

a. 80-bed hospital, urban based

b. 40-bed rest home, urban based and co-located with hospital (total facility size: 80 beds)

c. 20-bed dementia facility, urban based and co-located with hospital or rest home (total facility size: 80 beds).

Alternative models were tested from minor variations of these scales. Based on an average occupancy of 93%, there was negligible variance in the core costing components on a per resident basis.

Review project team efficiency experts worked with site facility managers and administrators to test rostering and operating cost assumptions for the model's Greenfield facilities and against quartile data from the Review Survey. Historic trend analysis was undertaken on the test sites to assess cost variability, sustainability and to further refine predictive cost components.

The following cost components in **Tables 12-14** were established from the Greenfield models.

Table 12
Hospital facility operating costs

Cost component	Greenfield site costs per resident per day	Review Survey average historical costs per resident per day
Care costs	$85.50	$87.20
Catering	$13.50	$14.78
Cleaning	$4.80	$5.18
Laundry	$3.20	$3.22
Property/maintenance	$9.10	$12.86
Administration	$10.50	$11.53
TOTAL	**$126.60**	**$134.77**

Table 13
Rest home facility operating costs

Cost component	Greenfield site costs per resident per day	Review Survey average historical costs per resident per day
Care costs	$45.70	$46.19
Catering	$9.10	$10.70
Cleaning	$3.20	$3.21
Laundry	$1.90	$1.97
Property/maintenance	$8.30	$8.30
Administration	$10.50	$11.53
TOTAL	**$78.70**	**$81.90**

Table 14
Dementia care facility operating costs

Cost component	Greenfield site costs per resident per day	Review Survey average historical costs per resident per day
Care costs	$65.50	$67.84
Catering	$12.50	$12.81
Cleaning	$3.80	$3.83
Laundry	$2.15	$2.24
Property/maintenance	$9.80	$9.96
Administration	$10.50	$11.53
TOTAL	**$104.25**	**$108.21**

6.8.2 Construction and fit-out costs

To help determine reasonable construction costs, the Review Survey sought feedback from operators who had constructed new facilities in the past five years. In addition, the Review project team consulted widely with providers who had developed facilities with the characteristics of the Greenfield fully modernised homes.

The major challenge in establishing reasonable average construction costs in residential care is the diversity in designs and features favoured by different operators. Construction costs for premium facilities, with generous room sizes and comprehensive resident amenities, can also trend well above industry standards. In the past, the service type has also impacted upon the costs of building.

Section 6.4 describes the most critical trends prevalent in New Zealand, which indicate that rest home and hospital service delivery is becoming increasingly integrated. For this reason, the larger room and total facility floor space traditionally associated with hospital level care will now become a feature of rest home developments too.

Secure dementia areas, in the context of the co-located Greenfield site described above, are also likely to present similar building cost profiles – with the caveat that small, secure, stand-alone dementia developments tend to be significantly more costly to build. However, the Review project team's research and survey response analysis confirms that modern, stand-alone dementia facilities designs are not common in New Zealand.

Important to the evaluation of facility design are the expectations of residents, current and future. Almost all of the recently developed sites surveyed incorporated single rooms with ensuites, a reasonably high standard of resident amenities, and accommodations for GPs and allied health practitioners.

In response to the Review Survey questionnaire, operators throughout New Zealand described development costs for facilities commissioned over the past five years and provided details of construction and fit-out costs. Members of the Review project team visited a sample of sites to examine these costs in more detail.

Consideration was also given to Rawlinson's 2009 Construction Guide estimates, which put construction costs for aged residential care facilities in New Zealand at between $2,250 and $2,600 per square metre or $101,250 to $117,000 per bed, excluding land, equipment and fit-out.

Based on these consultations and analysis of efficient service designs recently built, **Table 15** summarises construction cost estimates for a fully commissioned facility (excluding land costs).

Table 15
Construction cost and fit out

Average floor space per bed	Average construction and fit out per square metre	Total construction and fit out cost per bed
45m²	$2,950	$132,750

The Review project team's consultation and inspection of modern facilities indicate that construction costs for premium sites can significantly exceed the estimates above. Similarly, it may be feasible to construct more economical service designs where the competitive environment permits.

In the context of strategic policy development, there are advantages in promoting variation in service design, and appropriate funding systems can greatly enhance innovation and consumer-directed outcomes. The capital costs above are averages only based on generally accepted standards of building design for efficient facilities in New Zealand today.

Land costs

The price of land varies considerably throughout New Zealand. Current DHB funding arrangements make provision for variable land acquisition costs on a TLA basis. The capital costs associated with aged residential care developments should be determined with reference to land costs in the location the facility is built.

Land costs of $200, $350 and $500 per m² have been assumed for the purposes of illustrating the impact of these costs on the calculation of the annual capital charge.

Exclusion of ramp up costs

The capital costs above do not include 'ramp up costs/losses' normally experienced during the early stages of new facilities operation, nor does the annual capital charge calculated in this report include provision for these costs.

Operators are required to bear capital and finance costs during the construction period. In addition, newly commissioned facilities will usually take time to reach full occupancy and establish efficient staffing profiles, which results in temporarily sub-optimal returns. Some providers may perceive higher risks with the development phase of a new facility.

The time taken for construction and the losses sustained post-commissioning will vary significantly among facilities, depending upon development parameters, demand for the service, availability of staff, competitive influences and the adequacy of the provider's planning and marketing programmes. Ramp up costs/losses will also vary among redeveloped facilities, where staff and residents may be transferred to the new facility.

The disparity in potential costs associated with reaching optimum performance levels makes it impracticable to estimate the impact on total capital investment levels for new facilities. However, these costs should be considered in the context of future price/subsidy discussions.

6.8.3 Annual capital charge

The following assumptions have been adopted with respect to the capital charge methodology inputs described in **Section 6.7**.

- The capital investment in the facility is represented by:
    - A construction and fit out cost of $132,750 per bed attributed to the Greenfield sites above based on a cost of $2,950 per m².
    - Land costs of $200, $350 and $500 per m² and a site coverage of 35%.

- Average facility occupancy of 93%, which is consistent with the analysis of operating costs for fully modernised homes modelled as Greenfield facilities.
- The average tax depreciation rates applied to the assets of the facility are:
    - Building – shell: 0% - The Government has recently announced that from 1 April 2011 depreciation (for tax purposes) will no longer be permitted on buildings with an estimated life of 50 years or more. This analysis assumes that aged care facilities in general will fall within the definition of buildings affected by this change.
    - Building – fit-out: 10% diminishing value (DV) - reflecting depreciation rates excluding the previous loading factor, which has also been removed in the tax changes recently announced by Government.
    - Plant & equipment: 16.0 % DV (as above).

- The average economic life assumed for the assets of the facility for the purposes of the reinvestment assumptions described below are:
    - Building – shell: 35 years
    - Building – fit-out: 15 years
    - Plant & equipment: 10 years

- The required rate of return on investment is 12.1% as per the mid-point of the WACC range in **Section 6.7**.
- The company tax rate is 28% (as of 1 April 2011 but applied from the current date). The impact on WACC of the change in tax rates (t_c and t_i) from 30% to 28% is approximately 0.1%.
- The assumed forecast annual inflation rate is 2.5%. This is based on the compound annual rates of inflation observed in New Zealand over the last 10 and 20 years, which are 2.7% and 2.3%, respectively.
- It is assumed that 50% of depreciation is reinvested annually to maintain the operating asset base, and the balance accumulated to be reinvested at the end of each consecutive economic life term. The actual behaviour of operators in this respect can, and does, vary significantly.
- The residual value of assets at the end of their economic lives above is 50% of book value. This assumption is adopted for consistency with the foregoing assumption that annual capital reinvestment is equal to 50% of depreciation.

As noted earlier, the terms of reference specifically place pricing outside the scope of this Review. The methodology adopted for the calculation of the annual capital charge in **Section 6.7** is therefore intended for the purposes of illustration only. It makes several important simplifying assumptions (as previously discussed) and should not be adopted for the purposes of pricing.

6.8.4 Total capital and operational costs

The total costs of delivering aged residential care services is the aggregate of operating costs and the capital charge on land and buildings (incorporating the operator's return on and of investment). The Greenfield operating costs discussed earlier are summarised in **Table 16**.

Table 16
Operating costs

Facility type	Greenfield site per resident per day
Rest homes	$ 78.70
Hospitals	$126.60
Dementia units	$104.25

The calculation of land costs will depend on the location of the service. The capital costs per resident associated with the operation of the Greenfield facility based on the methodology and assumptions described in **Sections 6.7**-**6.8** are presented in **Table 17** below.

Table 17
Capital charge per resident

Cost	Land price		
	$200m^2	**$350m^2**	**$500m^2**
Construction and fit out costs	$132,750	$132,750	$132,750
Land costs (as above)	$25,714	$45,000	$64,286
Total capital costs per bed	$158,464	$177,750	$197,036
Annual capital charge per resident	**$25,417**	**$27,964**	**$30,512**
Capital charge per resident per day	**$69.63**	**$76.61**	**$83.60**

These calculations are presented for illustration. Any methodology adopted for the purposes of pricing aged residential care services should consider the impact of variations to these assumptions on the calculation of an appropriate capital charge. An analysis of the sensitivity of the results to key assumptions is presented below.

Analysis of sensitivity of capital charge calculation to key assumptions
Several aspects of the capital charge methodology include an element of subjective judgment in determining which assumption to adopt. Sensitivities to some key assumptions are set out below.

Average facility occupancy
Table 18 demonstrates the impact of a +/- 5% change in the average facility occupancy assumed in the calculation of the capital charge per resident/day.

Table 18
Facility occupancy (+/- 5%)

Land price	- 5%	Occupancy rate	+ 5%
	88%	**93%**	**98%**
$200m^2	$73.59	$69.63	$66.08
$350m^2	$80.97	$76.61	$72.71
$500m^2	$88.34	$83.60	$79.33

WACC
Tables 19 and **20** illustrate the sensitivity of the calculation of the capital charge on a per resident/day basis to a +/- 1% difference in the assumed required rate of return, and a +/- 10% difference in gearing (debt) assumed in the calculation of WACC.

Table 18
WACC (+/- 1%)

	- 1%	WACC	+ 1%
Land price	**11.1%**	**12.1%**	**13.1%**
$200m^2	$64.61	$69.63	$74.69
$350m^2	$70.89	$76.61	$82.36
$500m^2	$77.17	$83.60	$90.03

Table 19
Debt / value ratio (+/- 10%)

	- 10%	Gearing (D/V)	+ 10%
Land price	**30.0%**	**40.0%**	**50.0%**
$200m^2	$70.39	$69.63	$69.13
$350m^2	$77.48	$76.61	$76.04
$500m^2	$84.56	$83.60	$82.95

Total costs of aged residential care services for an efficient and effective provider

The total costs of delivering aged residential care services on a per resident/day basis under the methodology and assumptions described above, with the varying land value assumptions shown, are presented in **Tables 21-23**:

Table 21
Summary of total costs per resident/day (land price $200/m^2)

Facility type	Operating costs	Capital costs	Total costs
Rest homes	$78.70	$69.63	$148.33
Hospitals	$126.60	$69.63	$196.23
Dementia units	$104.25	$69.63	$173.88

Table 22
Summary of total costs per resident/day (land price $350/m^2)

Facility type	Operating costs	Capital costs	Total costs
Rest homes	$78.70	$76.61	$155.31
Hospitals	$126.60	$76.61	$203.21
Dementia units	$104.25	$76.61	$180.86

Table 23
Summary of total costs per resident/day (land price $500/m^2)

Facility type	Operating costs	Capital costs	Total costs
Rest homes	$78.70	$83.60	$162.30
Hospitals	$126.60	$83.60	$210.20
Dementia units	$104.25	$83.60	$187.85

These total costs are only representative of the modern facility and should not be utilised to infer anything other than the challenge that faces the country if it is to ensure adequate investment into the future is forthcoming.

6.9 Conclusion

In conducting this Review, the Review project team has undertaken New Zealand's largest ever financial survey of aged residential care providers. The response rate to the survey was the highest of any comparable survey in the world.

The results represent a unique, contemporary and comprehensive information and data set to inform the costing component of this Review. By developing the Greenfield model as a proxy for the current efficient and effective provider, the Review project team was able to compare the survey information against the defined characteristics of an efficient operating environment including facility scale, location and service delivery. Modern facilities were visited and examined against these characteristics and in-depth discussions held with operators. This information was then compared and contrasted with the survey results.

The resultant analysis of Greenfield operating costs and a build up of the capital costs tested against the current environment provides a set of previously unavailable data that will inform pricing and policy decisions over the next decade. The models developed as part of the costing study will provide a valuable tool for stakeholders to ensure the sector can meet the needs and growing demands of all aging New Zealanders.

7. Baseline demand projection

7.1 Introduction

The Review has undertaken a projection of the baseline demand for aged residential care services to 2026. This work uses information from the Client Claims Processing System (**CCPS**) between 2000 and 2009 to understand the trends on drivers in **Table 24** below, and then projects those trends into the future. The work uses Organisation for Economic Cooperation and Development (**OECD**) data and the OPAL Study to develop scenarios on when the trends may change.

7.1.1 Some caveats

Projections in this report are scenarios, not forecasts. They aim to provide a sense of direction and scale of change ahead to help inform strategic business and policy decisions.

These scenarios identify broad sensitivities to key assumptions, but cannot remove uncertainty. The Review project team have made assumptions about what drives demand for and utilisation of aged residential care services. These assumptions are based on findings from the literature, our own investigation of local data, various surveys, and interviews and discussions with key informants and experts in the field. References are set out in **Appendix A**.

7.1.2 Key assumptions

The projections and scenarios presented in this baseline demand component are based on a range of assumptions regarding demand for rest home, hospital and dementia level care. They include:

- Current trends in preference for given types of services and utilisation of alternative care arrangements (e.g. residential care/home support/informal care by family) will continue into the future.
- There is no sign of technological changes in the immediate future that may extensively impact on the delivery of aged residential care services. The projections presented in this report do not take such eventualities into account.
- There will be no changes to policy settings such as the Needs Assessment and Service Coordination Service (**NASC**) threshold, income-asset test thresholds, etc.
- Supply will remain available at current prices for all levels of demand.
- The proportion of unmet demand will remain constant over time.

Rest home demand is projected under two alternative scenarios. The following specific assumptions have been made:

- **Scenario A** assumes that rest home utilisation will continue to decrease by 0.03 bed days per capita per annum (435 fewer beds per year) until 8% below the 2008 level. After that, utilisation will increase in tandem with the aging population.

- **Scenario B** assumes that rest home utilisation will continue to decrease by 0.06 bed days per capita per annum (817 fewer beds per year) until 30% below the 2008 level, after which utilisation will increase in tandem with the aging population.

7.2 Drivers of aged residential care demand

Aged residential care consists of five types of service: rest home, hospital, dementia, psychogeriatric and young physically disabled[2]. Each has different demand drivers. Overall, the demand for aged residential care is driven by demographics, alternative care arrangements and economic factors.

Table 24
Drivers of demand for aged residential care (Hogan, 2004)

Demographic drivers:
1. The growth and aging of the population
2. The changing independent life expectancy of older people
Alternative care arrangements:
3. Availability of alternative health services (e.g. home support)
4. Older people's access to and preferences for alternative arrangements, such as informal care by family and friends
Economic influences:
5. Funding and government policies on access to services
6. Relative prices of different services
7. Income and assets of older people.

The growth and aging of the population is possibly the most dominant driver for aged residential care services. Age is a good predictor of the health needs of the population. The prevalence of disability increases with age and, consequently, the need for aged residential care. The prevalence of moderate and severe disability increases rapidly with age in the over 65 population (Ministry of Health, 2002).

International literature suggests that, as life expectancy increases, the age at which people access aged care services rises, but that individuals will still require a similar amount of care at the end of their life.

> *"The weight of international evidence is that the disability-free years of older people increase along with life expectancy. On the other hand, severe disability tends to be concentrated in the last two to four years of life, regardless of how long a person lives. This suggests that a healthier old age and increasing longevity will not necessarily diminish demand for services, as demand for residential care tends to be concentrated in the final two years of life.*
>
> *Based on this view, a healthier old age and increasing longevity only delays rather than reduces demand. Dementia seems to be an exception to this finding. There appears to be no delay in the onset of dementia when the longevity of the population increases. In other words, people will remain physically healthy for longer but their intellectual functions will deteriorate as in the past. The prevalence of dementia may double every five years after age 65."* (Hogan, 2004).

[2] Some young physically disabled who require residential care use aged residential care facilities because other suitable facilities are not available in the geographic region.

Alternative health services, such as home support, have the potential to be a substitute for aged residential care. Such services must be targeted appropriately if they are to be cost effective.

> *"Older people's preferences to stay home with the help of family and friends have had a significant impact on the demand for aged residential care. Having support from a spouse or other immediate family member helps in this; a single/widowed person is more likely to seek aged residential care services than one with a partner who can provide informal care at home. International literature suggests that informal care by family and friends is a viable option for someone with limited, but not severe, disability"* (Hogan, 2004).

In New Zealand, access to aged residential care services is regulated by government policies and subject to a needs assessment and service co-ordination process. Any changes to assessment criteria or their application will affect demand for services. Discussions with industry participants indicate that some changes to the application of NASC criteria may have contributed to reduced demand from elderly people with lower level care needs.

7.3 Demand projection methodology

Of the drivers listed in **Table 24**, it is relatively straightforward to estimate the impact of the growth and aging of the population on demand – which is what this work does, before focusing on the impact of other drivers. These other drivers are referred to as the impact of changes in the utilisation rate. Utilisation of aged residential care services is considered on a per capita basis, standardised for changes in the age, gender and ethnicity profile of the population.

Utilisation rates for some services have been changing over recent years; for example, per capita use of dementia services has been increasing. Changes in utilisation rate reflect the combined impact of changes in all drivers for aged residential care in **Table 24**, except for the growth and aging of the population (because, by definition, utilisation rate is adjusted for population growth and aging). Therefore, as part of the baseline projection it is necessary to account for the projected change in the utilisation rate, rather than projecting a static scenario based on the utilisation rate prevailing at a given time.

The change in the utilisation rate also reflects:

- The reduction in the length of stay at aged residential care facilities
- The impact of the changing level of home support services offered to the aged residential care population.

A major challenge in projecting demand is determining how long the change in utilisation rate will continue, given the current model of care. Literature supporting a well-grounded assumption on this issue has not been identified in undertaking this work. OECD data, for example, shows considerable variation in utilisation rates (much of it a reflection of differences in health care and disability support systems). To address this limitation, several scenarios are presented based on a reasonably conservative range of potential outcomes. These assumptions are discussed in detail later.

In summary, the baseline projection is made by:

- Projecting the impact of growth and aging of population on the demand for services based on the current utilisation rate
- Adjusting for the projected utilisation rate trend.

7.3.1 Unmet demand

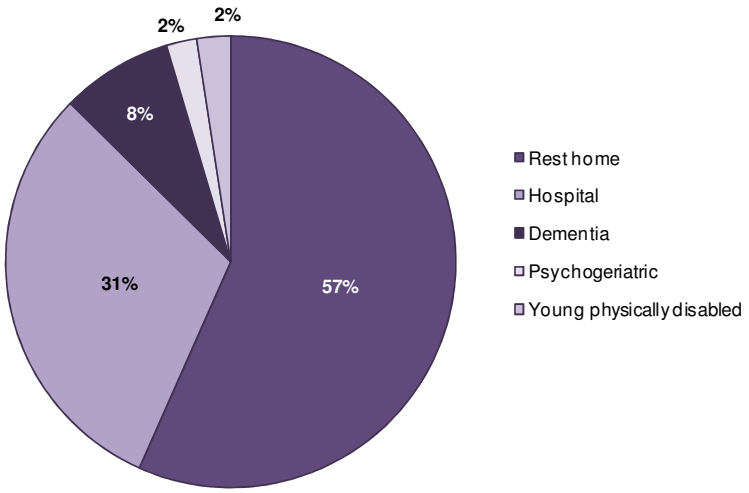
Demand for aged residential care services is unlikely to be fully met at any given time due to economic drivers and regulatory constraints that influence the volume of services in the market. There is no information available on the level of unmet demand. This baseline projection makes no attempt to include previously unmet demand. Consequently, it is implicitly assumed that the level of unmet demand will remain constant over time.

7.4 Profile of aged residential care

Aged residential care services considered in this Review comprise rest home, hospital, dementia, psychogeriatric and young physically disabled (**YPD**) services.

Figure 36 profiles the aged residential care sector in 2008. It includes full fee paying residents, who comprised an estimated 32% of all rest home residents at that time (see 2008 Health Care Providers New Zealand Member Survey).

Figure 36
Profile of aged residential care (2008 bed days)



A reliable time series of the total number of aged residential care beds and residents in New Zealand is not available. This is primarily because there is no time series data for full fee paying clients. Full fee paying clients are those that pay for their services in full and receive no government subsidy.

Table 25 below represents a time series estimate of the total number of aged residential care beds and residents in New Zealand from the Review, which includes subsidised clients and full fee paying clients.

The numbers of subsidised clients is from CCPS data, which includes all clients who receive some subsidy, including those who receive some top-up payment, but does not include records of full fee paying clients. The number of full fee paying clients is estimated from information from recent HCPNZ Member Surveys. Further details regarding these estimates are presented in **Section 7.7.2.**

Table 25
Clients, bed days, capacity and occupancy - 2000 to 2008

Year	Subsidised		Full fee paying			Total		Beds	Occupancy
	Clients	Bed days	%	Clients*	Bed days	Clients	Bed days		Bed days
2000	20,973	7,441,816	Not available						
2001	21,237	7,461,721							
2002	21,623	7,571,813							
2003	22,432	7,849,121							
2004	23,324	8,107,387	50%	10,631	3,781,542	33,955	11,888,929	34,096	96%
2005	24,970	8,594,851	42%	8,403	2,973,110	33,373	11,567,961	34,591	92%
2006	26,613	9,121,142	33%	6,390	2,257,076	33,003	11,378,218		
2007	26,535	9,080,873	29%	5,109	1,811,795	31,644	10,892,668	33,786	88%
2008	26,749	9,178,818	32%	5,659	2,010,522	32,408	11,189,340	34,106	90%

* Full fee paying clients are calculated based on rest home bed days

The Review Survey estimates full fee paying clients to be 28.3% of total rest home clients, and occupancy of beds to be approximately 92%. Based on the 2008 bed days and occupancy rate of 91%, total bed numbers can be estimated as 32,400. This is approximately 1,700 beds fewer than quoted in the 2008 HCPNZ Member Survey. Irrespective of this relatively small difference, estimates for the last five years above have been fairly consistent and appear reliable enough to estimate total bed days.

For the purposes of the analysis, the current number of beds in the sector is assumed to be 34,000.

Table 25 estimates that in 2008, approximately 11.2 million bed days of aged residential care services were provided. In September 2008, around 32,400 residents occupied approximately 34,000 beds; an average occupancy rate of 95% for that month.

It is estimated that during 2008 an average of approximately 32,400 residents received aged residential care in any given month, including those who stayed for part of the month only. On any given day in 2008, 30,300 residents were receiving aged residential care services. This compares to an average 32,400 residents on any day in 2004, or 34,000 in a month (allowing for starts and finishes during the month), at the time of peak demand for aged residential care services in the last eight years.

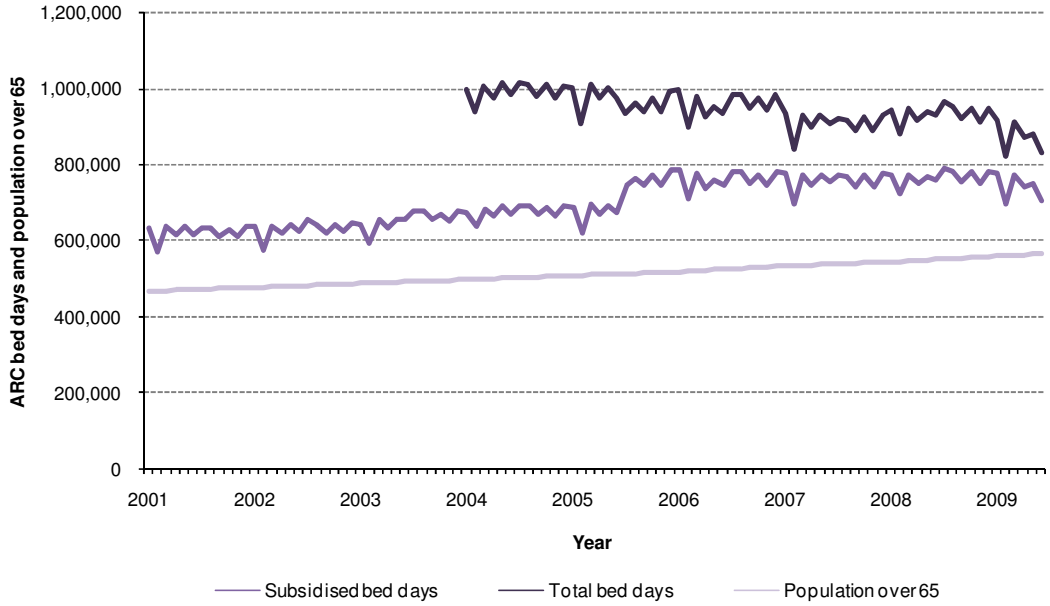
Figure 37 presents the trend of aged residential care bed days per month between 2001 and 2009 in the population aged over 65 years. The total bed day plot in the graph is based on the information underlying **Table 25**. It is not possible to estimate the total bed day usage before 2004, given the absence of data on full fee paying clients. Note that the February troughs in the bed day graph below are a function simply of it being a shorter month than any other.

The Review project team's estimate of total bed days, including full fee paying clients, indicates total bed days were falling between 2004 and 2008, while the over 65 population (the potential users of aged residential care services) was increasing.

At the same time, subsidised bed days:

- Increased at a slower pace than the population increase (between 2001 and mid-2005)
- Increased sharply as more residents became entitled to subsidised care due to a significant rise in the asset test threshold in mid-2005
- Remained stable irrespective of the increase in the population after mid-2005.

Figure 37
Aged residential care bed days and population over 65 years



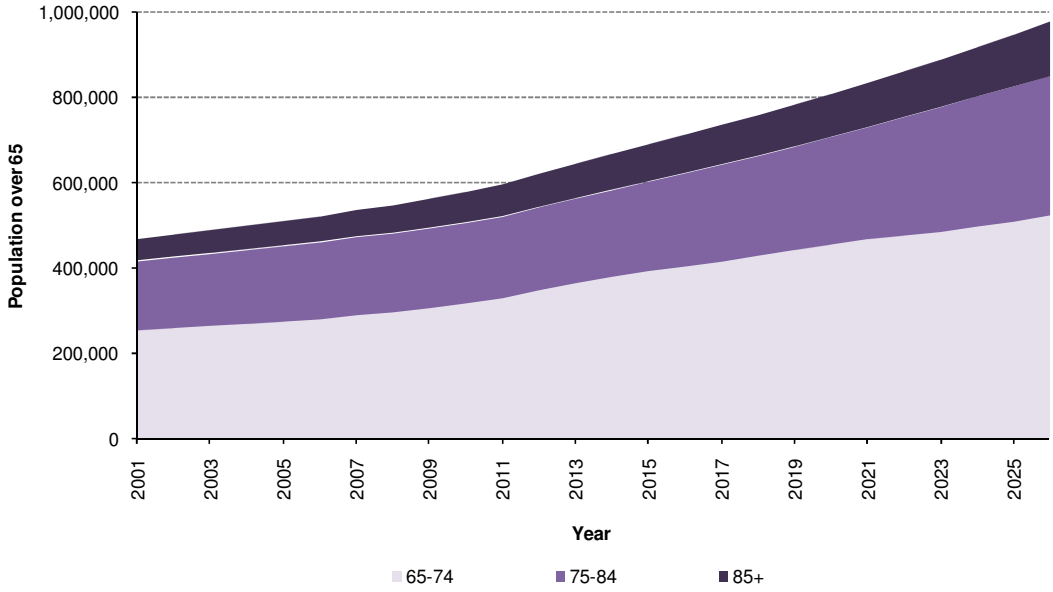
On the face of it, beds days are falling while the relevant population is increasing; therefore the utilisation rate must be decreasing rapidly. In fact, this is an oversimplified conclusion which misses the influence of a number of underlying drivers considered later in this section.

7.5 Demographic trends in New Zealand

The growth and aging of the population has a significant effect on demand for aged residential care in the medium to longer term. The demand for aged residential care increases rapidly with age in the population over 65. In the 20 years between 2006 and 2026, the overall population is expected to grow by almost 20% (from 4.2 million to 5.0 million, see **Figure 38**). As in most developed nations, the population over 65 years is aging, and in New Zealand is estimated to increase by 84% from 512,000 to 944,000.

The biggest users of aged residential care services are those aged over 85. In the 20 years to 2026, this population is predicted to more than double, from 58,000 to 116,500.

Figure 38
Population over 65 years in New Zealand



If demographic drivers are assumed to be the only determinants of demand for aged residential care services, it is estimated that demand will increase by approximately 78% between 2008 and 2026. Based on current utilisation rates, this would be the equivalent of an additional 1,500 beds every year, solely to keep up with the demand generated by the growth and aging of the population.

7.6 Utilisation rates of aged residential care services

The trend in the utilisation rate – the age, gender and ethnicity standardised bed days per capita – over recent years varies by type of service. In particular, international evidence indicates the utilisation rate for dementia will be different to other types of aged residential care services.

The economic drivers affecting demand differ for rest home services compared to other types of aged residential care services. For example, the health care needs of hospital and dementia clients are more acute and they have limited choice as to whether to access the services or not, compared to rest home clients.

Utilisation rates are affected by the following drivers:

- Access to alternative arrangements, such as informal care by family and friends and support services offered by charities
- Availability and relative prices of alternative health services (e.g. home support)
- The impact of the income and asset testing regime.

The change in the utilisation rate encompasses changes in a number of sub-drivers. In the context of projecting demand, accounting for changes in utilisation rate in turn accounts for all of these sub-drivers. Examples of such sub-drivers are:

- The number of older people accessing the service, which in turn is affected by the disability rate among older people
- Changes to length of stay

- Changes to needs assessment eligibility criteria or the application of such criteria.

7.7 Rest home bed days - baseline demand projection

As discussed earlier, a reliable time series of total numbers of rest home clients is not available. Therefore, estimates of the overall (subsidised and full fee paying) utilisation rate trend are constructed by drawing on good quality administrative data on subsidised rest home bed days from the CCPS, and scaling these up with an estimate of the proportion of full fee paying clients. This forms the basis for projecting overall demand for rest home services.

Figure 39 plots the subsidised rest home utilisation rate between 2000 and 2008. In 2008, there were 4.3 million subsidised rest home bed days in New Zealand's population of 4.3 million, giving a per capita ratio of 1. This compares to the standardised per capita ratio for 2007 of 1.07, and so on. By standardising, the impact of growth and aging of the population is eliminated.

Figure 39
Standardised subsidised rest home bed days per capita

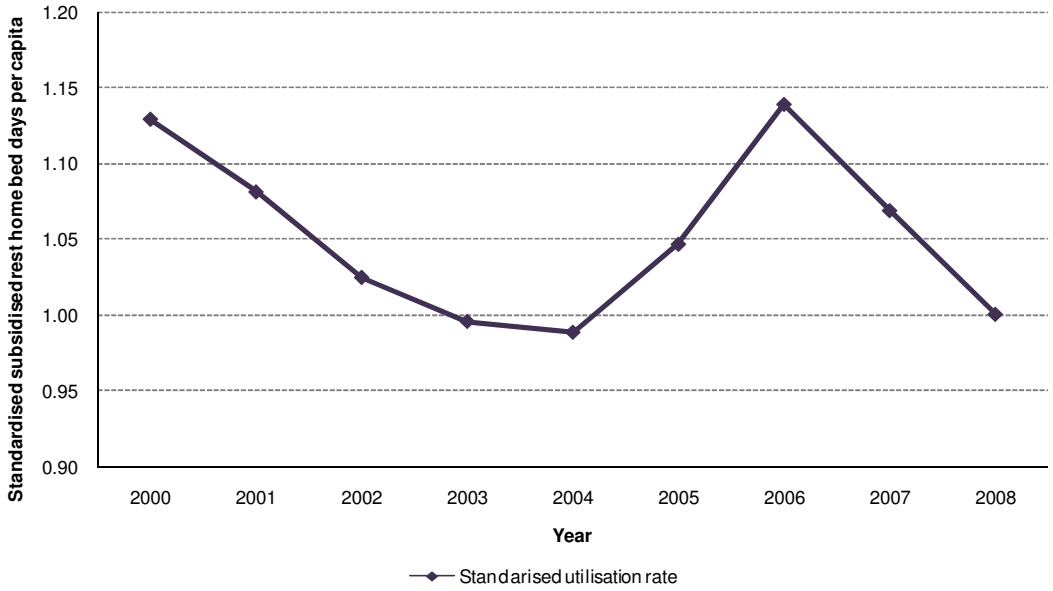


Figure 39 shows that subsidised rest home utilisation:

- Fell between 2000 and 2004, with the rate of decline appearing to slow from 2002
- Increased sharply in 2005 and 2006
- Decreased again in 2007 and 2008.

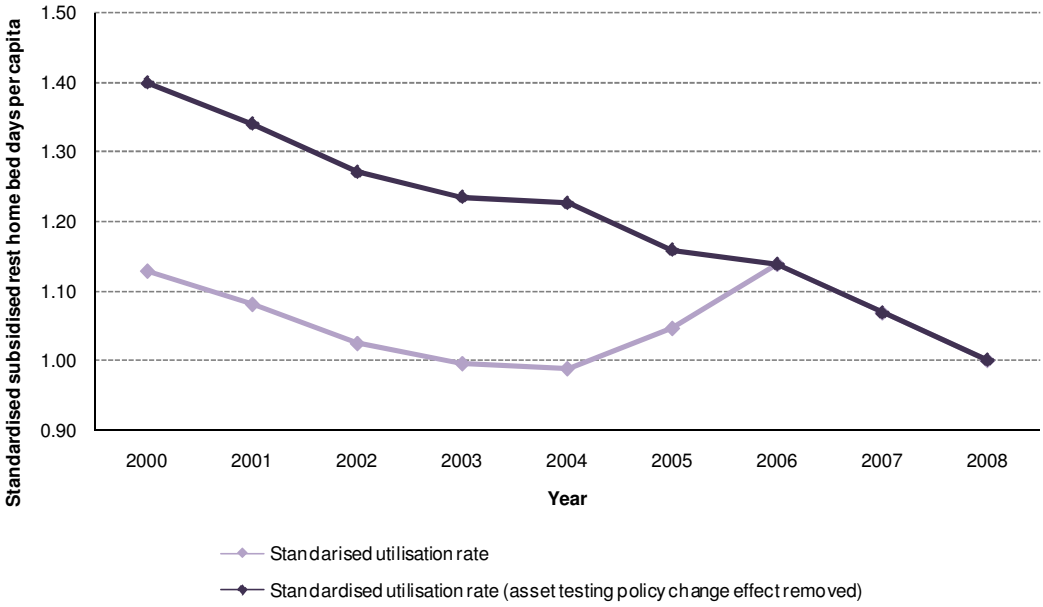
7.7.1 Impact of the increase in the asset test threshold on 1 July 2005

On 1 July 2005, changes to the government policy increased the asset test threshold for subsidised rest home services. This resulted in more people qualifying for subsidised rest home services and is the reason for sharp increase in the utilisation rate in 2005 and 2006.

Figure 40 constructs a subsidised rest home utilisation rate plot after removing the effect of changes to the asset test threshold. There was a 24% increase in the number of subsidised beds after the asset test threshold increased on 1 July 2005. **Figure 40** applies this proportion to earlier

years to derive an 'equivalent' subsidised rest home utilisation rate adjusted for the change in asset test threshold. In 2001 – to take one year as an example – the subsidised rest home utilisation rate was 1.08. **Figure 40** shows that if the asset testing threshold had been at its post July 2005 level in 2001, the utilisation rate would have been closer to 1.34.

Figure 40
Standardised subsidised rest home bed days per capita – asset testing policy change effect removed



The purpose of this analysis is to eliminate the effect of the policy change, to get a clearer sense of the trend in the subsidised rest home utilisation rate. It shows a steady reduction in the rate between 2000 and 2008, from 1.40 to 1.00; that is, a 28% reduction over eight years.

In summary, the rate of change in the subsidised bed utilisation rate varied over the eight years prior to 2008. The average rate of reduction is estimated as:

- 0.04 bed days per capita or 595 fewer beds each year between 2000 and 2008
- 0.02 bed days per capita or 275 fewer beds each year between 2000 and 2004
- 0.06 bed days per capita or 847 fewer beds each year between 2006 and 2008.

7.7.2 Overall rest home utilisation rate

As already noted, there is no accurate time series information on full fee paying clients. **Table 26** shows an estimate of full fee paying residents based on recent industry surveys by this Review and HCPNZ.

Table 26
Estimates of % of full fee paying residents

	2004 (Note 3)	2005 (Note 3)	2006 (Note 2)	2007 (Note 2)	2008 (Note 2)	2009 (Note 1)
Subsidised	50%	58%	67%	71%	68%	72%
Full fee paying	50%	42%	33%	29%	32%	28%

Note 1: Source - Grant Thornton Review Survey
Note 2: Source - 2008 Health Care Providers New Zealand Member Survey
Note 3: Source – Constructed using estimated increase in full fee paying clients post July 2005 and 2008 Health Care Providers New Zealand Member Survey

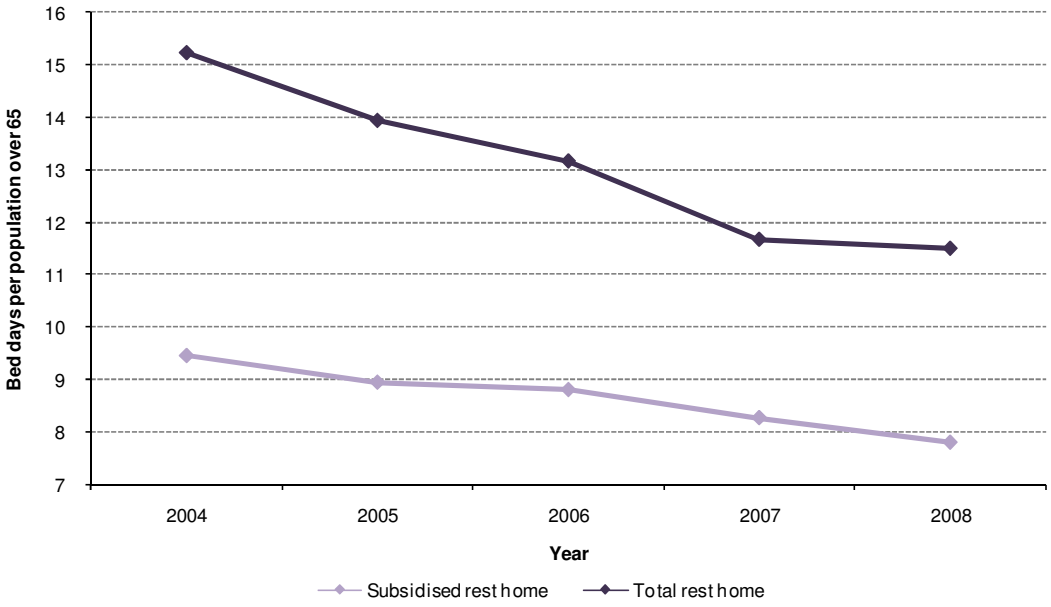
The proportion of full fee paying clients in 2009 is based on the Review Survey. The proportion of full fee paying clients in 2006-2008 is based on information from the 2008 Health Care Providers New Zealand Member Survey. These estimates should be viewed with caution, as they are a snapshot only at a point in time. None of the surveys covers all beds. The response rate for the Review Survey was approximately 60% of sector beds and the response rate for each of the HCPNZ surveys was around two-thirds of the HCPNZ membership.

The proportion of full fee paying residents pre-2006 is based on two assumptions. There are no estimates of the proportion of full fee paying residents before 2005, so Assumption 1 is that the rate in 2004 would have been similar to the rate that prevailed in 2005.

The July 2005 rise in the asset test threshold increased the number of subsidised bed days by 24%. Assumption 2 is that this change would have had an equivalent impact in previous years. Note that the estimate of 42% full fee paying clients for 2005 is the weighted average of 50% and 34% for the first and second half of the year, respectively.

Figure 41 presents total and subsidised rest home bed days per capita of the over 65 population. This is a less accurate measure than standardised bed days per capita, however, it is not possible to derive this measure because detailed demographic information for full fee paying clients is not available.

Figure 41
Subsidised and total bed days for over 65 population



The estimates in **Figure 41** (derived using the figures in **Table 26**) indicate that the total rest home utilisation rate (including full fee paying residents) is reducing faster than that for subsidised care. Between 2004 and 2008, total bed day utilisation reduced by 23%, while subsidised bed day utilisation reduced by 12%.

Table 26 shows that the proportion of full fee paying clients has been decreasing since 2004, even after allowing for the change to the asset test threshold. It is not known whether this trend prevailed before 2004. The faster reduction in the total rest home utilisation rate between 2004 and 2008 reflects the decrease in proportion of full fee paying clients.

The difference between the utilisation rate for subsidised clients and full fee paying clients suggests a lowering of uptake by full fee paying clients. It is not clear why. This may reflect something about changes in price – although the international literature suggests that uptake of aged residential care service is not very sensitive to price. Alternatively, full fee paying clients, who are likely to come from a wealthier population group, prefer retirement villages, which are a substitute for aged residential care for people with low disability. A third possible explanation is that the real estate boom in recent years has changed the ratio of older people who are eligible and ineligible for subsidised care. **Appendix E** presents further discussion of the impact of asset testing and rising house prices on rest home utilisation.

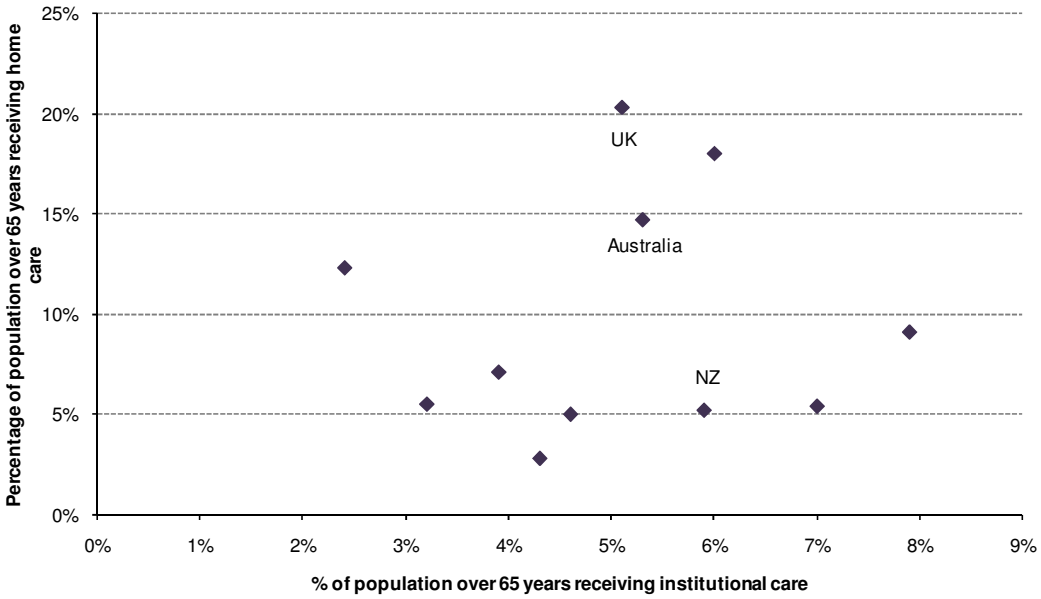
As noted previously, caution is required regarding the estimates of the proportion of full fee paying clients above. In addition, without detailed client demographic information it is not possible to determine the standardised total rest home utilisation rate. Therefore, in projecting demand this analysis places greater reliance on the trend for subsidised rest home utilisation.

7.7.3 Impact of home support

Cross sectional OECD comparisons show no correlation between the proportion of people receiving institutional care and the proportion of people receiving home care. In other words, these

comparisons provide no evidence that increased home support leads to reduced residential care. See **Figure 42** below.

Figure 42
OECD comparison: Percentage of older people receiving institutional and home care



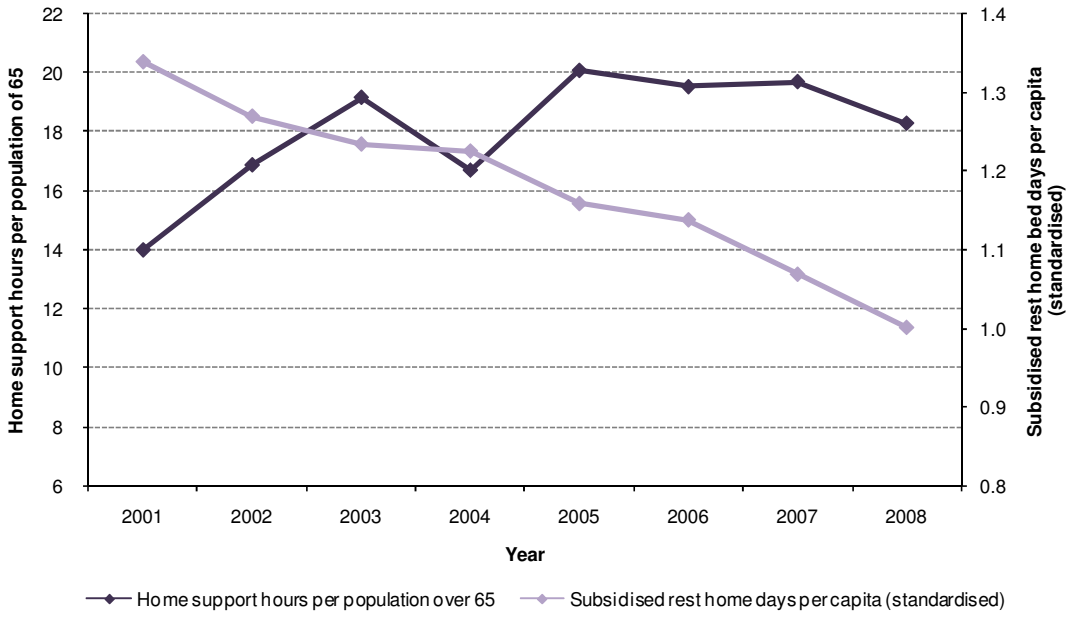
However, other studies show that home support and residential care can be substitutes for one another (Greene, 1993; Hollander M. J., 2001; Kemper, 2001) and, in particular, that home support tends to be a substitute for residential care service for older people with lower levels of disability. Home support was found to be effective in reducing the overall cost of care when targeted appropriately. It is particularly effective, according to these studies, when it involves support from a spouse or family living nearby.

In New Zealand, home support services consist of personal care services and household management services. Personal care service refers to assistance with bathing, cooking, eating, and so on, while household management service includes activities such as cleaning, shopping and washing. Personal care can be a close substitute for rest home services for older people who are otherwise still capable of managing at home. Household management appears to be less of a substitute for rest home services. A wider range of older people could benefit from household management services, without needing assistance with personal care.

Some of the reduction in subsidised rest home services may be due to increased uptake of home support services. Between 2001 and 2005, subsidised home support service hours increased from 6.5 million to 10.2 million; an increase of 56%. During the same period, the over 65 population increased by only 9%. The increased availability of home support has led to 15% more older people accessing 36% more home support hours per client.

Figure 43 compares the standardised subsidised rest home bed days per capita from **Figure 40** with subsidised home support provision per person over 65 between 2001 and 2008. It shows that between 2001 and 2005, as subsidised rest home utilisation fell, subsidised home support provision per person over 65 years increased by approximately 40%. It also shows that since 2005 the volume of subsidised home support per member of the over 65 population has stabilised.

Figure 43
Subsidised rest home bed days and home support hours



Note: Home support information in the above graph was sourced from CCPS and Contract Management System (**CMS**) data. The CCPS did not capture entire home support data, particularly during 2001 and 2003, as some payments were made through CMS. Information from CCPS and CMS has therefore been combined to derive total home support hours. Home support hours are presented as a proportion of the over 65 population. The limitations of the data prevent more accurate standardisation for age, gender and ethnicity.

There are many influences on the demand for aged residential care. Given that the home support utilisation rate has stabilised since 2005, any impact of past increases in home support would now appear to be fully reflected in aged residential care take up. Further reductions in aged residential care through increased home support would require an increase in the level of home support services.

Based on the above analysis, it is difficult to be precise about the impact of home support on the rest home utilisation rate. However, the reported change in the dependency of people in rest homes (see OPAL Study) suggests that home support has played a role in reducing the use of aged residential care by people with lower level needs. The Review project team have assumed in this analysis that under the current policy settings and model of care, the impact of home support on rest home utilisation will be relatively small.

Similarly, it has been assumed that following the real estate boom, rising house prices should have minimal impact on subsidised rest home volumes.

The main drivers of a further reduction in the rate of utilisation of rest home services are assumed to be:

- Older people's growing preference for alternative care arrangements such as informal care by family or friends, and for support provided in certain retirement villages
- Reduction in the length of stay at aged residential care facilities

- Changes to needs assessment criteria or application of criteria. Some providers perceive a change in the application of NASC eligibility criteria restricting the volume of people becoming eligible for the service.

It is highly likely that the downward trend in the rest home utilisation rate will continue into the future. In projecting demand for aged residential care, the key question is how long this trend will continue, and what its limit might be.

7.7.4 Benchmarks on rest home utilisation rates

OECD comparisons and the OPAL Study offer some guidance on reasonable bounds for the projected rest home utilisation rate.

OECD comparisons (refer **Table 27**) show that institutional care usage is high in New Zealand compared to most OECD countries in the comparison; only Norway, Sweden and Switzerland are higher. The gap may have been partially closed since 2006, given the recent reduction in rest home utilisation in New Zealand, however the use of institutional care is also continuing to decrease in most OECD countries. If the New Zealand rest home utilisation rate reduced to the level of the UK, that would imply an approximate 15% reduction from the current utilisation in New Zealand.

That said, a recent survey (Laing and Buisson, 2009) on the care of the older people in UK finds that *"care home demand and capacity has passed an 'inflection point'. A clear shift has taken place from a declining to a growing (institutional care) market"*.

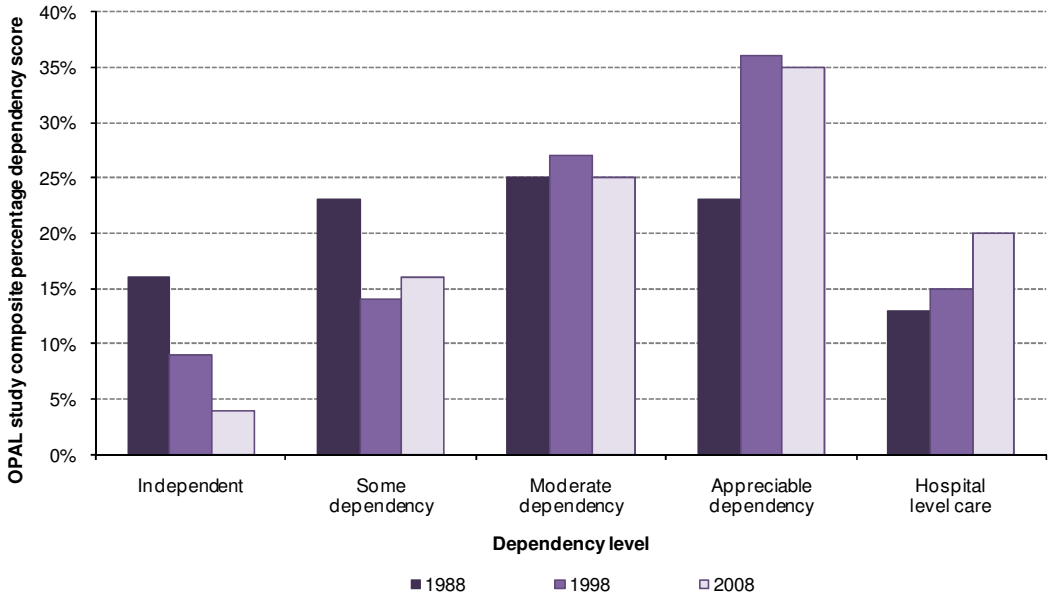
Table 27
OECD comparisons: Percentage of people over 65 years receiving institutional care between 1996 and 2006

Country	% of 65+ receiving institutional care	% difference from NZ
New Zealand	5.9	0%
Australia	5.3	-10%
UK	5.1	-14%
Ireland	4.6	-22%
US	4.3	-27%
Germany	3.9	-34%
Japan	3.2	-46%
Netherlands	2.4	-59%
Switzerland	7.0	19%
Sweden	7.9	34%
Norway	6.0	2%

Between 1988 and 2008, the OPAL Study found a "*substantial decrease in those with lower dependency, and an increase in residents with highest dependency*".

The OPAL Study gives a 'composite dependency score' to residents of aged residential care in the Auckland region (**Figure 44**). It found that between 1988 and 2008 the proportion of residents with an 'independent' score (the lowest category of dependency) reduced from 16% to 4% while residents with 'hospital level care' score (the highest category) increased from 13% to 20%.

Figure 44
OPAL Study - Composite dependency score of all residents 1988 to 2008



The reduction in the rest home utilisation rate in New Zealand is consistent with the reduction in residents scoring 'independent' in the OPAL Study over the last 20 years. (Note that the OPAL Study only considered the Auckland population; there may be variation in other areas.) If the trend continues, the remaining 4% of residents with an 'independent' score could disappear from aged residential care. Assuming all of those residents are classified as rest home, they would account for 8% of total rest home residents (as rest home services comprise 55% of all aged residential care services). A more aggressive assumption could be that the residents with 'some dependency' score (second lowest category) may also disappear from aged residential care. That would be an 8% to 40% reduction from the 2008 level in the use of rest home service.

7.7.5 Rest home bed days - baseline projection

Figure 45 presents two scenarios for the baseline demand projections for rest home bed days. It is considered reasonable to assume that baseline demand projections would be between these two projections.

Scenario A assumes that the rest home utilisation rate will continue to decrease at the rate of 0.03 bed days per capita per annum (435 fewer beds per year) until 8% below the 2008 level. After that, utilisation will increase in tandem with the changing population.

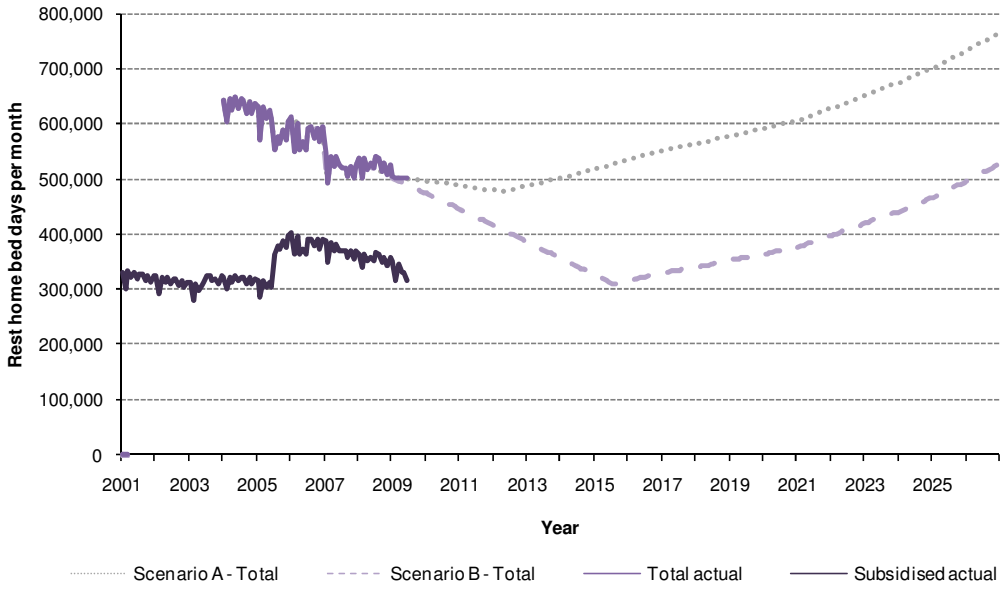
- Overall rest home utilisation is decreasing faster than the utilisation of subsidised rest homes. The rate of reduction assumed is at the lower end of the range 0.03 - 0.08 bed days per capita per annum between 2000 and 2008.
- OPAL found that 4% of residents had a composite dependency score of 'independent', which is equivalent to 8% of rest home level residents. The assumption is that the reduction in the utilisation rate relates to a reduction in residents with an 'independent' score, and that the reduction will continue until there is no one with an 'independent' score in aged residential care.

Scenario B assumes that the rest home utilisation rate will continue to decrease at the rate of 0.06 bed days per capita per annum (817 fewer beds per year) until 30% below the 2008 level, after which utilisation will increase in tandem with the changing population.

- The assumption is that the rate reduction is likely to be closer to the average of that during 2000 and 2008.
- OPAL found that 16% of residents in 2008 had a composite dependency score of 'some dependency', which is equivalent to 32% of rest home clients. The assumption is that in addition to residents with an 'independent' score receding from aged residential care, most of those with a score of 'some dependency' will also not become aged residential care residents. In other words, only people with moderate to high levels of dependency will continue to seek aged residential care services.
- OECD comparisons show that New Zealand has a higher proportion of the over 65 population in institutional care than other countries. A 30% reduction would put New Zealand below current ratios of Australia, the UK and Ireland and just below the US. The ratio for these countries is also likely to be decreasing, and had not yet 'bottomed out' when the OECD comparison was made.

Scenario A projects that the downward trend in rest home bed days will continue until 2012 before it begins to rise with the growth of the aged population. **Scenario B** projects a much faster rate of reduction that also persists for longer, until 2015.

Figure 45
Projected overall (subsidised and full fee paying) demand for rest home beds

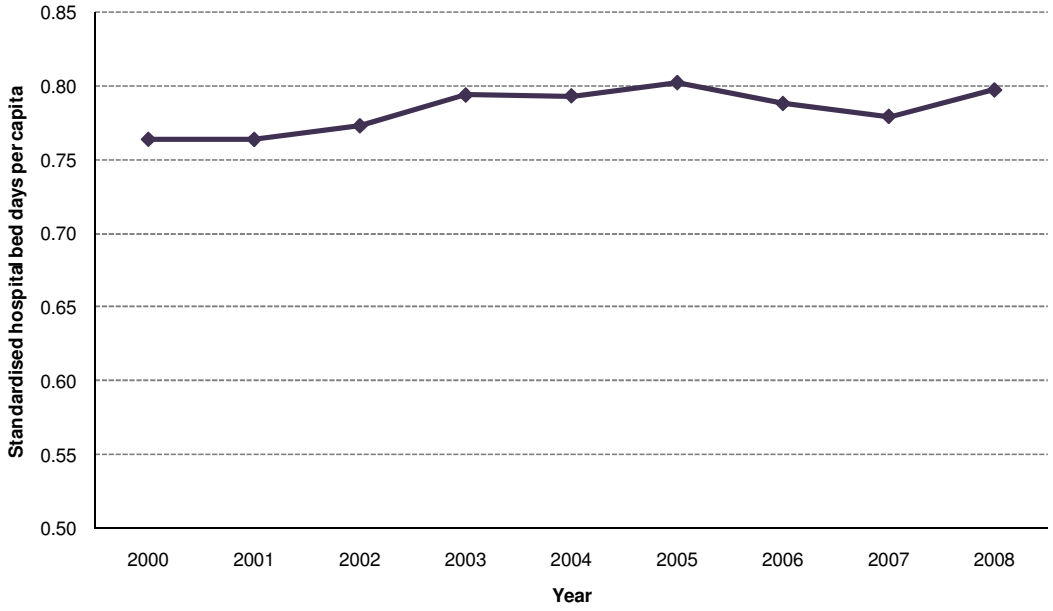


7.8 Hospital bed days - baseline demand projection

Demand for hospital bed days is less affected by economic drivers and alternative services, and those requiring such services are more likely to take them up than stay home.

Figure 46 shows that the standardised hospital utilisation rate over the eight years since 2000 has been stable, remaining within the range 0.75 to 0.80. In projecting demand forward, it is assumed this rate will remain stable at its current level.

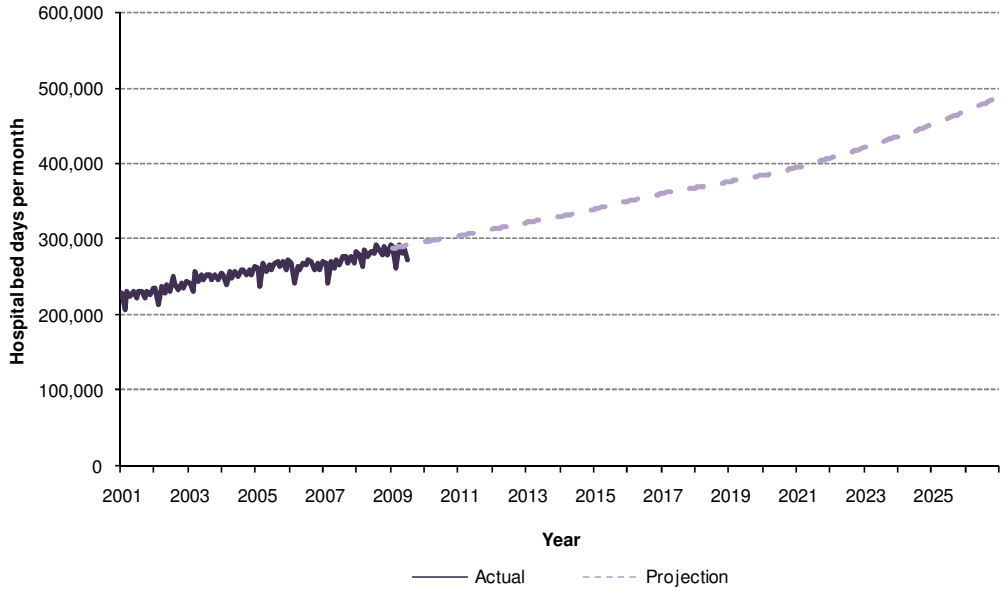
Figure 46
Standardised hospital bed days per capita



In November 2006, the Social Security Long Term Residential Care Act 2006 was passed. This legislation allowed the introduction of swing beds. (Before this, regulatory/legislative constraints limited the number of hospital beds a provider could offer, even if they had the capability.) Anecdotal evidence suggests that as a result, some providers claimed rest home level subsidies for hospital level residents. Immediately after the 2006 legislation was enacted there was some shift between rest home and hospital numbers, and anecdotal evidence suggests some providers converted some rest home beds to hospital beds. However, this contrasts with CCPS information which does not support the view that this shift related to the advent of swing beds. It shows that although the rest home utilisation rate decreased in 2007, there was no corresponding increase in the hospital utilisation rate. It appears that the full impact from the advent of swing beds is yet to flow through to hospital utilisation.

The demand for hospital services is expected to increase in line with demographic changes. As shown in **Figure 47**, it is estimated that by 2026 there will be demand of 490,000 hospital bed days per month, a 70% increase from 2008. In other words, there will be demand for approximately 410 additional hospital beds per year, every year until 2026.

Figure 47
Hospital bed days – baseline projection



7.9 Dementia bed days - baseline demand projection

Figure 48 shows standardised dementia bed days per capita between 2000 and 2008. As with demand for hospital beds, demand for dementia services is not strongly affected by economic drivers such as prices and asset testing. The dementia utilisation rate has been increasing during the 2000s; between 2002 and 2008, the ratio increased by 17%. That is 64 more beds required each year to meet the increasing rate of dementia in the population.

The increase in the dementia utilisation rate is consistent with international evidence. A 2004 Australian report on the Review of Aged Care Pricing[3] projected that *"the prevalence of dementia may double every five years after age 65. Older people who have a form of dementia as their main clinical condition are more likely to have a profound or severe core activity restriction"*. It is expected that this will have implications for the demand for aged care services.

As the New Zealand population ages, there will be a greater proportion of older people that have dementia. Although the utilisation rate is standardised by age, it is increasing because the population within the over 85 age bracket (the highest age bracket used in standardising) is growing. In projecting demand for dementia services (**Figure 48)**, an adjustment has been made to recognise this.

[3] Hogan, W P. Review of Pricing Arrangements in Residential Aged Care, 2004, page 89.

Figure 48
Standardised dementia bed days per capita

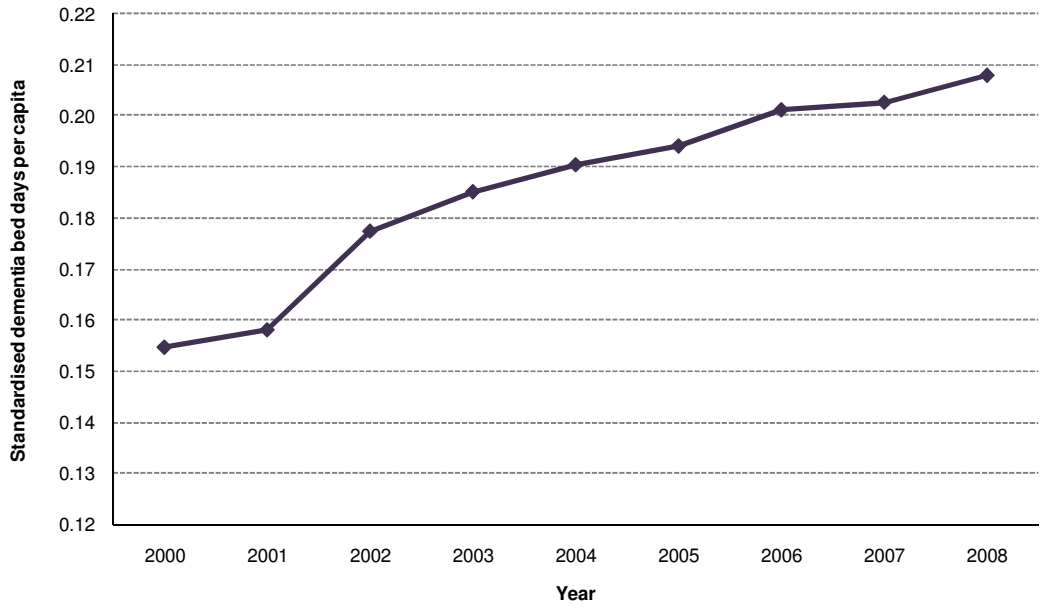
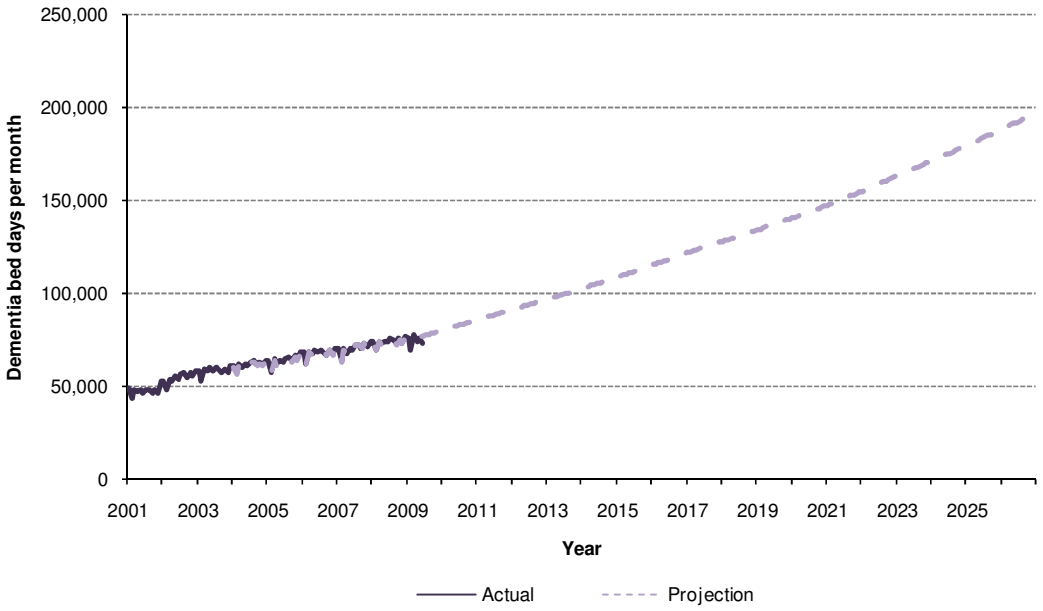


Figure 49 projects that by 2026, demand for dementia services will be 195,000 bed days per month (7,200 beds) compared to 75,000 bed days per month (2,800 beds) in 2008. In other words, between 2008 and 2026 baseline demand will increase by 160%, or by 250 additional dementia beds every year.

Figure 49
Dementia bed days - baseline projection



7.10 Overall baseline demand for aged residential care

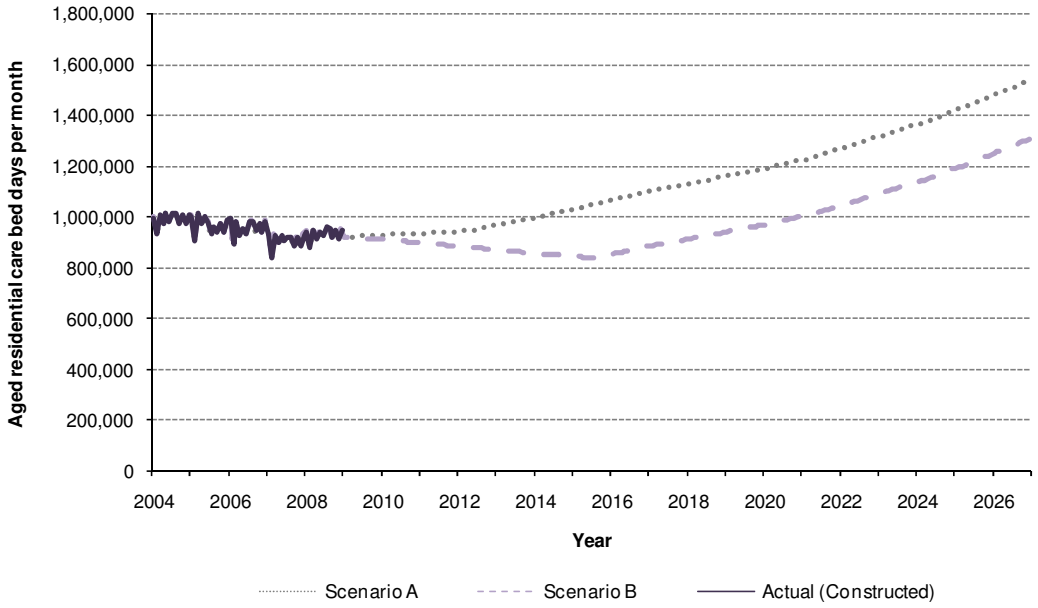
This section summarises demand projections for rest home, hospital, dementia, psychogeriatric and YPD services. Demand for psychogeriatric and YPD services are assumed to increase in line with changing population demographics.

Figure 50 summarises two baseline demand scenarios for aged residential care. The differences between them correspond with the earlier **Scenarios A** and **B** for rest home care.

Under **Scenario A**, demand for aged residential care will increase marginally until 2012, and then start to increase more substantially. It is estimated that by 2014, the current capacity of 34,000 beds will be exhausted. In reality, there may be a need to provide additional beds much earlier as demand and supply is not even across all regions. Further work is required to understand the implications at the regional level. That is outside the scope of this Review.

Under **Scenario B**, demand for aged residential care will continue to decline until 2015, and then start to increase. It is estimated that until 2021 the current capacity of 34,000 beds will be sufficient, although, once again, regional variations in supply and demand may have an impact.

Figure 50
Baseline demand projection for aged residential care



Part of the increasing demand for hospital beds will be met by converting rest home beds. As some facilities will require significant investment to make the conversion, there may be shortages of hospital beds earlier than estimated above. Some providers in the Expert Advisory Panel comment that any rest home beds that could easily be converted to hospital beds underwent such conversion soon after the 2006 policy change that allowed 'swinging'.

Tables 28 and **29** summarise the estimated demand for beds (using 95% occupancy as an upper bound) under **Scenarios A** and **B**, respectively. Under **Scenario B**, it is estimated that approximately 5,000 additional hospital, dementia and other beds will be needed between 2008 and 2016, but 7,000 fewer rest home beds will be required. Therefore, while overall current capacity is

sufficient, there may be shortages of hospital or dementia beds. It has not been possible to precisely estimate total current capacity by bed type.

Table 28
Estimated demand for beds – Scenario A

Facility type	2008	2011	2016	2021	2026
Rest home	18,119	16,686	18,745	21,270	25,827
Hospitals	9,821	10,697	12,309	13,889	16,615
Dementia	2,559	3,060	4,093	5,211	6,639
Other	1,770	2,054	2,410	2,776	3,210
TOTAL	**32,269**	**32,497**	**37,557**	**43,146**	**52,291**

Table 29
Estimated demand for beds – Scenario B

Facility type	2008	2011	2016	2021	2026
Rest home	18,119	14,917	11,145	13,366	17,665
Hospitals	9,821	10,697	12,309	13,889	16,615
Dementia	2,559	3,060	4,093	5,211	6,639
Other	1,770	2,054	2,410	2,776	3,210
TOTAL	**32,269**	**30,728**	**29,957**	**35,242**	**44,129**

By 2026, total projected demand is between approximately 44,000 beds and 52,000 beds representing an increase of between 36% and 60% from 2008, with most of the extra demand being for hospital and dementia beds. Proportionally, the largest increase in projected demand is for dementia beds.

7.11 Conclusion

The critical issue in establishing baseline demand for the sector is the inflection point where demand for rest home services stops declining and starts to grow. The Review project team has considered the historic influences on rest home demand including changes in asset testing thresholds and the impact of home support services on the demand for rest home services.

New Zealand studies, including the OPAL Study, have been assessed and findings discussed with their authors and other stakeholders in the sector. The projected growth and aging of the population have been considered. The main drivers of utilisation, including older people's preferences, changes in length of stay and assessment criteria have also been considered.

The inflection point is projected to occur between 2012 and 2015. This key influencer of demand has been modelled together with the continued increase in demand for dementia and hospital services to provide two baseline demand scenarios that estimate demand for beds in the sector by 2026 will be within the range of approximately 44,000 to 52,000 beds, from the current level of

demand of approximately 32,000 beds. Proportionally, the largest increase in projected demand is for dementia beds.

The baseline demand is a key input into the supply models and analysis. The model has been prepared to not only facilitate modelling of supply, but also as a tool to be used by the sector to continuously monitor and review the key influences on demand for aged residential care services.

8. Supply of facilities

8.1 Introduction

8.1.1 Overall approach

Current aged residential care utilisation is the outcome of demand for, and the supply of, all types of aged care services at their current respective prices.

Demand for aged residential care reflects individual needs and preferences, home and community environments, the price of aged residential care to the consumer and to the public funder, and the availability and cost of alternative market- and family-provided care services.

The baseline demand projection at **Section 7** takes the observed utilisation of aged residential care and extrapolates it based on demographic and utilisation trends. The facility supply modelling starts with the total number of residential care beds (34,000) and number of residents (32,500) that were estimated as part of the demand modelling.

This analysis goes beyond taking basic demand projections to derive future bed numbers. In particular, how the supply of beds might respond to changes in the demand for beds is considered. This includes analysis of how demand itself might respond to changes in prices.

The basic long term scenario is that demand for aged residential care is projected to increase. This increase is strongly driven by demographics. Supply would have to expand once any spare capacity is taken up, or other means of meeting or managing demand would have to emerge.

The supply of aged residential care is the amount of services providers are willing and able to sell at different prices. Providers invest in and supply a given type, amount, quality, and location of services with the aim of maximising 'returns' to their 'owners'. There are different kinds of owners (e.g. listed companies vs charitable organisations) and ways of thinking about returns; but all investment and service supply decisions are affected by expectations of future service volumes and revenues, and the cost of different inputs (capital, labour, technology).

For the purposes of the supply modelling, beds in hospital, dementia, and other care facilities are assumed to be occupied to an upper bound of 95% occupancy. As demand for these beds increases over time it is assumed that, given the nature of needs, the demand for such beds must be met and will be supplied. This means that any shortage or surplus of beds in the sector is assigned to the rest home segment. Over time, occupancy fluctuates as facility investment and bed numbers adjust to the level of underlying demand and price signals.

An increase in volumes might change the marginal cost of provision. This may be the result of many causes: a change in bed occupancy, or a change in volume that generates economies or

diseconomies of scale; the cost of capital could change because of a change in demand for capital; the cost of additional assets (land, buildings) might change; and wages and other labour costs may need to change to attract more labour. This analysis considers these issues and, where possible, supports assumptions with data from surveys or findings from the literature.

In the model, changes in labour demand affect labour costs to ensure that labour supply matches demand. Changes in labour costs, in turn, affect profitability, and therefore the investment decision. Labour supply considerations are discussed in **Section 10**, although the demand and supply considerations are intertwined and modelled in a completely integrated way.

Prices (by which it is meant revenues from subsidies, private contributions and cost structures - including benefits from co-location with retirement village operations) would need to be such that the returns are sufficient to attract additional investment and labour to meet demand. If prices rise, that would dampen demand for aged residential care by DHBs and/or by clients making private contributions. This may manifest itself in substitution to other services such as homecare and/or raising of needs thresholds. The model builds in such feedback, drawing on the literature and local experience.

8.1.2 Some caveats

This section summarises the Review project team's approach to modelling the supply of aged residential care facilities. Projections presented in this report are scenarios, not forecasts. They aim to give a sense of direction and scale of change ahead to inform strategic business and policy decisions.

The scenarios cannot remove uncertainty. They do however identify the broad sensitivities to key assumptions. Assumptions have been made about what drives investment and divestment in facilities, and how the labour market works and might evolve over time. These assumptions are grounded on findings from the literature, the Review project team's investigation of local data, various surveys, and interviews and discussions with key informants and experts in the fields. References are set out in **Appendix A**.

There are reasonably large confidence intervals around the ranges presented in each scenario. The scenarios also do not take into account external factors that could have significant impacts on either demand projections or supply responses – whether policy, technological, economic, or social preference changes. As such, the scenarios are inputs into further deliberation.

8.1.3 Modelling investment in aged residential care facilities

For each scenario, it is assumed new investment will occur when it is profitable; that is, when the expected rate of return (however that is measured by owners) meets or exceeds the cost of capital. This is modelled as marginal revenue exceeding marginal cost.

Marginal revenue is modelled as a function of facilities' capacity, utilisation and price. It is assumed providers have no difficulties accessing capital, as long as cost of capital criteria are met. Assumptions on the cost of debt, the required rate of return on equity, and investment motivations and patterns are based on discussions with selected providers, directly related literature, an assessment of broader investment benchmarks, comparable companies, comparable transactions, and the Review Survey.

Capacity utilisation, in turn, is a function of revealed demand and capacity; the baseline demand projections are used as a measure of underlying demand. Demand is left to adjust to any changes in prices indicated by the model.

Capacity is modelled as a function of last period's facilities, plus investment, less decay. Decay is modelled in two separate ways. One is to apply an economic depreciation rate on all existing stock; the other is to take the age profile of facilities, and retire stock that is beyond a certain age. The base case model applies an economic depreciation rate on all stock (based on discussions with key informants), but the impact of the age-based approach is also considered as an alternative scenario, drawing on a measure of the age of the stock from the NZACA Occupancy and Remuneration Survey, March 2010. The estimate of stock and its decay forms the basis of estimating the level of investment (to maintain and replace existing stock and any addition to, or subtraction from, it) to match different demand scenarios.

In the model, an increase in facilities must be matched by an increase in workforce. If workforce is not available at prevailing wages, it is assumed that employers offer higher wages to attract more labour. This then feeds into the cost of provision.

A dampening feedback loop into investment plans is also modelled – if costs of provision rise, the returns to capital fall, and so investment can be expected to fall. If prices rise (assuming a cost-plus formula is used by providers), then that will dampen demand. This will also feed back into investment plans.

The main driver, therefore, is demand volume. An increase in demand raises capacity utilisation at current prices; if capacity reaches its limit, prices (that is, marginal revenue from whatever source) will be bid up. This will dampen demand on the one hand, and stimulate investment with a lag once a return on investment threshold is reached. Conversely, if losses are made, the stock of beds will shrink.

It is assumed that facilities will be built to cater for the demand for hospital, psychogeriatric and dementia care. Under current circumstances this seems a reasonable assumption: survey data indicates hospital beds offer higher earnings than rest home care, and, more generally, these are higher need patients that would be catered for first. The flex in the system is therefore assumed to be provided by demand for, and supply of, rest home care.

8.2 Facility supply projections

8.2.1 Baseline scenarios

Taking the baseline aged residential care demand scenarios discussed in **Section 7**, the projections for facility supply indicate a shrinking of stock until 2012-2015 before growing demand for aged residential care will stimulate growth in the number of facilities.

The stock shrinks because capacity utilisation is below optimal in the face of static or shrinking resident numbers. Given sub-optimal capacity utilisation, marginal cost exceeds marginal revenue - therefore, no new investment occurs in the model in the short run and existing stock is withdrawn.

In reality, investment does occur even when demand for beds is declining or moving sideways and industry returns on investment are weak. This is for any number of reasons. For example, this is a national model and works on industry averages but there may be local pockets where investment is

made to capture unmet demand, or to replace facilities that no longer meet contemporary demands. Some providers may believe they have a superior business model or management capability, or offer better quality, or have other advantages, and are investing to compete for current or future market share. But these are not representative of industry conditions in general. Given lead times, some providers may invest now with an expectation of future demand growth.

Emerging excess demand after 2012-2015 will trigger price[4] increases; our model suggests around 1.8% per annum in excess of general price increases. This will motivate new investment. Under the 'high demand' scenario, prices will have risen sufficiently by 2014 for investment to occur. It is projected that the total number of beds will grow to between 39,000 and 47,000 by 2026 (from an estimated 34,000 in 2009). The net increase from current levels would be in the range of 5,000 to 12,500 beds. Also taking into account depreciation of stock at 4% per annum, this implies investment of 26,500 to 37,500 beds would be required over the timeframe.

These projections include the dampening impact of higher prices on demand (and the impact of wage pressures on costs, and so return on capital – see below). In the baseline scenario, prices would rise 1.7%-1.9% per annum over the rate of inflation.

Based on the assumptions about potential rest home residents' sensitivity to prices, it is projected that price increases will dampen baseline demand projections for rest home care by 6.7% by 2026.

In the projections it has been assumed that investment takes place when the expected return on new investments exceeds the cost of capital, and that the cost of capital is 12% (although this varies by provider). It is noted that the base case cost of capital for the capital charge calculations in **Section 6** is 12.1%. The difference is not material for these projections. This criterion will not hold over all periods, as prices, and thus demand, oscillate. Bursts of new investment occur when sector profitability improves.

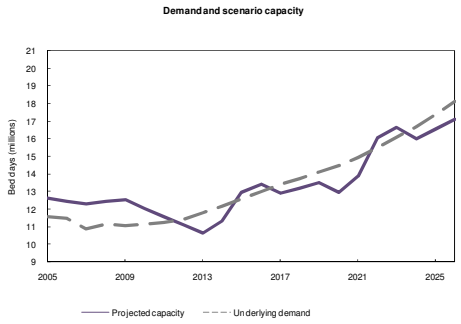
The set of charts in **Figure 51** shows the path under the two baseline demand scenarios. Key variables as set out below show detailed scenario results under key alternative assumptions.

[4] As noted earlier, prices refer to revenue from all sources, such as user charges, public subsidies, or efficiencies – cross-subsidies – from co-location with retirement villages. Martin Jenkins, 2010 found that half of retirement villages offer rest home or hospital care.

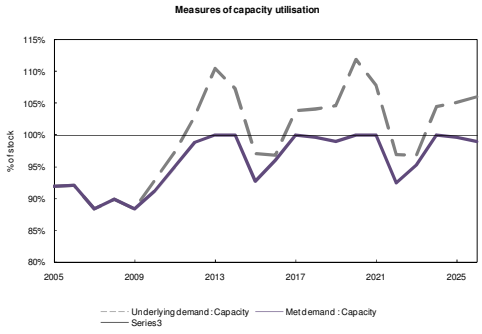
Figure 51
Base case facility supply scenarios

Scenario A: High demand growth

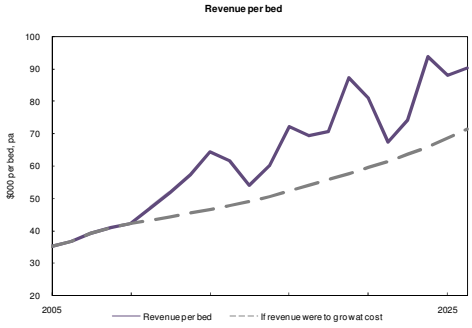
Stock of beds will grow with demand for aged residential care.



Shortages will emerge after 2013 relative to baseline demand…

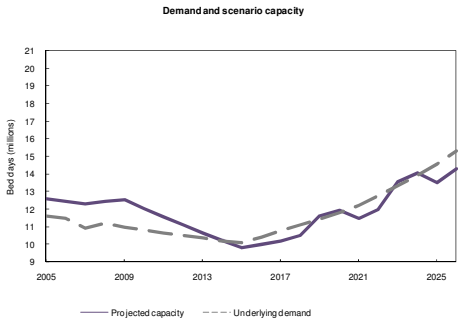


…but prices will rise to dampen demand and encourage new investment.

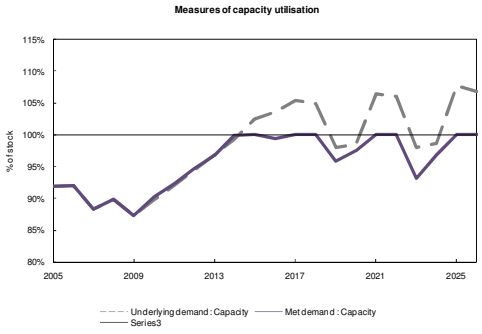


Scenario B: Low demand growth

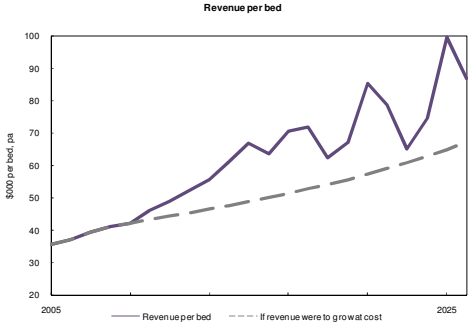
Slower growth in underlying demand delays the time of adding to the stock.



Facilities will run at full capacity from 2013, but demand pressure will be less…



…less competition for beds and inputs mean that prices will rise less fast.



Key variables in the base case model and an alternative scenario are set out in **Table 30** below.

Table 30
Key variables in base case model and alternative scenario

Main assumption	Base case model	Alternative scenario
Demand scenario	Scenario A Scenario B	Same
Stock depreciation	4% (economic depreciation reported by providers)	2%
Investment size	No constraints	Same
Residents' price sensitivity	-1 (literature)	-0.3 (if options are limited)
Persistence of price shock	3 years before full adjustment	Same
Supplier price sensitivity	-1 (no better evidence)	Same
Price cap?	No	Same
Cost of capital	12%	Same
Construction cost	$160,000 per bed (to also reflect opportunity cost of land)	$130,000 per bed (to exclude land costs)
Real construction cost inflation	0.4% per annum	Same
CPI	2.5%	Same
Labour-to-bed ratio	High ratios for Scenario A and low ratios for Scenario B as per baseline workforce demand modelling	Same
Labour productivity gains	0%	Same
Labour supply elasticity	0.3% (literature)	Same
Labour demand elasticity	-1	Same
Minimum ratio of nurse caregivers	1.5	1.5

8.2.2 Key parameters

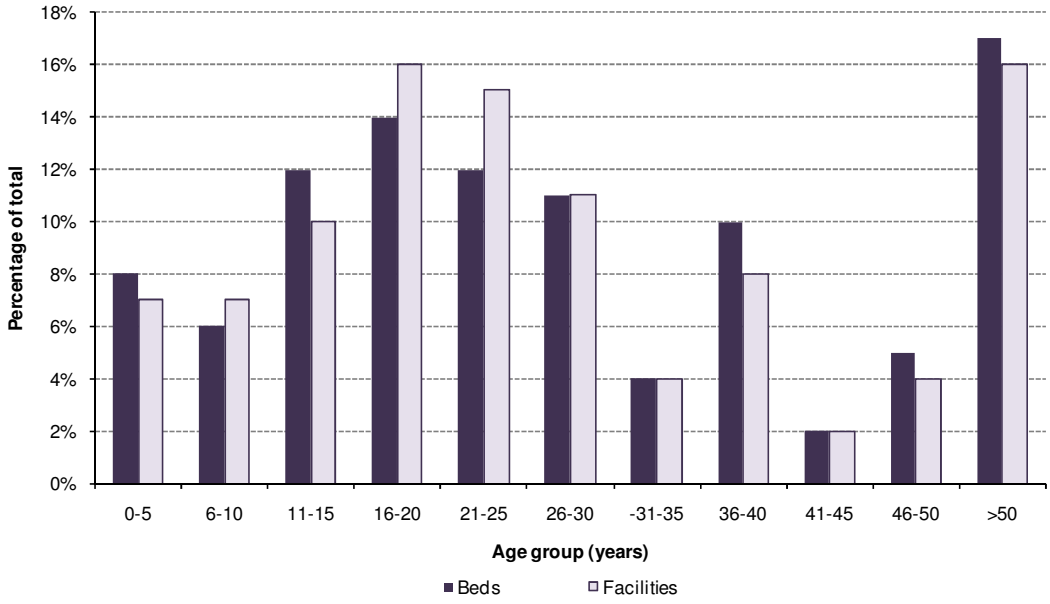
Depreciation of stock

- **Figure 52** below shows the facility age profile.
- Providers have told the Review project team that stock tends to have a useable life of about 25 years. Structures last longer, but the usefulness of facilities is said to be affected by changing social norms, resident preferences and expectations, care needs, and the building code. Changing requirements in terms of room size, ensuites, door and corridor width, and

conversions to hospital rooms mean that dimensions and amenities will be outmoded, and need redevelopment or major refurbishments. The analysis therefore assumes a steady 4% p.a. depreciation rate, consistent with input from providers.

- Half the current stock is older than 25 years. As noted above, similar results are obtained if, instead of a constant 4% economic depreciation rate, the model assumes the withdrawal of stock over 25 years of age over the next five years (or, equivalently, assume major refurbishment at a cost per bed similar to new/rebuild). Assuming a lower refurbishment cost per bed – say $100,000 instead of $160,000 – lowers the price pressure in the system slightly and means more of the underlying demand will be met, but does not significantly alter other results.
- One alternative is to assume a lifespan of 50 years, or a 2% economic depreciation rate. The actual average facility age is 32 years, with 16% of facilities (17% by bed) having been built over 50 years ago, and 4% over 100 years ago (**Figure 52**). This age profile is not inconsistent with an assumed 25-year economic lifespan: older facilities may have undergone major renovations or additions in the recent past, or may have deferred maintenance – which could imply a lower-than-desired quality of stock.
- Under the alternative set of assumptions, including a 2% economic depreciation rate the level of new investment that would need to be undertaken between now and 2026 would fall from between 26,500 to 37,500 beds to between 16,500 to 27,500 beds, depending on the demand scenario. None of the other results (including the net increase from today's levels) are affected to any major extent. This is because prices and wages must rise to draw in additional facilities and labour, regardless of what happens to the current stock.

Figure 52
Facility age profile



Source: NZACA 2010 Member Survey

Investment size and timing

- When marginal revenue exceeds marginal cost, it is assumed that investment will occur to meet demand. There may be constraints in the system (e.g. delays in consenting processes) but investors are assumed to have sufficient foresight to overcome such delays.
- It is assumed that an investment takes two years to come on stream. This is consistent with our discussion with providers.

Demand and supply responds to changes in prices

- The literature suggests demand reduces by between 0.16% and 3.5% when rest home care prices rise by 1% (Mukamel and Spector 2002; Reschovsky 1998; Chiswick 1976; Scanlon 1980). Sensitivity to prices differs by subgroups: clients with lower needs are more sensitive. An elasticity of -1 is assumed. If clients are less responsive to prices, the model shows prices and investment rising faster, and vice versa.
- In the absence of evidence to the contrary, it is assumed that a 1% increase in price leads to a 1% increase in supply. The price scenarios – whether they are realised through subsidies, user-charges, or cross-subsidies – reflect this assumption. If providers were less sensitive to prices (and returns) it would result in a lower capacity relative to demand, and vice versa.
- Sensitivity analysis shows the model results (facility supply or prices) are not particularly sensitive to reasonable changes in these assumptions. For example, making demand unresponsive to prices (an elasticity of -0.2) has the expected effect of increasing realised demand while slowing long run price inflation: profitability is better because capacity utilisation performance is better, and this promotes more investment. Accordingly, bed numbers rise to 49,000 in 2026 under the high demand scenario, meeting virtually all demand.

Cost of capital hurdle rate

- A rational business will only invest when the expected return on investment exceeds its cost of capital. It is assumed that this condition must hold to trigger new investment. The cost of capital feeds into the marginal cost per bed.
- We assume a cost of capital of 12% for an efficient investor based on the cost of capital assumption discussed in **Section 6**. As the Review project team's approach is to model national demand and supply, the change in supply does not reflect the reality that returns of individual facilities may not meet cost of capital in the initial investment period when facilities are first opened and utilisation rates have not yet reached optimal levels. Providers will seek to time investment to minimise such periods, which might mean investment will occur in spurts as unmet demand builds up, rather than in a smooth fashion.

Construction cost per bed

- Total construction and fit out cost plus the cost of land are assumed to be $160,000 per bed. This draws on findings in **Section 6** and discussions with providers. Providers who redevelop existing sites may not face the cash flow cost of the land, but the opportunity cost of the asset still feeds into the cost of capital. The sensitivity analysis considers alternative cost scenarios.
- Real construction costs are assumed to rise by 0.4% p.a., similar to the past decade. Much of the inflation in the sector has been driven by commodity prices, particularly those demanded by the industrialisation of emerging markets such as China and India. Assuming this continues, construction costs can be expected to rise in real terms.

8.3 Summary results

Tables 31 and **32** below summarise the key results for the demand and supply of facilities to 2026. The projected increase in demand for aged residential care indicates that bed numbers need to adjust to accommodate demand from an extra 12,000 to 20,000 residents by 2026 – an increase of 37%-62%. The number of beds is projected to rise by 15%-38% by 2026. Investment is also required to replace or renovate existing stock as it ages. Depending on assumptions for lifespan of stock and demand, total investment required by 2026 could be the equivalent of between 78% and 110% of current stock, representing a net average annual increase in overall bed numbers of between of 0.8% and 1.8%.

Table 31
Summary of results

Demand and supply of facilities		Scenario A				Scenario B			
		2008	2026	%pa		2008	2026	%pa	
Underlying demand	Bed days	11,189,000	18,132,000	*2.7%*		11,189,000	15,302,000	*1.8%*	
	Residents	32,500	52,500	*2.7%*		32,500	44,500	*1.8%*	
Total stock of facilities	Beds	34,000	47,000	*1.8%*		34,000	39,000	*0.8%*	
Net increase			12,500				5,000		
Depreciated			25,000				21,500		
New investments			37,500				26,500		
Realised demand	Bed days	11,189,500	16,940,000	*2.3%*		11,189,500	14,317,000	*1.4%*	
	Residents	32,500	49,000	*2.3%*		32,500	41,500	*1.4%*	
Difference from underlying			-3,500				-3,000		
			-6.7%				-6.7%		
Capacity utilisation	Underlying demand : Supply	90%	106%			90%	107%		
	Realised demand : Supply	90%	99%			90%	100%		
Revenue per bed		41,000	90,500	*1.9%*	*Real*	41,000	87,000	*1.7%*	*Real*
Cost per bed (including cost of capital)		53,000	92,000	*0.6%*	*Real*	53,000	87,000	*0.3%*	*Real*

Table 32
Summary of results under alternative assumptions

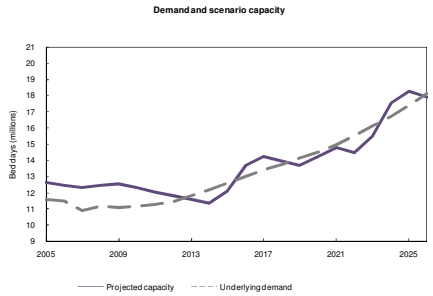
Demand and supply of facilities		Scenario A				Scenario B			
		2008	2026	%pa		2008	2026	%pa	
Underlying demand	Bed days	11,189,000	18,132,000	*2.7%*		11,189,000	15,302,000	*1.8%*	
	Residents	32,500	52,500	*2.7%*		32,500	44,500	*1.8%*	
Total stock of facilities	Beds	34,000	49,000	*2.1%*		34,000	39,500	*0.8%*	
Net increase			14,500				5,500		
Depreciated			13,000				11,000		
New investments			27,500				16,500		
Realised demand	Bed days	11,189,500	17,842,500	*2.6%*		11,189,500	14,489,500	*1.4%*	
	Residents	32,500	51,500	*2.6%*		32,500	42,000	*1.4%*	
Difference from underlying			-1,000				-2,500		
			-1.9%				-5.6%		
Capacity utilisation	Underlying demand : Supply	90%	101%			90%	106%		
	Realised demand : Supply	90%	100%			90%	100%		
Revenue per bed		41,000	86,000	*1.7%*	*Real*	41,000	85,500	*1.6%*	*Real*
Cost per bed (including cost of capital)		49,500	86,500	*0.6%*	*Real*	49,500	81,000	*0.3%*	*Real*

The set of charts in **Figure 53** show the path under alternative scenarios.

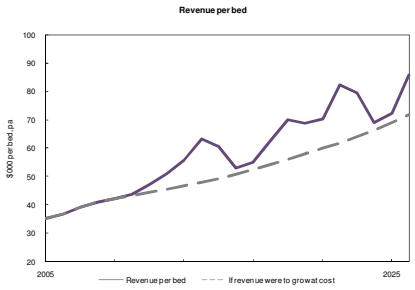
Figure 53
Alternative – lower depreciation, construction costs and demand sensitivity to price

Scenario C: High demand growth

Stock of beds grows quicker than base case as lower depreciation and build cost make it profitable sooner to invest…

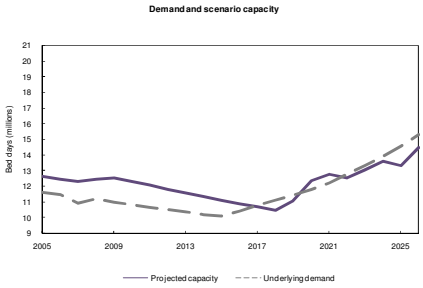


...lower supply cost and lower levels of unmet demand dampen price pressures.

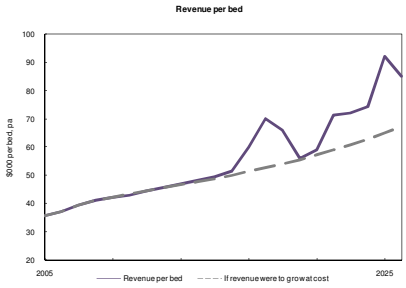


Scenario D: Low demand growth

Slower withdrawal of stock leads to longer period of surplus capacity…



… reflected in an extended period of dampened price pressure.



8.4 Conclusion

Demographic pressures dominate the direction of demand for aged care, and thus facility, requirements.

There is uncertainty about what the underlying demand might be to 2026. This is captured in the baseline demand scenarios, which assume different utilisation rates given existing models of care. This translates to a range of about 8,000 beds, or 17% of total demand. Similar uncertainty underlies the bed numbers or facilities projection.

It would be inappropriate to take any number as absolute. The scenarios give a sense of direction and scale of change ahead to inform strategic business and policy decisions.

The projected increase in demand for aged residential care indicates that bed numbers need to adjust to accommodate demand from an extra 12,000 to 20,000 residents by 2026 – an increase of 37%-62%. This includes an anticipated change in mix toward hospital and dementia care.

This signals the scale of additional investment required, although not all of this underlying demand will be met. Modelled prices to reflect rising input costs, and competition among consumers for scarce beds, will dampen demand by approximately 3,500 residents or around 7% less than baseline demand projections in 2026. As prices of aged residential care rise, some demand may be diverted by a delay in entry into aged care and/or greater use of formal or informal home support.

The number of beds is projected to rise between 37%-62%. But investment is also required to replace or renovate existing stock as it ages. Depending on the assumptions one makes about the lifespan of stock and demand, total investment required by 2026 could be the equivalent of between 78% and 110% of current stock.

How the modelled upward pressures on prices are going to be met is not considered here – providers have different sources of revenues (subsidies, user charges, and revenues from complementary operations) which could be tapped into. Conversely, if prices were to be constrained, it would delay investment with consequences for the ability to meet future levels of demand.

9. Baseline workforce demand projection

9.1 Introduction

This section presents the projected baseline workforce demand for the aged residential care sector in New Zealand to 2026.

9.1.1 Methodology

The demand for aged residential care workforce is a function of the demand for aged residential care services, the workforce requirement per unit of service and wages. In projecting the baseline demand the impact of the wages is not taken into account. The methodology for projecting the baseline workforce demand is as follows:

1. Determine ratio of workforce to residents
2. Determine the projected demand for aged residential care services
3. Derive the demand for workforce by multiplying the ratio determined in step one by the projected demand for services.

This section outlines the approach used in deriving the workforce requirement per unit of service. The ratio of workforce is determined using data collected via the Review Survey.

This analysis projects demand for staff resources by extrapolating the current ratio of staff to residents. In doing so, it assumes that current staff-to-resident ratios are appropriate and does not attempt to establish ideal staffing levels. The ratio of staff to residents may change in the future as the sector increases efficiency or, alternatively, the disability level of residents change. However, there is no sign of either occurring in the foreseeable future.

Aged residential care services comprise rest home, hospital, dementia, psychogeriatric and YPD. The ratio of workforce to residents is calculated for each type of service, and workforce demand projected by multiplying ratios by the projected demand for the respective services.

9.1.2 Some caveats

While every endeavour has been made to ensure the projections made in this section are the best estimates based on the information available, the accuracy of the projections is limited by the methodology and data used.

This work relies heavily on information collected from the Review Survey and uses regression analysis to determine the use of staff resources across aged residential care bed types. By nature, surveys are subject to some limitations. This survey covered approximately 60% of the sector. Of

the responses, just under half were excluded because they were considered to be significantly incorrect. The regression analysis technique also has its limitations.

The projection presented in this report also does not take into account the impact of potential efficiency gains.

9.1.3 Key assumptions

In developing the baseline workforce demand projection the following assumptions are adopted:

- The Review Survey is representative of the sector as a whole
- Baseline demand for aged residential care services from the analysis in **Section 7**
- This analysis projects the demand for staff resources by extrapolating the current ratio of staff to residents. In doing so, it assumes that the current ratio of staff to residents is appropriate and does not attempt to establish ideal staffing levels.

9.2 Profile of aged residential care workforce

The aged residential care workforce can be grouped in many ways. For the purpose of this exercise, the workforce is grouped into facility managers, nurses, caregivers, therapists and non-care staff. Nurses, caregivers and therapists can be collectively referred to as care staff - those involved in providing care directly to clients. Nurses include nurse managers, registered nurses and enrolled nurses. Non-care staff are those providing support services that do not generally have direct contact with clients. Non-care staff include kitchen workers, cleaners, gardeners and office administrators.

By extrapolating the 2008 HCPNZ Member Survey, it is estimated that approximately 33,500 people are employed in the aged residential care sector. **Figure 54** below shows the aged residential care workforce in 2008 based on the survey. There were approximately 950 vacancies at the time of the survey, therefore, the total size of the workforce can be estimated as 34,450 people. The HCPNZ survey covered approximately 60% of the sector.

As depicted in **Figure 54,** staff (nurses, caregivers and therapists) make up just over 70% of the workforce. Approximately 80% of the nursing workforce is registered nurses, who include nurse managers. Currently, the caregiver's workforce is not regulated by any professional body. Therapists include occupational therapists and diversion therapists.

Figure 54
Aged residential care workforce (2008)

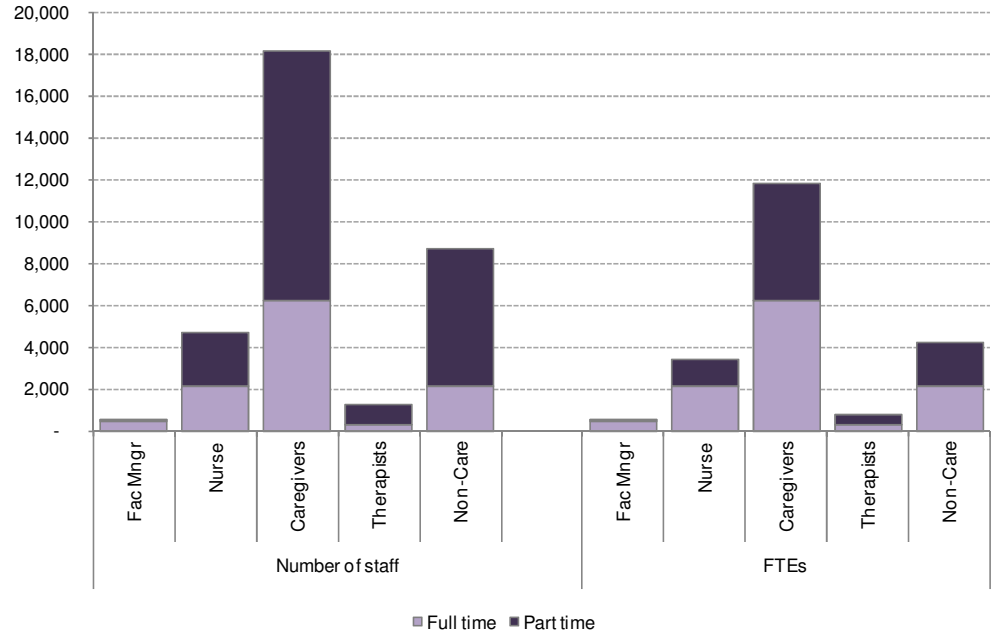


Table 33 below shows the full and part time aged residential care workforce in 2009. Two-thirds were employed part time. Facility managers were mostly full time staff. Nurses were more evenly split between full time and part time, with part time staff accounting for one-third of the FTEs. One-third of caregivers were full time and accounted for just over half of FTEs. 75% of non-care staff worked part time, accounting for just under half of FTEs. NZACA (previously HCPNZ) has been conducting an annual survey since 2005. The trend over four years shows a shift from part time to full time staff over the four years.

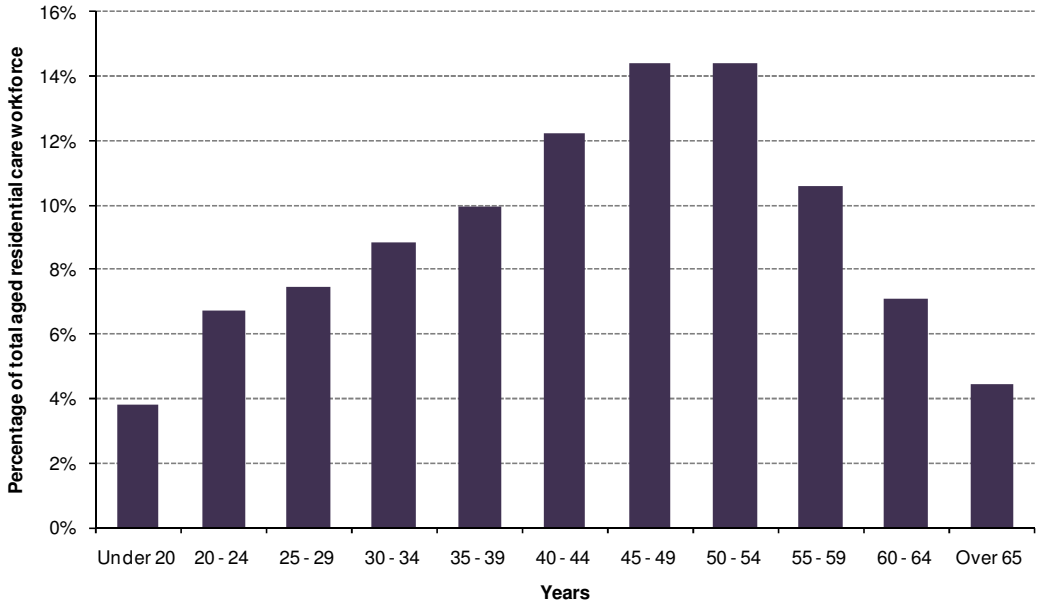
Table 33
Aged residential care workforce (2009) – full and part time staff

	Facility mngr		Nurse		Caregivers		Therapists		Non-care		TOTAL
	No. of staff	% of FTEs	No. of staff	% of FTEs	No. of staff	% of FTEs	No. of staff	% of FTEs	No. of staff	% of FTEs	No. of staff
Full-time staff	533	89%	2,129	62%	6,223	53%	340	42%	2,177	52%	11,402
Part-time staff	33	11%	2,576	38%	11,927	47%	944	58%	6,552	48%	22,032
TOTAL STAFF	**566**	**100%**	**4,705**	**100%**	**18,150**	**100%**	**1284**	**100%**	**8,729**	**100%**	**33,434**

HCPNZ surveys since 2005 shows that departures (turnover) is around 32% and 25% for care staff and non-care staff, respectively. These surveys also capture information on the duration of service of care staff. It appears that more than 75% of the nursing workforce is employed for more than four years with the same employer. The caregiver workforce is less stable, with just 50% staying with their employer for more than four years. Information is not available to indicate whether staff who leave stay within the aged residential care sector, or move out of it.

Figure 55 below shows the age profile of the aged residential care workforce in 2009.

Figure 55
Age profile of aged residential care workforce (2009)



Source: *In Touch* issue 12, April 2010, New Zealand Aged Care Association

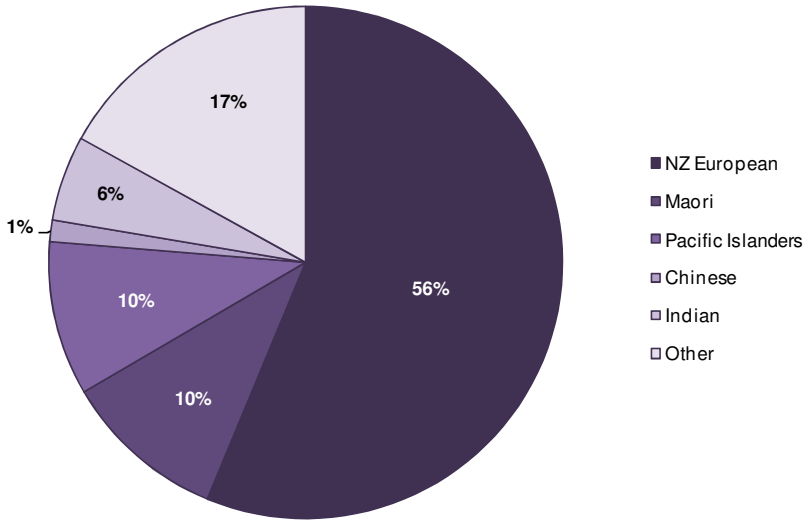
Regarding this data, NZACA commented:

> *"...the aged residential care workforce is older in comparison to the age profile of the New Zealand workforce. ….. In fact the New Zealand workforce has relatively stable proportions of employees across the age groups between 20 and 54 years (between 9% and 12% of the entire working population), as opposed to the aged care sector which has a distinctive bulge of care workers aged between 40 and 59 years. These results pose a potential issue for the sector as the majority of the care workforce ages and whether they will be replaced by a younger workforce."*

An explanation for the comparatively older aged residential care workforce is that it is dominated by females and its profile is different to that of the national workforce as women take time off for family reasons.

Figure 56 below shows the ethnic profile of aged residential care workforce in 2009. The aged residential care workforce has disproportionately large numbers of employees of ethnic descent compared to the New Zealand population. The difference is even more pronounced when the ethnicity of residents and employees is compared; well over 85% of residents are European (CCPS data), while just 56% of employees are of New Zealand European descent (2009 NZACA Member Survey). Although it is likely that some employees classified as 'Other' are of European descent, the trend is towards the ethnic population of recent immigrants making up an increasingly greater proportion of the aged residential care workforce.

Figure 56
Ethnic profile of aged residential care workforce



The ethnic profile of the workforce does not have any bearing on workforce demand. It may have some impact, however, on supply. For example, migrant workers may have greater training needs in order to adapt to the New Zealand workplace. As the aged residential care sector increasingly employs overseas trained nurses and caregivers, there will be increased need for training and time taken by newer employees to become fully productive.

9.3 Ratio of workforce to residents

The ratio of workforce to residents is determined using the Review Survey, which collected information on the average number of hours worked per week for each type of employee. It asked providers to allocate the average number of hours worked by each type of employee per bed type – that is, rest home only, hospital only, dementia only, swing beds, other, and unallocated. The validity of responses on total hours was tested by triangulating with wage information, as well as statistically testing for outliers. Those responses found to be inconsistent or outliers were excluded from further analysis; they comprised 183 of the 389 responses. Only grossly incorrect data was excluded. The tests for identifying inconsistent data or outliers were evenly applied across the survey data to ensure no risk of bias in the resulting dataset. The 183 excluded survey responses included several who did not provide information on staffing hours.

The resulting dataset of 206 providers represented a clean set of total hours and number of residents by bed type. Regression analysis was utilised to break the total hours and determine average hours per resident by bed type.

Table 34 below summarises the ratio of workforce to residents based on the dataset obtained. The ratio reflects workforce hours per resident per week. There is a 95% probability that the workforce to resident ratio falls within the range indicated. For example, there is a 95% probability that nurse care for a rest home resident takes between 2.3 and 2.9 hours of nursing staff per week per resident.

Table 34
Number of hours per week per resident

Facility type	Facility mngr		Nurse		Caregivers		Therapists		Non-Care		Total	
	Low ratio	High ratio	Low ratio	High ratio	Low ratio	High ratio	Low ratio	High ratio	Low ratio	High ratio	Low ratio	High ratio
Rest home	0.7	0.7	2.3	2.9	10.6	11.5	0.7	1.0	4.9	6.0	19.2	22.0
Hospital	0.7	0.7	6.6	7.3	17.3	18.4	1.1	1.3	4.7	5.9	30.4	33.5
Dementia	0.7	0.7	3.4	4.7	15.1	17.1	1.1	1.6	3.3	5.5	23.6	29.6
Other	0.7	0.7	5.6	7.7	15.9	18.9	1.3	2.1	5.0	8.3	28.5	37.7
Total	**0.7**	**0.7**	**3.8**	**4.6**	**13.3**	**14.4**	**0.9**	**1.2**	**4.7**	**6.0**	**23.4**	**26.8**

The estimates in **Table 34** were corroborated by discussions with the Expert Advisory Panel as well as with information gathered by the Review project team from facility site visits.

9.4 Potential for productivity gain

There is always potential for the sector to make productivity gains, which will lead to lower demand for workforce. Productivity gains may arise from:

- Substitution of cheaper labour for expensive labour
- Consolidation of facilities and economies of scale
- Improved processes and working practices
- Advancement in technology.

This projection does not take into account any such productivity gains. "Review of Pricing Arrangements in Aged Residential Care" (Hogan, 2004) assumes a 1.75% per annum productivity gain in line with general economic trends in Australia. However, there is no robust information available to establish the trend in New Zealand.

Figures 57 and **58** use the Review Survey responses on staffing information by bed type to consider the sector's potential for productivity gains.

Figure 57 excludes grossly erroneous data where there is a significant mismatch between reported total hours and wage information. Several respondents did not allocate hours by bed type and had hours reported against swing beds. Therefore, some modelling of responses was required to prepare the data for the graphs.

Figure 57
Nurse and caregiver hours per resident per week (excluding grossly erroneous data)

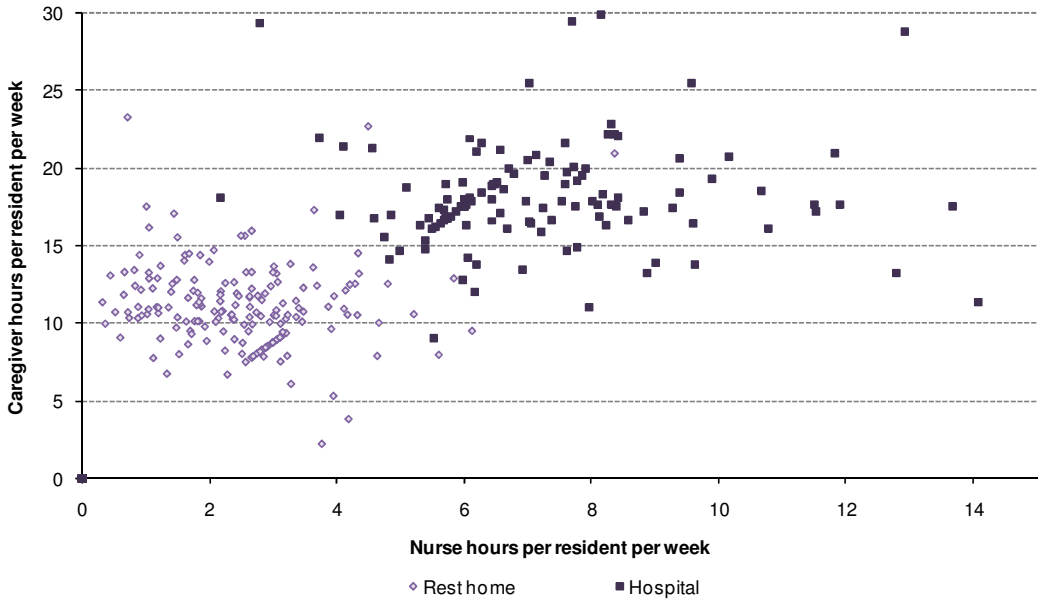


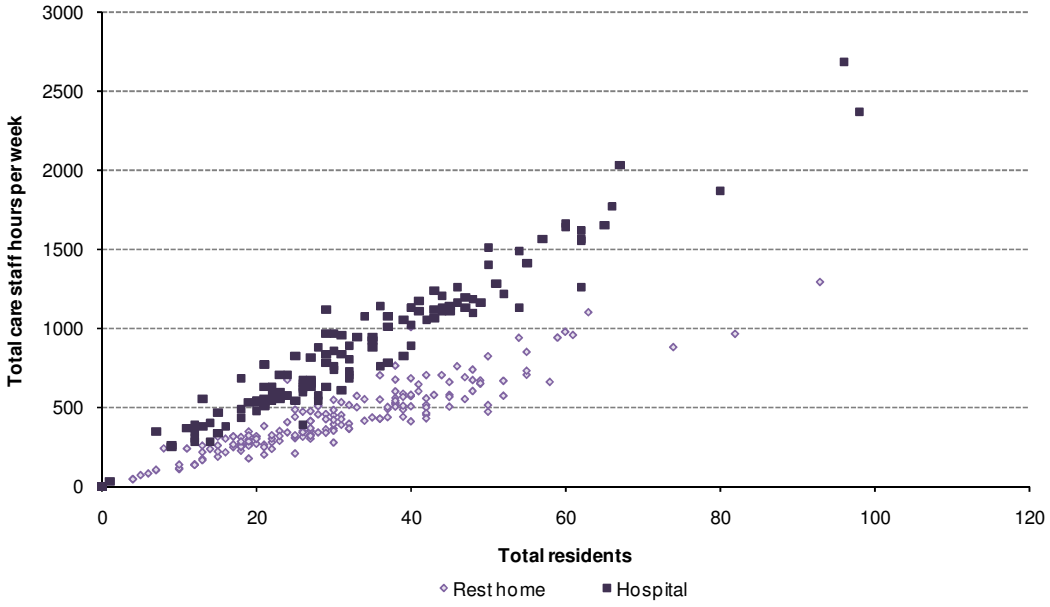
Figure 57 shows the number of nurse hours and caregiver hours per resident per week. Each dot represents one aged residential care facility. As the graph shows, rest home caregiver hours range from approximately eight to 13 hours per resident per week, while nursing hours vary from one to four hours per resident per week. The range of variation is larger for hospitals.

There is a large variation in practice among providers; three- and two-fold, respectively, for nursing and caregiver input, for example. Therefore, it can be argued that some providers with higher nursing and caregiver input may have potential for efficiency gains. However, further work is needed to ensure the accuracy of data before such a conclusion can be made. This Review presents the projection as a range, based on an efficient practice with a low staff-to-resident ratio.

Figure 57 shows the random relationship between nursing and caregiver input. A negative correlation would be expected in order to support a hypothesis of substitutability between nurses and caregivers. The data suggests some resemblance of positive relationship between nurses and caregivers, however that is simply more nurses-more caregivers. There may be some limited potential for substitution between Registered Nurses and Enrolled Nurses, which has not been explored in this Review.

Figure 58 plots care staff (nurses, caregivers and therapists) hours per resident per week against the number of residents. It shows no evidence to support the hypothesis that bigger facilities benefit from economies of scale. It shows a linear relationship between resident numbers and care staff hours. A possible reason for this is that New Zealand aged residential care facilities are generally built in a modular fashion to optimise inputs. However, discussions with providers indicate that staffing requirements per bed can be minimised by establishing facilities of certain size.

Figure 58
Care staff hours vs residents (excluding grossly erroneous data)



The overall evidence of the potential for efficiency gains is inconclusive and efficiency gains have therefore not been factored into the projections.

9.5 Baseline workforce demand projection

Tables 35 and **36** present the high and low projected workforce demand for aged residential care from 2011 to 2026. Resident years refer to the number of projected bed days divided by 365. Actual resident numbers at any given time will be higher than resident years as, on average, residents stay for fewer than 365 days in any given year.

Table 35
High demand projection - aged residential care resident years

Facility type	2008	2011	2016	2021	2026
Rest home	17,213	15,851	17,808	20,206	24,536
Hospital	9,330	10,162	11,694	13,195	15,785
Dementia	2,431	2,907	3,888	4,951	6,307
Other	1,681	1,951	2,289	2,637	3,049
Total	**30,656**	**30,872**	**35,679**	**40,989**	**49,677**

Table 36
Low demand projection - aged residential care resident years

Facility type	2008	2011	2016	2021	2026
Rest home	17,213	14,171	10,588	12,697	16,782
Hospital	9,330	10,162	11,694	13,195	15,785
Dementia	2,431	2,907	3,888	4,951	6,307
Other	1,681	1,951	2,289	2,637	3,049
Total	**30,656**	**29,191**	**28,459**	**33,480**	**41,923**

The baseline demand projection projects that demand for rest home services will decrease for the next five to 10 years (from 2008), before rising in tandem with changing demographics. The demand for other sector service types is also expected to continue growing in step with changing demographics.

9.6 Workforce demand projection

Table 37 below summarises the projected demand for the aged residential care workforce in FTEs. The low and high estimates are determined by multiplying the low estimated demand for aged residential care service by low ratio of workforce to service, and vice versa. In calculating FTEs, an allowance of 13.8% is made for statutory holidays, annual leave and sick leave.

The projection shows workforce demand will remain stable or grow slowly for the next five years and then grow rapidly – by between 50% and 75% on an FTE basis (or by 10,000 FTEs to 15,000 FTEs) by 2026.

Table 37
Projected demand for workforce - full time equivalents

Year	Facility mngr		Nurse		Caregivers		Therapists		Non-care		Total	
	Low	High	Low	High	Low	High	Low	High	Low	High	Low	High
2008	599	599	3,440	4,151	11,817	12,831	809	1,074	4,214	5,351	20,879	24,005
2011	576	608	3,516	4,371	11,749	13,316	803	1,116	4,018	5,445	20,662	24,856
2016	573	715	3,789	5,161	12,241	15,731	833	1,322	3,936	6,394	21,372	29,323
2021	687	835	4,469	6,021	14,584	18,400	995	1,549	4,705	7,462	25,441	34,268
2026	873	1,027	5,559	7,367	18,347	22,587	1,253	1,902	5,981	9,158	32,013	42,042

Note that nurses and caregivers caring for dementia clients require specialist training and skills. Currently, the nationwide demand for dementia services is estimated to be 2,500 beds and is expected to increase by 150%, to 6,300 beds, by 2026 (low demand projection). The workforce attending these beds must receive appropriate training. It is estimated that approximately 350 nurses and 1,400 caregivers are currently employed to care for dementia clients.

Table 38 below tabulates the projected demand for nurses by bed type.

Table 38
Projected demand for nurses FTEs (average)

Facility type	2008	2011	2016	2021	2026
Rest home	1,311	1,151	1,114	1,287	1,609
Hospital	1,876	2,043	2,352	2,653	3,174
Dementia	286	342	457	582	741
Other	323	375	439	506	585
Total	**3,795**	**3,910**	**4,362**	**5,029**	**6,109**

Given that the aged residential care sector employs large numbers of part time staff working varying hours, the actual number of people in the workforce will be much larger than shown here. **Table 39** presents the projected number of people in the workforce, assuming that the ratio of full time to part time staff remains about the same as now. However, the recent trend suggests that the sector is moving slowly towards employing more full time staff and reducing its reliance on part time staff.

Table 39
Projected demand for workforce – number of people

Year	Facility mngr		Nurses		Caregivers		Therapists		Non-Care		Total	
	Low	High	Low	High	Low	High	Low	High	Low	High	Low	High
2008	566	566	4,705	5,677	18,150	19,708	1,284	1,705	8,729	11,083	**33,434**	**38,739**
2011	539	570	4,766	5,931	17,873	20,283	1,262	1,757	8,236	11,181	**32,676**	**39,721**
2016	525	659	5,043	6,889	18,272	23,569	1,285	2,047	7,900	12,912	**33,026**	**46,076**
2021	618	757	5,847	7,909	21,388	27,126	1,508	2,362	9,265	14,822	**38,626**	**52,977**
2026	774	917	7,168	9,544	26,520	32,839	1,873	2,861	11,601	17,935	**47,936**	**64,097**

9.7 Conclusion

Over 33,000 people are currently employed in the aged residential care sector.

The Review has projected a baseline workforce demand by taking projected staff ratios multiplied by demand for aged residential care services. It is estimated that the demand for workforce will remain stable or grow slowly for the next five years and then grow rapidly, by between 50% and 75% (on an FTE basis) by 2026.

Resultant demand for workforce is expected to grow by approximately 10,000 to 15,000 FTEs by 2026. The aged residential care workforce increasingly comprises a larger proportion of migrant and non-European ethnicities. As the sector employs more overseas trained nurses and caregivers, there will be increased need for training and more time taken by newer employees to become fully productive.

10. Workforce supply

10.1 Introduction

10.1.1 Overall approach

As noted in **Section 8**, the baseline demand projection takes the observed utilisation of aged residential care, and extrapolates that based on demographic and utilisation trends.

This section considers how workforce supply might respond to changes in demand for beds and demand for labour. This includes consideration of how labour demand itself might respond to changes in wages.

Labour demand is somewhat sensitive to the price of labour, as the cost of provision is known to affect demand for aged residential care and, therefore, bed utilisation and return on capital. This sensitivity is less in the short than the long term, when employers have more opportunity to find alternative means of providing the service, including technology that may currently not be cost effective. Aged residential care workforce (or labour) market outcomes are therefore closely linked to aged residential care market outcomes, and the two are modelled together.

10.1.2 Some caveats

This section summarises the Review project team's approach to modelling the supply of aged residential care workforce. Projections presented in this report are scenarios, not forecasts. They aim to give a sense of direction and scale of change ahead to inform strategic business and policy decisions.

The scenarios cannot remove uncertainty. But they do identify the broad sensitivities to key assumptions. Assumptions have been made about how the labour market works and might evolve over time. These assumptions are grounded on findings from the literature, the Review project team's own investigation of local data, various surveys, and interviews and discussions with key informants and experts in various fields. References are set out in **Appendix A**.

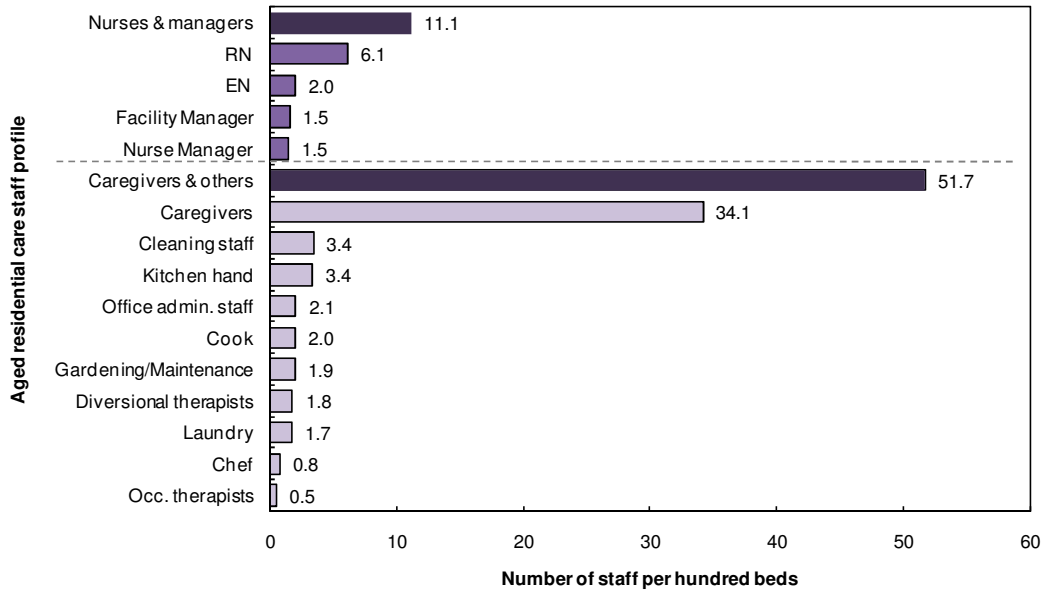
There remain reasonably large confidence intervals around the estimates. The scenarios presented in this section also do not take into account external factors that could have significant impacts on either demand projections or supply responses – whether policy, technological, economic, or social preference changes. As such, the scenarios are inputs into further deliberation.

10.1.3 Modelling labour supply

Baseline labour demand projections were derived by taking current staff-to-stock and staff-to-resident ratios – drawn from an analysis of the Review Survey and HCPNZ surveys – and keeping these ratios constant over time. Labour demand grows with the baseline demand projections.

Figure 59 shows that in 2008 there were about 11 FTE nurses and managers per hundred beds, and 52 caregivers and other staff. As the section on baseline workforce demand projections shows, staffing requirements differ by type of service, and we have built those differences into our modelling.

Figure 59
Aged care staff profile (2008)



Core to the model is the assumption that labour supply is responsive to wages. Remuneration, while important, is not the only factor influencing the supply of labour in the care sector and, in fact, is often not rated as the top consideration. Working conditions, job content, training, career opportunities, and sector image are other important factors (Productivity Commission 2005).

This is acknowledged. But to keep the modelling tractable, wages are used as shorthand for the broader costs employers might need to incur to attract and retain staff. In fact, providers have said they cannot compete with the total remuneration (including penal rates) offered by DHBs and have to employ a range of strategies other than remuneration to attract and retain nurses and caregivers. Employer strategies include overseas recruitment and training packages. This is consistent with Fujisawa and Colombo 2009, who review a broader range of strategies in the long term care sector across the OECD to adapt supply to growing demand.

The baseline model assumes that wages can rise to attract additional labour into the sector. However, shortages can persist, particularly in labour markets dominated by public funding: sticky public sector wages explain why high vacancy rates persist across the OECD in the long term care and nursing workforce (Shield 2004).

The Review project team modelled labour demand and supply of registered nurses and managers separately from caregivers and other staff (including therapists). There are different dynamics and constraints in these sub-markets, and so any implications for policy would differ. Registered nurses and managers comprise registered nurses, nurse managers, enrolled nurses and facility managers.

An important assumption is that the skills of registered nurses and managers are reasonably specific to the aged residential care sector. The implication of this for the model is that, if demand exceeds supply, this would feed through into wage settings for the next year in order to attract more labour. In practice, lags could be longer than a year, or even a few years. Conversely, an excess of supply would depress wage growth. The model also takes account that employers might moderate their demand for labour as wages rise. If they do not, then any extra wage costs are, by assumption, fed through into costs. This in turn would either reduce profit margins (and thus investment), or raise prices and so dampen demand for aged residential care.

By contrast, it is assumed that for staff whose skills are not specific to aged residential care and/or do not belong to regulated occupations, wages are set outside the aged residential care market. In the absence of productivity gains, such wages are expected to grow at the same rate as inflation, given that the skills involved are more or less 'generic' to the whole economy and labour supply can be met at the economy-wide 'going rate'.

Sources of labour supply include those already working in the sector, people with transferable skills working in other sectors, those currently not participating in the workforce, and migrants. This increases the potential pool from which to draw, and so overcomes some of the obvious short term limits to supply.

According to Statistics New Zealand projections (Household Labour Force Survey), the total working age population aged 15-65 will grow from 2.9 million currently to 3.1 million in 2026. At current participation rates, this implies the actual workforce (as distinct from the working age population) will grow from 2.2 million to 2.6 million. However, because the population over 65 is growing faster than other age groups, by 2026 the number of people aged 15-65 for each person over age 80 will have fallen from 20 (today) to just 14.

These trends imply that, assuming current practices do not change, there has to be a considerable shift in the workforce. But labour markets do adapt to changing demand, even if there is sometimes a considerable lag. For example, in 1953 the primary sector accounted for about 26% of the economy, but just 7% by 2006. The services sector, in the meantime, grew from 52% to 77% (Lattimore, Claus, Stroombergen 2009). This is not a new phenomenon: at the start of the 20th century, 40% of the workforce was employed in primary industries such as mining, forestry and farming, a third in manufacturing, and less than 30% in services. By 2006, these proportions were 7%, 12% and over 80%, respectively[5].

The New Zealand health and community workforce has almost doubled in 20 years, from 110,000 in 1989 to 194,000 in 2009; an annual average growth rate of approximately 3%, which is faster than the growth of the working age population.

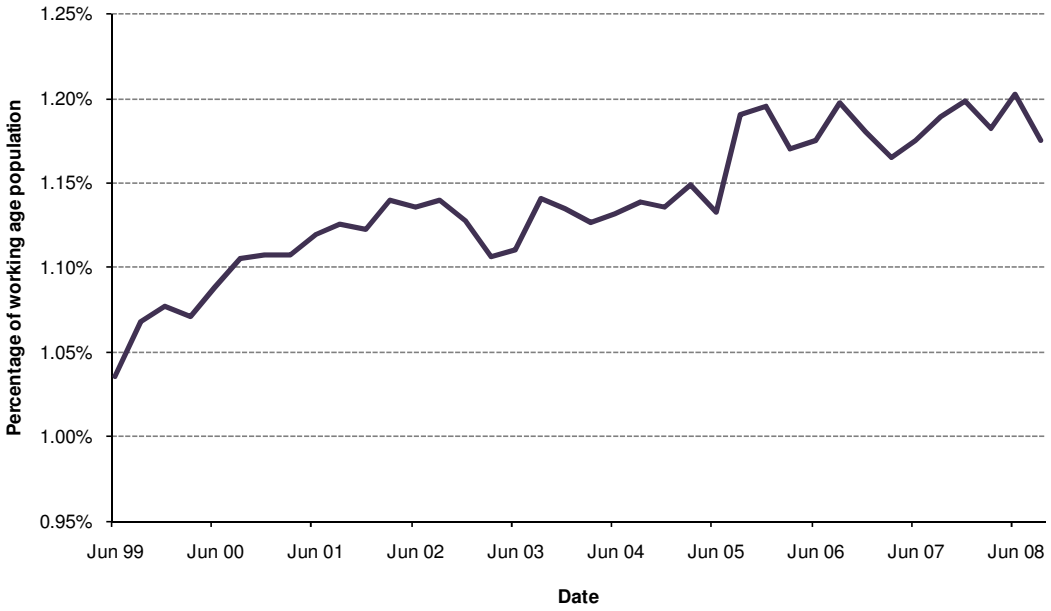
Some of this growth occurred when labour demand from other sectors in New Zealand was very high. Over the last decade, growth in the number of caregivers was met through to immigration, particularly from the Philippines, while the volume of similarly skilled New Zealand-born staff was static (Badkar, Callister, Didham 2009).

According to Statistics New Zealand's Longitudinal Employer Employee Dataset (**LEED**), the number of residential care jobs rose from around 31,000 in 1999 to almost 40,000 in 2008. This is

[5] See http://www.teara.govt.nz/en/workforce-composition/1

an annual average increase of 2.6% compared to annual growth in the total working age population of 1.5% over the same period (**Figure 60**). This, too, indicates the adaptability of the workforce and reallocation of resources within the economy over time.

Figure 60
Residential care workers in New Zealand as a percentage of total working age population



The active registered nursing workforce grew from 28,000 in 1994 to over 34,500 in 2004, and over 40,000 in 2008, an annual average growth rate of 2.5% over the last 14 years (Health Workforce Information Programme 2009, and New Zealand Nursing Council annual reports).

New Zealand's recent experience is not unique. In Australia the health workforce grew 11% between 1996 and 2001, nearly double the population growth of 6% (Productivity Commission 2005).

Countries like the UK and Australia are experiencing aging populations and will compete with New Zealand in the global market for labour to work in the aged care sector. New Zealand will need to offer an attractive alternative; however, its demands will be very small relative to the global market and it will be able to offer living standards considerably higher than those in the developing countries from which we already source labour. This is true even though incomes and demand for health care in those countries are rising too, at least until 2026.

It is important that policy settings enable labour markets to adapt in various ways. It is also important that employers are aware of future pressures and put in place appropriate strategies. Many of the pressures, including the aging profile of the workforce, point to economy-wide challenges and will involve solutions that work on the wider supply of registered nurses (if not the health of the economy generally). But demographic changes are not seen as an issue that will necessarily constrain future workforce supply to aged care.

Other studies in this area tend to take current staffing ratios or labour force participation rates by sector and age group, and multiply them by projected changes in age groups over time. The results are then compared to changes in demand, assuming similar workforce input ratios per unit of

demand. In sectors where demand rises with age (such as health and aged care) this inevitably leads to the identification of a gap between projected demand and supply (for example, see Department of Labour 2007 and 2009, and Raymont and Simpson 2008.).

A weakness of these studies is that they do not consider the fact that labour force participation rates change as wages adjust to reflect demand conditions. Nor do they consider changes in the demand for labour in response to the structural changes in the economy that can be expected as incomes and (age-related) demand for goods and services change (Stephenson 2006), or account for changes in the way that providers might deliver services (for example, through technological change prompted by rising labour costs).

The key dynamic in this Review's labour supply model is that, if there is a mismatch between labour demand and supply, the model corrects the mismatch through an adjustment in wages. If such adjustment cannot occur, or occurs with delay (as can be the case in the public sector) this would manifest itself in shortages until either wages or demand adjust (through technological innovation, for example). Wider changes in the labour force have not been modelled, given that the aged care workforce is, and will remain, a relatively small proportion of the total projected working age population and workforce (at current age-specific participation rates).

The model enables the consideration of alternative scenarios such as the impacts for supply if such an adjustment in wages were not able to happen, as well as the potential for productivity gains.

10.2 Labour supply scenarios

10.2.1 Baseline scenarios

As noted in **Section 8**, bed numbers rise under the baseline scenarios. This drives the demand for labour by 1.6%-2.4% p.a., depending on the scenario. This compares to 2.6% p.a. over the past decade.

Most demand growth will be for caregivers, whose numbers would rise by 4,500 to 7,400 full time equivalents from today's 12,800 (using the high staffing ratios provided in the labour demand report). Required annual growth in nursing and management staff would be 2.0%-2.6%, or an extra 1,700 to 2,800 compared to today's estimated level of around 4,750.

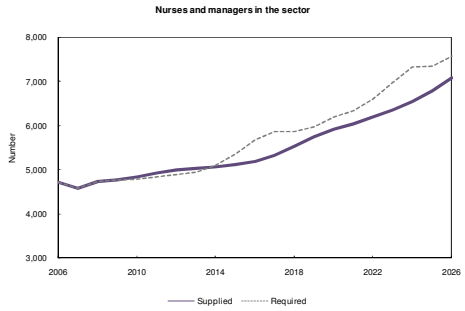
The labour demand reflects the gradual change in the mix of aged care, with a switch to more hospital and dementia care, both of which currently require significantly higher nurse and caregiver ratios than rest homes.

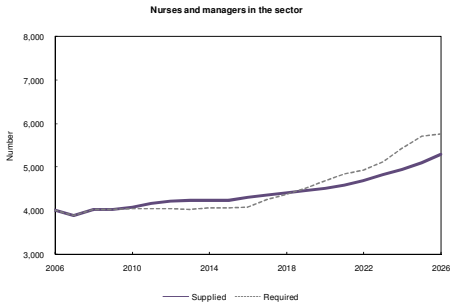
Under the high growth scenario in **Figure 61**, the almost 6,700 nurses needed in this sector in 2026 would still be only 0.3% of the economy-wide workforce (assuming current age-specific participation rates), compared to 0.18% now. The implied growth is not an insurmountable requirement when put in the context of observed growth rates in the last decade or so. But this does not mean there are no implications for employers and policy makers: the requirement ought to be considered in light of wider demand pressures for registered nurses by the health sector over the decades ahead. (NZIER 2004 projected labour demand to rise by 40%-70% over 2001 levels by 2021, which implies an average annual growth rate of 2.7%). **Figure 61** below shows base case labour market scenarios.

Figure 61
Base case labour market scenarios

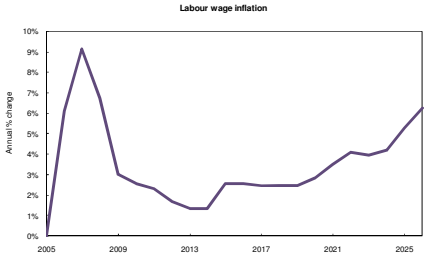
Scenario A: High demand growth **Scenario B: Low demand growth**

As demand for aged care rises, staffing levels will also rise, leading to nurse shortages in about five years. Under a low demand scenario, labour market pressures would ease until the early 2020s.

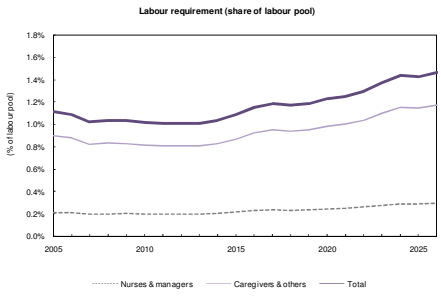


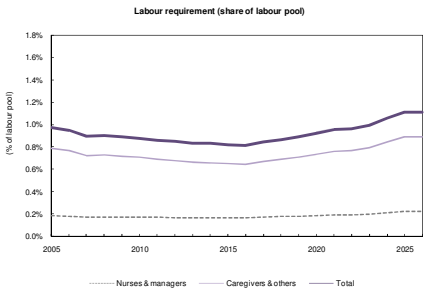


Wages will need to rise to attract new labour. Wage inflation will be persistent from 2015 onward as demand for aged residential care picks up, but the pressure will be less under a low aged residential care demand scenario.



Labour supply will catch up with demand, but there will be some lags. Under any scenario aged residential care labour requirement remains only a small part of total labour supply.





Under the high resident demand growth scenario in **Figure 61**, the extra demand for nurses and managers would lead to an annual wage growth rate of 4% in real terms. (In the chart, the spike in wage inflation during 2006-2008 reflects changes in the minimum wage and the apparent impact of a multi-employer collective agreement for DHB nurses on nurse wages paid at aged care providers.)

In the low demand growth scenario in **Figure 61**, we expect labour demand to be more easily met, with wage increases for nurses averaging just 1.9% p.a. above consumer price inflation. Demand for

nurses grows because of the underlying growth in non-rest home aged residential care, which has higher nurse-to-bed ratios.

In both scenarios, it is assumed that the demand for caregivers, therapists, and non-nursing staff will be met.

Under both scenarios in **Figure 61** a temporary 'surplus' of nursing staff is indicated, reflecting a contraction in bed stock and a lag in the downward adjustment of the nurse supply. This reflects the assumptions about how responsive nurses are to changes in wages, and also assumes a floor on wages. In the longer run, demand for nurses grows quicker than supply; supply catches up but with a lag. This pattern is reflected in projected wage inflation.

Table 40 summarises the modelled labour demand by facility type, incorporating the impact of modelled price and wage changes on the demand for beds and labour.

Table 40
Breakdown of beds supplied and staff demand by facility type

Breakdown	Scenario A			Scenario B		
	2008	2026	*%pa*	2008	2026	*%pa*
Beds supplied						
Rest home	19,960	20,400	*0.1%*	19,960	12,760	*-2.5%*
Hospital	9,820	16,620	*3.0%*	9,820	16,620	*3.0%*
Dementia	2,560	6,640	*5.4%*	2,560	6,640	*5.4%*
Other	1,770	3,210	*3.4%*	1,770	3,210	*3.4%*
Rest-home labour demand						
Facility manager	340	420	*1.2%*	340	280	*-1.1%*
Nurse	1,540	1,900	*1.2%*	1,220	1,000	*-1.1%*
Caregivers	5,870	7,250	*1.2%*	5,420	4,440	*-1.1%*
Therapists	510	630	*1.2%*	370	300	*-1.2%*
Non-Care staff	2,980	3,680	*1.2%*	2,450	2,000	*-1.1%*
Non rest-home labour demand						
Facility manager	260	490	*3.6%*	260	490	*3.6%*
Nurse	2,610	4,760	*3.4%*	2,220	4,010	*3.3%*
Caregivers	6,960	12,960	*3.5%*	6,390	11,850	*3.5%*
Therapists	560	1,060	*3.6%*	440	820	*3.5%*
Non-Care staff	2,370	4,410	*3.5%*	1,770	3,240	*3.4%*
Total						
Facility manager	600	910	*2.3%*	600	770	*1.4%*
Nurse	4,150	6,660	*2.7%*	3,440	5,010	*2.1%*
Caregivers	12,830	20,210	*2.6%*	11,810	16,290	*1.8%*
Therapists	1,070	1,690	*2.6%*	810	1,120	*1.8%*
Non-Care staff	5,350	8,090	*2.3%*	4,220	5,240	*1.2%*

Table 41 below shows key variables in the base case model and an alternative scenario.

Table 41
Key variables in the base case model and an alternative scenario.

Main assumption	Base case model	Alternative scenario
Demand scenario	Scenario A Scenario B	Same
Stock depreciation	4% (economic depreciation reported by providers)	2%
Investment size	No constraints	Same
Residents' price sensitivity	-1 (literature)	-0.3 (if options are limited)
Persistence of price shock	3 years before full adjustment	Same
Supplier price sensitivity	-1 (no better evidence)	Same
Price cap?	No	Same
Cost of capital	12%	Same
Construction cost	$160,000 per bed (to also reflect opportunity cost of land)	$130,000 per bed (to exclude land costs)
Real construction cost inflation	0.4% per annum	Same
CPI	2.5%	Same
Labour-to-bed ratio	High ratios for scenario A and low ratios for scenario B	Same
Labour productivity gains	0%	Same
Labour supply elasticity	0.3% (literature)	Same
Labour demand elasticity	-1	Same
Minimum ratio of nurse caregivers	1.5	1.5

10.2.2 Key parameters

Labour to bed ratios

- In the baseline model we use the high staff ratio set out in **Table 42** for the high demand scenario and the low staff ratio for the low demand scenario. These ratios are adopted from, and calibrated to, the baseline workforce demand report
- Adopting the low staff ratios for demand **Scenario A** reduces labour demand growth requirements by a total of 5,000 in 2026. In particular, the demand for nurses would reach

5,500, rather than 6,700 FTEs by 2026, and around 1,600 fewer caregivers would be required than otherwise would be the case
- While the level of demand changes, the rate of growth and pressure on wages are not highly sensitive to this assumption.

Table 42
Full time equivalent staff per 100 beds

High labour to bed ratio	Rest home	Hospital	Dementia	Other
Facility manager	1.9	1.9	1.9	1.9
Nurse	8.5	19.5	13.0	20.5
Caregivers	32.4	49.6	46.4	50.9
Therapists	2.8	3.6	4.3	5.6
Non-care staff	16.4	16.2	15.2	22.2
Low labour to bed ratio	**Rest home**	**Hospital**	**Dementia**	**Other**
Facility manager	1.9	1.9	1.9	1.9
Nurse	6.7	17.5	9.5	15.0
Caregivers	29.9	46.7	40.8	43.2
Therapists	2.0	3.0	3.0	3.5
Non-care staff	13.5	13.0	9.5	13.8

Labour supply responsiveness

- In the baseline model we assume a wage elasticity of 0.3 for nurses and management staff; that is, a 10% increase in wages would increase the number of nursing hours worked by 3%.
- This assumption draws on nursing labour supply studies spanning the 30 years from 1971 to 2003 (Shield 2004). The most robust estimates come from Askildsen et al (2003) and Rice (2003). They find elasticities of between 0.2 and 0.4. These results are similar to those in broader studies of female labour supply (0.2).
- Hours worked are not very responsive to changes in wages in the short run. But Shield points out that wages may have a greater effect on participation rates.
- If it is assumed a more responsive labour supply (wage elasticity of 1), wage inflation is dampened to at or below the general rate of inflation and ensures demand is easily matched over the forecast horizon.
- In the baseline it is assumed that a shortage in labour is translated into wage increases, and a surplus into a wage drop (with the drop constrained so that nurse wages cannot fall to below 1.5 times the wage of caregivers).
- If it is assumed employers are less responsive to shortages (an elasticity of 0.3 instead of 1) it leads to expected results: nurse wage inflation is lower than under the base case, but a labour shortage of 1,400 nurses eventuates at 2026, greater than the 450 under the baseline model.

Productivity gains

- No productivity gains are assumed in the scenarios. This is an important assumption. Even small productivity gains have the potential to improve the sector's ability to meet growing demand (Productivity Commission 2008). The differences between low and high staff-to-bed ratios give a good indication of this.

10.3 Summary results

Table 43 below shows a summary of results.

Table 43
Summary results

Demand and supply of labour		Scenario A				Scenario B			
		2008	2026	%pa		2008	2026	%pa	
Underlying demand	Bed days	11,189,000	18,132,000	*2.7%*		11,189,000	15,302,000	*1.8%*	
	Residents	32,500	52,500	*2.7%*		32,500	44,500	*1.8%*	
Realised demand	Bed days	11,189,500	16,940,000	*2.3%*		11,189,500	14,317,000	*1.4%*	
	Residents	32,500	49,000	*2.3%*		32,500	41,500	*1.4%*	
Labour requirements									
Nurses & managers	Labour required	4,750	7,550	*2.6%*		4,050	5,750	*2.0%*	
	Realised Supply	4,750	7,100	*2.3%*		4,050	5,300	*1.5%*	
Caregivers & others		19,250	30,000	*2.5%*		16,850	22,650	*1.7%*	
Total		24,000	37,100	*2.4%*		20,900	27,950	*1.6%*	
			-450						
Average wage									
Nurses & managers		$23	$73	*4.0%*	Real	$23	$51	*1.9%*	Real
Caregivers & others		$14	$23	*0.4%*	Real	$14	$23	*0.4%*	Real
Gap nurses and managers: demand vs supply %			-6%				-8%		
Gap level			-450				-450		

Table 44 and **Figure 62** below show a summary of results under alternative assumptions.

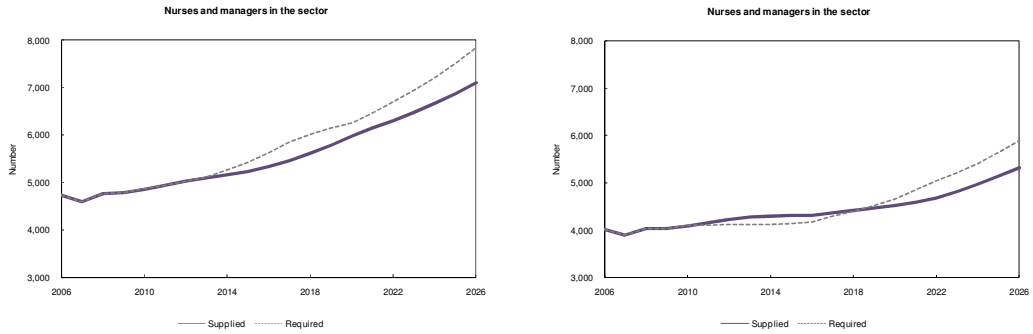
Table 44
Summary results – alternative assumptions

Demand and supply of labour		Scenario A				Scenario B			
		2008	2026	%pa		2008	2026	%pa	
Underlying demand	Bed days	11,189,000	18,132,000	*2.7%*		11,189,000	15,302,000	*1.8%*	
	Residents	32,500	52,500	*2.7%*		32,500	44,500	*1.8%*	
Realised demand	Bed days	11,189,500	17,842,500	*2.6%*		11,189,500	14,489,500	*1.4%*	
	Residents	32,500	51,500	*2.6%*		32,500	42,000	*1.4%*	
Labour requirements									
Nurses & managers	Labour required	4,750	7,850	*2.8%*		4,050	5,900	*2.1%*	
	Realised Supply	4,750	7,100	*2.3%*		4,050	5,300	*1.5%*	
Caregivers & others		19,250	31,350	*2.7%*		16,850	23,250	*1.8%*	
Total		24,000	38,450	*2.7%*		20,900	28,550	*1.7%*	
			-750						
Average wage									
Nurses & managers		$23	$75	*4.1%*	Real	$23	$51	*1.9%*	Real
Caregivers & others		$14	$23	*0.4%*	Real	$14	$23	*0.4%*	Real
Gap nurses and managers: demand vs supply %			-10%				-10%		
Gap level			-750				-600		

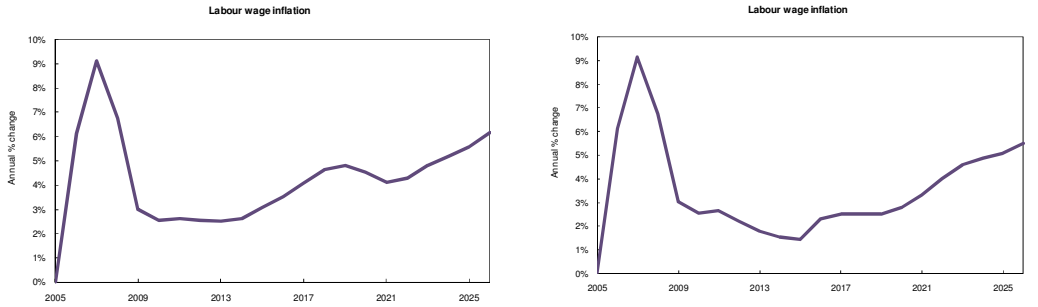
Figure 62
Alternative – lower depreciation, construction costs and demand sensitivity to price

Scenario C: High demand growth **Scenario D: Low demand growth**

With lower costs, the stock of beds will grow more quickly than in scenario A and this is reflected in the demand for labour …



Wage pressures will be similar as in the base case. Small differences in the annual growth rate reflect a closer alignment between demand and supply in this scenario.



10.4 Conclusion

Demographic pressures dominate the direction of the demand for aged care and thus the facility and labour supply requirements.

The uncertainty about what the underlying demand might be to 2026 is reflected in the labour supply scenarios. Rather than taking any number presented here as absolute, it is better to treat the scenarios as giving a sense of direction and scale of change ahead to inform strategic business and policy decisions.

The projected increase in demand for aged residential care indicates that labour supply needs to adjust to care for an extra 12,000 to 20,000 residents by 2026 – an increase of 37%-62,%, although not all of that underlying demand will be realised. This demand includes an anticipated change in mix toward hospital and dementia care.

Labour requirements are therefore projected to rise over the forecast horizon as part of a structural change in the economy. This is likely to affect wages in this sector. The extent of wage pressures over general consumer inflation depends much on the chosen demand scenario and how sensitive labour supply is to wages.

Despite the rapid growth in aged care labour requirements under the high growth scenario, the aged care workforce will remain only a small portion of the total domestic labour force. Hence, as long as the labour market is able to adjust and constraints are minimised, supply will track labour demand, although there are likely to be some lags.

There will be pressures; most notably, registered health professionals will be subject to competing demand from the acute care sector. This highlights the fact that the long term supply of registered health professionals is an issue for the whole health sector, not just aged residential care. The findings stress the importance of employers and policy makers planning to meet future demand, monitoring how the market evolves, and considering strategies to attract and retain staff in light of existing labour market distortions and constraints.

11. Models of care

11.1 Introduction

The Review has been undertaken to address the following question:

> *"Given the projected needs of older New Zealanders and the resources available to meet those needs, how do we identify and define a limited number of future service configuration scenarios within the aged residential care sector that meet criteria of cost effectiveness, efficiency and quality?*
>
> *This project is focused on aged residential care and will consider the impact of well grounded assumptions for changes in:*
>
> - *Home support*
> - *Housing*
> - *Acute services."*

An objective of this component of the Review was to assess whether alternative models of care would result in cost reductions for the Government or additional funding for providers. There is little evidence, however, that some set of changes might result in cost savings. The observations below are representative of a broad range of findings in this regard:

- An OECD survey of activity across the developed world described as "mixed" the evidence supporting cost savings based on different approaches to service delivery, while also noting that the key to controlling Government costs would be private cost sharing, targeting benefits to those most in need, and strategies to prevent or delay the onset of disability (OECD, Long term care for older people, 2005).
- One well-known approach to alternative service delivery, the programme for all-inclusive care for the elderly (**PACE**) programme in the US (profiled below), has consistently demonstrated lower costs per day per person, and in fact their payment rates are based on reductions from 'average' costs. However, as the participants in these programmes live longer, the overall cost impact is often also described as "mixed".

Most countries in the developed world face the issue of rapid population aging – many of them more acutely than New Zealand. There is evidence to support alternative ways to achieve different outcomes – such as greater longevity – within available budgeted funds. This section highlights the alternatives best suited for consideration in New Zealand.

11.2 Executive summary

The term 'models of care' has many different meanings. For the purposes of this Review, models of care have been defined as service configurations that may assist in addressing the demographic challenges facing aged residential care in New Zealand. The Review is charged with 'defining a limited number of service configuration scenarios' to address the aging of the New Zealand population. Four such scenarios have emerged:

11.2.1 Improvements in the current approach

Key issues to be addressed in the current approach relate to projected capacity expansion and replacement, as well as resolution of issues of cost sharing of services for those that can afford to pay for a portion of their care. Other long-standing operating issues include access to, and development of, specialist services, workforce availability, and capacity constraints. Other countries have also developed payment systems based on individual client acuity levels.

11.2.2 Enhanced professional services in the community

Aged residential care residents, and home support clients, are provided services within the context of agreed services by provider organisations. The connections between aged residential care providers and other health service providers may not be as well-developed as possible, resulting in higher utilisation of other services that are provided free to clients. Some findings include:

- Acute hospital days for aged residential care clients are 27% higher than an available international benchmark in 2008, and even higher for high-needs home support clients.
- Emergency Department (**ED**) visits are roughly twice the level of an international benchmark for aged residential care residents.
- Prescription drug usage is 42% higher than an international benchmark, when measured by number of prescriptions.

Generally, international programmes have not been shown to reduce costs, primarily because cost savings that can be achieved are often offset by increased longevity. In this context, achieving the reductions in utilisation shown above would require substantial improvements in clinical and professional resources in the community organised into some form of economic unit that can share in the cost savings from the secondary sector.

11.2.3 Individualised funding

Devolving funding to the individual so they can manage their own care was regularly identified as a mechanism for organising the aged care sector – both within New Zealand and in international research – but is not a 'discrete service delivery alternative'. As such, this option is mentioned for completeness only.

11.2.4 Special purpose low income housing for the elderly

There is a gap in New Zealand for the provision of supported housing for the low income elderly; retirement villages meet this need for those with means. In addition, the supply of facilities component of the Review (**Section 8)** suggests that 26,500-37,500 new aged residential care beds will be required by 2026; the minimum number required under the most conservative assumptions is greater than 15,000. Accordingly, one option is to divert some portion of the required new beds to construction of community-based housing alternatives to meet the needs of those with limited means.

These options are not mutually exclusive. Many participants in the Review process identified the need for 'completing the continuum of care', and commented that multi-disciplinary teams (the second model above) and low income housing for the elderly (the fourth) represent the two most significant gaps in that continuum.

This section outlines these options in more detail, including potential benefits and weaknesses, and the structure required to progress any or all of them. This report is not intended to present business cases for these options; rather, sufficient detail is presented to describe the options and scope the opportunity should policy makers choose to evaluate any or all of them further.

11.3 Methodology

To identify the potential models of care, the Review project team:

- Undertook a review of international literature
- In conjunction with clinical experts, developed a briefing book outlining the focus group process and potential models of care for discussion
- Conducted nine focus groups around the country with 87 people in attendance who have identified these models and their associated strengths and weaknesses
- Consulted the Expert Advisory Panel
- Presented the preliminary results to the Steering Group.

The focus groups were conducted for a narrow purpose: to identify a starting point for the 'limited number of service configuration options' that might be appropriate in New Zealand, and to provide further detailed information as it relates to the applicability of those options. The focus groups findings have since been analysed, assessed and validated where possible.

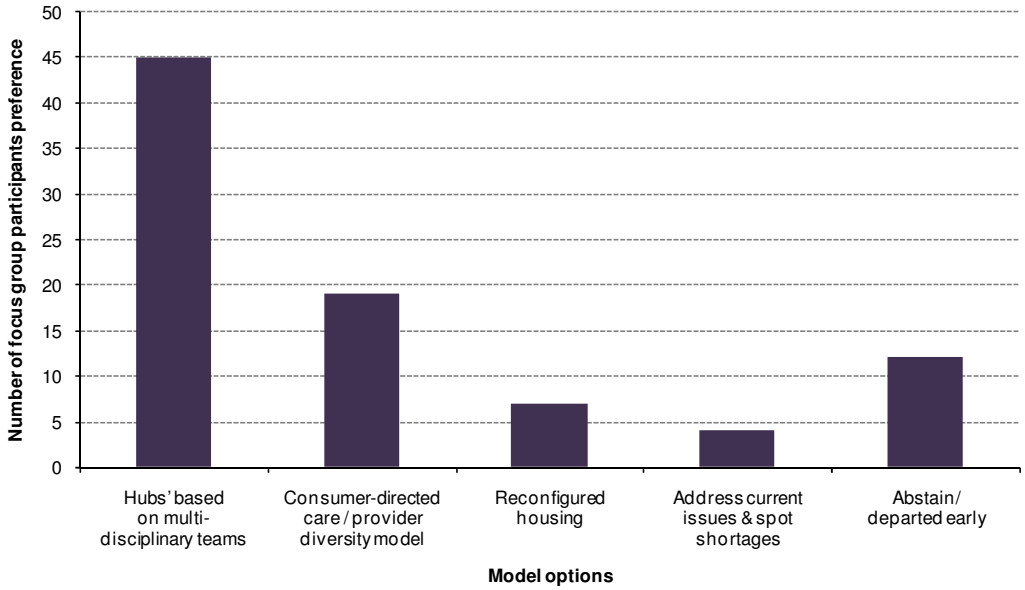
The literature referred to in this work is summarised in **Appendix A**. The briefing book developed to inform the focus group process is attached as **Appendix F**. The summary of process for the focus group meetings is attached as **Appendix G** and the summary of the focus group findings, **Appendix H,** describes the process through which participants were asked to develop models of care and choose which model should be given priority or implemented first. The responses are summarised in **Figure 63** below. The data should be reviewed with care, as:

- Focus group members were not randomly selected.
- Each focus group devised its own ideas for models spontaneously, and therefore specified the models slightly differently. As a result, comparisons across groups should be viewed with caution.
- The discussion around each model of care was limited, and it was evident that broad. agreement about a particular idea did not necessarily mean complete agreement on how each model would work in practice.

Some participants believed that some or all of these models could be pursued at the same time and were not mutually exclusive.

As noted, the initial preferences described in **Figure 63** should not be viewed as support for any particular model or as a recommendation, nor are they true measures of consensus.

Figure 63
Summary of preferred model options by focus group participants



Based on this and other work, the Review project team has identified four alternative models of care potentially suitable for the New Zealand environment, each of which represents a different approach and sets of benefits and costs. These options are:

Improvements in the current approach
The status quo may prevail and be based on sound principles, so long as certain key issues are addressed.

Enhanced professional services in the community
New Zealand aged care residents appear to use more acute hospital and other services when compared to international best practice, the costs of which could be re-allocated to increased service delivery outside of the acute setting towards prevention and quality of life considerations.

Individualised funding
Coordinating service delivery is a significant burden for health service organisations, and assumes that people's care should be planned for. Empowering individuals to make their own choices from a broad range of services may be a way to drive change and transparently secure the financial contribution of those able to contribute to their own care.

Special purpose low income housing for the elderly
One of the drivers for care is the inability of many older New Zealanders to cope in their own homes, and there are few options for more support outside of residential care. Changing the vision for housing – and how we construct and manage existing aged residential care facilities – could provide more opportunities for the elderly to help each other.

This section is intended to:

- Specify the key operational characteristics of each model
- Summarise the relevant analysis of that model

- Identify the factors that impinge on an assessment of suitability of each model, including benefits, tradeoffs, obstacles and impact on key organisations.

International findings

This section frequently refers to international experience and, in some cases, to benchmarks derived from international sources. It is important for such findings to be taken in context; the examples that follow cannot be simply dropped into the New Zealand setting and expected to show similar results. A complete comparison of the context in which any of these programmes operate would highlight many areas of difference from New Zealand. Accordingly, any examples highlighted in this paper are intended to make narrow points, and these will be highlighted when they are mentioned. All other aspects of the programme have limited applicability in New Zealand without significant further analysis.

11.4 Types of clients

Traditional health planning is based on identifying groups of clients with similar needs and designing interventions to best meet those needs. Consistent with this approach, the focus groups were asked to define the relevant subsets of aged residential care clients. However, seven of the nine focus groups concluded that separating clients into separate groups was not helpful, although there was a difference of opinion regarding dementia, as noted below. These conclusions were based on:

- Focus group participants noted that most aged residential care residents have multiple medical complaints – co-morbidities – in addition to the complications of cognitive impairment or dementia.
- While many people outside the sector believe that the elderly are on a continual downward trend in physical condition, ability to cope and dependency, they also noted that many residents experience a complex mix of improvements in condition in some areas and deterioration in others, generally as a result of a mix of idiosyncratic and identifiable causes.
- A clear theme in the focus groups was the importance of socialisation and social connection in the lives of residents. Participants believed that grouping residents into discrete categories with discrete programmatic interventions – with the potential disruption of discharge and readmission into different programmes – is inherently disruptive, particularly as many elderly have diminished social contacts already and, therefore, less social resilience.

Dementia was identified as a specific issue by all focus groups, and some felt that it required special consideration. In addition, many participants noted a gap in service availability for early stage dementia clients in the community.

11.5 The current model of care

The New Zealand aged residential care sector has evolved over many years, often as a result of policy reversals and without a clear long term vision. In 2010, the prevailing strategy for service delivery is organised around the principle of care plans prepared by care managers in residential care facilities.

Aged residential care facilities are licensed in four categories:

- Rest home, intended for residents with the lowest level of dependency in residential care
- Continuing care hospital, intended for residents who require 24-hour nursing supervision
- Specialist dementia services, intended to minimise risks associated with the confused states of residents with dementia

- Psychogeriatric, intended for residents with an organic illness at the extreme end of dementia and defined by clinicians as those with features of BPSD (behavioural and psychological symptoms of dementia).

11.5.1 Care planning process

Each resident is placed under the care of a care manager, who must be a registered nurse. The care manager is responsible for developing the care plan upon admission, coordinating the work of all other clinical professionals who interact with the resident, and updating the care plan accordingly. The care plan, as a result, is the mechanism for coordinating care, and the care manager is the person who ensures that this coordination occurs. In other words, the care manager is the focal point for collecting all information from those involved in the care of each resident, and for distributing necessary information out to those same individuals. The care manager is also responsible for communicating and managing care and service requirements to staff within the residential care facility.

This model of care is based on the care plan as the centre of a network of services and the care manager as the person at the centre of that centre, so to speak. The quality of information flow between other professionals involved in the care of a resident is highly dependent on the actions of the care manager and the quality of the informal links between unrelated professionals - say the physiotherapist and the General Practitioner (**GP**). For this reason there has been wide variation in the characteristics of information flow and, ultimately, the degree of coordinated service and quality of care.

Care plans are developed for those in residential care based on national contract specifications, and the same basic approach is undertaken in home support as well. Care plans in home support, however, are typically much less comprehensive because of lower levels of administrative and clinical resourcing, and programmatic variation between the models funded by individual DHBs. As a result, there is little overlap between the care planning process in community-based and residential care, and care planning to determine optimal utilisation of both services is inconsistent.

11.5.2 Resources

The ARRC contract between DHBs and residential care providers specifies that residential care facilities will provide for:

- Housing/accommodation
- Hotel services, including cleaning, laundry, meals, etc
- A care manager to manage the care plan
- Carer services for assistance with the activities of daily living, recreation and other socialisation needs
- Registered nurse cover as specified, depending on the type of aged residential care facility
- Distribution of prescribed medications by properly licensed professionals
- GP services upon admission and at least quarterly thereafter
- Ancillary services, including physiotherapy, respiratory therapy, occupational therapy, speech therapy, dietetics and podiatry
- Emergency services and after hours cover.

DHBs also provide directly for the following services, most of which are provided without charge to the resident or aged residential care provider:

- NASC
- Acute hospital services
- The cost of drugs and pharmaceuticals (although co-payments and dispensing fees are paid by aged residential care providers)
- Assessment, treatment and rehabilitation services contracted or provided by DHBs
- Primary care and district nursing services for advice and information sharing
- Laboratory services
- Radiological services
- Specialist medical services
- Podiatry services not prescribed by a medical practitioner.

The resident is responsible for providing the following (which may be supported in part by a Government funding source):

- Individual customised equipment
- Equipment, aids, medical supplies or services that relate to conditions covered by separate funding
- Services such as those provided by dentists, opticians, audiologists, chaplains, hairdressers, dry cleaners, and solicitors
- Clothing and personal toiletries, other than ordinary household supplies
- Charges for personal toll calls
- Insurance for personal belongings.

The following services exist outside the scope of both DHBs and residential care providers, but must be accommodated by the providers:

- Maori provider organisations
- Ministry of Social Development
- Social workers
- Advocacy services
- Supporting voluntary organisations such as Alzheimers New Zealand and Stroke Foundation
- Socialisation outside the aged residential care facility.

The section above is based on the ARRC contract between providers and DHBs. Actual practice may vary from place to place.

11.5.3 Assessment, treatment and reassessment process

Older people may request, or be referred for, assessment to determine if they need support services. This assessment is prepared by the NASC of the local DHB. The NASC may authorise a range of support services, including home support or residential care.

If a prospective resident has been assessed as eligible for residential care, they may choose from any provider in the region that provides the approved range of services, so long as the provider approves admission of that prospective resident. Upon admission, the residential care provider assumes responsibility for developing a care plan and providing agreed services, as noted above. The resident may choose at any time to relocate to another facility or to be discharged from that facility.

In addition, DHB payments for residential care services continue for 21 days after admission to an acute facility to facilitate the return of that resident to the original facility.

A resident or provider may request that a resident be reassessed by the NASC if there has been a change in the resident's condition sufficient to warrant a change in service. If the residential care provider has the facilities for a different level of care, and both the resident and provider approve a move, the resident's service package may change to reflect this new level of care. This may or may not require relocation within the facility. It is not uncommon for the provider to be unable to provide the new level of service and for the resident to be faced with relocation to a new facility that can meet their needs. In addition, as residential providers are paid only if beds are occupied, there is a disincentive for some providers to request reassessment if that would likely lead to discharge from a facility.

Most of the clinical professionals come to the residential care facility to assess and treat residents, particularly those who are paid by the provider. Some DHB staff attend facilities (e.g. wound care staff) and some expect residents to be transported to the DHB (e.g. specialist medical providers). Access to off-site DHB services is more readily organised in some DHBs than others.

11.5.4 Funding

The Residential Care Subsidy (**RCS or subsidy**) to aged residential care providers is established according to formulas established in a national (ARRC) contract negotiation process. The payment rate is 'bulk funded'; that is, intended to include all necessary costs incurred by providers for the services listed in the contract, as summarised above. Providers may only charge for additional services that fall outside the specified services, although the regulatory status of these charges is ambiguous and frequently discussed between providers and funders.

The subsidy for any particular resident is subject to two main offsets:

- The amount of the national superannuation payment for those who have that benefit. A process exists for the Ministry of Social Development to automatically pay a resident's national superannuation directly to the provider, eliminating any possible confusion or interruption in provider cash flow.
- Residents are subject to income and asset testing, and Government funds are not used to pay for the care of those whose income or assets exceed the threshold. Except as noted for additional services, providers under Government contract must charge these private patients at the same rate as those who are eligible for the full subsidy.

DHBs directly pay for services for which they are responsible, such as acute hospital services and the DHB cost of pharmaceuticals, the cost of diagnostics and ED attendance, and so forth. As residential care providers pay none of the direct costs, they have little incentive to minimise utilisation of these services, though DHBs have many process checks in place to ensure that utilisation of such services is appropriate.

11.5.5 Strengths of the current model

The main strength of the current model is that it is in place, works in the vast majority of cases, and the current service delivery network of providers has adapted to it. In addition:

- The regulatory, audit and payment regimes have been developed, and, even allowing for shortcomings, the work programme to address shortcomings is known.

- The national contracting approach has provided for much less variation in service specifications and delivery than has been the case in other parts of the health sector.
- Providers compete on the basis of service, driving up performance.
- The sector has proven to be resilient (e.g. few organisational failures) and innovative in identifying alternative revenue streams (e.g. the retirement village model) and service delivery (e.g. the Eden programme).

11.5.6 Weaknesses of the current model

Weaknesses have included:

- Clinical staff, particularly care managers, report that they have often felt isolated from the rest of the health system.
- Recruiting and retention have been much more challenging for residential care providers than for DHBs.
- Competition among providers has been encouraged, resulting in duplication in key resource areas and scarcity in others.
- It can be difficult to link consumer need with some services to ensure consumers get what they need.
- Aspects of the current model of care are inefficient and may be unsustainable in the face of increasing demand.

11.6 Improvement in the current approach

11.6.1 Address current issues and spot shortages

In any analysis of options, one choice must be to continue with the status quo. In the context of aged residential care, sufficient experience exists to suggest that while this is a viable option, some operational matters have already been deferred and must be addressed. As they are operational matters, however, they do not collectively amount to a change to the overall model of care but reflect a work programme in which each issue must be assessed on its own merits and in the context of ratification of the current model of care.

Most of the issues identified are point solutions to specific problems and, as such, none is individually likely to result in significant change in utilisation, cost, or patient experience. Collectively, however, they may cause effects, even significant effects. For example, one DHB identified 12 initiatives which, if implemented and successful, would collectively reduce the costs of the health care programme of older people (including acute hospital costs and home support clients) by 12% by 2025, or $22 million in current dollars.

A preliminary list of issues that have been identified and require further analysis, should this option be selected, include (and are more fully described in **Appendix I**):

- Shortages of selected operational capacity or their allocation, including:
    - Expanded respite capacity
    - Slow-stream rehabilitation or post-acute discharge shortages of hospital
    - Stage III dementia or psychogeriatric beds in specific locations
    - Greater use of day services, and increases to funding to encourage programme development by providers.

- Workforce issues, including:
    - Staffing, including funding levels for pay compared to DHB for similarly trained staff, availability of staff, immigration policies, etc. (This issue is the source of an entire work programme within DHBNZ.)
    - Training
    - Expanded service awareness such as spirituality, sexual sensitivity, and so on.

- Changes in residential funding methodologies to more accurately reflect acuity and incentivise providers, potentially resulting in case-based/acuity funding, differential payment rates for respite services, or an increase in the number of funding categories. In addition, formalising the arrangements for permissible user-pay arrangements under the ARRC contract is required.

- NASC and assessment issues, including:
    - Reliability and consistency among assessments, both within individual NASCs and across the country
    - Adoption of interRAI and electronic linkages for that assessment data
    - Greater case management and coordination among DHB-funded services
    - Duplication of assessment processes between the NASC and all of the providers involved in the care of a particular client
    - Consider devolving assessment to providers with audit by NASC as occurs in other jurisdictions internationally.

- Operational delays, including:
    - Capacity issues result in back-ups in acute care or clients requiring extra supervision in lower levels of care while waiting for openings
    - Assessment delays, particularly noted by providers at the end of the financial year.

- Health sector integration, including:
    - Securing GP cover, assuring involvement as required in care planning
    - Extracting relevant information from acute hospital for the care planning process.

- Review appropriateness of criteria, including:
    - Earlier admission into home support to prevent functional decline that is difficult to reverse
    - Closer monitoring of dementia in rest homes.

11.6.2 Benefits, tradeoffs and obstacles

Each of these initiatives has its own individual costs and benefits. Taken together, however, the benefit of this approach is that it entails the least change from the status quo, and each initiative can be assessed on its own merits. This benefit is also its greatest obstacle, as this work programme is ambitious and requires discussion of each item individually across all of the stakeholders.

11.7 Multi-disciplinary teams

11.7.1 Enhanced professional services in the community

All of the focus groups identified a service delivery model based on closer integration of health services as an operational approach to improve the resident's experience, improve provider coordination, and reduce unnecessary services (and costs) in the health system.

The Government's recent announcement of the policy settings for 'Better Sooner More Convenient' health services is consistent with this model, or alternatively, the model widely supported by the focus groups is consistent with these policy settings. In particular:

- This service delivery model is based on providing care closer to the resident and in their own setting, while reducing reliance on secondary care settings.
- Alliance-based contracting is designed to encourage pooled funding, gain sharing and an emphasis on performance-based payment formulas.

Potential key components of such a model include:

- A wide range of clinical (medical) specialties represented on a client-focused team, including:
    - Geriatrics/GP
    - Nursing/Nurse practitioners
    - Allied Health (physiotherapy, occupational therapy, speech therapy and audiology, etc.)
    - Pharmacist
    - Nutrition
    - Carers, both formal and informal/family.

- Inclusion of the social services perspective, such as social work, links to existing social service organisations, or to ensure good communication, setting of expectations and clear responsibilities.
- Clear and accurate communication, facilitated by an electronic medical record platform.
- Case coordination/management function, facilitated with case conferences.
- Teams should follow residents/clients across settings (e.g. home support and residential care, and perhaps in acute settings as well).
- After hours cover and/or urgent response capability.

Other structural features include:

- Tighter integration between home support and residential care, reflected in the organisational structure of the teams.
- Nurse practitioners are likely to be highly useful, and there is substantial enthusiasm in the sector for greater availability of staff in this category.
- The need for a 'home base' for these services. This might be a lead practitioner with virtual but real links to others, or it might be a single organisation with all or most team members employed by it. Adding more professional resources is unlikely to result in significant benefit without addressing professional boundaries, thus ensuring the development of a team culture and a shared philosophy.
- The shift in emphasis from a custodial approach to care based on needs. This shift reflects a philosophy of care based on desired outcomes either in the context of more fully integrated palliative care for those approaching death or a goal-oriented restorative

approach for most residents. These palliative and restorative philosophies are not competitive with each other, but would represent a change for many current residents.
- A common platform for assessment such as interRAI would facilitate standardisation, consistency and communication flow across the team.
- Quality improvement tools and continuous improvement are necessary in any scenario, and an organised approach to professional services could support these initiatives.
- Pooled funding for aged care services – across home support, residential care, primary care and acute services – or some form of gain sharing is likely necessary in order to ensure aligned incentives.

The following from the medical journal *Gerontologist* (46:227-237 (2006)) illustrates the point:

> *"Long-term-care patients have multiple needs, requiring a complex set of services provided by many individuals with different training. There is a general perception among many health care providers and health policy makers that interdisciplinary teams are better able to coordinate and provide such services, resulting in better health care and outcomes (Heinemann and Zeiss, 2002; Wagner, 2004). Several studies provide empirical evidence to support this expectation (Weiland, Kramer, Waite and Rubenstein, 1995)."*

This study goes on to cite, for example:

- Sommers, Marton, Barbaccia, and Randolph (2000), who examined the effect of a physician, nurse, and social worker team for community-dwelling seniors with chronic diseases. They showed that, compared with a control group receiving regular care, individuals treated by the team had fewer hospitalisations and re-hospitalisations, fewer physician visits, and increased social activity. Similarly, studies have found that teams are important in improving care in nursing homes.
- Rantz and colleagues (2004), who examined 92 nursing homes in Missouri (USA) and attributed better patient outcomes in a subset of these facilities to the use of team and group processes, among other factors.
- Yeatts, Cready, Ray, DeWitt, and Queen (2004), who offered qualitative information from a pilot study of nurse aide teams in nursing homes, suggesting that teams facilitated improved interaction and communication.
- Two meta-analyses of studies of teams (Stuck, Siu, Wieland, Adams and Rubenstein, 1993 Wieland, Stuck, Siu, Adams and Rubenstein, 1995), which found that, although individual studies may not always show improved outcomes for patients, when data is combined across studies, patients treated by teams have better survival, functional, and cognitive outcomes, and lower institutionalisation rates.

11.7.2 Value proposition

The current model is characterised by disconnected health care providers, each appropriately addressing their own narrow issue of expertise, often delivering services that are unnecessary, duplicative or sometimes even dangerous when combined with appropriate interventions by other providers. In addition, this narrow emphasis on health services often misses the issues of critical importance to the resident: socialisation and emotional connection to others.

As a result this model aims to identify and coordinate the necessary services to accomplish resident wellbeing and ensure that unnecessary and unwanted services are not delivered.

11.7.3 New Zealand performance compared to international benchmarks

A programme that has demonstrated benefits from better coordination of service among health care professionals is the US PACE. PACE is well known internationally and in New Zealand; the *Social Policy Journal of New Zealand*, for example, profiled it in its publication *Long term care in the USA: lessons for New Zealand?*

PACE programmes care for 17,000 older people and have been adopted in 65 locations across 30 US states, representing a broad range of settings. In this programme, teams have been organised into panels of elderly people of approximately 200. While the PACE programme has many characteristics, the relevant one for the purposes of this study is the demonstrated ability to shift resources from acute to non-acute care settings, and access to the resources needed by the community-based provider to do so. This performance is underpinned by a funding model that supports these changes.

Participants in PACE are similar to New Zealand aged residential care residents in having been assessed as eligible for residential care. The programme is structured so that services are provided to participants in residential care and to those who choose to remain at home (with additional support available from the programme to facilitate this choice).

Figure 64 below compares New Zealand utilisation by aged residential care residents in secondary care for selected years. In 2008, secondary utilisation by aged residential care residents was 27% higher than the PACE programme for a similar period. The methodology for estimating utilisation for acute hospital services by aged residential care resident is summarised in **Appendix J**.

Figure 64
Secondary utilisation per person-year in aged residential care

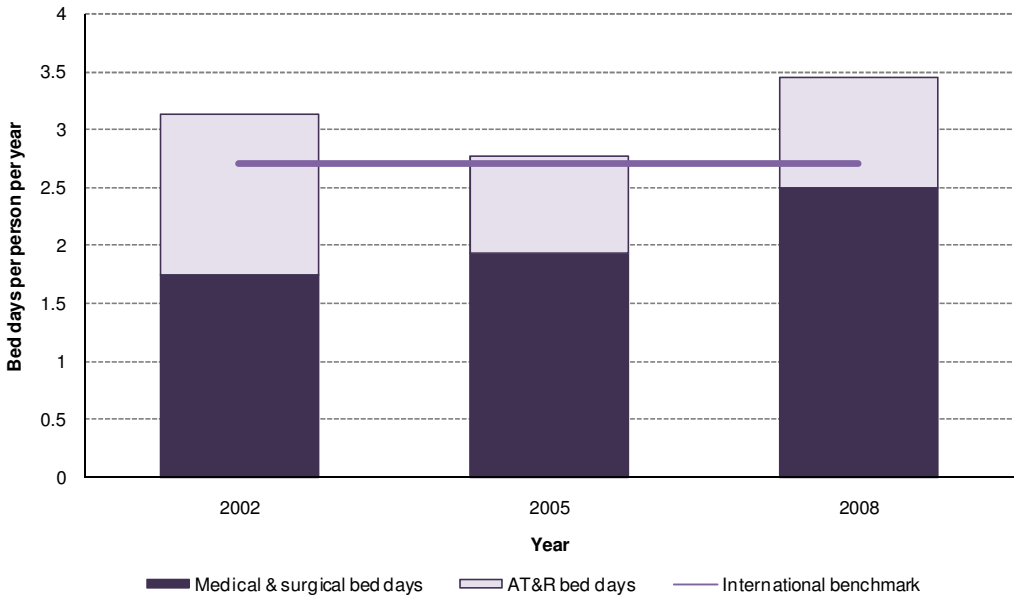


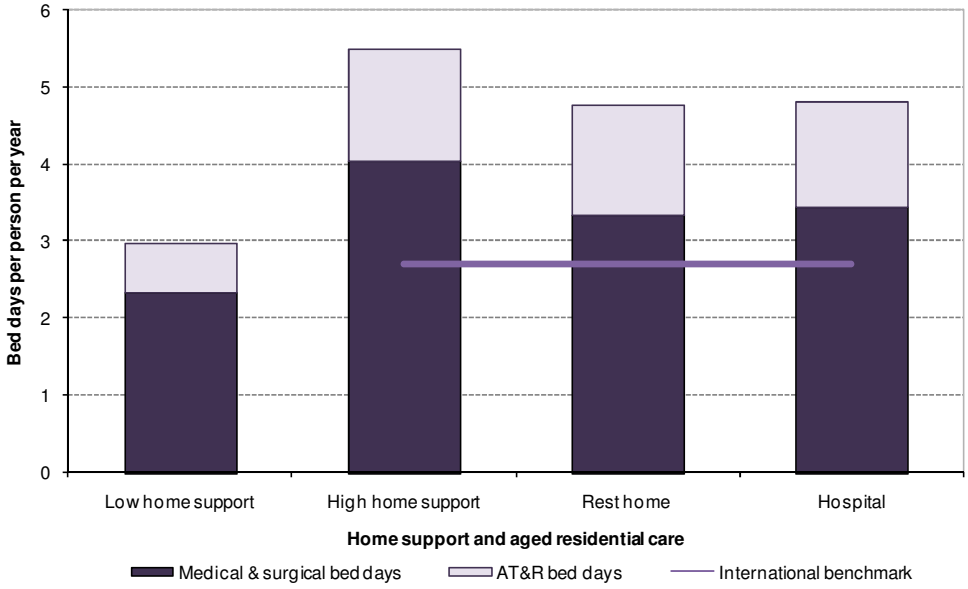
Figure 64 notes marked changes in secondary service utilisation by New Zealand aged residential care clients: medical/surgical utilisation has been increasing steadily over the period, and declines in Assessment Treatment and Rehabilitation (**AT&R**) services between 2002 and 2005 have been reversed between 2005 and 2008. Several DHBs have attributed the increase in hospital days over

the latter period to reduced availability of professional services to aged residential care providers, particularly GP cover.

The PACE programme has achieved these results because the providers are incentivised to work with clients to determine their actual needs – and only deliver the services that will enhance wellbeing. This has resulted in lower utilisation of secondary services and pharmaceuticals, but only if there are sufficient community-based resources to support client needs in aged residential care facilities and the community.

Figure 65 below shows comparative data for 2008 for aged residential care residents in rest home and hospital, as well as for the 30,000 highest recipients of home support services and all remaining 47,000 home support service clients. Home support clients were divided into groups of these sizes at the suggestion of focus group participants, who estimated there were about as many people living at home who would be eligible for residential care based on clinical condition, and would in fact be in residential care if it were not for other personal, family and community factors.

Figure 65
Secondary care utilisation by aged residential care and home support clients



As aged residential care utilisation and hospitalisation data are not included in the same database, a complex methodology was used to match aged residential care residents to hospital days. This methodology was able to reliably calculate overall aged residential care utilisation of hospital days as shown in **Figure 64**, though there is double counting of hospital days in **Figure 65** attributable to ARC residents that were in both hospital and rest home during 2008. Nevertheless, several findings are evident:

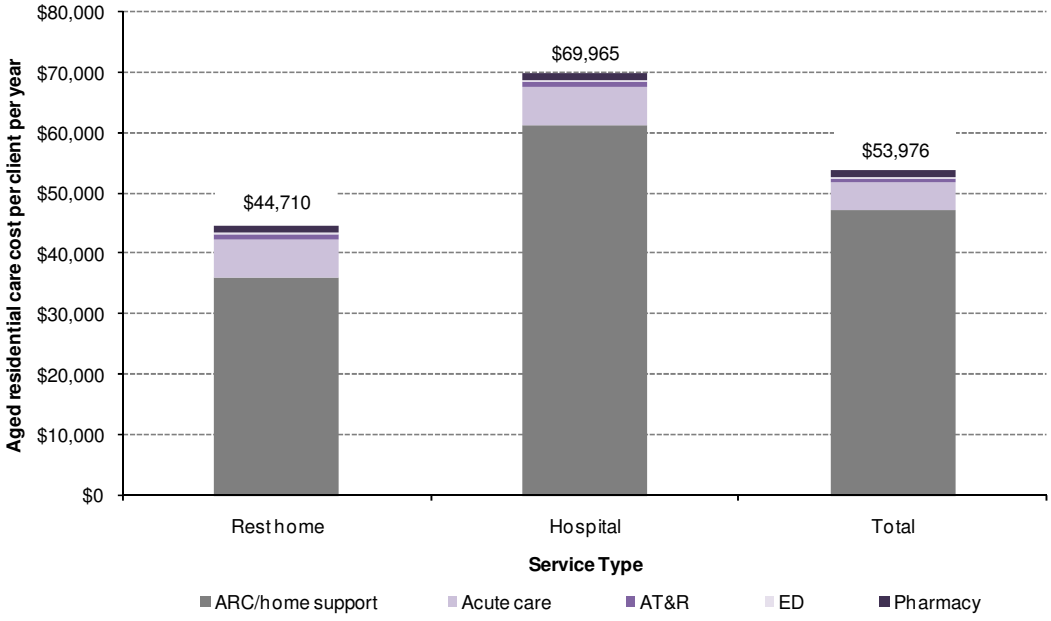
- The utilisation rates of secondary services for rest home vs hospital residents is not markedly different.
- High needs home support clients use substantially more secondary services than either low needs clients, as would be expected, or residents of aged residential care , which is counterintuitive given that many home support clients are of lower acuity than residential care residents.

These results support the hypothesis that greater clinical services in the community – matched to acuity – reduce secondary hospitalisations, as:

- High needs home support clients use more secondary services than aged residential care clients – and have less access to health care providers than those in residential care.
- While hospital residents have higher acuity than rest home residents and would therefore be expected to have more acute hospitalisation episodes of longer duration, they also have access to more health service resources in the aged residential care facility than rest home residents.

While **Figure 65** demonstrates that high needs home support clients use more secondary hospital days than aged residential care residents, the cost of care for this group is still substantially below that seen in aged residential care. **Figure 66** below presents the total cost per person-year in aged care services, including home support, residential care, secondary care (including both medical/surgical hospital and AT&R), ED and pharmacy costs.

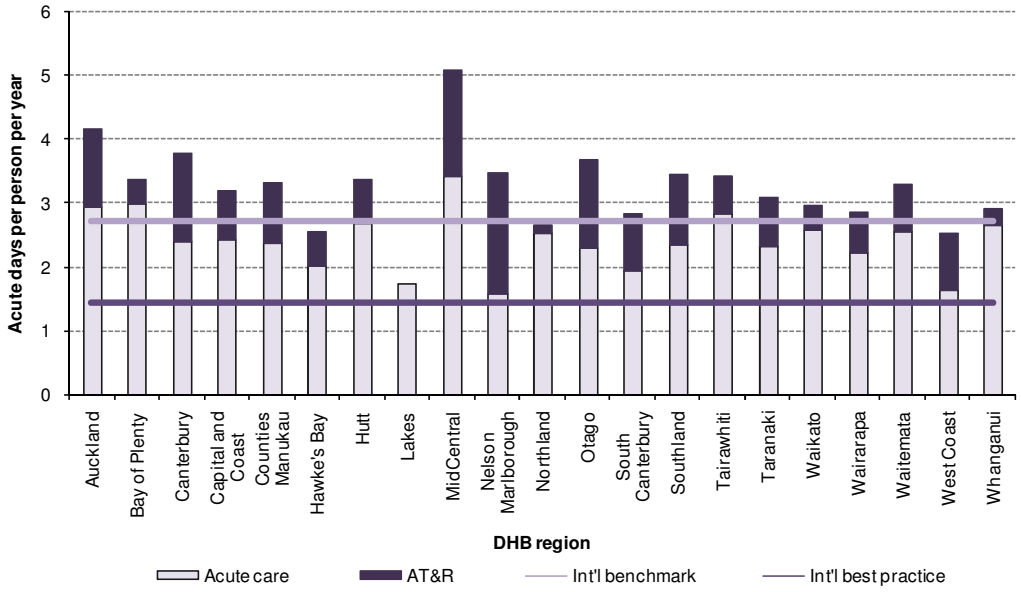
Figure 66
Aged residential care cost per client per year



As with most health data sets, there is marked variation between DHBs on measures of hospitalisations. These variations are the result of a variety of factors: availability of services, historical practice patterns, patient acuity, and other important factors. As a result, higher utilisation does not necessarily equate to poor performance by that DHB.

The analysis in **Figure 67** below presents the secondary utilisation per person-year in aged residential care by DHB for 2008 and compared to the international benchmark. Like New Zealand data, the benchmark is a composite of 29 participating PACE programmes, which also have a distribution of better and worse performance, with the best performance in this sample shown as 'best practice'. While some New Zealand DHBs outperform the PACE benchmark, the best performing New Zealand DHBs do not outperform the best performing PACE programme. In other words, the average international benchmark outperforms the New Zealand average, and the best international programme outperforms New Zealand's best.

Figure 67
Secondary utilisation by DHB compared to international benchmark



One notable finding from the data on comparative DHB performance is that the larger, urban DHBs generally have higher hospitalisation rates than the smaller, rural DHBs. This finding will have consequences for programme development, should this option be selected, as the opportunity in urban areas is large in both absolute dollars and as a percentage of their operations. For smaller, rural DHBs, the opportunity is less in both absolute dollars and on a percentage basis.

Similar performance is evident on other measures of DHB cost that are not part of the aged residential care contract or not a financial responsibility of aged residential care providers:

- ED attendance is 0.83 per person-year in aged residential care in New Zealand. The benchmark performance is 0.41 per person-year. Reducing the New Zealand performance to the benchmark would result in a reduction of about 17,000 ED visits per year nationally.
- Aged residential care residents receive 62 prescriptions per person-year in aged residential care. The comparable figure from the benchmark programme is 44; New Zealand's performance is therefore equivalent to an increase from the benchmark level of 42%.

There is evidence that these figures are consistent with other work undertaken in New Zealand. A study by Sankaran et al 2010 reported a 21% reduction in medications as a result of a medication review and intervention programme in the Auckland area – and residents experienced improvements in their mental and physical state.

Realising these opportunities is also dependent on the extent to which secondary costs can be fully reduced with fewer hospital days. In the short run, most secondary hospitals cannot easily reduce costs to accommodate lower demand. Over the longer term, however, DHBs may be able to permanently reduce secondary hospital operating costs to differing degrees. Consider the following:

- DHBs for which replacement hospitals or substantial expansions are planned. For these DHBs, reduced demand results in smaller building projects.
- DHBs for which managing increasing demand is a significant issue. For these DHBs, anything that takes the pressure off supply bottlenecks has high value.

- DHBs in relatively stable situations; particularly small and rural DHBs.

DHBs in the first two categories would likely find the value of demand reduction to be commensurate with average cost. Those in the third category, however, may struggle to reduce costs, assuming they are fully variable.

11.7.4 International evidence in context

The findings from the comparison of New Zealand to international programmes are necessarily limited, as a full analysis of all aspects of each is neither useful nor appropriate. The findings of relevance for this study are:

- There is substantially (i.e. more than 25%) higher utilisation of secondary services, ED and pharmacy services in New Zealand than in comparative international programmes. Despite wide variation in individual metrics and at the local DHB level, the findings are consistently lower for the benchmark programme.
- The higher utilisation of all services except pharmaceuticals is even greater for the high needs home support group – for whom clinical services are the most disjointed. This finding is consistent with the focus group observation that more clinical resources in the community (both aged residential care and home support) would reduce the need for secondary services at the 'back end'.

11.7.5 Critical success factors in the New Zealand context

The components of the multi-disciplinary team model are:

- The integration of services across both community (home support) and residential care, with use of day health and residential care as required, based on individual need.
- Operating processes to support coordination of services from primary care, health of older people, pharmacy, acute care, and diagnostic services, and arrangements to pool funding – and savings, if any – in order to do so.
- Research has indicated that successful teams have certain operational characteristics:
    - Case conferences – face-to-face or via some other mechanism with live interaction – are required to ensure multi-disciplinary interaction.
    - Electronic medical records or some other mechanism to ensure relevant detailed information is available to all professionals involved in the care of the person
    - Participants in the team must have technical competence – and registration – in relevant specialties, and must also adopt an attitude described by one researcher as 'blurred discipline roles' to ensure that problem solving is most effective.

Two variations of this model relevant to the New Zealand context were proposed in the focus groups:

- A group of aged care professionals organised together, either physically or virtually, with common incentives, tools and a shared philosophy (Aged Care Services Teams).
- Base the teams within broad-spectrum Primary Health Organisations (**PHO**). In this context, residential care residents would be one subset of patients in the primary care system connected into a virtual community-based web of services (Primary Care-Based Teams).

11.7.6 Option #1: Aged Care Services Teams

Composition of the team

The focus groups identified the following as members who should comprise the team:

- Geriatrics/GP (doctors)
- Nursing/Nurse practitioners
- Allied Health (physiotherapy, occupational therapy, speech therapy and audiology, etc.)
- Pharmacist
- Nutritionist
- Social workers
- Carers, both formal and informal/family.

The PACE programme, which generated such substantial improvements in clinical performance, has a much higher ratio of professionals to clients than currently occurs in New Zealand. The reallocation of resources from decreased secondary utilisation (27% reduction in bed-days, 50% reduction in ED visits) and pharmacy utilisation can be viewed as a potential source of funding to achieve the increase in staffing implicit in this model of care.

The key feature of this variation of the multi-disciplinary team – and what separates this model from the current state – is the alignment of incentives and operations of all providers. Given the wide range of providers and circumstances around the country, adoption of this model would likely result in several different organisational approaches. The following characteristics are necessary, however, for this version of this model to be adopted:

- Incentives of team members must be aligned. For example, GPs are currently paid on a per visit basis with a capitation subsidy. Implementation of this model would require doctors to participate in case conferences and probably to visit patients in hospital. These activities are currently not compensated. To make this model work effectively, some or all of the doctor's time would have to be shifted to a fixed arrangement.
- Integrating the clinical services for home support and residential care.
- The activities of the nursing staff at residential care facilities would need to be tightly integrated into the activities of the doctor, other ancillary professionals and other services being provided by the team.

As a result of these considerations, a community-based organisation that employs all or most of the clinicians is required. Focus group participants suggested that this might be a free-standing organisation, a special purpose PHO, a current provider of residential care or home support, or the DHB itself. In practice, it is likely that all these structures would evolve in some parts of the country and perhaps even co-exist in some locations.

A key decision will be whether to absorb the clinical staff of residential care providers into the team at the community level, with those services then being provided directly to the residents of the facility by the community-based organisation, or taken on by the aged residential care provider itself. Some residential care providers would find this attractive, as finding and retaining nursing staff has been a major problem in recent years. Other providers may find it a challenge, and still others may wish to become the owner/operator for the team. In practice, as is often the case in New Zealand, a variety of approaches is likely.

This approach raises the question as to whether multiple strategies might be pursued within the same market, either in the context of competing multi-disciplinary teams or co-existing with traditional models of care (or even one of the other models of care identified by the focus groups). Again, a range of responses is likely around the country. However, given the concentration of clinical resources required to make the team structure effective when combined with the dispersed population in New Zealand, it will be difficult to create multiple teams in all but the most concentrated areas.

Operational approach
This variation of the model presumes that the team will take full responsibility for all aged care services provided to clients, including:

- Home support
- Day care services
- Residential care
- Care planning
- Clinical management, including day-to-day nursing, assistance with the activities of daily living, pharmacy planning, etc
- Social work, including family relations, power of attorney dialogue, and other life choices
- Hospice/end-of-life-care
- Acute hospitalisation.

Compensation arrangements for the staff participating in the team must include shared incentives for team performance, making some form of fixed payments from the team a requirement – either an employment relationship, a contract for a certain number of hours or some other methodology, so long as team members are not compensated on the basis of fee-for-service.

There is extensive literature on effective management of multi-disciplinary teams. For the purposes of this discussion, it includes regular case conferences with broad input, a holistic approach to case management, a point person for relationship management with the client and family, and gain sharing for efficiencies achieved in any or all aspects of service (including the right balance between home support and residential care, appropriate pharmaceutical review, and active management of ED and acute hospitalisation).

Benefits
Benefits of this approach fall into three categories:

- Improved outcomes, as measured by greater longevity, improved satisfaction, improved quality, workforce improvements and other qualitative benefits.
- Improved allocation of resources between home support and residential care from tighter integration.
- Cost savings from avoided utilisation in other parts of the health system.

The first of these benefits is partly qualitative, though no less significant for being so. The international evidence – and, similarly, suggestive data from New Zealand – described above indicates that cost savings from most programmes result in greater longevity, and therefore little net change in total cost position. While no cost reductions are contemplated as a result of this analysis, it appears possible to improve outcomes while staying within the existing budget envelope.

International evidence indicates wide variation in emphasis on home support when compared to residential care, and this issue has been frequently discussed in the New Zealand context. However, the data presented here suggests that how resources are allocated between home support and residential care is less important than how they are allocated among community-based services (including aged residential care services) and in-hospital secondary services. However, one feature of enhanced service capability in the community is a greater capacity to manage increases in utilisation in the most appropriate and lowest-cost setting.

Tradeoffs and obstacles

The two most significant obstacles are:

- Gaining benefits from reduced acute utilisation and pharmaceutical costs. This study has found that reductions in secondary hospital and pharmacy costs are possible, but shifting those savings to residential care funding may be difficult in practice.
- Professional boundaries. Current practice arrangements, and scopes of practice, do not support collaborative, team-based approaches across organisational boundaries. Sharing financial risk across those boundaries, as any version of these models would require, can also be difficult.

In addition, how to adapt this model in both urban and rural settings was often mentioned in the focus groups as a consideration. Other obstacles identified include:

- The need to align philosophies of care, as well as aligned work processes to accommodate this style of working. Many participants mentioned that the current paradigm of provider competition - both within the same sector and inter-sector - inhibits working towards common, client-centred objectives.
- Availability of sufficient staff at all levels. This can be a complex situation to manage, which would both make implementation a challenge as well as requiring management with different skill sets going forward. This may also add a layer of administrative costs. As this is a medical model, it may end up losing the emphasis required on the social dimension.
- This kind of system requires some degree of buy-in from clients, which may be difficult for some, particularly during any transition period.

11.7.7 Option #2: Primary Care-Based Teams

Approach

The New Zealand health system has placed substantial dollars and effort into the development of a primary care strategy and structures to support it. The strategy is based on the philosophy that primary care services are both more effective and cheaper than secondary services. The reasoning behind the strategy is similar to that identified in this paper for aged care services: uncoordinated services lead to unnecessary duplication and some interventions that are not in the patient's best interests. Methods are required to be developed to coordinate services, connect information flow, and ensure that a person or organisation is taking a holistic view of the needs of individual patients. The PHO initiative, integrated family health centres and Whanau Ora programmes are all different ways of ensuring the patient is at the centre of the health system and that the system responds to the totality of an individual's needs, and not just some disconnected bits of need.

While the philosophy of 'patient-centred' or 'joined-up' care is similar to that which underpins the Aged Care Services Teams model, the structure and approach differs markedly. The vision for primary care is for a 'joined up' health system across all of its components and all of its patients –

from birth to death. As a result, the connections between providers are all, by necessity, virtual, and primary care organisations will be juggling priorities as wide-ranging as immunisations, elective surgeries, chronic disease, aged care, and many others.

Composition and organisational structure

The key difference between the primary care-based approach and the current model is that responsibility for managing the care plan will shift from the residential care manager to the primary care team. In practice, this means either the GP or PHO structure. The care manager's role would be to ensure that the team (and team leader) has not 'dropped the ball', is aware of changes in resident condition, and to execute many of the support initiatives as directed by the team leader.

In terms of composition, virtual teams will not have the kind of structure or resource requirements of a special-purpose team. As resource requirements will be determined by the primary care sector, much more extensive engagement with that sector will be required to assess how this approach will work in practice.

The key determinant of success for this initiative is not so much resources as prioritisation. As noted, the primary care sector has many priorities of which aged care is just one. The composition and resourcing required for aged care – and the timing of availability of those resources – will depend primarily on these prioritisation decisions.

International evidence suggests that coordinated benefits in virtual teams will only be achieved so long as the virtual team has common economic incentives. In this context, a primary care-based team will require:

- A mechanism for compensating virtual team members (e.g. nurses, physiotherapists, pharmacists, as well as doctors and nurse practitioners) for services that provides for shared capitation.
- A mechanism for sharing gains/savings in acute care, pharmacy, diagnostic services and other savings with all of the primary care team members.

While this seems abstract, a simple test of success would be the extent to which there is a mechanism for team members to participate in case conferences, and provide them with adequate compensation for doing so.

One key to achieving this vision will be to ensure a close linkage between the primary care provider and the needs assessment process, as this has been a persistent issue in New Zealand. The Coordinator of Services for the Elderly (**COSE**) model in Christchurch has been one attempt to develop and maintain precisely such a linkage.

Benefits

The single most significant benefit of this approach is that it is consistent with the primary care strategy, and leverages other investments already being made in the PHO system, such as capitation funding arrangements and information technology initiatives to provide for connectivity and sharing of medical information.

In theory, the benefits identified in Option #1 (**Section 11.7.6**) should also be attainable in this Option if the teams are based in primary care. In practice, however, attaining these benefits would depend on:

- The priority and resourcing decisions the primary care sector makes in aged care.
- The funding arrangements between the various (virtual) providers engaged in the primary care team.

Tradeoffs and obstacles

The discussion above highlights the tradeoffs and obstacles, which primarily centre on:

- The extent to which the aged residential care sector will be a sufficiently high priority to see action.
- Establishing the economic arrangements between a large number of disparate organisations to align incentives.

Implementation approach

The idea behind the team-based approach in both options above is simple, in that it aligns the incentives of providers to:

- Ensure that all services provided by all involved in the care for each resident is coordinated and necessary – thus eliminating unnecessary demand before it even gets started.
- Ease the shift of resources to where they are most needed.

In broad terms, the implementation steps for this approach are:

- Develop a monitoring regime to track utilisation of all health services – and the related costs.
- Identify a mechanism for aligning incentives and gain sharing across disparate sectors and economic units.
- Identify a mechanism to align disparate health care staff – including carers, families and clients – into an integrated team environment.
- Develop the connection to primary care provider organisations.

Impact on Review constituents

The team-based approach raises the following potential benefits for aged residential care providers (as well as, potentially, home support providers):

- Some providers may choose to transfer clinical responsibility – and staff as well as related staffing issues for clinicians – to the team organisation.
- Some providers may choose to build capability as a team, which would expand clinical services available in the facility, and provide an opportunity to expand day services and provide community-based services.
- It expands the range of clinical capability available to residents in care and to staff serving those needs.

The team-based approach raises the following potential benefits for DHBs:

- Substantial reductions in acute services and related acute care costs.
- Better outcomes on key clinical measures.
- Shift in resources to address a key issue – without necessarily requiring new spending.
- Greater community capacity to absorb services outside of secondary care – and in support of Aging in Place strategy.

- Clearer mechanisms and organisational capacity to absorb forecast growth in demand for aged care services.

11.8 Individualised funding

The motivation behind individualised funding, or the Consumer Directed Care (**CDC**) approach, is that the health system has for too long taken the view that it knows better than the individual patient about what is needed for that patient. Current thinking within the health system on moving towards 'patient-centred care' reflects an attempt to redress this historical imbalance. Consumer-directed care is based on devolving government funding to the individual so that each person can make their own best choices about managing their own situation. This model may be used for all older people receiving government support or for individual cohorts like those with mild dementia.

One of the most important caveats of this model is that it is a funding model and not a service delivery model. While this Review is focused on service delivery and not funding, this model was regularly mentioned in the focus groups, and, as a result, it is assessed here.

As with the multi-disciplinary team model, there are two substantial variations in this model: client-led services and case manager-led services.

The two variations on the CDC model differ in how they address the main objections to this approach: some, or perhaps even many, older people would be challenged making sound decisions on their own because:

- According to the OPAL Study, 66% of New Zealand aged residential care residents have some form of dementia. This is consistent with United States experience which places the figure in the 70%-90% range.
- Many clients have difficulty with mobility and transportation, making physical visits to provider premises challenging.
- Families are often scattered, making collective decision making challenging in this model.
- Decisions regarding the uptake of support services often need to be taken quickly (before discharge from acute hospital, for example).

11.8.1 Value proposition

The current model presumes that health professionals and the organisations for which they work know best what is needed for any individual client, and the recipient of the care is generally neither aware of, nor particularly concerned with, the cost of available services. The current system encourages a mentality of entitlement to health services, which is ultimately counter-productive and does not encourage sound decision making by the beneficiaries of the system.

The CDC model attempts to address this by devolving responsibility for purchasing health services to the individual, which in turn encourages the consumer to shop around, compare and ultimately select services on the basis of attributes of importance to them (one of which is cost). As recipients would receive cash or cash allowances, those with their own resources could easily supplement a Crown allowance with additional services if they chose. In addition, visibility and transparency into the actual cost of services, and a clear mechanism for securing private contributions from those with resources, can assist with both public understanding and developing more sustainable funding sources.

This funding model reflects a market-oriented solution to aged care service delivery, and implicitly rejects the premise that a centrally developed model of care is ready for adoption in New Zealand. It allows for, and perhaps even encourages, the development of such models in the future by encouraging provider innovation and adoption of domestic or international best practice. The funding model also does not preclude the adoption of a consistent model of care at a later time.

11.8.2 International evidence

Consumer-directed care is common in many parts of the OECD in some form. An OECD health working paper, Lundsgaard (2005), details a wide variety of mechanisms already in place to accomplish consumer-directed care, including:

- In Austria, all public support for aged care services is provided in cash to recipients.
- In the Netherlands, the personal budget scheme permits programme recipients to direct their own purchases of aged care services.
- In Germany and Luxembourg, compulsory long term care insurance schemes may be paid out in cash to beneficiaries or to providers directly.
- As is often the case in the United States, there is wide variation; nearly all public expenditure for home care in California is through a consumer-directed programme, whereas these programmes represent only 10% of expenditure in Kansas.

This short list demonstrates both the breadth and acceptability of consumer-directed care in different parts of the developed world.

11.8.3 Critical success factors

The features of the CDC model required for effective administration include:

- Clear and simple methods for organising payment for services, including methods for prevention of fraud and elder abuse.
- Consistent and clear assessment methodologies.
- Information on service options that is complete and accessible to potential clients.
- Availability of a range of service options to meet different client needs.
- Ability of the client and family/whanau to make timely and sensible decisions on their own care needs.

11.8.4 Option #1: Client-led services

Mechanics and organisational structure

In this variation, clients would flow through the system as follows:

- The client would access an assessment service much as they do today.
- The assessment service would determine a dollar value of service required based on a needs assessment.
- The client would undergo an income and asset testing process – similar to that in place today – to determine what portion of the approved service package should be self-funded. The income and asset testing regime could contain as many fine gradations of financial contribution as thought appropriate.
- The client would select the health care services that they determined would be most helpful and appropriate.
- The provider would bill the assessment agency or other payment agent for an amount up to the approved limit, with the remainder balance-billed to the client.

- Clients or providers could request re-assessment as a client's clinical condition changed.

In this system, the assessment process would require government funding, as is the case today, and a certification/regulatory regime to ensure minimum quality by providers. However, most other infrastructure for the current health of older people programmes would not be required, as the premise of this system is that the market will quickly respond to evolving client needs.

11.8.5 Option #2: Case manager-led services

Mechanics and organisational structure

This variation on the CDC model provides a case manager to assist in providing relevant information and in decision making regarding the suitability of services. This case management function dilutes, to some degree, the benefits of the client directing their own care, and continues the practice of professionals in the health system making decisions on behalf of some clients. Nonetheless, it reflects a compromise between the principle of consumer control and the practical difficulties of actually implementing such a programme.

The process in this scenario is similar to the one in Option #1 (**Section 11.8.4)** except that the decision about which services to select would be jointly made between the case manager and the client. The case manager may be the same person/agency that prepared the needs assessment.

In the focus groups, this variation of the CDC model was mentioned as a return to the original intention behind the NASC model, which in practice has evolved to give relatively more emphasis on Needs Assessment and less on Service Coordination. NASC members of the focus groups commented on the need for more flexibility, stating that the system has evolved into a more rigid model than originally intended. Other focus group members noted that ACC has developed a potential exemplar of case management.

Benefits

From the client's perspective, the benefits of this model are focused on qualitative measures: client choice and control. These features reflect a priority on the importance of human dignity in decision making and service allocation.

While any of the models of care described in this section could, in principle, be implemented with changes to the cost sharing/income and asset testing approach to provide for a greater contribution towards cost from the more affluent clients, this model is most consistent with this approach and is the most transparent in its application.

As noted above, as this model is a market-based solution, it is most likely to encourage innovation and adoption of best practices.

CDC models are in place in various forms throughout most of Europe, the UK and parts of the US, and are also in place in New Zealand for a limited number of clients in the Disability Support Services programme (the disabled population under 65 years of age). There is no consistent pattern of cost savings identified in the literature assessing these programmes.

Tradeoffs and obstacles

As the benefits of this funding model are primarily philosophical, many of the obstacles are equally abstract:

- While empowering clients to make decisions is positive, some clients and families are challenged making sound decisions for a variety of reasons, including cognitive impairment, time pressure and other factors. This risk is mitigated somewhat in the case manager-led variation.
- There is a risk that clients may make decisions that are not sound or appropriate, leaving the provider to ameliorate a situation not of their doing. This risk is also mitigated somewhat in the case manager-led variation.
- The model requires access to complete and reliable information sources.
- There is a risk that public expectations of consistency will not be met.
- The model may put elderly people under pressure to make decisions they don't want to, or even make them subject to abuse in some situations.

Implementation approach

The steps to further explore the suitability of this approach include:

- Secure agreement from the Government that a change to the benefit structure for aged care services is desirable.
- Identify suitable modifications to the assessment process, such as interRAI, to provide for dollar-based assessments.
- Develop a mechanism for releasing funds to pay for consumer directed services, particularly with regard to prevention of fraud and elder abuse.
- Identify the suitability of modifying current processes for establishing financial eligibility and, potentially, contributions from recipients of service.

Impact on Review constituents

CDC raises the following potential benefits for aged residential care providers (and potential home support providers):

- A mechanism to raise prices for those who can afford to pay and it represents potential new funding streams.
- Supports innovation and strategies to differentiate providers from one another, as a much larger market is available in which providers can compete using a wider variety of business models.
- Reduces some aspects of regulatory burden as much of the planning, funding, and NASC functions would not be required (however, auditing against quality would still be required).

CDC raises the following potential benefits for DHBs:

- Supports the strategy of 'patient-centred care' and the related desire for client autonomy, dignity and control.
- Provides an additional (non-governmental) funding source to meet future demand.
- Supports market-based solutions for greater innovation.
- Permits development of a central 'model of care' at a later date if a compelling model evolves.

11.9 Special purpose low income housing for the elderly

The current model of care for residential services has been described above. In a broader context, the Government's policy for some years has been to encourage Aging in Place; that is, services to support elderly people in need to remain in their homes if possible. In practice, however, there are few options for elderly people who no longer wish to remain in their homes – for whatever reason –

but do not desire or are not eligible for residential care, particularly for those with limited financial resources. This model of care would encourage the development of facilities to fill that gap and absorb some portion of the future demand for residential care.

Retirement villages in New Zealand have developed to fill this gap for the relatively well-off. Older New Zealanders purchase the right to occupy purpose-built accommodation and, in many cases, to gain preferential access to certain residential care facilities. Lower income New Zealanders do not have similar access to housing that meets this need, and retirement villages have generally not evolved to serve them. In contrast, many European nations have a much broader range of supported accommodation for those who do not need the full support of a residential care setting.

Value proposition

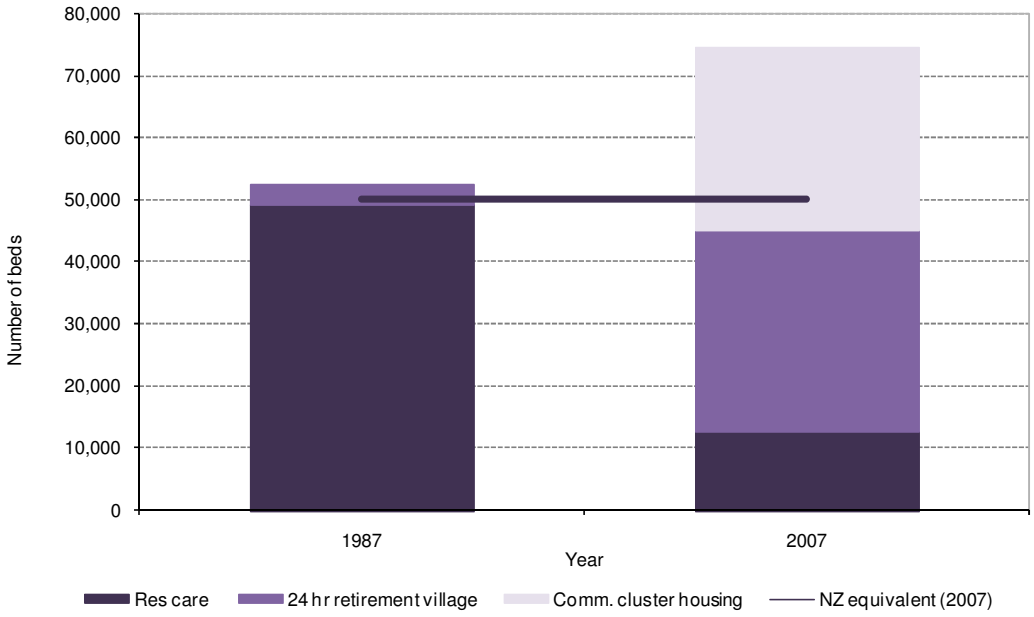
Lower acuity housing options could absorb some of the growing demand for aged care at a lower cost than residential care, particularly if additional residential care capacity was required. The construction of new, lower-acuity capacity would represent an expenditure of upfront capital but likely reduce the need for more staffing in keeping with these lower acuity settings.

International evidence

Denmark is the best known example of a comprehensive approach to encouraging alternative housing models. The vast majority of residential care in Denmark is owned and operated by local government, whose role in providing housing for older residents is well established and expected by Danes. In 1987, the Danish government prohibited further construction of residential care facilities, and instead encouraged the development of Kollektivboliger, which translates roughly as "Collective Dwellings".

Although the labels used to describe Danish collective housing arrangements have changed several times since, the commitment to developing housing options outside of traditional residential care has not diminished. **Figure 68** below illustrates the shift from residential care to community-based housing alternatives. The solid horizontal line is the equivalent level of residential care services in New Zealand in 2006. The comparative data for New Zealand is shown as a straight line for illustrative purposes only.

Figure 68
Distribution of aged care housing in Denmark



The development of the Danish model of care, which resulted in the changes outlined above, began in the municipality of Skaevinge in 1984. Before that, aged care services in Skaevinge were organised in the same way as most other communities in Denmark, with a nursing home, and separate departments for home health, home help, and social work for the elderly and the local health services. The 1984 initiative combined all of those services, pooling their resources into a 24-hour, integrated health and social services team to serve elderly clients, regardless of where they were located. The nursing home was converted into individual apartments and an adult day health centre, which was later expanded.

Following the law change requiring new aged residential care construction to be community based, the results of this programme were substantial:

- Self-reported health assessment of the elderly improved.
- Municipal expenditures for older people were flat over a 13 year period, despite a 30% increase in that population.
- Overall health care costs, including acute hospital and other health care costs at the regional level, were lower than in the rest of the country.
- Hospital bed days were reduced by 30%-40% for all citizens in the community.

Stuart et al. (2001) identified that this model had, in the intervening years, been implemented in all 275 Danish municipalities, and that health expenditures for the over-80 population had declined. While it is uncertain how directly applicable the Danish experience in the 1980s and 1990s is to New Zealand in the 2010s, it suggests that lower acuity housing models, when combined with services that support older people in the community, can lead to a different profile of spending health dollars.

International evidence in context

As with other international data cited in this section, the conclusions to be drawn from the Danish experience must be narrow. Danish society, and its approach to aged care, differs in significant ways

from New Zealand's. The point to be taken is straightforward: when faced with the need to rebuild large parts of its aged care infrastructure, the Danes chose to replace that stock with a different distribution of facilities.

Data presented in the supply section of this report indicate that substantial new capacity in aged residential care will be required in New Zealand over the next 15 years. This includes both the replacement of current stock nearing the end of its useful life, and capacity expansion to manage increasing demand towards the end of the 15-year period.

Critical success factors
The key requirements for this model of care include:

- Capital to construct new capacity or retrofit existing buildings, at a potentially large cost.
- Organisational capacity to develop new models of ownership and management.
- Regulatory change to the Retirement Villages Act to encourage a wider range of supported accommodation.

Mechanics and organisational structure
The market has developed substantial capacity in retirement villages, and there is no indication that the trend is abating. The shortfall in supported accommodation has been, and is likely to remain, for lower-income seniors, which in turn suggests that supported rental accommodation is required. In addition, to achieve the types of gains identified as possible in Denmark, additional clinical resources would also be required in home support, and potentially changes in how services to older people at home are provided.

The Abbeyfield model has been widely profiled in New Zealand and represents an exemplar of expanded capacity in supported accommodation. The local Abbeyfield society, a non-government organisation (**NGO**), raises funds for the construction of a house. Upon completion, up to 10 residents move in and pay rent at an amount less than national superannuation. The house is staffed by a paid cook, who prepares one meal a day, and otherwise assists around the house. The residents are responsible for their other meals and for supporting one another as needed. Home support packages for individual residents provide targeted assistance where necessary.

Independent analysis of rental accommodation for seniors with rent levels at or near national superannuation levels indicate that substantial fundraising, assistance from the Housing New Zealand housing innovation fund, or funds from some other outside source is required. Amounts required differ as a result of substantial variations in land and building costs throughout New Zealand.

The organisational structure of low acuity rental accommodation need not follow the Abbeyfield model of a local NGO. Larger NGOs, local councils (who still provide large volumes of low income rental accommodation in some parts of the country), commercial providers, or other governmental organisations could provide this service. Requirements for return on capital differ markedly depending on the ownership structure and capital source.

All lower acuity housing models have much lower staffing profiles than residential care, even rest homes. To the extent that residents require support, they can rely on the other residents in their facility or home support services. As informal carers (e.g. other residents or family members) have

been shown to be more effective than paid carers, this model supports the use of more effective support provided by unpaid carers.

Benefits

The primary benefit of this model of care is the expansion of capacity at low acuity housing to relieve pressure on fully funded (and staffed) residential care providers. In addition, this model:

- Provides more choice, as more options are available.
- Encourages use of informal carers over formal (paid) carers.
- Supports greater social connection and companionship when compared to living at home.

Tradeoffs and obstacles

A principle concern with this model is the sourcing of capital to construct or retro-fit existing facilities. As these models do not appear to cover their full costs, some form of low cost or subsidised financing is required. In addition, changes would be required in the regulatory regime for both residential care and retirement villages.

Implementation approach

The first steps in progressing development of alternative housing stock for the elderly entail:

- The creation of an interagency group from the health sector (DHBs and the Ministry of Health), the Department of Building and Housing, local government (as these agencies have responsibility for housing of the aged) and the Ministry of Social Development (as this agency administers the superannuation system, including housing supplements).
- Developing the policy framework for supported housing for the elderly in the community, including:
    - Available funding from government and private sources
    - Qualification criteria, thresholds and other parameters for tenants in the programme
    - Service packages and operating requirements for participating providers.
- Development of public/private partnerships to raise the capital and construct the required capacity.

Impact on Review constituents

Alternative housing models raise the following potential benefits for aged residential care providers (and potential home support providers):

- Provides new business opportunities and diversification opportunities for existing providers of related services.
- Potential alternative uses for some existing sites.
- Provides for better tailoring of sites to client needs, reducing the mixed characteristics of many providers.

Alternative housing models raise the following potential benefits for DHBs:

- Takes pressure off the potentially large task of replacing aged residential care stock over a relatively short time.
- Provides a broader range of services to better meet the needs of some elderly.

- Engages other agencies in a problem that impacts on DHBs; namely, a gap in housing for some clients.

11.10 Conclusion

For the purposes of this Review, 'models of care' has been defined as service configurations. Four have been identified as worthy of consideration.

- **Improvement in the current approach:** Addressing key issues in the current model.
- **Enhanced professional services in the community:** Development of professional services in the community to promote shifts in funding for acute hospital and other services to other service delivery configurations focused on prevention and quality of life considerations.
- **Individualised funding:** Empowering individuals to make their own choices, thereby reducing central coordination requirements.
- **Special purpose low income housing for the elderly:** Providing joint housing options for older people between their own home and residential care.

These options are not mutually exclusive. Many participants in the Review process have identified the need for 'supporting a continuum of care', and noted that multi-disciplinary teams (the second model above) and low income housing for the elderly (the fourth) represent the two most significant gaps in that continuum.

The models of care component of this Review was undertaken to determine whether better outcomes for aged residential care residents could be achieved at a lower cost. After consultation with nine focus groups, extensive dialogue with the EAP and the Steering Group, and a review of the international literature, alternative ways of organising and delivering care were identified.

This component report does not claim cost savings, but does suggest that the existing funding for aged residential care and home support clients can be spent in a variety of different ways to achieve different outcomes in terms of addressing longstanding provider issues, enhanced ability to meet DHB performance targets, and greater longevity and quality of life for older people.

Appendix A

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Appendix B

Survey data capture and component analysis

ARCSR Costing Model Analysis

Objectives

A. Current State

What is the current costs for RC service delivery?

1. What are the current forms of RC in NZ?
2. What are the costs of delivering services within those forms?
3. How are the care costs impacted by service mix?
4. How are care costs impacted by regional / geographical influences?
5. What are the capital costs associated with delivering care?
6. How are capital costs impacted by regional / geographical influences?
7. What is a reasonable level of return required on investment in RC?

B. Efficiency Indicators

What are the Characteristics of Efficient Providers?

1. What is the spread of aggregate RC costs for service types?
2. What are the core cost components of RC and the spread?
3. How are earning results influenced by:
   - Portfolio scale
   - Service Type
   - Premium Accommodation
   - Resident additional contributions
   - Facility layout / age / configuration
   - Co-location with other services
   - Insourcing / Outsourcing
   - Occupancy

C. Future State

What will it cost to Deliver RC Services in the Future?

1. Based on A and B (and Model of Care Findings) what can we expect future facilities to look like?
2. What is the most likely service mix and how will it trend?
3. How will facilities/services be configured to meet this requirement?
4. What will the be the associated capital and operational costs?
5. Based on current states, what will be the aggregated costs for NZ?
6. Use D&S Forecasting and Workforce Trend data.
7. Given alternate service models (MoC), how will these forecasts change?

Current State

	Service Type (S) H, RH, D, G, Mixed	Urban / Non-Urban	Region R	Swing Beds	Facility Scale FS	Portfolio Scale PS	Age	RC Colocated RCC	RV Colocated RVC	Quality (AP) H – A – B
CoC	x	x	x	x	x	x		x	x	x
CH	x	x	x		x	x				x
CC	x	x	x		x	x				x
CA	x	x	x		x	x				x
EBITDAR	x	x	x	x	x	x	x	x	x	x
Expenditure (i)	x									

Future State

Construction Costs		Quality H – A – B (last 5 yrs only)
Extra Charge Facilities		EBITDA NP
Non-Extra Charge Facilities		EBITDA NP
Catering	In sourced	CH
	Outsourced	
Laundry	In sourced	
	Outsourced	
Occupancy (Ave)		
Staffing	Profile (Type)	Service Type (S), Urban, Non-Urban, AP, RVC
	Rates	Age (last 5 yrs only), AP

Definitions

Facility Profiles

S	Service type (Rest home, Hospital, Dementia, Psychogeriatric)
FS	Facility Scale - size of facility - 1 -25 beds, 26 - 50 beds, 51 - 75 beds, 76 - 100 beds, 101 - 125 beds, 126 - 150 beds, 150+ beds
PS	Portfolio scale - number of facilities in Group 1, 2 - 5, 6 - 10, 11 - 20, 21 - 40, 40+
Age	Service analysis for facilities dating 0 - 5yrs, 6 - 10yrs, 11 - 20yrs, 20+ yrs
RCC	Mixed Care Services on Site (eg Hospital and Rest home)
HCC	Facilities Co-located with Home Care
RVC	Facilities Co-located with Retirement Village
U / NU	Urban and Non-Urban Facilities
A	Amenity Profile: • High Standard • Average Standard • Basic Standard
R	Analysis by DHB Region

Financial Matters

EBITDAR	Earnings Before Interest, Tax, Depreciation, Amortisation and Rent
NP	Net Profit
SCC	Are Cost Components - separate analysis of core cost elements of care, catering, cleaning, laundry, property and administration
CoC	Cost of Care components - separate analysis of core cost elements of care, catering, cleaning, laundry, property and administration
CH	Cost of Hotel Components - catering, cleaning, laundry, property and share of administration
CC	Cost of Care Services
CA	Cost of Accommodation (Cost of Capital x Required Return on Investments)

Appendix C

Costing survey instrument

Aged Residential Care Service Review

Costing Survey

Internal ID:
(Office use only)

Certified Provider Name: _____

Facility Name: _____ **Post Code:** _____

Region (TLA): _____

DHB Area: _____

Location: Urban ☐ Non-Urban ☐ (Please check the relevant box)

Contact Person: _____ **Phone:** _____

Email: _____

(Please check the relevant box)

Organisation Type: Private ☐ Charitable/Religious/Welfare ☐

Other ☐ Describe: _____

Completed surveys are to be returned to Grant Thornton by Friday 4 December 2009.
For assistance in completing this form, please contact Martin Gray on (09) 308 2983 or email martingray@gtak.co.nz

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1. Number of Beds & Residents as at 31 March 2009

Number of Physical (Certified) Beds as at 31 March 2009

Rest Home	
Hospital	
Dementia	
Psychogeriatric	
Other	
Total Number of Physical Beds	

Please Describe: _____

Please enter the number of residents in each of the categories and the total number of residents in the facility.

Number of Residents as at 31 March 2009	Full Subsidised	Partial Subsidised (Top-Up)	Full Private Paying	Total
Rest Home				
Hospital				
Dementia				
Psychogeriatric				
Young Person Disabled (YPD)				
Other				
Total Number of Residents				

Occupancy	Total	
Calculated Occupancy		(Do not enter data)

2. Swing Beds

Has your facility used "Swing Beds" certified under ARRC Swing Bed Policy?

Yes ☐ No ☐ (Please Check The Relevant Box)

If yes, during the year ended 31 March 2009, how many swing beds were operated?

Swing Beds

3. Residents Paying Extra Charges As At 31 March 2009

Number of Residents		
Average Extra Charge	$	The amount of the average daily fee paid by residents for premium accommodation/services over standard ARRC rates.

4. Catering

(Please check the relevant box)

Insourced ☐ Catering is primarily performed by the facility's own staff.

Outsourced ☐ Catering is primarily performed by an outside contractor's staff.

5. Laundry

(Please check the relevant box)

Insourced ☐ Laundry services are primarily performed by the facility's own staff.

Outsourced ☐ Laundry services are primarily performed by an outside contractor's staff.

6. Staffing - Current

Please enter the average number of hours worked per week for each type of employee. Only include hours for your own staff (not external contractor hours).

	Number of Hours Worked Per Week (Current)						
	Rest Home Only	Hospital Only	Dementia Only	Swing Beds -	Other	* Unallocated (See below)	Total (Do not enter data in this column)
Facility Manager							
Nurse/Clinical Manager							
Registered Nurses							
Enrolled Nurses							
Caregivers							
Occupational Therapists							
Physiotherapists							
Diversional Therapists							
Chefs (Qualified)							
Cooks (Unqualified)							
Kitchen Hands							
Cleaning Staff							
Laundry Staff							
Gardening/Maintenance Staff							
Office Administration Staff							
Total Hours (Do Not Enter Totals)							

* Unallocated hours are hours that are not able to be apportioned to specific service types.

7. Hourly Rates - Current

	Average Current Rates
Facility Manager	$
Nurse/Clinical Manager	$
Registered Nurses	$
Enrolled Nurses	$
Caregivers	$
Occupational Therapists	$
Physiotherapists	$
Diversional Therapists	$
Chefs (Qualified)	$
Cooks (Unqualified)	$
Kitchen Hands	$
Cleaning Staff	$
Laundry Staff	$
Gardening/Maintenance Staff	$
Office Administration Staff	$

Please enter the standard hourly wage rate. Do not include penal rates paid for overtime, weekend work or night shift work.

8. Group Membership

(A group is defined as a collection of 3 or more facilities)

Is the facility part of a group? Yes ☐ No ☐ (Please check the relevant box)

Name of Group: _____

Number of facilities in the group ☐

Have a portion of head office costs been charged to this facility? Yes ☐ No ☐

How much was allocated for the year ended 31 March 2009 $ ☐ (Whole dollars)

How were the charges calculated: (Please check the relevant box)

- Based on the number of beds ☐
- As a % of head office costs ☐
- Other assessment ☐

9. Income & Expenses Summary - Aged Residential Care Operations Only

	Year Ended 31 March 2009 (Enter only whole numbers)	*Note: Please exclude ORA/LTO unit income and expenditure.*
Income		
Rest Home	$	Rest home subsidies received from DHB & resident fees.
Hospital	$	Hospital subsidies received from DHB & resident fees.
Dementia	$	
Psychogeriatric	$	
Extra Charges	$	Extra charges paid by residents for premium accommodation & services.
Donations & Bequests	$	
Other Income (Exclude interest revenue)	$	Please describe "Other Income": _____
Total Income	$ -	(Do not enter totals)
Expenses		
Care		
Wages	$	Include all wages & associated wage costs related to the direct delivery of care to residents.
Other Care Expenses	$	Include all other costs related to the delivery of care. e.g. medical supplies.
Other Service Costs		
Wages	$	Include wages & associated wage costs other than direct care and administration wages.
Other Expenses	$	Include catering, cleaning, laundry, maintenance & utility costs.
Administration		
Wages	$	
Other Expenses	$	Include head office management fees if applicable. Exclude interest expense, depreciation, facility rental/lease & taxation.
Total Expenses		(Do not enter totals).
EBITDAR		(Do not enter totals). Earnings Before Interest, Depreciation, Amortisation & Rent.

FACILITY PROFILE & SERVICES

10. Room Configuration

Number of Standard Rooms		A standard room is described as a room up to 11m sq where the resident is not required to pay fees above the TLA Rest Home rate.
Number of Premium Rooms		
Total Number of Rooms		(Do not enter totals)
Number of Shared Rooms		

Number of Storeys/Floors in the Facility: (Only include floors occupied by residents)

Average Room Size Sq m

Total Facility Floor Area Sq m

11. Facility Age (Please check the relevant box)

0 To 2 Years	
3 To 5 Years	
6 To 10 Years	
11 To 15 Years	
16 To 20 Years	
Older Than 20 Years	

(Please check the relevant box)

Has the facility been renovated in the last 5 years? Yes No

12. Resident Amenities

Please provide details of resident amenities available at the facility (e.g. GP/allied health suites, hairdressing, family meeting areas, hydro spas, etc)

13. Construction & Fitout Costs (If facility constructed within the last 5 years)

Exclude ORA/LTO unit construction costs

Year of Construction		
Number of Beds		
Construction Cost	$	Construction costs includes architects, consultants & other establishment/planning fees.
Fitout Costs	$	The cost of fittings, beds, carpets and furniture.

ADDITIONAL INFORMATION

a) Changes in Operations/Activities

Please describe any major changes to operations/activities during the year ended 31 March 2009, such as changes in bed capacity, shifting of beds from one category to another, or opening or extending a day care or home support programme.

b) Key Impacts on Financial Performance

Please describe any items or events that had an impact on the financial performance of the organisation during the year ended 31 March 2009.

c) Acuity/Dependency Levels

Have acuity/dependency levels of residents increased over the last 5 years?

Yes ☐ No ☐ (Please check the relevant box)

If yes, how has this change affected staffing levels? (Please check the relevant box)

No Effect	☐
Minor Effect	☐
Significant Effect	☐

Please Comment:

d) Length Of Stay

If known, what was the average length of stay for the year ended 31 March 2009 for:

			Is this an increase in the length of stay compared with previous years?			
Rest Home		Weeks	Yes ☐	No ☐	(Please check the relevant boxes)
Hospital		Weeks	Yes ☐	No ☐	
Dementia		Weeks	Yes ☐	No ☐	
Psychogeriatric		Weeks	Yes ☐	No ☐	

e) Staffing

Has staff turnover increased or decreased over the past 12 months?

Increased ☐ Decreased ☐ (Please check the relevant box)

Has your dependency on bureau/casual staff increased or decreased over the past 12 months?

Increased ☐ Decreased ☐ (Please check the relevant box)

Comments: _____

f) Staff Ratios/Mix

Do you refer to the Ministry of Health safe staffing indicators when establishing staff rosters/mix?

Yes ☐ No ☐ (Please check the relevant box)

g) Building Plans

(i) Do you have any plans to rebuild and/or extend the current facility? If so, please describe.

(ii) If you intend to rebuild and/or extend the current facility, what are your anticipated building costs per bed? Construction costs includes architects, consultants & other establishment/planning fees.

h) Service Mix

On your facility site, do you provide any of the following services in addition to aged residential care:

	(Please check the relevant box)				(If yes)	
ORA/LTO Units/Apartments	Yes	☐	No	☐		Number of Units
Home Care	Yes	☐	No	☐		Number of Clients
Respite Care	Yes	☐	No	☐		Number of Respite Beds
Day Care	Yes	☐	No	☐		Number of Visits Per Week

If yes, what do you consider to be the advantages and disadvantages associated with these services for (a) residents and (b) operators/providers?

How could these services be improved (e.g. program management/integration, funding policy etc)?

i) Detailed Expenses - Year Ended 31 March 2009

(Enter only whole numbers)

Expenses		
Care		
Wages	$	Include all wages & associated wage costs related to the direct delivery of care.
Other Expenses	$	Include all other costs related to the delivery of care. e.g. medical supplies.
Catering		
Wages	$	Include all wages & associated wage costs related to catering.
Food Costs	$	
Outsourced Catering Costs	$	Include all costs charged by external catering contractors.
Other Expenses	$	Include all catering costs not included above.
Cleaning		
Wages	$	Include all wages & associated wage costs related to cleaning.
Outsourced Cleaning Costs	$	Include all costs charged by external cleaning contractors.
Other Expenses	$	Include all cleaning costs not included above.
Laundry		
Wages	$	Include all wages & associated wage costs related to laundry.
Outsourced Laundry Costs	$	Include all costs charged by external laundry contractors.
Other Expenses	$	Include all laundry costs not included above.
Property & Maintenance		
Wages	$	Include all wages & associated wage costs related to property & maintenance.
Utility Charges	$	Include all utility charges. e.g electricity, water, gas etc.
Other Expenses	$	Include all property & maintenance costs not included above.
Administration		
Wages	$	Includes head office management fees if applicable. Exclude interest expense, depreciation, facility rental/lease & taxation.
Other Expenses	$	
Total Expenses		(Do not enter totals)

Thank you for completing this survey.

Please send you completed form/file to:

Name: Martin Gray

Email: martingray@gtak.co.nz

Fax: (09) 300 5805

Mailing Address: PO Box 1961, Auckland, New Zealand

Privacy Statement

Information provided in this survey will be collated in summary form to support the aged residential care service review. Your facility data will be retained under strict confidence and only Grant Thornton staff will have access to information furnished for the review.

Appendix D

Table 45
Greenfield model profiles

	Rest homes	Hospitals	Dementia
Facility profile	80 beds: 40 rest home, 40 hospital	80 hospital beds	20 secure wing adjoined to 60 bed rest home
Occupancy assumed	93%	93%	93%
Facility layout	Modern, efficient design. comprehensive resident amenities, catering and laundry facilities and accommodation for allied health professionals		
Facility size	45m^2 per resident, average room size 15 – 17m^2		
Configuration	Single rooms with ensuites		
COSTING	**40 bed rest home component**	**80 bed hospital component**	**20 bed dementia component**
Annual costing per resident	$	$	$
Care	16,681	31,208	23,908
Catering	3,322	4,928	4,563
Cleaning	1,168	1,752	1,387
Laundry	694	1,168	785
Property & maintenance	3,030	3,322	3,577
Administration	3,833	3,833	3,833
Total	**$28,726**	**$46,209**	**$38,051**
Resident costing per day			
Care	45.7	85.5	65.5
Catering	9.1	13.5	12.5
Cleaning	3.2	4.8	3.8
Laundry	1.9	3.2	2.15
Property & maintenance	8.3	9.1	9.8
Administration	10.5	10.5	10.5
Total	**$78.70**	**$126.60**	**$104.25**
Nurse & carer hours per resident per day*	**1.6**	**3.55**	**2.95**

*** It is important to recognise that the nurse and carer hours per resident per day are influenced by a number of factors, including facility design and resident mix, which can have an impact on staff/resident ratios.**

Appendix E

Impact of asset testing and house prices on subsidised rest home utilisation

This appendix discusses the possible impact of changes to house prices on the utilisation rate. **Figure 40** from the Review shows that the pace of reduction in the utilisation rate increased from 1 July 2005. Before then, the asset test threshold was low and effectively ensured that anyone owning a house would not be entitled to subsidised care. From 1 July 2005, the threshold was raised close to what was then the median house price[1], ensuring that a significant portion of house owners would be entitled to the subsidised. Based on the 2003/4 survey by Statistics New Zealand[2] it can be estimated that at the time, roughly 60% to 70% of couples in New Zealand held assets less than $150,000 (asset test threshold)[3].

Table 46
Asset test threshold for subsidised rest home care

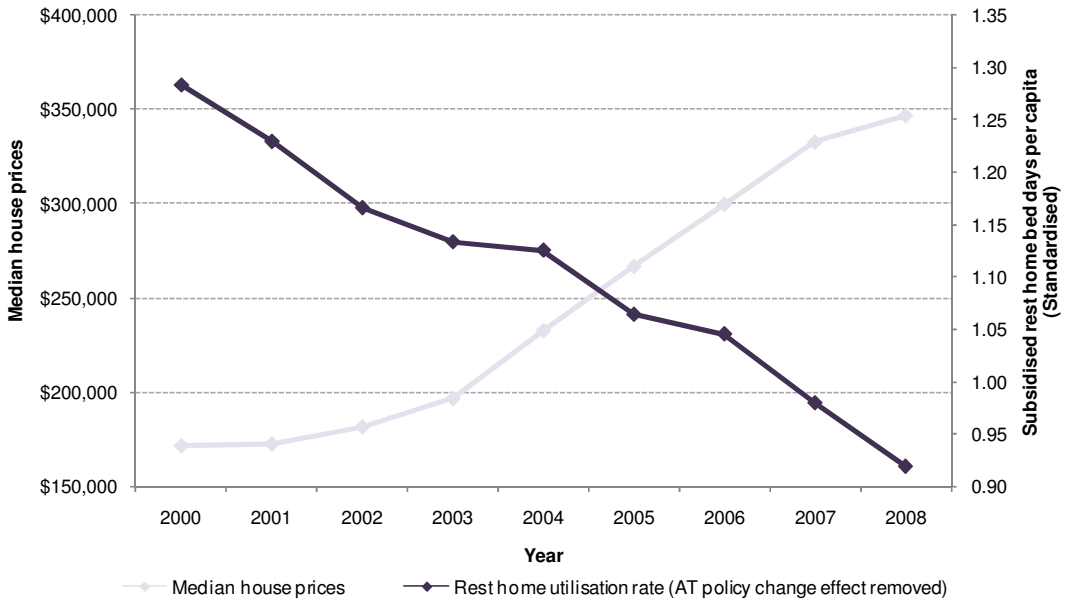
Resident status	Pre July 2005	Post July 2005
Single or widowed in care	$ 15,000	$ 150,000
Couples both in care	$ 30,000	$ 150,000
Couples with one partner in care	$ 45,000	$ 55,000

During the 2000s, house prices rose rapidly. That would have seen fewer older people qualify for subsidised care. Compare this with pre-July 2005, when rising house prices would have had a minimal impact on the number of people crossing the asset test threshold, simply because the threshold was already well below the median house price.

This hypothesis is supported by the increase in the rate of reduction in the rest home utilisation rate. Between 2002 and 2004, subsidised rest home bed days per capita reduced by 0.02 per year (that is, approximately 86,000 fewer bed days or 265 fewer beds required every year), compared to 0.06 between 2006 and 2008 (that is, approximately 270,000 fewer bed days or 825 fewer beds required every year).

[1] Threshold for the asset test on 1 July 2005 was $150,000 for a single or widowed person in care. The median house price in July 2005 was $267,000 (Source: Real Estate Institute of New Zealand).
[2] Statistics New Zealand. Wealth disparities in New Zealand.
[3] Median net worth of couples only was $120,000.

Figure 69
Rest home utilisation and median house prices



Another broad-based test gives weight to the hypothesis that part of the reduction in the utilisation rate is due to rising house prices. Statistics New Zealand's 2003/4 Survey of Family, Income and Employment (**SoFIE**) estimates that approximately 580,000 New Zealanders had a net worth between $100,000 and $225,000. Between 2006 and 2008, the median house price rose by 12% p.a. while the asset test threshold was raised by only 6% p.a. ($10,000 per year).

Based on this information, and assuming housing makes up the most significant portion of people's assets, it can be estimated that approximately 350 people seeking aged residential care would have crossed the asset test threshold each year between 2006 and 2008. That equates to a 0.03 p.a. reduction in rest home utilisation rate, due to rising house prices.

In projecting demand forward, now that the real estate boom is over it can be expected that rising house prices will have less of an impact and that the rate of reduction in the utilisation rate will fall back to pre-July 2005 levels. The focus of the discussion above is solely on subsidised rest home bed days. Looking at total demand, those who did not qualify for subsidised care would still require the service and have to pay for it, but the take up of aged residential care will be a lower proportion than those eligible for subsidised care given the sensitivity to price of some potential residents.

Appendix F

Briefing book for focus group process

Grant Thornton

Imagining the future for Aged Residential Care

Direction and options out to 2026

November 2009

New Zealand Aged Care Association

21 District Health Boards

Welcome

As Sally Jones discussed the new site plan for Sunny Oaks Rest Home with her architect, she realised that the resident car parks were no longer required. When she opened the facility in 1989, many residents had cars. Now, only 2 of her 40 residents had any real degree of independence. And yet, as she reflected, the basic assumptions and approach to service delivery had not changed in those 20 years.

We are convening discussions with a number of thoughtful, experienced people in the sector to ask the question: what if we could devise approaches going forward that were more focused on the needs of particular patients while still simple enough to manage and cost effective enough to be affordable?

The challenges are huge, and well known: increasing demand due to the ageing of the population in New Zealand, Government financial constraints, increasing costs for providers, and workforce pressures. Nevertheless, DHBs and providers have come together, and, with the support of the Minister of Health Tony Ryall, commissioned a study to address the following question:

> Given the projected needs of older New Zealanders and the resources available to meet those needs, how do we identify and define a limited number of future service configuration scenarios within the Aged Residential Care sector that meet the criteria of cost effectiveness, efficiency and quality?
>
> This project is focused on Aged Residential Care and will consider the impact of well grounded assumptions for changes in
>
> - home support
> - housing
> - acute services

You have been asked to participate in a focus group to address this question, and this short briefing package outlines the process that we will use and some context for how we will answer the challenge that lies before us.

Overview of process

Our discussions will be held in groups of 10 (or so) to discuss the following questions:

1. What are the discrete types of clients that are served by residential care providers and what are their needs – that is, dementia clients, frail elderly, comfort care, etc.?
2. How could the organisation and delivery of services in Aged Residential Care change to improve the experience of the resident, provider and taxpayer? Please think of both current models in New Zealand and elsewhere.
3. Identify top 2-3 'models of care' and identify implications, including (to as specific a level as possible):
    - likely benefits
    - costs and tradeoffs
    - obstacles

Discussion on the first two questions is designed to be open-ended and to encourage creative dialogue, and discussion on the last question to encourage convergence of group thinking.

Our task will be to identify the 'service delivery options' that we might adopt within the Aged Residential Care sector. For this context a 'service delivery option' means economically significant changes to the organisation of service delivery for Aged Residential Care services that would likely have an impact on service quality and/or future utilisation.

The service framework for a model of care will include mechanisms to address:

- team approach
- continuity of care
- collaborative and sharing of information
- structures to address hard decisions
- payment systems aligned to resident need
- facilitation of informal care and enabling of self-care.

Key findings from international literature

Impact on health service quality demand/consumption

- Best practice models have been shown to increase quality of life, improve quality measures and longevity. Some of these models have lower costs and some do not. (Miller & Mor, 2006).
- Inter-disciplinary teams have been shown to reduce hospitalisations markedly.

  For example, the inclusion of nurse practitioners in residential care has reduced acute hospitalisations by 50% and increased resident and family satisfaction with care (Kane, Keckhafer, Flood, Bershadsky, & Siadaty, 2003).
- Standardised assessment and care planning (InterRAI) has been demonstrated to improve quality of care and decreased acute hospitalisation. (Carpenter, et al., 1999; Fries, et al., 1997; Mor, et al., 1997).
- Evidence-based guidelines with clinical coaching improves quality of care and improves quality indicators (Mezey, et al., 2004; Boyd, 2009).
- Programmes to enhance advanced care planning and promote a palliative approach to end of life care in residential aged care have been shown to improve quality of care and decrease unnecessary hospitalisations (Teno, Gruneir, Schwartz, Nanda, & Wetle, 2007; Caplan, Meller, Squires, Chan, & Willett, 2006).
- In New Zealand very few aged care residents are discharged back to their home, yet in the US, 23% of those in long term care are eventually discharged (Kasper, 2005).

Workforce considerations

- Staff turnover rates are demonstrably lower in best practice settings. For example, the implementation of Wellspring decreased turnover by 80%. The turnover rates in the PACE programme described below were approximately 90 percentage points below the residential average.
- Nursing staff levels are linked to quality outcomes such as pressures sores and falls. More licensed nurse staffing hours per resident day (RN3 and LPN4) are associated with better quality (Harrington 2000; Porell et al.1998; Cohen & Spector 1996).
- Peer mentoring programmes, enhanced clinical governance skill recognition programmes, and improved caregiver training increases staff retention and job satisfaction (Inserra, 2002).
- Leadership training for clinical and nurse managers reduces staff turnover, reduces medical errors and improves quality of care (Rantz & Zwygart-Stauffacher, 2004; West, Lyon, McBain, & Gass, 2004).

Programmatic findings

- Improvements in identification of need and models developed to provide the most appropriate care for those different care needs. (Miller & Mor, 2006; Zimmerman, et al., 2008).
- Early discharge programme from acute hospitalisation with additional specialist discharge planning and outreach with specialty professional support are shown to decrease re-admissions and ambulatory sensitive hospitalisations (Caplan, Coconis, & Woods, 2005).
- Integration of care across health and social services decreases duplication and fragmentation. The Residential Aged Care Integration Programme through Waitemata District Health Board found such integration can impact the rate of hospitalisations and improve clinical outcomes (Boyd, 2009).
- Peer mentoring among older people with chronic disease, which includes social gatherings and information sharing, has been shown to reduce Emergency Department attendances and hospitalisations in the UK.
- Home visits to the elderly in advance of a health crisis reduced emergency GP visits by more than 40% in Sweden as well as reduced

hospitalisations.

- Aggressive follow-up by specialised staff for elderly visiting Emergency Departments reduced subsequent hospitalisations by 30% in New South Wales.
- Emergency Department liaison and specialised teams to travel to residential care reduces Emergency Department admissions and hospitalisations. The reduction in hospitalisations was 25% in NSW (Caplan, Williams, Daly, & Abraham, 2004).
- Projects aimed at alleviating loneliness may lead to cognitive improvement and improved psychological well-being, especially for older immigrants with severe cultural and language barriers.
- Anderson et al. (2003) studied the relationship between management practices (communication openness, decision making, relationship-oriented leadership and formalisation) and resident outcomes (aggressive behaviour, restraint use, complications and fractures). Each management practice explained at least one resident outcome, suggesting that strategies for improving resident outcomes go beyond clinical process and the skills of care providers, relying also on management strategies that increase connections and interactions among people.
- Facilities in the United States that are exempt from income tax (e.g. charitable) have higher scores on quality indicators than those that pay income tax. (Harrinton, 2004).

A comprehensive review of the literature is presented in Szczepura, Ala and Clay, Diane and Hyde, Julia and Nelson, S. (Sara) and Wild , Deidre (2008) Models for providing improved care in residential care homes: a thematic literature review. (http://wrap.warwick.ac.uk/438/)

For those interested in more detail on best practices, a major EU research study (http://www.healthyageing.nu/) outlines a total of 27 projects in the EU, together with the evidence base supporting them. Most of these projects are small scale improvement initiatives rather than system design changes.

Examples of service delivery options

The following programmes have been implemented around New Zealand or around the world, and have features that may be applicable nationally in the New Zealand context. The summaries are neither a complete list of options nor exhaustive descriptions of their strengths and weaknesses. These programmes are described only to identify the categories of people that are served in New Zealand residential care settings, the options for meeting the needs of those people, and the issues and obstacles in adoption. These profiles are included here solely to stimulate your thinking.

These programmes have been described below in concrete terms, and their brand names are identified at the end. These names are used only to provide a reference point for readers of this guide and because some readers may be already familiar with some of these models. Mention here does not reflect any form of endorsement; these programmes are intended to be examples only.

Example #1: "Hubs" of Services Provided in Multiple Settings

The key to a 'hub' is that each elderly participant in the programme receives individually tailored services to meet their unique needs by a single provider group from a base location.

Panels of participants large enough to support a fully integrated multidisciplinary team follows each panel member regardless of location - that is, either in the community, supported housing, residential facility or acute care settings.

The 'hub' may be based in a residential care facility, freestanding day care centre or in some other location.

The key elements in the 'hub' programme in the United States include:

- A provider organisation takes responsibility for a large group of elderly people (in the hundreds), referred to here as a panel of participants.
- A multi-disciplinary team follows each participant, with physicians, nurses, physios, pharmacy, carers and social workers among those represented.
- The multi-disciplinary team follows and provides services to each participant regardless of setting: home, day care, and residential care.
- A common electronic medical record, accessible by all team members, is maintained.
- Provider payments are fixed in advance to cover all aspects of costs, including primary care, home care, pharmaceuticals, residential care, and acute hospital services. The provider pools all revenue from all participants and allocates services according to patient need.
- The main source of savings - reduced acute hospitalisations - is recycled into greater community-based care, with an emphasis on day care centres, and residential arrangements for participants are included if necessary and appropriate.

This type of programme is in place in some form in a number of places around the world. Among the most developed and intensely studied is the Programme for All-

Inclusive Care for the Elderly (PACE); studies of this programme have documented lower cost, better outcomes, and higher satisfaction than mainstream services. Several sources for further information:

- http://newoldage.blogs.nytimes.com/2009/01/08/health-care-delivered-as-itshould be/?scp=1&sq=P.A.C.E%3E&st=cse
- Independent evaluation: http://www.abtassociates.eu/ page.cfm?PageID=18001&OWID=242&CSB=1 and http://www.cms.hhs.gov/PACE/Downloads/abtreport.pdf
- Assessment in the New Zealand context: http://www.msd.govt.nz/about-msdand-our-work/publications-resources/journals-and-magazines/social-policyjournal/spj32/32-long-term-care-in-the-usa-lessons-for-new-zealandpages17-31.html

Example #2: Integrated Housing and Care Based on the Principle of Building Communities

These programmes entail purpose-built construction or extensive modification to existing facilities with the aim of creating small, supportive, intentional communities of elderly residents.

The principal insight driving these options is that small groups of seniors, living and ageing together, may be able to take care of each other with less outside help and more effectively than with paid services provided in a large institutional setting. Assisted housing or even hospital level care has been provided in 8-10 bed facilities. In most cases these facilities have been located close to each other to facilitate the sharing of necessary professional staff. This approach is based on the well-documented finding that informal carers provide more effective care than formal carers, and the programme is designed to maximise the contribution of informal carers, particularly from other residents.

These initiatives are closely aligned with the 'culture change' movement described below, as these initiatives are based on residents taking substantial responsibility in the management and operation of each facility. In some cases, current residents select which residents to admit to fill vacancies and review staffing plans, as well as design their own recreation programmes.

While the intention of the developers of these facilities is to promote a more congenial and natural family-like setting for those receiving more intensive support, one intended effect of these options is to reduce the need for residential care staffing. In this sense, the re-designed and purpose-built facilities represent a potential reduction of labour requirements but increased capital requirements to construct suitable facilities.

These principles are behind the well-established Abbeyfield programme based in the UK and adopted in 10 homes in New Zealand for relatively low acuity residents. The Green House programme in the United States and similarly inspired projects in Australia are based on similar principles for higher levels of acuity.

While the higher acuity initiatives are relatively new, initial reports are positive. For example, one randomised trial of the Green House model showed that quality of life and longevity increased in Green House homes. (Kane, 2007)

Several sources for further information:

- Abbeyfield: http://www.abbeyfield.co.nz/home.aspx
- Green House: http://www.ncbcapitalimpact.org/default.aspx?id=146
- Green House research: http://www.ncbcapitalimpact.org/default.aspx?id=204

Example #3: Current model, but with major capacity expansion

When faced with a rapidly growing aged population, the Japanese government concluded that Aged Residential Care capacity expansion was the appropriate response.

The rapidly ageing population combined with a shortage of residential care beds and lack of long term care workforce caused a back-up of elderly patients in acute hospital with no safe place to go upon discharge. As a result, many stayed in acute hospital; the average length of stay in acute hospitals in Japan was 33.7 days in 1995. The Japanese Government adopted the "Gold Plan" in 1989 to fund the construction of additional long term care facilities and staffing; the goals were revised in a "New Gold Plan" in 1994 to increase the targets to add 17,000 adult day care centres, 350,000 new residential care beds, space for 100,000 people in assisted living, and 170,000 new carers in the workforce. All in all, the funding for the sector was expected to increase by 3.3 times (430%) from 1995-2010.

A stable funding source was required to finance this expansion of capacity. Previously, government funding for elderly services was mixed, with the national health budget (for geriatric hospital services, for example) and municipal welfare budgets (for home support) both contributing a portion of the costs. In both cases, the claims of other needed public services could reduce the attention and amounts paid to aged care services. Accordingly, these funds were removed from the budgets of each governmental entity and consolidated, and then augmented by compulsory long term care insurance premiums on all citizens over 40 years of age. The overall funding for the long term care insurance programme is 50% from premiums and 50% from tax revenue. While the insurance funds are managed locally, there is national price setting for insurers and premiums for the insured.

New Zealand does not have an established aged care insurance based funding sector. There have been special purpose levies established to fund other activities that have an insurance component, such as ACC and the fire service levy.

An English summary of the long term care insurance system is on the Japanese Ministry of Health, Labour and Welfare website at http://www.mhlw.go.jp/english/topics/elderly/care/index.html.

Example #4: Market-Based Solutions

Perhaps this discussion of service delivery options is based on a flawed premise that the market will not adapt, and that providers and funders can best innovate and develop the most appropriate service delivery approaches based on new ideas, local market conditions and the parties most willing to take risks.

The Australian Government, for example, has identified deregulation and competition as a primary mechanism of increasing efficiency and service delivery, and the (highly influential) Productivity Commission has developed detailed proposals.

This view recognises the following principles:

- Central allocation of supply may lead to facilities that are too small to be economically viable or that would be more efficient with economies of scale.
- Innovation is limited in a tight regulatory environment, particularly if payment rates are low relative to cost.
- Competition can spur improvements in service delivery and effectiveness.
- Limited excess capacity restricts the ability of regulators to close or sanction poor providers as there are few alternative places to send those residents.

Several key features of the Australian system include:

- In Australia, providers have argued that prices are not sufficiently high to spur investment to meet the need that is forecasted over the next 10 years.
- The principal mechanism to control costs in this proposed Australian system is to allocate spaces to assessment agencies, and agencies would allocate those spaces to the elderly most in need. The elderly could then choose a facility based on his or her own preferences.
- The Australian system of subsidy is based on billing the health system for health costs. Living expenses are paid from the resident's government superannuation, and accommodation expenses are paid by the resident unless they cannot afford to pay that amount, in which case subsidies are available.

It is relevant to note that the emphasis on deregulation in the Australian context has not resulted in documented reductions in cost or improvements in service delivery, and while large increases in funding are expected to be necessary, significant work is not under way to address that shortfall.

A summary of this framework can be found at http://www.pc.gov.au/projects/study/regulatoryburdens/social-economic-infrastructure.

Example #5: "Culture Change" and Workforce Initiatives

There are significant initiatives underway in the United States to address the way services are delivered in residential care. The Commonwealth Fund, a major not-for-profit foundation, described the work in this way:

"Although The Nursing Home Reform Act, passed in 1987, established residents' rights and quality standards for nursing homes nationwide, serious concerns remain about quality of care and quality of life for nursing home residents. The "culture change" movement is working to radically transform nursing home care, and help facilities transition from institutions to home."

These programmes primarily focus on strengthening clinical and managerial skills of staff, empowering residents and frontline staff, and creating a high quality of life for residents. One of the features of these programmes is that they enable residential care facilities to effect culture change within their existing physical plant.

In culture change programmes, frontline staff receive quality education and are coached on how to collect relevant data, critically evaluate information and implement processes that improve care. Nurse consultants may serve as clinical experts to oversee the programme and provide implementation guidance and support.

While these programmes differ, core principles include:

- Care decisions need to take place at the level closest to the resident,
- A substantial knowledge base is required by all staff to equip them to participate in decision making, and
- An empowered workforce increases resident and employee satisfaction and reduces staff turnover.

Research has demonstrated that one of these programmes, the Wellspring programme, improves the quality of care, resident satisfaction, and employee satisfaction.

There is ample evidence that these programmes deliver the improvements identified above. There is less evidence that these programmes impact on overall cost or long term utilisation trends.

The Wellspring programme is one such example in the United States (http://www.lifespan-network.org/beacon_wellspring.asp).

The Eden Alternative is a similar programme; 3 New Zealand providers have adopted this programme. There is an international affiliate of the Eden Alternative organisation in Australia (http://www.edeninoz.com.au/).

The RACIP programme at Waitemata DHB is another example of such a programme in New Zealand.

Sample sector data

Population forecasts

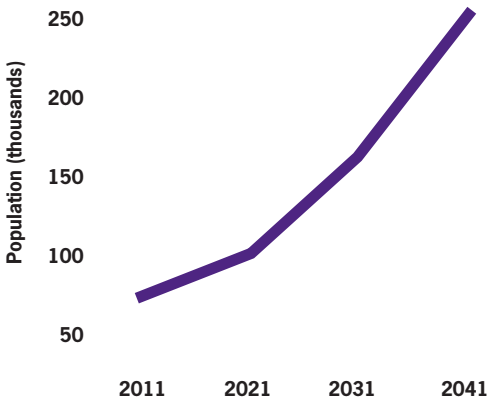
The chart below presents the population forecast for the over 85 population until 2041 in New Zealand prepared by Statistics NZ (median forecast). While there are large increases in the elderly forecast in later years, the annual increase is forecast to be between 3.1% and 4.5% for each of the 10 year periods shown.

- The rate of increase in the over 85 population for 2011-2021 is 3.5% per year. For this decade, the population is forecast to increase 41%.
- There is a perception among many people believe that the over 85 population will not begin to grow markedly until 2021. In fact, the population growth in that decade is forecast to be 4.4%, less than one percentage point higher than the decade from 2011-2021.

Trends in residential care

The 2008 Older Persons' Ability Level (OPAL) census of aged care residents in Auckland found that in the last ten years the proportion of the population aged over 65 years living in rest homes has decreased by 22%. During the same time period, those in private hospital care has increased by 43%. The increase in private hospital care has occurred at approximately the same rate as the increase in the population of those over age 65. As the population continues to age, the number of those with neurodegenerative diseases, such as Alzheimer's disease, will also increase. OPAL also found a significant increase in dependency of those in Aged Residential Care. It is probably safe to forecast that future demand for high needs residential care will increase as the older adult population continues to expand.

Fig 1: New Zealand Over 85 Population



Crown spending

The table to the right presents Crown spending (in $millions) for residential care for selected periods. Much of the change presented below is attributable to a Crown policy change to a higher asset threshold for older New Zealanders to qualify for Government support for aged care services.

In 2007/08, Crown home support spending was $165 million, or 23.1% of the aged care total.

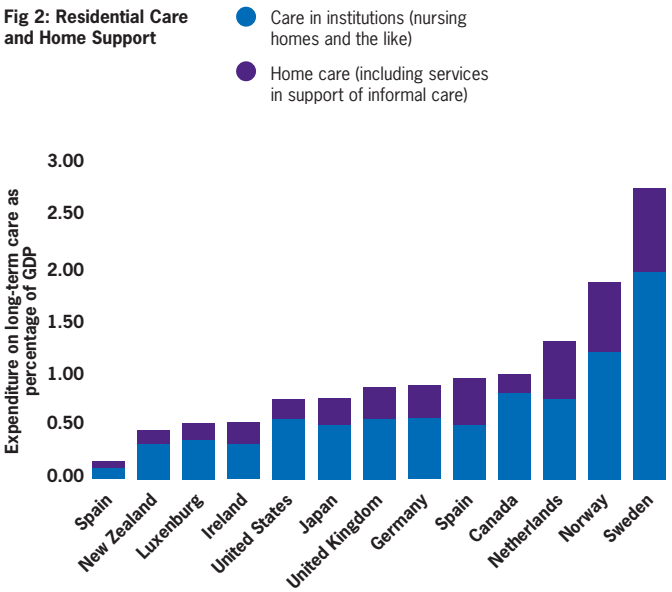
Category	2004/05	2007/08	3 Year Change	2007/08 Proportion
Hospital	266	370	+39%	52%
Rest Home	211	291	+38%	41%
Dementia	23	36	+57%	5%
Psycho-geriatric	13	17	+31%	2%
Total 513	714	+39%	100%	

Residential care and home support

New Zealand public sector spending on long term care lags the rest of the world – even as a percentage of the relatively low New Zealand GDP.

The data to the right demonstrates that New Zealand has a lower proportion of home support than most other countries.

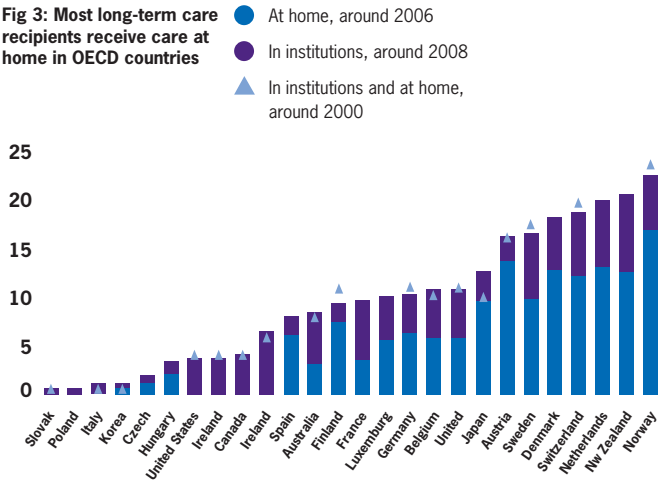
Fig 2: Residential Care and Home Support



The table to the right, reprinted from the OECD Health Data Report (2008) shows:

- New Zealand has the second highest proportion in the OECD of elderly people receiving care or other support.
- New Zealand has a higher proportion of people in residential care than any other country, and a higher ratio of residential care to home support than most other countries.

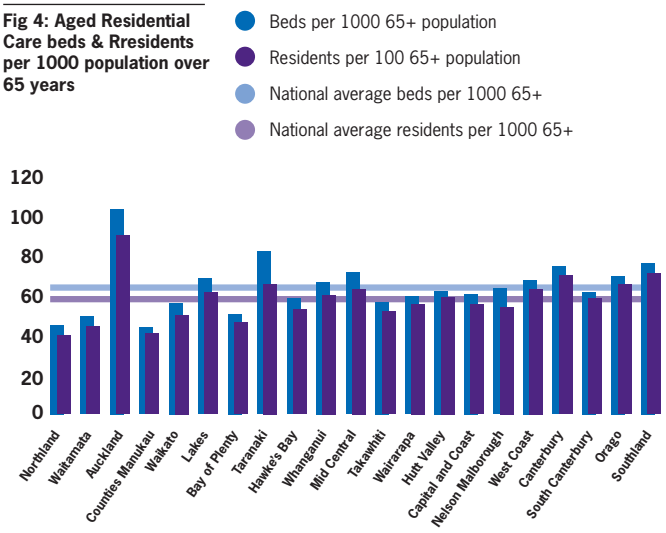
Fig 3: Most long-term care recipients receive care at home in OECD countries



Distribution of services around New Zealand

Aged care services are more or less evenly distributed around the country, as indicated by the chart below.

Fig 4: Aged Residential Care beds & Rresidents per 1000 population over 65 years



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Notes

Notes

Appendix G

Summary of process for focus group meetings

The focus groups were formed to provide a broad spectrum of views on the models of care that might be adopted for aged residential care over the long term. Groups were intended to be composed of 8-10 participants from a wide variety of constituencies.

Meetings

Meetings were held in:

- Whangarei on 11 November 2009
- Auckland on 16 November 2009
- Tirau in the Waikato (Midland region) on 17 November 2009
- Palmerston North on 18 November 2009
- Hastings on 19 November 2009
- Dunedin on 23 November 2009
- Christchurch on 24 November 2009
- Wellington on 25 November 2009
- Nelson on 26 November 2009

Composition

Each meeting was intended to have 2-3 providers, 2-3 DHB representatives, and the balance from a broad range of constituencies. The principal criteria for invitation were experience, track record, credibility and ability to bring a long term perspective. The broad parameters for composition were reviewed and modified by the Review sponsors. Invitation lists were prepared by approaching peak bodies/national offices and combined with lists prepared by local DHB planning and funding managers. The lists were then monitored across all meetings to ensure the composition was balanced at local as well as national levels.

The table below presents the constituencies represented by the 87 focus group participants, who collectively represent thousands of years of experience in the sector. Each participant was asked to identify their primary constituency; several participants ticked two boxes if their role had multiple components. Each participant was also asked to identify if they had prior work history or a particular appreciation for other constituencies. These responses are shown in the column on the right.

Table 47
Focus group summary

Participants in focus groups	Primary constituency	Affinity or prior work history
ACC	1	4
Aged residential care provider	25	31
Consumer (Age Concern/Grey Power)	4	9
DHB	23	40
District Council	1	2
GP	2	4
Health & Disability Commission	1	1
Home support provider	5	10
Iwi/Ethnic	5	6
MOH	1	5
MSD	2	5
NASC	4	12
Nursing	1	27
Other provider	5	16
Palliative care	5	17
PHO	1	13
Workforce	3	13
Academic	2	2
TOTAL	**91**	**217**

With regard to selected constituencies:

- 16 DHBs were represented. Auckland DHB did not have an attendee, but is represented on the Expert Advisory Panel and that person observed part of the Auckland meeting. South Canterbury DHB did not wish to participate given its representation on the Steering Group. Tairawhiti, West Coast and Hutt Valley were not represented
- Each meeting had 2-3 providers in attendance except Palmerston North, at which one provider was in attendance and two more sent apologies on the day
- The majority of providers were owner-operators or from the religious and welfare sector. BUPA and Ultimate Care were in attendance; Oceania and Summerset representatives sent apologies. Ryman Healthcare is represented on the Expert Advisory Panel.

Meeting process

All attendees were sent initial invitations via email and logistics were coordinated generally via email. Those who confirmed attendance were sent a briefing book in advance, although several attendees did not receive their book for a variety of reasons.

Each meeting was opened at 10:00 am by a member of the Review project team with introductions and a brief orientation to the brief for the project. The meetings were then asked each of the three questions described in the focus group summary in **Appendix H**. A Review project team member facilitated the meeting and took notes, which were projected on a screen for all participants to see. This allowed attendees to offer corrections – which they did frequently – thus ensuring the written summary accurately captured the intent of the speakers. Several attendees suggested corrections to the meeting notes during breaks; the notes were modified accordingly with the concurrence of the person making the comment. As noted below, corrections were invited on the website after the close of each focus group, but none were received. Each meeting adjourned at approximately 3:00 pm.

Website

At the end of the meeting, participants were given an orientation to the website, and user IDs and passwords were sent out shortly after. All meeting notes were posted on the website, as was a draft of this summary, for comment. In addition, participants were invited to comment on any aspect of the process, including corrections, additional ideas or any comments on the process. Several comments were received, but no corrections.

The website was closed for comment on 12 February 2010. Statistics regarding page views and unique visitors in total – but not for any particular individual – were monitored to ensure that the system worked properly and had generated interest.

Meeting summary

An initial draft of the written summary of the focus groups was posted on the website for all participants to review and comment on. An email was sent informing all participants that the summary had been posted and that comments were invited. One suggestion for clarification was received; the draft was revised to incorporate it. Feedback received by Project team members indicates that a number of participants reviewed the draft summary.

Assessment

A random sampling of focus group participants was interviewed after the fact to generate feedback on the process and measure overall satisfaction. Feedback was generally positive and there was no consistent criticism of the process.

Appendix H

Summary of focus groups

Overview

In nine meetings around the country, 87 thoughtful and experienced people with a perspective on the aged residential care sector gathered to consider the following statement:

> *"Given the projected needs of older New Zealanders and the resources available to meet those needs, how do we identify and define a limited number of future service configuration scenarios within the aged residential care sector that meet criteria of cost effectiveness, efficiency and quality?*
>
> *This project is focused on aged residential care and will consider the impact of well grounded assumptions for changes in*
>
> - *Home support*
> - *Housing*
> - *Acute services."*

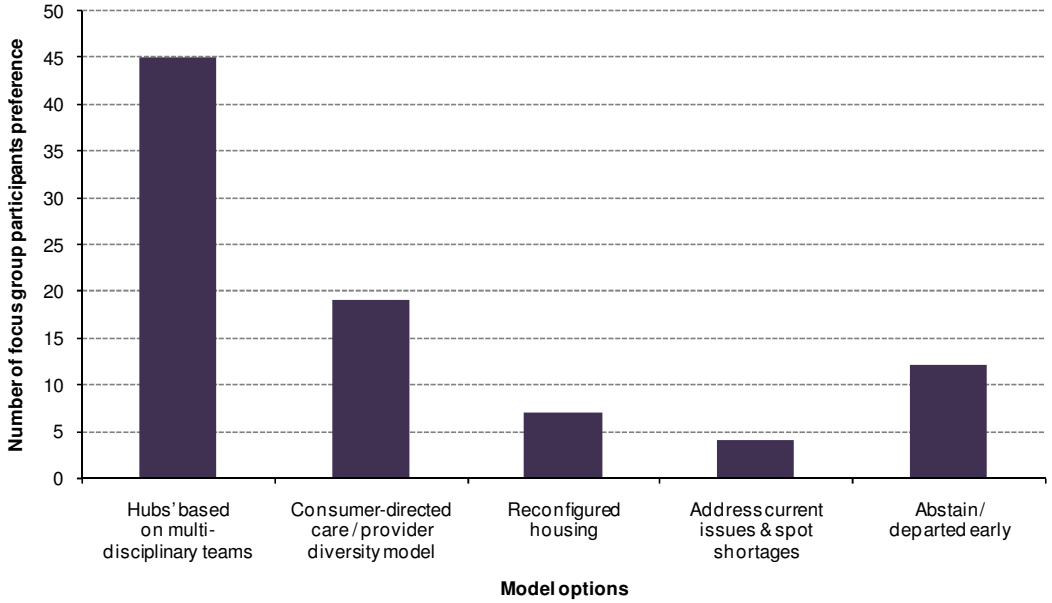
In lively dialogue, summarised in greater detail below, most participants concluded that aged residential care residents should not be divided into clinical groupings for more targeted intervention, with the possible exception of those with difficult behaviour who pose a risk to themselves or others. The reasons for this conclusion were:

- Many aged residential care residents have multiple conditions
- Acuity changes – improvement and deterioration – would necessitate too many changes between programmes
- Of at least as much importance to aged residential care residents is socialisation, so minimising disruption is important.

At the end of each meeting, participants were asked which one of the models discussed should be given priority or implemented first. Their responses are summarised in the chart below. This data should be reviewed with care, as focus group members were not randomly selected.

Each focus group devised its own ideas for models spontaneously, and therefore specified the models slightly differently. As a result, comparisons across groups should also be made with caution. The discussion around each model of care was limited, and it was evident that broad agreement about a particular idea did not necessarily mean complete agreement on how each model would work in practice. Some participants believed that some or all of these models could be pursued at the same time and were not mutually exclusive.

Figure 70
Preferred model of care options by focus group participants



The data from the chart above is summarised in the following detailed table.

Table 48
Focus group summary

			Consumer-directed care / provider diversity model				
Meeting	**Address current issues & spot shortages**	**Hubs based on multi-disciplinary teams**	**Client led**	**Case manager led**	**Recon-figured housing**	**Abstain/ departed early**	**Total attendees**
Whangarei	1	6				4	11
Auckland	1	2	5				8
Midland	2	5	4				11
Palm. Nth		4		6			10
Hawkes Bay		6		2	1	1	10
Dunedin		4	1		3		8
Christchurch		8				1	9
Wellington		6			2	2	10
Nelson		4	1		1	4	10
TOTAL	**4**	**45**	**11**	**8**	**7**	**12**	**87**

As noted, the initial preferences described above should not be viewed as support for or a recommendation of any particular model, nor are they true measures of consensus. The balance of this appendix describes discussion at the focus groups in more detail.

Needs of aged residential care clients – and grouping those needs

The focus groups were first asked:

"What are the discrete types of clients that are served by residential care providers and what are their needs – that is, dementia clients, frail elderly, comfort care, etc.?"

The rationale for this question was that health planning, in almost all cases, begins with identifying the needs of particular subsets of clients/patients. With those needs identified and through careful delineation of how to identify people with similar needs, interventions or programmes can be implemented to more appropriately target needs. While this approach is used to better target, and ultimately meet health needs, a similar approach is used in social services (and many other areas) to meet the needs of diverse populations.

All the focus groups quickly engaged with this question, and seamlessly moved back and forth between groups of clients and their needs. Clear themes emerged across all of the focus groups:

- Participants noted that most aged residential care residents have multiple medical complaints – co-morbidities – in addition to the complications of some degree of cognitive impairment or dementia.
- While many people have the preconceived notion that the elderly are on a continual downward trend in physical condition, ability to cope and dependency, participants noted that, in fact, many residents experience a complex mix of improvements in condition in some areas and deterioration in others, generally as a result of a mix of idiosyncratic and identifiable causes.
- A clear theme in the focus groups was the importance of socialisation and social connection in the lives of residents. Participants believed that grouping residents into discrete categories with discrete programmatic interventions – with the potential disruption of discharge and readmission into different programmes – is inherently disruptive, particularly as many elderly have diminished social contacts already and, therefore, less social resilience.

As a result of these factors, seven of the nine focus groups were reluctant to divide residents into groups requiring different approaches to support. This reluctance was grounded in the reality that while some residents will require more support and resourcing from the provider organisation than others, similar general approaches should be used for all .In other words, need for resources may vary, but the fundamental appropriate approach to care does not. There was also an appreciation that certain small populations might require special interventions (e.g. psychogeriatric patients, or the emerging group of elderly long term drug abusers). Dementia, as discussed below, was viewed as a special case.

Many of the focus groups identified non-clinical factors as the basis for designing services. As examples, the Maori health Whanau Ora programme – in which service delivery is organised around family needs rather than clinical services – was mentioned in several focus groups, and one DHB planning and funding manager recounted the desire on the part of one community group for a new rest home devoted to lesbians. These alternative approaches reflect the view that clinical condition is not, in fact, the first or most important basis for organising and delivering services for all populations.

Dementia - safety and security

The current aged residential care system has a Stage III category commonly referred to as 'dementia units'. These are locked to keep residents inside, have special staff training, and are generally segregated from other aged residential care settings. Psychogeriatric units are even more specialised facilities for these clients, although their beds represent a very small proportion of total residential care capacity.

Many focus group members identified this group as requiring special intervention and a segregated approach. Their reasons included:

- Concern for resident safety resulting from wandering. These residents can become disoriented and choose to leave the aged residential care facility; some have wandered long distances without regard to weather, clothing, shelter or food. Often a substantial effort is required to find the resident and occasionally such incidents result in the resident's injury or death. A wandering episode can cause great concern among family members and staff.
- These residents may engage in 'difficult behaviour', including argumentativeness, assaults on residents or staff, or even sexual assault on others. Often 'difficult' behaviours are a key reason for referral and admission to Stage III units. Management of these residents requires specialised training and may also require a different approach to medication management.

Several focus groups engaged in detailed discussions on these residents, and concluded that the issue was more about safety and security than dementia as a clinical condition; the reasoning being that many residents with dementia are safely managed in other home and residential settings.

The focus groups did not believe that emerging technologies, such as tracking bracelets and wireless perimeters, could completely address these issues. While they may reduce or eliminate wandering, they were not identified as a likely solution to difficult behaviours.

Several of the focus groups engaged in highly nuanced discussions of the effect of normative behaviours on residents with dementia. Some participants had observed that some dementia clients adopt the prevailing standards of behaviour of the facility, so they may decline in functional and social performance when surrounded by other residents with low levels of social function, but retain more appropriate social behaviours when surrounded with higher functioning residents. Other participants believed that residents with difficult behaviours are difficult to manage in any case and likely to destabilise otherwise functional residents.

Alternative views

Two of the groups had an alternative view on how to group residents. One group believed there were four categories:

- Short term with cognitive impairment (with the cognitive impairment discussion similar to the dementia discussion above)
- Short term with physical impairment
- Long term with cognitive impairment
- Long term with physical impairment

This group believed that 'long term' should not necessarily mean 'permanent', but 'warranting a long term residential focus'. They also recognised that provider incentives to retain residents in the residential care setting would need to be changed. The long term category was intended to

distinguish the group from 'short term' patients whose needs were more around rehabilitation and early discharge, which necessarily calls for different staffing and skill mix. This focus group also recognised that the short term group was quite small – less than 10% of the long term group.

The other focus group identified a large number of clinical conditions under which residents could be grouped (that is, more than 10), and some of those groupings would be on non-clinical grounds (such as limited social support networks in the home).

Other observations

Many other useful comments that emerged in these discussions include:

- In the opinion of one participant, only about half of those who would otherwise be eligible for residential care are ultimately admitted, due to family or community circumstances, economic factors, home environment and even personality (what one participant referred to as stubbornness).
- There was substantial discussion in many of the forums regarding emerging groups about which little is known, including long term drug abusers, older people with developmental disabilities, and older people with mental illness.
- The age of eligibility was often mentioned, with discussion about the lack of appropriate facilities for young people with disabilities and ACC services for younger injured residents with long term care needs (e.g. traumatic brain injuries). There was also discussion about aged care clinical presentation for those under 65 with conditions such as early onset dementia, and for aged care issues in members of ethnic minorities who may otherwise die before age 65. There was a general view that early onset clients fit well within the aged care service framework, but that younger people do not, even though younger people account for a small but important part of the revenue required by some aged care facilities to be viable.
- Many participants mentioned that it was unusual – too unusual in the view of many – for residents to be discharged from residential care. They put this down, in part, to the incentive structure for providers under the current funding system and because the resources that support an individual in the home tend to rapidly dissipate when that person is admitted to residential care.

Models of care

Following the discussion above, the focus groups were asked:

"How could the organisation and delivery of services in aged residential care change to improve the experience of the resident, provider and taxpayer? Please think of both current models in New Zealand and elsewhere".

and then:

"Identify top 2-3 'models of care' and identify implications, including (to as specific a level as possible):

- *Likely benefits*
- *Costs and tradeoffs*
- *Obstacles."*

As a final step focus group participants were asked to rank the models of care that were developed in the meetings in terms of greatest promise or the one that should be implemented first. The models are described below in order of preference on this last question.

Multi-disciplinary teams organised into centres of excellence or enhanced professional services in the community

All nine focus groups spontaneously, though not necessarily first, mentioned the notion of a broad range of clinical and social services specialists engaged in tight collaboration to meet the needs of individual residents. While it became obvious that each individual would specify this model slightly differently, and while there were two very different variations which are described in more detail below, the basic components were well agreed. A summary of the points mentioned in the forums (though not all points were mentioned in every forum) include:

- A wide range of clinical (medical) specialties represented, including:
    - Geriatrics/GP
    - Nursing/Nurse practitioners
    - Allied Health (physiotherapy, occupational therapy, speech therapy and audiology, etc)
    - Pharmacist
    - Nutrition
    - Carers, both formal and informal/family.

- Inclusion of the social services perspective, variously described as social work linked to existing social service organisations, or to ensure that there is good communication, setting of expectations and clear responsibilities.
- Clear and accurate communication, facilitated by an electronic medical record platform.
- Case coordination/management function, facilitated with case conferences.
- Teams should follow residents/clients across settings (e.g. home support and residential care, and perhaps in acute settings as well).
- After hours cover and/or urgent response capability.

A number of themes that emerged in one or more of the forums were highly germane to the mechanics of how such a model would work:

- There was widespread agreement that integration between home support and residential care should be much tighter, and that the organisational structure of the teams should reflect this need.
- Nurse practitioners were widely supported as necessary and useful, with substantial enthusiasm for greater availability of staff in this category.
- Many focus groups emphasised the need for a 'home base' for these services. In some cases this was referred to as a lead practitioner with virtual but real links to others, and in others it was a discussion about how to organise these services into a single organisation and how that organisation should be owned and managed. Many participants felt that merely adding more professional resources was unlikely to result in significant change unless professional boundaries were also addressed to ensure the development of a team culture and a shared philosophy.
- The shift in emphasis from a custodial approach to care based on needs, to a philosophy based on desired outcomes, was regularly mentioned, either in the context of more fully integrated palliative care for those approaching death or a goal-oriented restorative

approach for most residents. These palliative and restorative philosophies were not viewed as competitive with each other, but would represent a change for many current residents.

- The assessment process was regularly mentioned, and a widely held view was that a common platform for assessment would facilitate standardisation, consistency and communication flow across the team. InterRAI was the most common platform identified. It was widely acknowledged as being in different stages of implementation around the country and across the residential and home support sectors.
- Quality improvement tools and continuous improvement were mentioned in several focus groups as necessary in any scenario, and it was felt that an organised approach to professional services could support these initiatives.
- There was discussion in some of the focus groups that perhaps the teams might absorb the clinical/nursing functions of residential care, such that providers could shift staffing responsibilities to the teams and retain responsibility for the housing/accommodation functions.
- While funding methodologies were not part of the brief for this discussion, many participants noted that pooled funding for aged care services – across home support, residential care, primary care and acute services – would be necessary in order to ensure aligned incentives.

Option #1: Aged care services teams

The discussion of multi-disciplinary services teams fell into two broad categories. Participants in some groups contemplated a group of aged care professionals organised together, either physically or virtually, with common incentives, tools and a shared philosophy. In this context, the 'hub' would coordinate the required services for residents/clients across home support and residential care. More expansive views of this model might provide for hubs to expand day care services on the site of residential care providers or take on responsibility for nursing services in residential care facilities.

The dialogue regarding the organisational structure of these teams was highly nuanced and reflected the diverse nature of the organisations involved. Some options mentioned included:

- Basing the team at aged residential care facilities/provider organisations, with the hubs taking responsibility for services broader than just their own site.
- Community-based teams that would contract with DHBs and, in turn, with aged residential care providers. Several participants suggested creating a special purpose PHO to consolidate the functions of the team at the community level.
- DHBs to take on the clinical functions of the hubs, given that several key components of the teams are already within the DHB structure, and DHBs have both the incentive and responsibility for these services.

Many of the discussions recognised that urban and rural models may differ in many other ways as well.

Option #2: Primary care-based teams

Several participants, noting the substantial emphasis placed on the primary care strategy in recent years, suggested that the teams might be based within broad-spectrum primary care organisations. In this context, residential care residents would be one subset of patients in the primary care system connected into a virtual community-based web of service.

The current emphasis on electronic medical records and connectivity, when combined with initiatives to strengthen PHOs, holds the promise of radically transforming community-based services, including residential care. The philosophical shift towards primary- and community-based care, when combined with a patient-centred orientation, is intended to enable existing providers to more easily address gaps in service delivery, avoid unnecessary duplication, and ensure services are provided when necessary.

In this context, to those participants mentioning this option, residents in aged residential care would be the beneficiaries of a system in which primary care providers (GPs and affiliated nurse practitioners) would take clinical responsibility for patient services. With clearer protocols for how the primary care practitioner and residential care staff interact, the GP would have the tools and responsibility for coordinating and monitoring the needed care provided in residential care facilities. For aged residential care providers, this approach represents a substantial change from the often sporadic input from GPs, and the isolated position that most care managers find themselves in at present.

A key consideration in this approach is the relative priority that aged residential care would have when compared with other areas, such as immunisations, well-child services, elective surgeries, and chronic disease management. Focus group participants who mentioned this variation believed that aged residential care services should be first cab off the rank for the primary care system as it implements the primary care strategy.

Benefits

This model of care was widely believed to have the potential to significantly impact future cost requirements for aged care services. This was based on the view that coordinated services could not only reduce unnecessary duplication and precautionary services (like admissions) due to unavailable information, but also more easily ascertain which services were desirable from the resident's perspective. The services thought to have the greatest opportunity for reductions were acute inpatient services (including AT&R services) and pharmacy services, as well as diagnostic testing which, it was believed, suffers from unnecessary duplication.

Participants noted that this model of care was likely to provide more opportunities for a customised, person-centred approach to care, because of a more organised communication mechanism among professionals with the input of a social services perspective. In addition, such teams can be easily organised into sub-teams or groups to provide for special purpose organisations to address individual ethnic or other groupings.

Workforce benefits widely identified by participants in this model included:

- Reduced turnover
- Support for up-skilling of staff (seen as implicit in this model)
- Greater job satisfaction through a collaborative approach to working with other professionals; reduced isolation; and greater job diversity
- A better image of the sector, with likely greater ease in attracting staff.

Participants identified other benefits, including:

- Better and easier re-assessment processes.

- Better communication among providers, resulting in fewer gaps, easier navigation of the system, less fragmentation, and fewer duplicative assessments.
- Facilitates placement of individuals in the right services according to current need, including short-stay and respite admissions as well as discharge back to the home when appropriate.

Obstacles

The two most often mentioned obstacles were:

- Gaining benefits from reduced acute utilisation and pharmaceutical cost. Participants believed that substantial reductions in hospital and pharmacy costs are likely, but shifting those savings to the residential care funding bucket would be difficult.
- Professional boundaries. Current practice arrangements, and scopes of practice, do not support collaborative, team-based approaches across organisational boundaries. Sharing financial risk, as any version of these models would require, can also be difficult.

In addition, how to adapt this model in both urban and rural settings was often mentioned as a consideration. Other obstacles identified by participants included:

- The need to align philosophies of care, as well as align work processes, to accommodate this style of working.
- Many participants mentioned that the current paradigm of provider competition – both within the same sector and inter-sector – inhibits working towards common, client-centred objectives.
- Availability of sufficient staff at all levels.
- This can be a complex situation to manage, which would not only make implementation a challenge but also call for management with different skill sets going forward. This may also add a layer of administrative costs.
- As this is a medical model, it may end up losing the emphasis required on the social dimension.
- This kind of system requires some degree of buy-in from clients, which may be difficult for some, particularly during any transition period.

Consumer directed care or individualised funding

The consumer directed care (**CDC**) model was mentioned in six of the nine focus groups, even though it is acknowledged to not be a model of care at all, but rather a funding model. It was, however, spontaneously mentioned in the focus groups, and drew significant support as a way forward for the aged residential care sector. Like the multi-disciplinary team model, there were two main variations in how participants envisioned this model.

Participants noted that the principle behind CDC is that if funds are to be expended on behalf of a beneficiary, why should that beneficiary not be in full control of how they are spent? The mechanics of this approach was described in very simple terms: rather than having DHBs allocate a basket of services to an individual based on their needs and circumstances, DHBs would allocate a dollar value for those services. Those funds would be directed towards the use of health services using a fraud-prevention mechanism such as the DHB paying for services directly from approved vendor lists.

While the CDC approach is not a model of care, it reflects a view by focus group participants about operational models: the sector should not be selecting which services are provided; clients should. In

addition, implicit in the discussion was that none of the currently known models are worthy of adoption yet, and this approach is one way to keep options open. In fact, it encourages innovation in the development of new models of care.

Participants noted that the principal advantage of this approach is that it provides for substantial flexibility in the quantity of services consumed and the allocation of payment for those services. For example:

- Individuals could more easily purchase services in addition to those allocated by the DHB. While this is possible now (for example, private, supplemental home support and accommodation bonds in residential care is not at all uncommon), this model would readily support a wide range of additional services for those with the means to pay for them.
- At present there is a step in which residential care residents are means tested in the income and asset testing regime. The CDC model provides for more explicit and transparent methods for reducing the state's contribution for those with means.

The mechanics of the model were described by participants in simple terms:

- Adopt a similar funding approach and philosophy for home support and residential care.
- Pool funding from the various sources: home support, residential care, district nursing, durable medical equipment, etc).
- Use a simple, consistent assessment methodology (e.g. interRai) to determine the dollar value to be allocated to each individual.
- Interpose a means testing regime, similar to the current regime or modified as required.
- Provide information to beneficiaries regarding available service options.
- Process payments, monitor clinical status, and re-assess as required.

Option #1 Client-led consumer directed care

This variation proposed by participants is the purest version of CDC: responsibility for decision-making is devolved to the beneficiary. It also provides the greatest benefits: clients would see the full dollar value of benefits and costs, and could make their own decisions about spending as well as supplement their benefits if they choose (and have the resources to do so). It was also seen to provide the opportunity to generate substantial additional non-Crown funding for the sector.

The weaknesses of this approach were readily recognised by participants:

- Elderly people in need of substantial assistance from the sector are unlikely to have the capacity, mobility or ability to fully explore available options.
- Poor choices by some people would likely result in those people becoming a problem for providers and DHBs to sort out.

Some participants believed that these problems could be self-correcting in this system: case managers would quickly evolve and ensure that families and the elderly themselves would have access to expert assistance if required.

Option #2: Case manager-led consumer directed care

Some of the focus group members who were most enthusiastic about this approach believed that transferring all decision making to beneficiaries was impractical for the reasons cited above. As a

result, this variation envisions funding devolved to a case manager or organisation of case managers, who then, in concert with the client and family, organises an appropriate package of services.

Participants noted that this model is similar to the way the Needs Assessment and Service Coordination (NASC) process was intended to work, and that ACC has dedicated substantial resources to a similar approach. However, obstacles have kept the NASC system from realising its initial intent:

- Much of NASC's efforts are in needs assessment, and less in service coordination. The model proposed here envisions a much larger role for the latter function.
- Rigidity in guidelines, different funding buckets (e.g. district nursing, home support and residential care) and lack of provider choice have hampered the flexibility required to achieve NASC's original intent.

Benefits

The benefits of this approach were identified by participants as:

- Enhanced consumer choice.
- Greater control by the beneficiary, and ability to retain as much provider stability as they wish as their condition changes.
- Better matching of service delivery to actual client need.
- Harnessing of market forces to drive improvements in provider performance and innovation.
- Potential for additional revenue streams from clients that choose to contribute their own funds.
- Potential that some clients would not take up all of the allocated benefit, resulting in cost savings.
- One point of contact for case manager-led approach.

Obstacles

Some obstacles have already been identified. Further obstacles identified by participants included:

- The New Zealand philosophy of common entitlements regardless of wealth.
- Some clients are not in a position to make sound decisions due to incapacity, time pressure/urgency, or family dynamics.
- Providers and DHBs remain at risk for poor choices by clients.
- Requires good, objective, complete and appropriately comparative information about service offerings.
- May place even more pressure on the assessment function as clients lobby for more resource.
- Elder abuse considerations and difficulties in ensuring that decisions are taken in the best interests of the older person.
- Coordinating and pooling funding across multiple funding sources within DHBs can be difficult.
- Ensuring consistency across the country could be a challenge.
- Lack of availability of service offerings and related challenges in rural areas.
- Complexity if clients choose to hire their own staff, with human resource, legal and compliance issues.

Reconfigured housing options or special purpose low income housing for the elderly

A common theme in many of the focus groups was the need to separate accommodation and hotel costs from health costs. Both providers and funders were concerned that limited health resources are being used to support accommodation costs, and that this distortion for residential care crowds out consideration of other options that might reflect a broader range of options. Several participants noted that New Zealand has a limited range of lower acuity housing options compared with other countries, including Australia and the UK.

Most dialogue was centred around community housing initiatives for those with lower acuity. The Abbeyfield model was regularly mentioned (groups of 8-10 elderly residents who rent their space from a community-based organisation, share at least one meal together prepared by a paid cook, and otherwise look after one another to the extent that they can). This model of shared housing has several important variations, including one in which residents purchase their share in the house, which is then on-sold to someone else when they leave.

The primary motivation for many participants who mentioned this option was that a broader range of lower acuity housing options could defer entry into what is currently referred to as residential care, and that this may be cost effective than adding more residential care capacity. One participant referred to this option as an "extended retirement village concept".

To focus group participants, the basic notion that underpins many of the alternative housing options is that grouping residents together can create the kinds of bonds and mutual support that are common in healthy families and communities. Some participants noted it reflects a more common view of the human experience: that humans both give and receive help from others. However, it is relevant to note that while there was support for creating 'intentional communities' at the lower end of the acuity spectrum, and that participants were also aware that similar efforts have been undertaken in higher acuity settings (e.g. the so-called 'Green House Project'), there was little support for this concept in the traditional residential care context.

Benefits

Focus group participants identified these benefits:

- Supports the maintenance of control and dignity for the resident, as they can choose from a broader range of options.
- Encourages use of informal carers in a setting in which older people continue to contribute and live independently.
- Community and companionship.
- Provides better for cultural needs and may be more culturally responsive.
- Could drive improvements in housing stock across the board.
- Greater transparency when costs of care and accommodation are separated not only by funding streams, but also by providers.

Obstacles

Obstacles identified include:

- Capital costs to construct/renovate housing stock.
- Funding – and related decision making – is spread across different agencies (e.g. DHBs, councils, MSD, Housing NZ, etc).

- The regulatory regime for retirement villages would have to change to accommodate some of these options.
- Greater risk to residents in settings with lower levels of supervision.

Address current issues and spot shortages in the current approach

Focus group participants were uniformly positive and constructive. Nevertheless, while the focus was on the future, a number of the points raised either directly addressed shortcomings in current service delivery arrangements or did so implicitly by suggesting fixes. In several focus groups, this list of improvements was organised into a consolidated set of issues to be resolved.

The most common issue identified with the current service design was shortages of certain types of bed or the way they are allocated. Many participants felt that expanded respite capacity was required. Slow-stream rehabilitation or post-acute discharge for a short time was also commonly mentioned. Shortages of hospital, Stage III dementia or psychogeriatric beds in specific locations were also mentioned. A series of shortages or rigidities in operations were also mentioned, including staffing, training, and expanded service awareness such as spirituality, sexual sensitivity, and so on. Finally, changes in residential funding methodologies to more accurately reflect acuity and incentivise providers to address these issues were suggested.

The list of shortcomings is long. Addressing these issues will require adjustments to ensure that the current model of care better meets the needs of current residents. In other words, this option is not a new model of care, but a fix of the model that already exists.

This 'model' was only mentioned as a formal option in two of the focus groups. However, when focus groups were debriefed on one another's results, several participants said that they had not suggested this option since the process seemed to be designed to identify new models; had this option been offered, they would have supported it. It is reasonable to conclude, therefore, that this set of suggestions has broader support among participants than was evident from the summaries prepared for each meeting.

Benefits

Participants identified the following benefits of this approach:

- Lower transitional costs and less requirement for sector change at all levels.
- Supply is expanded in response to specific, identified cases of demand.
- Allows for opportunistic response at local level.
- Allows for more targeted approach, e.g. ethnicities.
- Demonstrates action on most persistent and public system shortcomings.
- May allow for new developments and innovation.
- Potential efficiencies with slow-stream rehab or other post-acute discharge services.

Obstacles

Obstacles identified by participants included:

- Continues an ad-hoc approach and implies that the system is always behind by responding to emerging needs.
- Missed opportunities to reduce costs elsewhere in the system, to share resources, and to access non-health funding sources.
- No clear mechanism to manage future increases in demand.

- Defers current problems without solving them.
- Requires a robust planning apparatus at local, regional and national levels
- No clear incentives or messages to providers.

Other observations

The focus group process was a rich source of dialogue and insight. Observations that do not necessarily address the questions that were asked include:

- *Capacity*. Despite repeated probing, most participants did not address the question of whether additional residential care capacity would be required to address future demand. While participants reported that planning and funding staff in several DHBs had prepared forecasts for substantial additional bed capacity (as had one provider), these were the exceptions rather than the rule.

- *InterRAI and NASCs*. Many participants mentioned the need for full adoption of interRai across both home support and residential care, and nationally. Efforts to do so were seen as inconsistent around the country. Issues within the NASC sector were also regularly identified: inconsistent assessments between DHBs and within staff in individual DHBs, limited case management, and duplication of assessment processes between NASCs and providers. Several participants noted that in other jurisdictions providers performed the assessments and were subject to audit review.

- *Care and accommodation costs*. As noted in the reconfigured housing options section, the separation of housing/accommodation costs from health costs motivated the rationale for that option. There was widespread support for this notion among all participants regardless of which model they ultimately supported.

- *Broad support for nurse practitioners*. Many participants expressed support for nurse practitioners and the services that they provide.

- *Appreciation of the role of palliative care*. Participants frequently mentioned the importance of the dying process and a palliative approach for residents (and their families) approaching the end of life. While hospice services use residential care services in some instances, this has sometimes led to confusion. Palliative care for residential care residents was widely recognised as an important area for further development while also acknowledging that many residential care providers are already doing excellent work in this area.

- *Frustration with primary care*. Many participants noted that while some GPs are excellent, there is a persistent difficulty in accessing appropriate primary care. Participants questioned the extent to which residential care was a priority within the primary care community, even referring to the 'black hole of residential care' –meaning that one consequence of admission to residential care is that other community-based and DHB-based services become more difficult for some residents to access.

- *Commonality of view among participants*. Despite significant tension between some of the organisations represented in the focus groups, particularly DHBs and providers, participants were consistently positive and constructive. In addition, the long term perspective of participants from different organisations did not noticeably differ, particularly when compared across all nine focus groups.

Appendix I

Details of issues to be addressed in the current model of care approach

A preliminary list of shortcomings, misaligned incentives and operational considerations in the current aged residential care service delivery approach have been identified as requiring further analysis. These issues are best progressed at the national level in the context of the national aged residential care contract negotiations, and at the local level by DHB planning and funding staff in concert with the local provider community. This description is not intended to assess the merits of any position taken in those discussions, but rather to capture the comments made to the Review project team and locate them in one place.

Shortages of selected operational capacity or their allocation

The current system provides for planning to occur at the DHB level, demand to be assessed by the NASC, and services delivered by providers that are generally privately owned or NGOs. As a result, there is often a lack of clear market signals to providers about service gaps, or a planning framework to accommodate changes in the market. This fragmentation has made it difficult to develop new categories of service or identify capacity shortages. Each gap is generally a local DHB issue as the gaps are generally not uniform across the country.

Many people in the sector believe that respite care for high needs home support clients is a particular shortage, and the lack of respite care is widely believed to lead to increased admission to residential care. Providers, however, are reluctant to expand respite capacity because such clients consume more resources than long term residents – the cost of processing an admission cannot be amortised over a longer time frame.

Higher acuity services in private hospitals – particularly after discharge from secondary settings – is another gap often identified. Some people refer to this programme as 'slow-stream rehabilitation'. The lack of higher acuity facilities is thought to cause clients to 'back up' in secondary settings, particularly AT&R units. Providers, however, often do not have sufficient resources in the context of current private hospital funding to provide the greater clinical services that these clients require.

Availability of specialist facilities is another issue, and one that tends to be focused on certain geographic areas. Some areas are reported to have insufficient Stage III dementia beds. Others have limited access to psychogeriatric beds, or they are located too far away from some areas. These are local DHB issues.

The other shortage frequently mentioned is related to adult day care services. Expansion of these programmes may defer admission to residential care, result in reduced requirement for home support, or reduce secondary hospitalisations. Providers, however, report that payment rates are insufficient to develop these programmes more fully or on a greater scale.

Workforce issues

The availability of workforce for aged residential care has been discussed in many forums. In particular, aged residential care providers note that payment rates for similarly trained staff at DHBs are substantially higher than they can afford. In addition, the availability of sufficient training for aged residential care staff at all levels has been a persistent issue, and many providers believe that training staff to minimum competency levels should be a sector-wide responsibility rather than each individual provider's. Particular specialty training areas requiring more development include spirituality and resident sexuality.

Acuity-based funding methodologies

In Australia, the Aged Care Funding Instrument (**ACFI**) is used to match costs of care for each resident to payment rates. In the United States, Resource Utilisation Groups (**RUGs**) are used to accomplish the same function. The rationale behind these instruments is that providers should be paid more for clients who are associated with higher cost of care – and less for those with lower expected cost of care. In New Zealand, all clients in each type of accommodation (rest home, hospital, and dementia) attract the same payment. This can result in the unfortunate situation of some providers being less inclined to admit residents who are likely to have higher costs of care – or at least to work to balance their mix of residents.

User pays

The costing component of this report documents that most new construction has been within a broader retirement village or at sites where the provider charged some clients extra fees for additional services. Providers report these extra charges are required to support new construction given current payment rates. Nevertheless, the circumstances in which providers are permitted to charge for extra services, and what constitutes an extra service, has been debated for some time. Some believe that allowing an extensive extra charge regime will lead to one class of facilities for those who can afford to pay and another for those on Government funding, as has occurred in other countries with differential pricing. A theme of this report is that substantial new capital is required for the sector. As user-pays is potentially a key source of revenue, this is an important issue to resolve with clarity.

NASC and assessment issues

There were frequent comments during focus group discussions about the assessment process, and concerns expressed about the reliability and consistency of assessments, both within individual NASCs and between different DHBs. There was widespread enthusiasm for the interRai package, even though it is only used for home support and is at different levels of development around the country (as it relates to aged residential care). The main reason for enthusiasm was that interRai addresses the perceived variation in assessment processes and outcomes. A second benefit is the electronic linkages that are possible; particularly as the current approach requires providers to do their own assessment upon admission to aged residential care – an obvious duplication of effort.

The duplication in assessment processes – and the perception of idiosyncratic assessment processes in some cases – led some participants to note that in some countries providers do the assessment and their judgments are audited by the paying organisation. With appropriate checks and balances, and fast enough review of provider decisions, this method has been found to be effective in some settings.

Several participants pointed out that the case management services that were intended as a part of the NASC process have not been developed as well as the assessment processes, and that there is a

gap in better coordinating all DHB services for clients in the older people programmes (aged residential care and home support). As this is a key finding of this report, it will need to be addressed in any case to ensure proper targeting of DHB services for clients who most require them.

Some providers have noted that assessments are delayed, sometimes for a long time, for those otherwise eligible for aged residential care or home support services, and that these delays are more pronounced near the end of the financial year. The NASCs and DHBs vehemently deny any such pattern or practice.

Health sector integration

While aged residential care providers care for frail and medically complex clients, some observers from all kinds of organisations note that accessing service elsewhere in the health system can be difficult. In some areas, securing GP cover has become progressively more expensive and the availability of GPs has declined. Other areas have noted difficulty in securing specialty services from the DHB (e.g. wound care or geriatrics consultants). Almost all areas have identified the speed of access to relevant information from assessment agencies and secondary care to be in need of substantial improvement. As some providers have noted that most critical events happen at or near admission or discharge, these points of 'hand-off' are vitally important and in need of streamlined operating processes from all parties.

Review appropriateness of criteria

Some participants noted that earlier admission into home support may prevent difficult-to-reverse functional decline, while others made a similar observation in relation to community-based housing for some people and in some locations. Other participants noted that closer monitoring of dementia in rest homes is required to ensure that residents are transferred to a more secure location at the appropriate time – and not maintained at a lower level of care when their risk level has increased. These observations share a common theme: the need to ensure that services are provided at the right level, and that sometimes an increase in availability of services actually reduces risk more than a purely budgetary estimate might indicate.

Appendix J

Methodology for estimating utilisation of acute hospital services by aged residential care clients

Introduction

To provide well grounded assumptions on the impact of various models on acute hospital services, the Review project team undertook analysis (under various assumptions) on the extent of use of other services provided by DHBs to aged residential care clients. The analysis provides an understanding of the total cost of caring for aged residential care clients as well as of the variation in utilisation of hospital services by different cohorts of aged residential care clients. This appendix describes the methodology for deriving the rates of utilisation of hospital services by aged residential care clients.

Utilisation of the following DHB-funded services by aged residential care clients were considered as part of this exercise:

- Medical and surgical inpatient
- Assessment treatment and rehabilitation services inpatient
- Emergency Department attendances
- Pharmaceutical prescriptions.

Data source

Data on the relevant acute hospital services was sourced from national datasets maintained by the Ministry of Health. The following steps were undertaken:

- The Review project team provided the Ministry of Health (**MOH**) with the list of National Health Index (**NHI**) numbers (appropriately modified to protect confidentiality) for all people receiving aged residential care or home support, during 2002, 2005 and 2008. The source of these NHI numbers was the CCPS database for all paid claims for aged care services, stratified into recipients of aged residential care services and home support services.
- For the identified NHI numbers, the MOH extracted cost and utilisation data as detailed below and provided the data to the Review project team.
- The review team tested the dataset provided by the MOH for consistency and completeness and analysed the data to derive the utilisation rates.

The table below lists the data sources for respective services:

Table 49
Data sources for DHB funded services

Service	Dataset
Medical and surgical inpatient	National Minimum Dataset (NMDS)
Assessment treatment and rehabilitation services inpatient	National Minimum Dataset (NMDS)
Emergency Department attendances	National Non-Admitted Patient Collection
Pharmaceutical prescriptions	Pharmaceutical Collection

The aim of the analysis was to determine the amount of utilisation of acute hospital days per person-year within aged residential care. The simplest case is to measure the number of acute hospital days for a resident admitted on the first day of the target year and discharged on the last day of the year.

For purposes of this analysis, residents of aged residential care facilities are defined as any clients who have stayed in an aged residential care facility in the given year (1 January to 31 December). This includes clients fully subsidised by the government, and top-up (partially subsidised) clients, as both groups appear in the CCPS database making it possible to identify their NHI number.

Identifying hospital services used by aged residential care clients

As the goal was to establish the number of units of utilisation of DHB services (e.g. acute hospital days) per person-year in aged residential care, it was necessary to measure the units of utilisation during the period a person was under the care of the aged residential care provider. This requires identifying total utilisation post-admission to aged residential care and the length of time the person was under the care of the aged residential care provider.

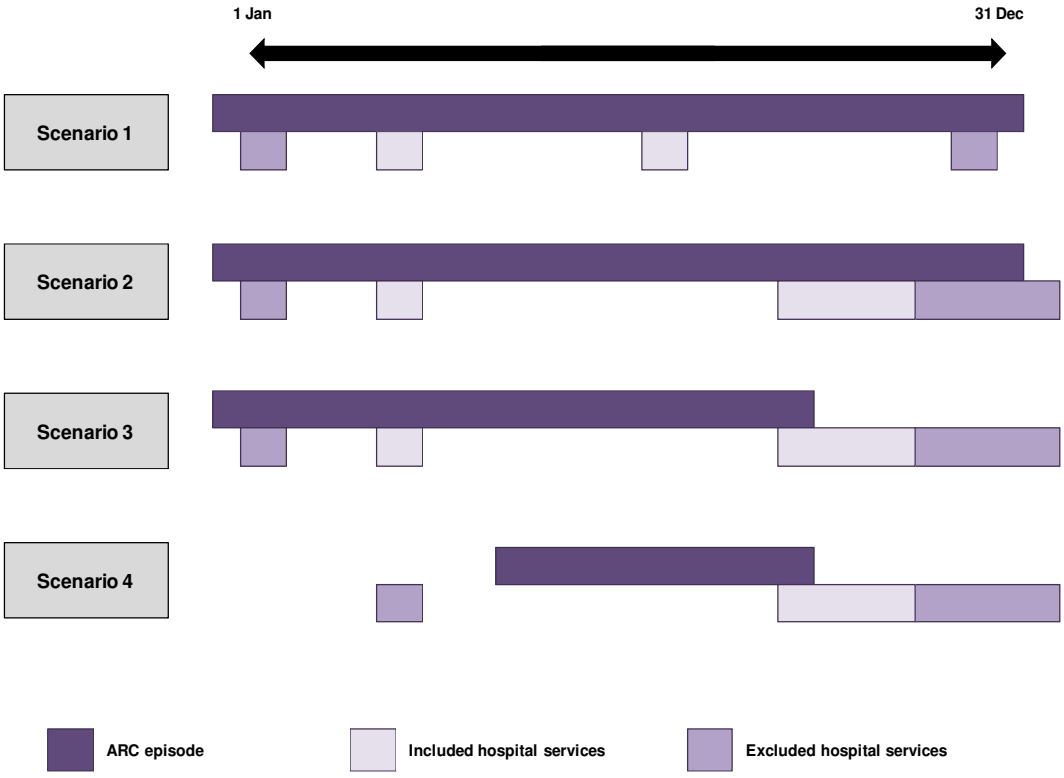
Essentially, acute hospital services received by aged residential care clients during the given calendar year, post commencement of the aged residential care episode, are linked to that aged residential care episode. The utilisation rate is the ratio, for the entire dataset, where the numerator is the volume of hospital services received and the denominator is the number of aged residential care days. A similar utilisation rate was determined for home support clients where the numerator is exactly same, while the denominator is also the number of days that the person was enrolled in the home support programme.

The diagram below describes the application of the parameters used for linking the hospital service episodes to aged residential care episodes, to four scenarios.

- Under Scenario 1, the aged residential care episode commenced before the start of the year and continued beyond the end of the year. Under this scenario the two acute hospital service episodes during the year are linked to the aged residential care episode, while the two hospital service episodes outside the year are excluded.
- Scenario 2 is similar to Scenario 1, except that one hospital service episode spans both calendar years. In this case, only the portion that was provided for during the year is included.

- Scenario 3 is a variation on Scenario 2, where the aged residential care episode ended during the year. In this case, all aged residential care and hospital services provided during the year are included.
- Scenario 4 is a further variation from Scenario 3, where the aged residential care episode began and ended during the year. In this instance, any hospital services provided before the aged residential care episode are excluded.

Figure 71
Application of the parameters used for linking the hospital service episodes to aged residential care episodes



Comparison to international data

The international data was sourced from direct correspondence with the National PACE Association in the United States. The data for the period Q2, 2008, with median figures across 29 PACE programmes, was used.

PACE data is generally calculated on the basis of 'per member per month', or 'per member per year'. A member month is a single individual enrolled in the programme for 15 or more days in a calendar month. A member enrolled in the programme for less than 15 days counts as zero, so member months represent the average enrolment in the programme in that given month, rounded for each member to the nearest month.

'Hospital days per member per month' means the number of days of acute hospital care for all programme participants divided by member months. 'Per member per year' is annual utilisation figures divided by member months times 12.

'Per member per year' (as measured by PACE) is equivalent to 'person-year' in aged residential care as computed in this study, except that PACE enrolment data is rounded to the nearest month. This difference is not material when the sample size is large, as with PACE where more than 17,000 participants are included in the data set.

Data integrity and limitations

The analysis described above yielded utilisation statistics (e.g. acute days) and the number of paid aged care services (aged residential care days and home support hours). To ensure the integrity of the data, the results were compared with analyses prepared independently by individual DHBs.

- Waikato DHB prepared an analysis of acute hospital days, AT&R days, and ED visits for 2008, as well as paid aged residential care days.
- Waitemata DHB prepared an analysis of acute hospital days in 2005/06 and 2007/08.

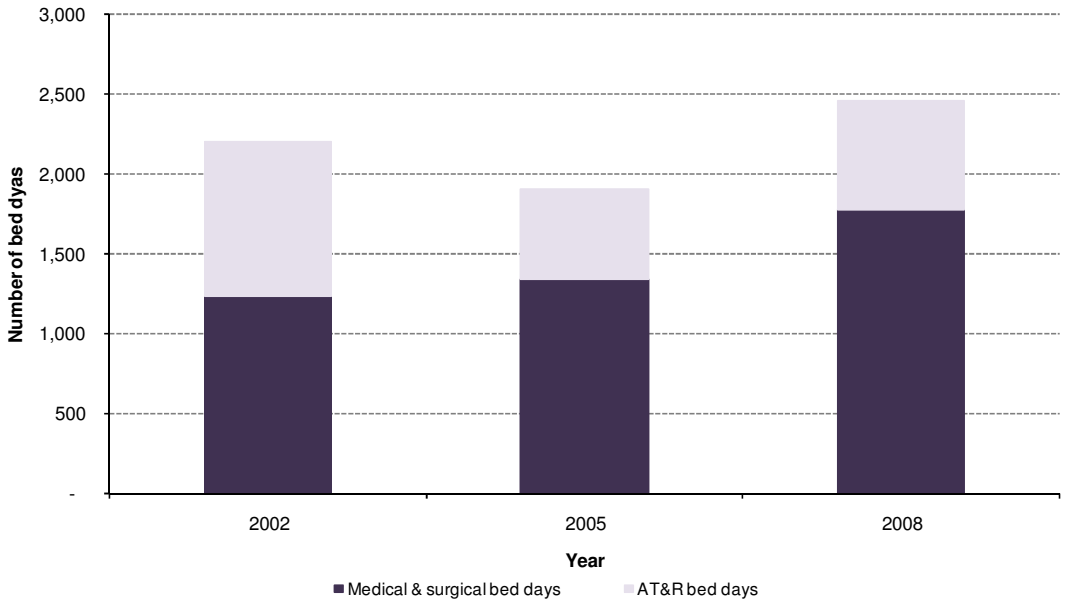
In both cases, results of the analysis were broadly consistent and therefore provided independent validation of this methodology. The data did not match entirely because the periods were slightly different.

Although the preference was to investigate all aged residential care residents, NHI numbers for full-fee paying clients are not known. Therefore, this exercise focused only on subsidised residents who can be identified in the CCPS database. Use of just subsidised clients is not material provided there is no significant difference in the utilisation hospital services by full fee paying clients.

Findings

The graph below shows the utilisation of medical and surgical inpatient services and the assessment, treatment and rehabilitation services by aged residential care clients. The utilisation of medical and surgical inpatient days by aged residential care clients increases from 2002 to 2008. In comparison the utilisation rate of AT&R services decreases then increases.

Figure 72
Acute care utilisation per 1,000 clients



The graph below shows the cost of providing aged residential care and home support services to one person for 365 days, and the cost of their related use of acute hospital services. These figures represent average utilisation per occupied bed in aged residential care, not per client. On average, aged residential care clients do not stay for an entire year. Therefore, the cost of an average client would be less than that presented in the graph. The cost per aged residential care hospital level client is 50% to 60% higher than that for rest home level clients. The use of acute hospital services by aged residential care hospital level clients and rest home level clients are similar.

Figure 73
Cost per client per year