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Practical innovation: Closing the social infrastructure gap in health and ageing

*Commissioned
and supported
by Australian
Unity*



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Executive summary

If you only have 5 minutes, read this executive summary


If you have 15 minutes, read the report overview

If you have more time, and want more detail, then please read the full report

The social infrastructure gap is unsustainable

Australia has a relatively advanced and equitable health and ageing system, but if we do not plan strategically for the future and innovate starting now, we risk in the not-too-distant future having an outdated, unsustainable system, that is unfit for purpose and unable to meet the needs of the population. The system needs to transform and incremental modifications or cost cutting approaches will not be enough to address the challenge. Australia needs a model focussed on wellbeing (rather than illness), that has a more integrated, preventive and outcomes-focussed approach. New policy, underpinned by real and practical action is needed.

In just over 20 years from now, by 2040, there will be:




**over 5 million
people aged 70+**

**over 4.6 million
people with circulatory
system diseases**




**over 2.6 million
people with high or very
high anxiety or distress**


This report finds that without change, by 2040 the health and aged care systems will need an additional:




**\$57 billion in
capital costs for aged
care and hospitals**



**\$30 billion in annual
operating costs for aged
care and hospitals**



**120,000
nurses (by 2030)**



**over 400,000
aged care workers**

By 2025, just a few years beyond the next Commonwealth budget's forward estimates, investment of up to an additional \$24 billion in capital costs and \$13 billion per annum in operating costs would be needed just to meet the projected gaps in residential aged care, community aged care, home and community care and hospital beds. An additional 180,000 carers for the aged care sector will be needed by 2025, as well as an extra 85,000 nurses across both the health and ageing sectors.

These figures represent just a part of the shortfall in social infrastructure that supports health and ageing. There are other gaps – in allied health services, in palliative care, in community and informal care. Overall, these gaps fall across both “hard” social infrastructure – physical infrastructure

such as buildings, equipment and technology (including digital health) and “soft” social infrastructure – including workforce (paid and unpaid), processes, models of care, and payment and funding mechanisms.

This report concludes that the health and ageing sectors can't be just scaled up to meet growing demand, nor would this secure the best outcomes for those cared for in the system. Such an approach would quickly swamp government budgets. Without fundamental change, even within the next election cycle, the health and ageing system will quickly become unsustainable and no longer fit for purpose – much of this is driven by a change in demand from acute in-patient care, towards looking after people with longer term chronic conditions.

Practical action is required to innovate

Many commentators have analysed the challenges and the future unsustainability of Australian health and care systems. For example, as this report was being finalised, the Productivity Commission released the Shifting the Dial report. The findings and recommendations are strongly aligned, including the suggested design principles, and the need for practical, local integration and innovation. It's now time for real and transformational change. This report therefore identifies and recommends a **practical approach** which aims to:

- Transform the system towards a more **holistic and outcomes-focussed approach**, making better use of **prevention and early intervention**, all underpinned by future demand and demographics – **looking after people closer to their homes and communities, focussing and organising around outcomes that matters to them (physical, mental health, social, financial etc.)**.
- Improve **integration, joining up and patient centricity** in how care and support are delivered – breaking down the legislative, incentivisation and funding barriers that currently exist, and that are perpetuated by the Australian Federation model, to provide **single (rather than fragmented) solutions from the patients' or consumers' perspective**.
- Establish an **Innovation Accelerator as an independent function that funds and supports innovative partnerships and collaborations** to trial new or improved models of care reflecting the above principles and going beyond the scope of the current investments in the Health Care Homes. We estimate that this

will require \$500M pooled funding, which is less than one half of one per cent of one year's Government spending on health. This could provide an effective initial pooled budget to establish and maintain the Innovation Accelerator and to fund and support a portfolio of community trial sites with varying sizes and scopes.

This "Innovation Accelerator" would channel funding and support to commission local teams to develop **trial sites** for new models of care – **that are person, place and population rather than provider based**. It would provide a mechanism to focus on **consumer-driven and co-created innovation**, improvement and health reform from a national and systems perspective.

- Establish trial sites to **design and test** place based solutions for what people need from a holistic perspective, instead of incremental changes or simply better collaboration. Relevant stakeholders in the community would come together to agree overall objectives and **co-design new ways of working** to meet agreed outcomes. To secure approval and support, local teams would submit proposals to the Innovation Accelerator team outlining their suggested approach, budget, collaboration partners, how the trial site would operate with the current system and potential benefits. Trial sites could include locations where there is already committed infrastructure spend such as new hospitals, which could then be developed in a way that is more flexible, better supports the needs of the future, with more innovative models of care.

- Dedicate strategic resources and funding that sit outside of the health and social care sectors to allow more independent improvement that is less hindered by vested interests or existing incentivisation regimes. The approach would include **robust evaluation of the trial sites**, ensure that learnings are shared more broadly and that community quality and safety standards are maintained.
- Ensure that the approach to this testing, delivery, and evaluation is focussed on finding the best models for change that can be **scaled and replicated quickly**.
- Leverage an existing institution in order to act quickly. The Innovation Accelerator could be administered from within an **existing independent organisation** such as the Australian Commission on Safety and Quality in Health Care. It would need to have the authority to allow trial sites to overcome some of the funding and legislative barriers such as current health workforce scope and remuneration arrangements.
- Reflect this in a new **national strategy for health and ageing**.

We need to act now

If Australia is to have a model focussed on wellbeing (rather than illness), that has a more integrated, preventive and outcomes-focussed approach by 2025 or even 2040, the shift in policies and investments needs to begin now.

Strong leadership will be required to achieve the necessary change. Ultimately, the Commonwealth Government needs to play a leading role working in close collaboration with the State/Territory Governments to make this truly effective.

Recommended actions to initiate the Innovation Accelerator include the following:

- Develop and agree an **overarching national, longer term vision and strategy** that supports sustainability of the system and the direction for reform. Ideally this would be developed in a collaborative way with representation from key leaders

at the Commonwealth and State/Territory level and could include participation from:

- Council of Australian Governments (COAG) and the COAG Health Council
 - Australian Health Ministers' Advisory Council (AHMAC)
 - Commonwealth Government Departments including:
 - Department of Prime Minister and Cabinet
 - Department of Health
 - Department of Social Services
 - Department of Finance
 - State/Territory Government Departments.
- However, full agreement across all relevant stakeholders should not be a barrier to progress. As suggested by the Productivity Commission, reforms could be pursued on a bilateral and multilateral basis.

- An **implementation plan** should be developed to identify the practical steps, clear accountability and cost estimates for bringing the above vision and strategy to life. The Innovation Accelerator and trial sites should be a major component of this plan.
- An appropriate independent Government body (eg Productivity Commission) should undertake a **review to scope out the Innovation Accelerator** and potential trial sites and to assess and recommend the best governance structure, roles and responsibilities, powers, resourcing, and high level strategy and target outcomes.
- Begin planning for a longer term, **dedicated pool of funding** for the Innovation Accelerator and the trial sites.



Report overview

Introduction

PricewaterhouseCoopers Consulting (Australia) Pty Ltd (PwC) was engaged by Australian Unity to develop this report. Australian Unity board members and staff made significant contributions to the report. PwC also contributed substantial pro bono support to its development. An Advisory Group was assembled to help develop a more thorough understanding of the current status, challenges in the system and potential directions for improvement. The Group's members kindly volunteered their time and were active participants in the development of this report.¹

This report contributes to the current critical debate around the future of the health and ageing sectors in Australia. It provides evidence of supply gaps in the provision of social infrastructure required at both 2025 and 2040, and outlines a case for reform. It covers a broad scope including:

- Challenges of the current health and ageing systems;
- Geospatial modelling to identify areas of current and future community need and gaps in supply;
- Considerations and options for future reform and innovation; and
- Recommendations on where to start with practical solutions to address these challenges.

Australia's health and ageing sectors are heading towards an inevitable crossroads over the next 10 to 20 years. With population growth, ageing and increasing burden from chronic disease, important questions arise as to whether the system is sustainable and will be able to provide the same level of support to communities in the future. For example, the 2010 Intergenerational Report estimated

that by 2050, half of all government expenditure will be dedicated to health, old age pensions and aged care, and that there will be half as many working taxpayers per older person to cover these costs.²

The modelling results in this report show that the scale of community needs in the future will be considerable around ageing, chronic disease and mental health over the short term (2025) and medium term (2040). Some of the estimated gaps in the provisions of future social infrastructure seem unattainable from a fiscal and timing perspective (the ability, or otherwise, to secure sufficient infrastructure and workforce capacity and capability). Even if logistically possible, simply scaling up and doing more of the same in the future will mean a very costly health system, and one increasingly seen as no longer fit for purpose. It is designed around illness, not wellbeing and is not built to deliver complex, longer term care as effectively as possible, which is what the majority of people today and in the future will need. International examples offered in this report show other nations have already recognised these issues and are moving accordingly in key areas.

We need different approaches to reduce demand, to increase the efficiency of the system, and to increase the supply of evidence informed, cost effective services to meet future population needs. Using evidence from national and international examples, as well as insights from the Advisory Group, this report proposes that the best way forward is to transform the system by investing in a more population health and wellbeing focussed approach, making better use of prevention and early intervention strategies.

Prevention and early intervention initiatives could help shift the demand curve for the most costly health infrastructure (acute care), as could a greater focus on care beyond the hospital walls. Supporting people at high risk (eg significant weight gain/obesity) or during high impact junctions (eg early childhood) in their life could help prevent future illness and reduce demand for the highest cost health infrastructure. Ultimately, the system should focus on keeping people as well as possible for as long as possible, and out of hospital, and there should be a shift in thinking away from the current medical model that focuses on illness rather than wellbeing.

The recommendations in this report will require considerable investment and change to improve the system, which will challenge existing structures but change is necessary. The importance of the Australian health and ageing sectors and the scale of future community need and related costs are simply too large to overlook.

There needs to be immediate action to recast the health and ageing sectors in Australia to better meet the needs of Australians. This report recommends that the single most important next step is to introduce a practical mechanism to guide and commission innovation, improvement, and fundamentally, new ways of working to secure patient and consumer outcomes.

1. See Appendix E for Advisory Group biographies

2. The Treasury (2010). Australia to 2050: future challenges. The 2010 intergenerational report: overview. Canberra: Commonwealth of Australia.



Table 1: Summary of demand and supply indicators mapped for each focus area

Focus areas	Demand indicators	Supply indicators
Ageing Well	Population aged 70 years or older	Residential aged care (RAC) places and Community aged care (CAC) places
Chronic Disease	Population with circulatory system disease	Full service equivalent (FSE) general practitioners (GPs)
Mental Health	Adult population with high or very high psychological distress scores on the Kessler 10 scale (K10) ⁵	Medicare Benefits Schedule (MBS) Better Access Program (BAP) ⁶ preparation of mental health care plans by GPs

Approach to Geospatial Modelling

A selection of health and ageing demand (community needs) and supply (major social infrastructure available³) indicators have been mapped using publicly available data projected out to 2025 and 2040.⁴ Trend data and current state data have been used to inform assumptions about projected future demand and supply.

The resulting maps help to illustrate the level of current and projected demand and supply, and therefore the gaps in provisions of social infrastructure by local government area (LGA) for the three focus areas: Ageing Well, Chronic Disease and Mental Health. These areas were selected and scoped based on scale and burden of disease, level of publicly available information and potential need for reform.

Within each area of focus, there are a range of measures that can be used

as indicators of demand or need. It is important to note that this approach provides a high level summary of key infrastructure for health and ageing in Australia – it is not a comprehensive list. Many state and local community initiatives exist that are beyond the scope of this project to map in their entirety. There are also key programs and services that we are aware of, but have been unable to map by LGA due to the lack of sufficient publicly available data.

3. 'Hard social infrastructure' refers to physical infrastructure such as buildings, equipment and technology (including digital health). 'Soft social infrastructure' refers to processes, models of care, workforce (paid and unpaid), and payment and funding mechanisms. Combined, they are core components of the health and ageing systems in Australia.

4. Maps to 2040 are not provided in the report, however, summary results are provided.

5. The Kessler-10 psychological distress scale is a 10-item questionnaire used to evaluate levels of anxiety and distress

6. Better Access is intended to encourage GPs to work more closely and collaboratively with psychiatrists, clinical psychologists, registered psychologists and appropriately trained social workers and occupational therapists, to improve treatment and management of mental illness in the community.

Table 2: Summary of gaps and potential cost projections for aged care services and hospital beds

Infrastructure	Cost assumption	2014 gap	Costs	2025 gap	Costs	2040 gap	Costs
Residential aged care beds	\$217,000 capital cost per bed ⁷ \$64,431 per person per annum operating cost ⁸	2,118	\$0.5 bn capital \$0.1 bn operating pa	94,200	\$20.4 bn capital \$6.1 bn operating pa	226,060	\$49.1 bn capital \$14.6 bn operating pa
Community aged care beds	\$21,842 per person per annum operating cost ⁹	48,320	\$1.1 bn pa	100,627	\$2.2 bn pa	174,287	\$3.8 bn pa
Home and community support services	\$2,048 per person per annum operating cost ¹⁰	NA	NA	380,549	\$0.8 bn pa	925,493	\$1.9 bn pa
Hospital beds	\$200,000 capital cost per bed ¹¹ \$574 per bed day operating cost ¹²	NA	NA	17,818	\$3.6 bn capital \$3.7 bn operating pa	41,134	\$8.2 bn capital \$8.6 bn operating pa

Analysis results – the system is not sustainable

The analysis in this report indicates that continuation of the current health and ageing models would require significant investment in order to meet the projected demand for infrastructure in 2025 and 2040, with the most obvious gaps being aged care social infrastructure.

The scale of the challenge

By 2025, investment of up to an additional \$24.0 billion in capital costs and \$12.8 billion per annum in operating costs would be needed to meet the projected gaps in residential aged care, community aged care, home and community support services and hospital beds. **By 2040, this could reach \$57.3 billion in additional capital costs and \$28.9 billion per annum in operating costs for the same categories.** Based on current budget estimates and political appetite for investment, these investment demands are unlikely to be met. Table 2 provides a summary of the estimated gaps and potential future costs to 2025 and 2040 for aged care services and hospital beds, assuming Commonwealth targets for aged care places and demand for hospital beds are maintained.

**An additional
\$57 billion in capital
costs and \$30 billion
in annual operating
costs needed by 2040**

7. Aged Care Financing Authority (2016). Fourth report on the funding and financing of the aged care sector.

8. Based on Aged Care Financing Authority (2016). Fourth report on the funding and financing of the aged care sector which reported operational expenses of \$14.9 billion for the period 2014-15 with a total of 231,255 consumers.

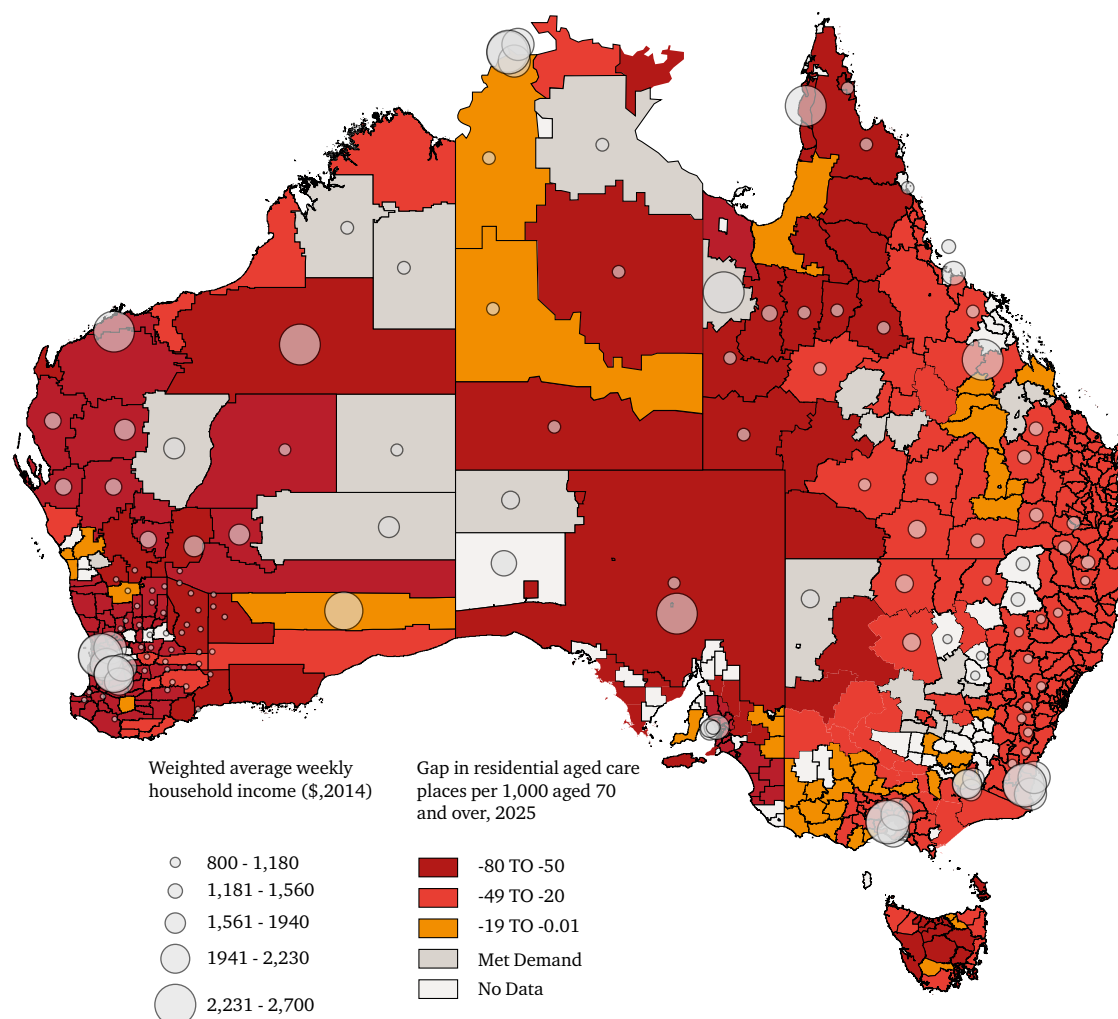
9. Aged Care Financing Authority (2016). Fourth report on the funding and financing of the aged care sector.

10. Ibid.

11. Health and Human services (2017). Infrastructure and Planning delivery. Retrieved in April 2017 from URL: www.capital.health.vic.gov.au/Project_proposals/Benchmarking/Hospital_capital_planning_module. Ac

12. National Hospital Cost Data collection (2014). Retrieved in April 2017 from URL: www.ihsa.gov.au/sites/g/files/net636/f/publications/nhcdc-round18.pdf.

Figure 1: Projected gaps in residential aged care places, 2025



Source: PwC's GEM, PHIDU. Gaps in residential care places are estimated based on an approximate threshold of 80 residential aged care places per 1,000 people aged 70 and over. A negative score indicates the LGA has less than the Commonwealth Government target of 80 residential care places per 1,000 people aged 70 and over.

Figure 1 is an example map from the analysis showing gaps by LGA in residential aged care places, projected to 2025 using the Commonwealth Government's national target of 80 places per 1,000 people 70 years or older. The dark red shading indicates LGAs where a gap of between 50 to 80 residential aged care places per 1,000 is projected compared to the Australian national target. This map shows that if current care models prevail, almost all LGAs will have to build new residential aged care facilities by 2025 to meet the future demand.

GPs are the major supply indicator modelled for people with chronic disease. The projected growth rate of

over 4 per cent per annum for GPs in Australia, means that the supply of GPs is currently projected to outgrow the population and chronic disease growth rates. Overall, there doesn't appear to be gaps in the future supply of GPs (although some locations will have oversupply and others will have undersupply) if we are to maintain current service ratios. However, if there is higher demand for GPs in the future (eg if they are to play a greater role in keeping people out of hospital), then there may be gaps in future supply.

Mental health plans, provided by GPs, is the supply indicator used for mental health. Based on current demand patterns, and assuming the

available mental health plans grow with the number of GPs in the country, there does not appear to be an overall future gap with mental health supply either (although some locations will have oversupply and others will have undersupply). However, if everyone with high or very high anxiety or distress were to receive support, then service levels would need to more than double and there would be difficulty in meeting current and future demand. It should be noted that there are a range of mental health services operating outside the traditional GP-led mental health plans.

Workforce shortages

In addition, there will be **critical workforce shortages** with potential gaps of **180,000 aged care workers in 2025 and 400,000 by 2040**, assuming the same growth rate in aged care workers as the ageing population. The aged care workforce itself is also ageing and it is already difficult to attract sufficient support for the needs of the sector today.¹³ A future increase in workforce demand without a corresponding increase in supply will potentially increase service prices, leading to higher costs for care per person.

The demand for nurses in Australia is also projected to exceed supply, with a shortage of approximately 85,000 nurses by 2025 or 123,000 by 2030 under current settings.¹⁴ In addition, demand for informal care is estimated to outgrow its supply as a high prevalence of disability at older ages and an ageing population will see the number of people who require care rapidly increase in the future.

Inequity

Overall, metropolitan areas are better supplied with social infrastructure than remote and rural locations. Altogether, 184 of the 577 LGAs in Australia have gaps in two or more of the mapped supply indicators and have below average socioeconomic status scores (based on Socio-Economic Indexes scores). This indicates that **more than a third of Australian LGAs could be vulnerable, with social infrastructure gaps and fewer resources to meet their needs through private funding.**

The system is no longer fit for purpose

Costs are rising, as are people's expectations of their support and care, and of the system. The health sector was designed to manage acute illness and injury and not to deliver complex, longer term care well, which is what the majority of people today and in the future will need.

The system is fragmented and difficult to navigate for people with chronic and complex needs, leading to a frustrating patient experience, variable quality of care and costly inefficiencies. Siloes in the system and the lack of shared patient data make it very challenging for service providers to collaborate for their patients. This means that patients with complex needs (eg multiple diseases) aren't necessarily receiving holistic care that considers all of their needs.

In addition, services don't necessarily take into consideration what people value for their health, wellbeing and life. People have little accountability for their health and wellbeing and information asymmetry, culture and fragmentation in the system don't support people taking more ownership. There will be increasing pressure from citizens to have a health and ageing system that meets their needs and expectations.

An addition of over 400,000 aged care workers needed by 2040

.....

An additional 120,000 nurses needed by 2030

.....

One third of LGAs considered vulnerable with multiple supply gaps and fewer resources to meet their needs through private funding

Services are funded based on activity (service volumes) and patient outcomes are not tracked or incentivised. This approach leads to inefficiency (avoidable, variable and unnecessary treatments) and lack of clarity on impact and value for money. It does not incentivise collaboration or innovation, both of which will be critical for the future.

Even if logistically possible, just scaling up and doing more of the same in the future will mean a very costly system, and one that is increasingly seen as no longer fit for purpose.

13. Harrington, M, and Jolly, R. The crisis in the caring workforce. Canberra: Parliament of Australia, Commonwealth of Australia; Mavromaras, K., Knight, G., Isherwood, L., Crettenden, A., et al. (2017). The aged care workforce, 2016. Canberra: Department of Health, Commonwealth of Australia.
14. Health (2014) Australia's Future Health Workforce-Nurses: Detailed Report: Canberra: Commonwealth of Australia.

Design principles



A system to better meet the needs of future communities – design principles

There is a need for reform to develop the health and ageing sectors to better meet the needs of future communities. This should reflect design principles that were developed with the project Advisory Group, using insights from international examples. The design principles should be considered as part of any major future reforms or investments and include:

- **Risk & outcomes focussed** – investment and activity should be focussed on impact for people's wellbeing and what they value (outcomes that matter to them). There should be a focus on identifying risks to people's health and wellbeing and intervening based on evidence (noting this may lie outside of the current health system scope).
- **Person centred** – care is organised around the recipient rather than being driven by the provider. The system supports people to support themselves by focusing on the independence and accountability in health and wellbeing. Services/support/care is designed to consider what people value in their healthcare, which will differ for each individual. Care is more self-directed and offers more choice.
- **Access & equity** – people can have access to appropriate quality support and care that is affordable and effective, but also sensitive to the need for people to take personal responsibility. Universality is challenged and those with the higher needs get more and appropriate support.
- **Effective & efficient** – reduce wasteful expenditure in the system and minimise investment

in activities that do not support desired outcomes. Quality and safety are high priority performance measures that are transparent and consistently tracked.

- **Integrated care and support systems** – support is coordinated and comprehensive across the system.

These principles are not new and are in line with many national and international strategic reports on the need for population health reform. As this report was being finalised, the Productivity Commission released the Shifting the Dial report. The findings and recommendations are strongly aligned, including the suggested design principles, and the need for practical, local integration and innovation.

A system to better meet the needs of future communities – Elements of a proposed future model

The high level elements of a potential future system were developed using the design principles set out above, Advisory Group discussions and international examples of success. Figure 2 summarises the main elements of a potential system.

Primary focus on health and wellbeing

The system should focus on keeping people as well as possible for as long as possible. Community initiatives are designed to support wellbeing, based on evidence of risk factors that lead to illness. There needs to be considerable investments in prevention, early intervention and supporting health literacy and personal accountability to keep people well as long as possible. A focus on determinants of health and wellbeing, such as education and social support networks,¹⁵ will require

support outside of the healthcare sector as well. Impacts on people's health and wellbeing should be a consideration for all policy development.

Targeted support for those that need it

The future system must have the capacity to support those that are at high risk of poor health outcomes and high needs care, such as people with chronic disease, mental health challenges and the ageing population, with the goal to keep them as well as possible and out of hospital. Integrated, multidisciplinary teams (which may include professionals outside of the health system, such as social care workers) should be much more widely available than they currently are, to assess and support those at/with high risk and complex care needs. Holistic and integrated health with early intervention initiatives can help keep people out of acute care. Support is designed to incorporate what people value (eg independence for older people) and outcomes such as wellbeing, patient experience and hospital avoidance are more important and measured than volume of services (activity) alone.

Optimise effective high needs care

Acute and high care (eg dementia) services will always be required. The risks and negative impacts or experiences from high-level care should be minimised and efficiency and effectiveness maximised. In these cases, therefore, very high quality care should be provided to support people to reach optimal health as soon as possible and be supported to recover in the community where appropriate. Acute and high care resources should be for those with the highest and emergency needs.

15. WHO (2017) The determinants of health. Retrieved 9/08/2017 from URL: www.who.int/hia/evidence/doh/en/

Figure 2: Summary of the proposed future model



Enablers of a system to better meet the needs of future communities

The following enablers are considered most important for the proposed future system.

Joint Commonwealth/State leadership

There needs to be shared accountability and incentives to provide integrated support and care across Commonwealth Government and State/Territory jurisdictions. For there to be a truly holistic approach to health and wellbeing, this should cover all aspects of government, not just be restricted to health. In other words, stronger integration of health and human services, housing, and local government.

Local/community leadership

Local and community leadership is needed for the successful implementation of policies and programs including individuals, local government, service providers, businesses, and local community organisations. Local community buy-in, design and ownership, increase the likelihood of new approaches, models of care, and initiatives being successfully implemented and effective in delivering outcomes.

Funding for outcomes

Funding for health and wellbeing outcomes will incentivise more valuable support and care (as opposed to just activity) and reduce wasteful expenditure in the system. Pooled and capitated funding could break down

some of the siloes that currently exist and encourage collaboration between service providers and disciplines. It would also lead to more investment on risk reducing strategies and illness prevention, even outside of the healthcare sector.

Health and wellbeing literacy and accountability

Information needs to be available and easily accessible for everyone. There also needs to be a better understanding of the responsibilities that people need to take in their own health and wellbeing, particularly in lifestyle factors and identifying risks early on. The use of incentives and behavioural economics could help drive this change in perspective.

Quality, safety and data transparency

Access to quality data and shared information can facilitate better coordination of care and reduce fragmentation. It supports accountability and serves as a real-time feedback mechanism to monitor and track performance and outcomes. Where there are performance and safety issues, data can be used by 'honest brokers' to address any issues that occur, and maintain integrity within the system. Access to data would allow for predictive analytics to identify those with highest needs and customise the level and type of support and care needed.

Technology and innovation

Technology and innovation will be a key enabler to improving access and effectiveness of care and support. As an example, where there are gaps in the provision of social infrastructure for health and ageing in rural and remote regions of Australia, technology (eg further integrated telehealth) could provide a cost effective way to improve access.

Workforce capacity, capability and culture

There need to be incentives and a culture that drive a whole of person focus. Changing technology and models of care will require new roles, capacity, capability and cultural alignment. Effective prevention work does not always require clinical personnel. Health promotion, public health, community development and social support would require non-clinical roles in the workforce to enable the system of the future.

Barriers to overcome

The following potential barriers were also identified:

Political challenges

From a political perspective, it is relatively risky to attempt major reforms in health. In addition, the benefits from long term investments such as prevention often extend far beyond political cycles. The pressure to deliver immediate returns impedes progress. Any system changes will therefore need to focus on more immediate as well as longer term gains.

Funding and incentives

The current incentives structure and funding approach in the sector is seen as one of the most critical barriers to change by the Advisory Group. Incentivising (eg through fee for service models) siloed, fragmented and disconnected activity leads to inefficiency, lack of clarity on impact and poor value for money. This approach does not incentivise collaboration or innovation, both of which will be critical for the future. In addition, it does not incentivise a person centred view on care.

In addition, the current model of fee-for-service rewards activity irrespective of and without accountability for, desired outcomes. Altering the commissioning and incentivisation would be a major change and impact on existing agreements between Governments, government entities, insurers, service providers, and the workforce.

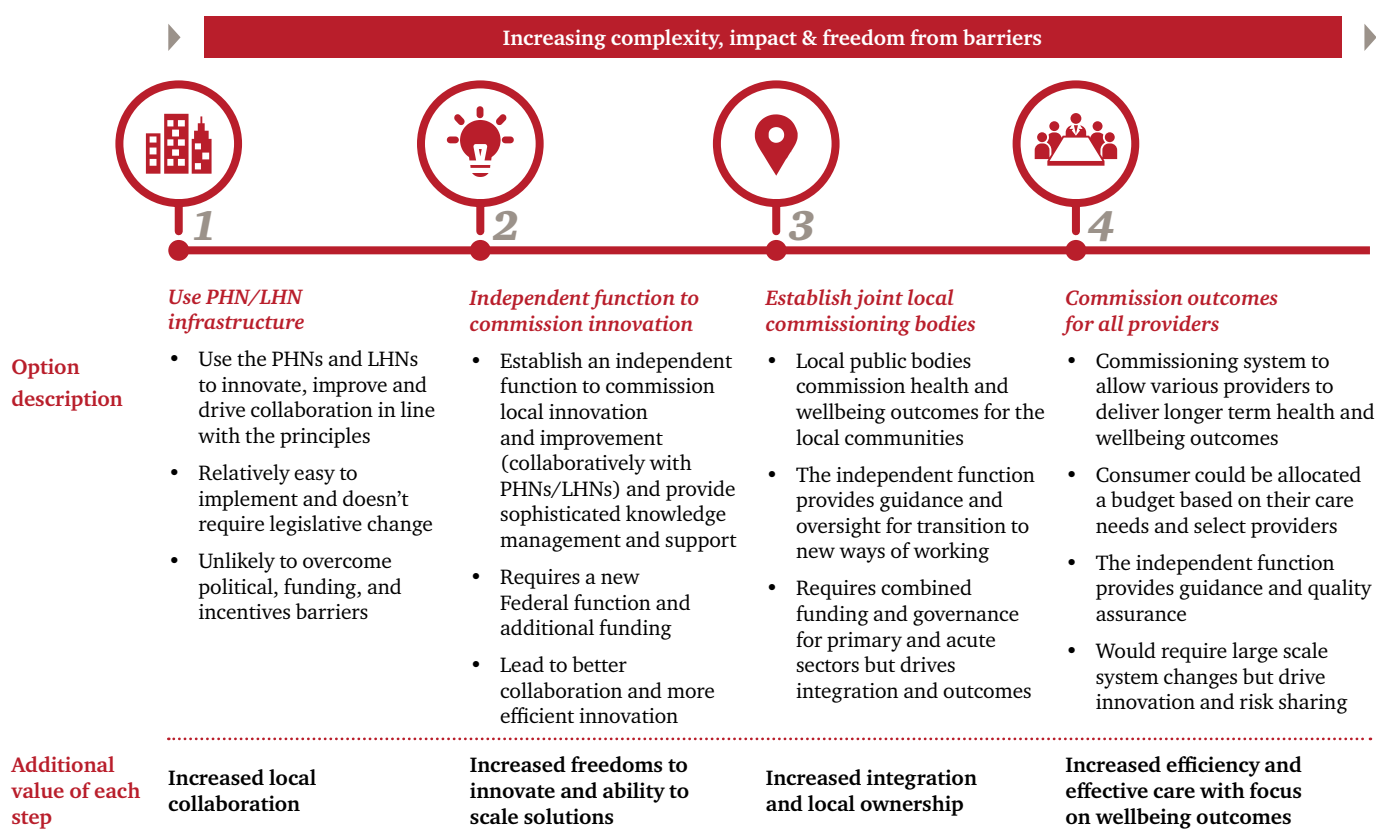
A medical model mindset and related inertia

All clinicians in the current system have been trained, staffed, funded and organised around the medical model that is siloed and focuses on illness. This is deeply ingrained in the way people think about the health system and the roles of different stakeholders. There needs to be a well-led cultural shift to get both providers and the population (not just patients) to view the system from a preventive, population health and wellbeing perspective.

Lack of quality data and information

The lack of integrated, population level (and related) data in Australia is the cause of many limitations in the current system. Clinicians do not always have the full picture when trying to understand and support people's needs. Reporting on outcomes is difficult, and there is little transparency on performance, safety and quality. Where data is available, there are interoperability challenges and reporting inconsistencies. Data sets are not linked around the individual and this is a major barrier to whole person care and more integrated approaches, however, patient privacy is a major area of concern and needs to be taken into consideration.

Figure 3: Overview of options to support local innovation and improvements



A new approach to innovation and developing new models of care

Planning a feasible way forward and clear next steps is complicated by the scale and complexity of the changes needed to the system to achieve the proposed future model, and the considerable barriers to reform. However, this can no longer be a reason for inaction or just a focus on incremental changes. The costs and the community needs of the future are too great to allow barriers to prevail.

A more sophisticated and broad-based approach to innovation and improvement could support the development of future models of care that are fit for purpose for Australia. There are many promising international examples but, these need to be tailored to, and tested in, the Australian context.

Ideally as a first step there needs to be a national strategy that articulates the principles for the future, but also an

effective approach to innovate, develop and scale solutions that are fit for purpose in Australia. However, if a long term national strategy is not currently feasible then it should not be a barrier to progress.

A change is needed to facilitate new ways of working and place-based initiatives that focus on preventive, population health and wellbeing outcomes which will require collaboration outside of the health system. **Communities need to be empowered to test smaller scale, evidence informed models and there needs to be a way to remove as many of the barriers to reform and progress as possible to support this.**

There are various ways to invest in and initiate the system-wide changes that are needed. Drawing from international examples, Figure 3 outlines a scale of potential options to drive innovation nationally and progress towards the proposed future model.

Recommendation – An independent function with the capability to commission innovation and improvement (Innovation Accelerator)

Establishing an 'Innovation Accelerator' (option 2) to guide and commission testing of new models, would help drive local innovation in a more unfettered, efficient and consistent way than investing in PHNs alone (option 1). This option aims to overcome many of the identified barriers by introducing a new function that sits outside of the health, ageing and social sectors and so would be less influenced by vested interests, better able to support system level thinking and better able to develop a more objective point of view towards innovation, emerging evidence and reform for Australia.

The Innovation Accelerator

The Innovation Accelerator would:

- Invite expressions of interest (EOIs) from potential trial site areas (local teams) that can be considered, evaluated and selected/approved.
- Local teams should include PHNs and LHNs but also other community players that have a stake in the community's health and wellbeing (eg large employers, health insurers or social services). These teams could develop innovative models and programs in line with the design principles. EOIs would need to include details on how the trials would support the design principles and how teams would work within or around the current system and with existing organisations, in order to minimise the risk of further fragmentation.
- Commission successful local teams to develop these trial sites that test and refine local, co-created solutions that are in line with the principles and the proposed future model – similar to the Vanguard sites in the UK.
- Provide a safe testing environment for these new models of care on the ground and not direct the innovation trial sites, but rather guide and 'shield' them from the constraints of existing governance and funding arrangements where needed.
- For example, the Innovation Accelerator could commission local trial sites to develop and test an approach to reducing avoidable hospital admissions and readmissions through co-designed, person centred, prevention initiatives that would lead to new way of working, incentives and patient outcomes.
- **This should not focus on incremental changes or just increased collaboration in the current ways of working.**

The Innovation Accelerator could negotiate and agree Memoranda of Understanding (MoUs) with local teams to agree objectives, measures, funding, performance management, reporting, collaboration and potential legislative freedoms needed. Pooled funding (from the Commonwealth and State/Territory Governments) would be provided, through the Innovation Accelerator, to deliver on agreed health and wellbeing outcome targets.

In summary, therefore, the Innovation Accelerator would provide national leadership to:

- support thinking outside of current arrangements
- commission market solutions that drive innovation and system improvements using the design principles as core objectives
- negotiate and help to provide the environment needed for local sites
- help sites develop effective, local co-designed approaches
- collect and share evidence and insights nationally
- identify opportunities to scale innovations and develop reforms
- convene appropriate debate on safety and quality with respect to innovations
- report back on solutions and evaluation outcomes

The commissioning of local co-developed solutions should drive innovation but also collaboration and new partnerships across stakeholders that would otherwise work mostly in siloes. A nationally consistent approach (through the Innovation Accelerator) should drive efficiency by helping trial sites to navigate complexity and accountability. Where local sites have developed innovative solutions and insights for Australia, the Innovation Accelerator would play a leadership role in helping to convert these into reforms and change for Australia.

There are challenges that come with establishing the Innovation Accelerator. It would require intergovernmental approvals and sufficient funding to be successful. However, the health system is one of the largest budget items and employment sectors in Australia¹⁶ and so an Innovation Accelerator to enable more efficient and effective innovation and improvement would be warranted and relevant over the long term.

Why an Innovation Accelerator?

Considering feasibility, potential to overcome identified barriers in the system and potential of achieving the proposed future model, the Advisory Group recommend option 2 – the Innovation Accelerator because:

- The option provides the best balance currently of impact and ease of implementation of all of the four solutions considered.
- It would provide a mechanism to focus on innovation, improvement and health reform from a national and systems perspective. There are great examples of improvement initiatives in the country but these are unfortunately limited to operating in the current siloes of the system – a systems perspective is needed.
- Dedicated, strategic resources and funding that sit outside of the health and social care sectors will allow more independent innovation, improvement and reform development that is less hindered by vested interests.
- The independent accelerator can provide a national mechanism to support collaboration for reform across government bodies and a more consistent approach to improvements in the system.
- This approach would provide a national resource to build evidence and insights for better support and care and help navigate the complexities and barriers to change in the system.

16. Budget (2016). Budget 2016-17 Overview. Canberra: Commonwealth of Australia

- Establishing an independent function can act as a building block to drive future reforms and progression towards more local commissioning.

The Innovation Accelerator would drive more independent, market driven, integrated and strategic change than option 1 (just investing more in PHNs), as PHNs wouldn't have the same broader systems perspective or authority to drive the same level of impact.

The Australian Commission on Safety and Quality in Health Care is a respected, independent organisation with leadership that has experience working with various Government stakeholders and so may be the best place to embed the Innovation Accelerator.

Structure and funding

Setting up the function as a new independent body has its merits but would be complex and could take years to establish. A more practical alternative could be to create a new capability within an established, relevant Commonwealth body such as the Australian Commission on Safety and Quality in Health Care (ACSQHC). Relevant approvals would be needed to increase the scope and funding of the Commonwealth body to include the new function, however this approach is likely simpler than establishing an entirely new independent body. If successful after an 'incubation' period, and deemed necessary after an analysis of the potential legal and governance implications, the independent function could be later changed to a new independent body.

The Innovation Accelerator would need to have sufficient funding to commission and support successful local testing and the authority to allow testing sites to overcome some of the legislative barriers for testing purposes such as the current health workforce scope and remuneration.

We estimate that funding equivalent to \$500 million or less than one half of one per cent of current Commonwealth Government and State/Territory health spend of \$115.4 billion¹⁷ could provide an effective initial pooled budget to establish and maintain the Innovation Accelerator and to fund and support a portfolio of community trial sites with varying sizes and scopes.

The funding would need to be protected and there would need to be governance arrangements in place to allow for a certain level of independence and protection from political cycles and partisan demands. However, there would still need to be robust transparency and accountability around the overall strategy and resulting investments through the Innovation Accelerator.

Recommended early actions to initiate the Innovation Accelerator include the following:

- Develop and agree an overarching national, longer term vision and strategy that supports sustainability of the system and the direction for reform. Ideally this would be developed in a collaborative way with representation from key leaders at the Commonwealth and State/Territory level and could include participation from:
 - Council of Australian Governments (COAG) and the COAG Health Council
 - Australian Health Ministers' Advisory Council (AHMAC)
 - Commonwealth Government Departments including:
 - Department of Prime Minister and Cabinet
 - Department of Health
 - Department of Social Services
 - Department of Finance
 - State/Territory Government Departments

However, full agreement across all relevant stakeholders should not be a barrier to progress. As suggested by the Productivity Commission, reforms could be pursued on a bilateral and multilateral basis.

- An implementation plan should be developed to identify the practical steps, clear accountability and cost estimates for bringing the above vision and strategy to life. The Innovation Accelerator and trial sites should be a major component of this plan.
- An appropriate independent Government body (eg Productivity Commission) should undertake a review to scope out the Innovation Accelerator and potential trial sites and to assess and recommend the best governance structure, roles and responsibilities, powers, resourcing, and high level strategy and target outcomes.
- A longer term, dedicated pool of funding for the Innovation Accelerator and the trial sites will need be allocated to support the implementation plan and should be included in the next round of impending Health Care Agreements.

Further considerations

Aside from investing in a new approach to innovate and reform, there are other well-known initiatives and investments that are needed to improve the system for the future and should be considered now as well. Some have been discussed and become particularly evident in the development of this report:

- **Make a range of 'hard' infrastructure investments** – While the current system is unsustainable, a more optimal system would not eliminate the need for acute care services and aged care support and facilities. There will need to be considerable additional investment in capital infrastructure to meet the needs of the future, particularly in aged care facilities.
- **Identify and reduce wasteful expenditure in the system** – Evidence based national standards, guidelines and resulting campaigns and training can help reduce some of the wasteful expenditure and unnecessary costs in the system.

17. AIHW (Australian Institute of Health and Welfare) 2017. Health expenditure Australia 2015–16. Health and welfare expenditure series no. 578 Cat. no. HWE 68. Canberra: AIHW

- **Implement straightforward prevention and early intervention initiatives** – Prevention or early intervention initiatives, that are relatively straightforward and where there is considerable evidence of effectiveness and cost effectiveness, should be rolled out nationally.
- **Better support remote and rural locations** – There needs to be further investment in innovative solutions to provide better coverage for remote and rural locations that have social infrastructure gaps. Telehealth and telemedicine programs are one option to help navigate the challenge. Another consideration could be subsidies to train and upskill people that are already living in remote and rural locations to support the future sustainability of the workforce.
- **Establish high quality health and social systems data** – Regardless of the direction of the forward strategy, high quality data will be needed and is not available today. The My Health

Record could be a starting point to collect critical population level data. For this to be possible, it would need to evolve to include data outside of the health system as well.

- **Invest in a workforce for the future** – Planning for the workforce of the future needs to start now. All newly trained clinicians should be educated in line with the proposed future and design principles. New roles will need to be developed to meet future needs (eg data analytics capability or community prevention).

The need to act now

If Australia is to have a model focussed on wellbeing (rather than illness), that has a more integrated and outcomes-focussed approach by 2025 or even 2040, a shift in policies and investments needs to begin now. Continuing to pursue incremental and/or low risk changes in the system will not be enough to meet the needs of Australians in the future.

There needs to be funding and structures in place to better support the design, testing and implementation of system improvements that are suitable for the Australian context. Regardless of the reform approach, transformational changes will be difficult and take time to get right.

Strong leadership will be required to achieve the necessary change. Ultimately, the Commonwealth Government needs to play a leading role working in close collaboration with the State/Territory Governments to make this truly effective.

Australia has a relatively advanced and equitable health system today, but if we do not plan strategically for the future and innovate – starting now – we risk in the not-too-distant future having an outdated, unsustainable system, that is unfit for purpose and unable to meet the needs of the population.



Disclaimer

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Background

Background

PricewaterhouseCoopers Consulting (Australia) Pty Ltd (PwC) was engaged by health, wealth and living company Australian Unity to develop a thought leadership report that maps Australia's social infrastructure for health and ageing, projects future needs, and identifies challenges and opportunities to meeting these needs. PwC has also contributed in kind support to the development of this report.

This report outlines the project approach, analysis, findings and recommendations from this work.

Purpose of this report

The purpose of this report is to add to evidence and provide:

- A high level assessment of the nature and scale of challenges to the health and ageing system;
- Geospatial modelling to identify areas of Australia with the highest community needs today and potentially in the future;
- A proposal for the future of the health and ageing system in Australia; and
- A practical first step towards developing the future system.

A number of previous reports have articulated the challenges to the Australian health and ageing system and the risk of an unsustainable model for the future.¹⁸ This report adds a geospatial dimension to the evidence base and supports the ongoing debate on a sustainable health and ageing system.

The Advisory Group

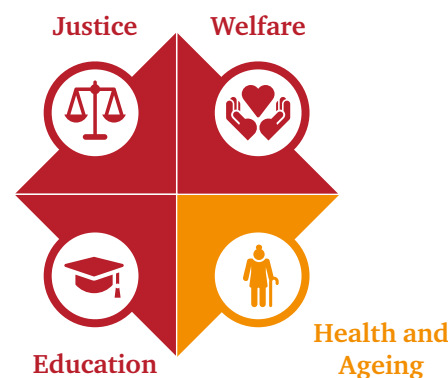
An Advisory Group was assembled to better understand the current status, challenges in the system and ideas for improvement. The Advisory Group members were asked to participate by Australian Unity and PwC and represent a variety of perspectives on the health and ageing sectors. The members kindly volunteered their time and were active participants in the development of the point of view in this report. However, it remains a PwC report and the analysis and views expressed in it cannot be taken to be that of individual Advisory Group members. A full list of the advisory and project group members can be found in Appendix D.

Definition of infrastructure for health and ageing

Social infrastructure includes infrastructure that facilitates the operation of the education, justice, health and welfare sectors, and the scope of this project has been to focus on health and ageing. In this context, the project investigates social infrastructure using the terms 'hard' and 'soft' social infrastructure.

'Hard social infrastructure' refers to physical infrastructure such as buildings, equipment and technology (including digital health). 'Soft social

Figure 4: Scope of social infrastructure analysed



Hard & soft infrastructure

- Buildings, equipment & technology
- Processes, models of care, paid/unpaid workforce, payment/funding mechanisms

18. There are numerous reports that have articulated the need for reform, and proposed potential options. While these are too extensive to list, these include work from the Productivity Commission, Commonwealth Department of Health, Australian Health Policy Collaboration, Grattan Institute, and the Australian Healthcare and Hospitals Association as examples. There have also been a number of reviews commissioned by Governments, such as the National Health and Hospitals Reform Commission.

infrastructure' refers to processes, models of care, workforce (paid and unpaid), and payment and funding mechanisms. Combined, they are core components of the health and ageing systems in Australia.

Growing infrastructure costs

Australia is fortunate to have a diverse range of social infrastructure comprising health, education, welfare and justice facilities, programs and services. Each year, Australia is estimated to spend more than half a trillion dollars on social purposes.¹⁹ This includes expenditure on health, education, social security, welfare, and housing. These costs are expected to increase with expected population growth (38 million by 2060)²⁰ and rising levels of physical and mental chronic disease issues.²¹

Increasing health and ageing expenditure

Healthcare expenditure in Australia has increased considerably in the last decade. For example, between 2004-05 and 2014-15, health expenditure as a proportion of gross domestic product (GDP) increased from 8.8 per cent to 10.0 per cent (\$102.6 billion to \$161.6 billion in 2014-15 prices) or from \$55.0 billion in 2004-05 to \$108.2 billion in 2014-15.²² The costs borne by individuals have also increased by two fold from \$14.1 billion to \$28.6 billion in that time.²³

The main drivers of increasing healthcare expenditure have been a growing and ageing population, the introduction and use of new technologies, rising community expectations of healthcare, and the increasing burden of mental and physical chronic diseases.²⁴

Aged care costs are also projected to grow. A report by the Productivity Commission predicted that the relative expenditure on aged care will more than double (to 1.8 per cent of GDP) by 2049-50, with residential care costs accounting for 85 per cent of these costs in the future.²⁵

Total Government expenditure on health and ageing is projected to increase considerably in the future. One report estimated that Government expenditure on health, age pensions and aged care will double from the 25 per cent today to half of total government expenditure by 2050.²⁶ In addition, there will only be 2.5 working persons per older person, compared to 5 today and 7.5 in 1970.²⁷

Focus areas for analysis

Three focus areas have been selected for the analysis in this report. These areas were selected and scoped by the PwC and Australian Unity project teams based on:

- Scale and burden of disease;
- Level of publicly available information; and
- Potential need for reforms.

Drawing on these inputs and the subsequent debate, the following focus areas were selected:

Ageing well – the Australian population is one that is both growing and ageing.²⁸ Between 2014 and 2040, the number of people aged 70 years or older is projected to increase more than two-fold. This will be a key contributor to the increasing demand on infrastructure for health and ageing with four out of ten people aged 70 years or older accessing aged care services.²⁹

Chronic disease – the main burden of disease in Australia has shifted from communicable to non-communicable diseases. Not only are more people living with chronic diseases, but the complexity and severity is also increasing, with over half of the Australian population having two or more long-term health conditions.³⁰ Circulatory system diseases (which include heart disease, stroke, and hypertensive diseases) have been chosen as an example given the high burden of these diseases to Australia and the availability of data.

Mental health – It is estimated that in any year, one in five people in Australia experience a mental health issue.³¹ Almost half of these people (44 per cent) report a need to access support and services, although not all of them are able to do so.³²

19. PwC and The Centre for Social Impact (2016). Australia's social purpose market: understanding funding flows and exploring implications.

20. Productivity Commission (2013). An ageing Australia: preparing for the future. Productivity Commission Research Paper. Canberra: Commonwealth of Australia.

21. Australian Institute of Health and Welfare (AIHW) (2016). Australia's health 2016. Australia's health series no. 15. Cat. no. AUS 199. Canberra: AIHW.

22. AIHW (2016). Health expenditure Australia 2014–15. Health and welfare expenditure series no. 57. Cat. no. HWE 67. Canberra: AIHW. This expenditure includes costs borne by the Australian Government, state/territory and local government, health insurance funds, individuals, and other sources of non-government funding.

23. AIHW (2016). Health expenditure Australia 2014–15. Health and welfare expenditure series no. 57. Cat. no. HWE 67. Canberra: AIHW.

24. Australian Institute of Health and Welfare (2016). 25 years of health expenditure in Australia: 1989-90 to 2013-14. Health and welfare expenditure series no. 56. Cat. No. HWE 66. Canberra: AIHW.

25. Productivity Commission (2013). An ageing Australia: preparing for the future. Productivity Commission Research Paper. Canberra: Commonwealth of Australia.

26. The Treasury (2010). Australia to 2050: future challenges. The 2010 intergenerational report: overview. Canberra: Commonwealth of Australia.

27. Ibid.

28. ABS (2014). Australian Historical Population Statistics, 2014. Cat. no. 3105.0.65.001. Canberra: ABS.

29. Aged Care Financing Authority (2016). Fourth report on the funding and financing of the aged care sector.

30. ABS (2015). National health survey: First results, 2014-15. Canberra: ABS.

31. ABS (2008). National Survey of Mental Health and Wellbeing: summary of results, 2007. Canberra: ABS.

32. Ibid.

Part A – The Gaps



***Mapping demand for
infrastructure and services***

Mapping demand for infrastructure and services

Approach

There are numerous components that make up Australia’s social infrastructure for health and ageing, many of which lie outside of the health system. The analysis in this report focus on certain components of that infrastructure, relying on data that is publicly available at the local government area (LGA) level. This provides an illustrative example of where demand and supply exist for social infrastructure that supports health and ageing, and where there may be current or projected future gaps.

Geospatial modelling

PwC’s Geospatial Economic Modelling (GEM) platform allows for the capture and analysis of trends across small geographic areas within Australia. Originally developed to provide a more granular understanding of the Australian economy, GEM can be utilised to conduct economic, industry,

demographic, social and other analysis ‘on the ground.’ For this report, GEM has been used to map the demand and supply for infrastructure for health and ageing within small geographic areas (LGAs), relying mainly on Public Health Information Development Unit (PHIDU) data.

Selected health and ageing demand (community needs) and supply (major social infrastructure available) indicators have been mapped based on 2014 data and projected out to 2025 and 2040.³³ The maps help to illustrate the level of current and projected demand, supply, and therefore gaps in the provision of social infrastructure by LGA for the three focus areas.

Within each area of focus, there are a range of measures that can be used as indicators of demand or need, however the mapping analysis is limited by what is publicly available on an LGA level. In addition, maps are designed to be easily interpretable and therefore only selected key measures are represented on each map.

For the purposes of this report, a selection of a few key indicators of demand and supply of infrastructure for health and ageing have been mapped and discussed as examples (Table 3).

In addition, weighted average household income levels by LGA have been mapped to potentially indicate where there may be lower socio-economic status population with higher needs and reliance on public services.

It is important to note that this approach provides a high level summary of key infrastructure for health and ageing in Australia and it is not a comprehensive assessment of all social infrastructure. The indicators mapped serve as indicative examples to demonstrate the demand, supply and gaps.

Many state and local community initiatives exist that would be beyond the scope of this project to map in their entirety. There are also key programs and services that we are aware of, but have been unable to map by LGA due to the lack of sufficient publicly available data. Additional workforce and infrastructure considerations are also discussed.

Table 3: Summary of demand and supply indicators mapped for each focus area

Focus areas	Demand indicators	Supply indicators
Ageing Well	Population aged 70 years or older	Residential aged care (RAC) places and Community aged care (CAC) places
Chronic Disease	Population with circulatory system disease	Full service equivalent (FSE) general practitioners (GPs)
Mental Health	Adult population with high or very high psychological distress scores on the Kessler 10 scale (K10) ³⁴	Medicare Benefits Schedule (MBS) Better Access Program (BAP) ³⁵ preparation of mental health care plans by GPs

33. Maps to 2040 not provided in the report however summary results are provided.
34. The Kessler-10 psychological distress scale is a 10-item questionnaire used to evaluate levels of anxiety and distress
35. Better Access is intended to encourage GPs to work more closely and collaboratively with psychiatrists, clinical psychologists, registered psychologists and appropriately trained social workers and occupational therapists, to improve treatment and management of mental illness in the community.

Ageing well

Ageing is not a disease state but a time in the life cycle when people are at higher risk for increased ill health from the challenges associated with ageing such as arthritis, dementia, and hearing loss.³⁶

In Australia, there are a range of aged care services that can be accessed by individuals, usually those aged 70 years or older. These may be provided within a home environment, or within a residential care facility. Aged care services can be categorised into three types:

- **Commonwealth Home Support Programme (CHSP)** (an amalgamation of Home and Community Care (HACC) and three other programs in July 2015): entry-level help for older people at home or in the community, and planned respite activities to relieve carers. Services include social support, transport, help with domestic chores, personal care, home maintenance, home modification, nursing care, meals and allied health services. Clients pay a contribution (which varies between providers) towards the cost of services and CHSP providers receive Commonwealth Government funding through grant agreements. CHSP operates in every State/Territory except for Western Australia.

- For older people requiring a greater level of help to remain at home, the **Home Care Packages (HCP) Programme** offers coordinated packages of care from an approved home care provider (previously referred to as community aged care). HCPs assist older people to stay at home (rather than entering residential aged care) and provide ongoing personal and support services and clinical care. Each package of services is individually tailored to the client's needs according to the principles of Consumer Directed Care.
- **Residential aged care** is provided in aged care homes on a permanent or respite (short-term) basis. It is for people who need more care than can be provided in their own homes. Services include personal care, accommodation, support services (such as laundry and meals), nursing and some allied health services.

The national retirement or independent living facilities are not included in the above nationally subsidised aged care categories (or the demand maps). Retirement villages are residential units in a community that are privately funded and offer a range of lifestyle and support services specific to the older populations who are fairly independent and don't need daily support (like someone may need in residential aged care). The Property Council of Australia estimates that over 180,000 older Australians are housed in retirement villages, and demand is expected to increase in the future.³⁷

The Australian population is ageing, with the number and proportion of older people growing.³⁸ At the same time, the ability to rely on informal care is changing due to smaller families, more single person households, and younger generations less willing to provide care for their relatives.³⁹ As a result, a greater supply of infrastructure for ageing will be required in the future.⁴⁰ This is reflected in the number of residential and community aged care places in Australia which has already risen from 93.3 places per 1,000 people aged 70 years or older in 1998 to 111.5 places (81.1 residential, 30.4 community) per 1,000 people aged 70 years or older in 2015.⁴¹

Current demand and services mapped

In 2015, it was estimated that there were 2.4 million people in Australia aged 70 years or older.⁴² According to the Fifth report on the funding and financing of the aged care sector, 39 per cent of the population aged 70 years or older used aged care services in 2015-16 with a total Australian Government expenditure of \$16.2 billion on aged care in that year, 75 per cent of expenditure going to residential care.⁴³

36. AIHW(2017) Ageing: Retrieved 9/08/2017 from URL: www.aihw.gov.au/ageing/

37. Property Council of Australia (2014) Retirement Living Council fact sheet: Canberra: ABS census

38. ABS (2014). Australian Historical Population Statistics, 2014. Cat. no. 3105.0.65.001. Canberra: ABS.

39. National Seniors Australia (2010). The future of aged care in Australia.

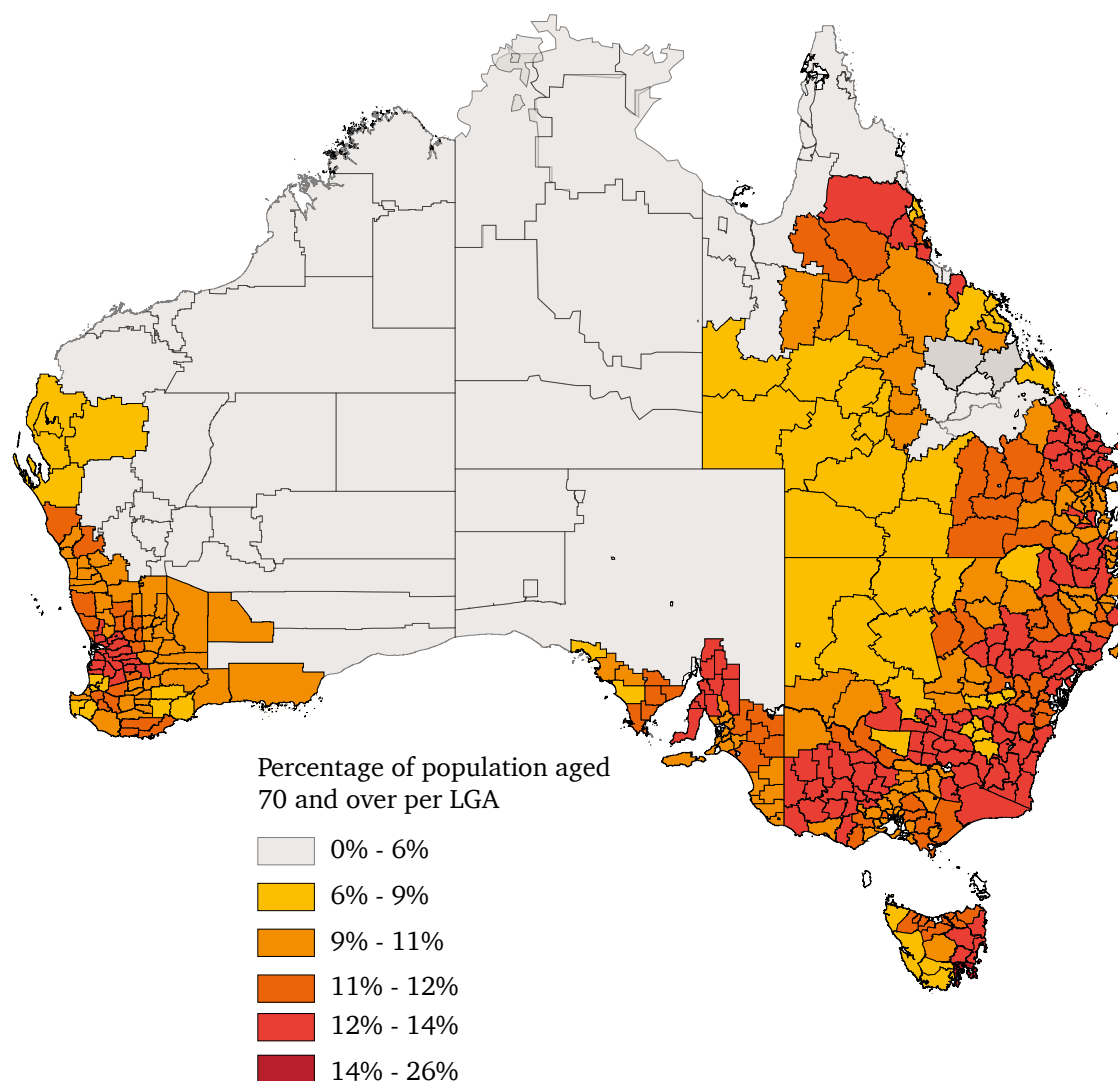
40. Ibid.

41. AIHW (2016). Residential aged care and home care 2014-15. Canberra: AIHW.

42. Aged Care Financing Authority (2016). Fourth report on the funding and financing of the aged care sector. Canberra: Commonwealth of Australia.

43. Aged Care Financing Authority (2017). Fifth report on the funding and financing of the aged care sector.

Figure 5: Proportion of population aged 70 years or older, 2014



Source: PwC's GEM, PHIDU.

Figure 5 shows a map of Australia and the proportion of people 70 years or older in each LGA (where there is data available) across the country. The dark red areas highlight the LGAs with the highest proportion of people aged 70 years or older per capita.

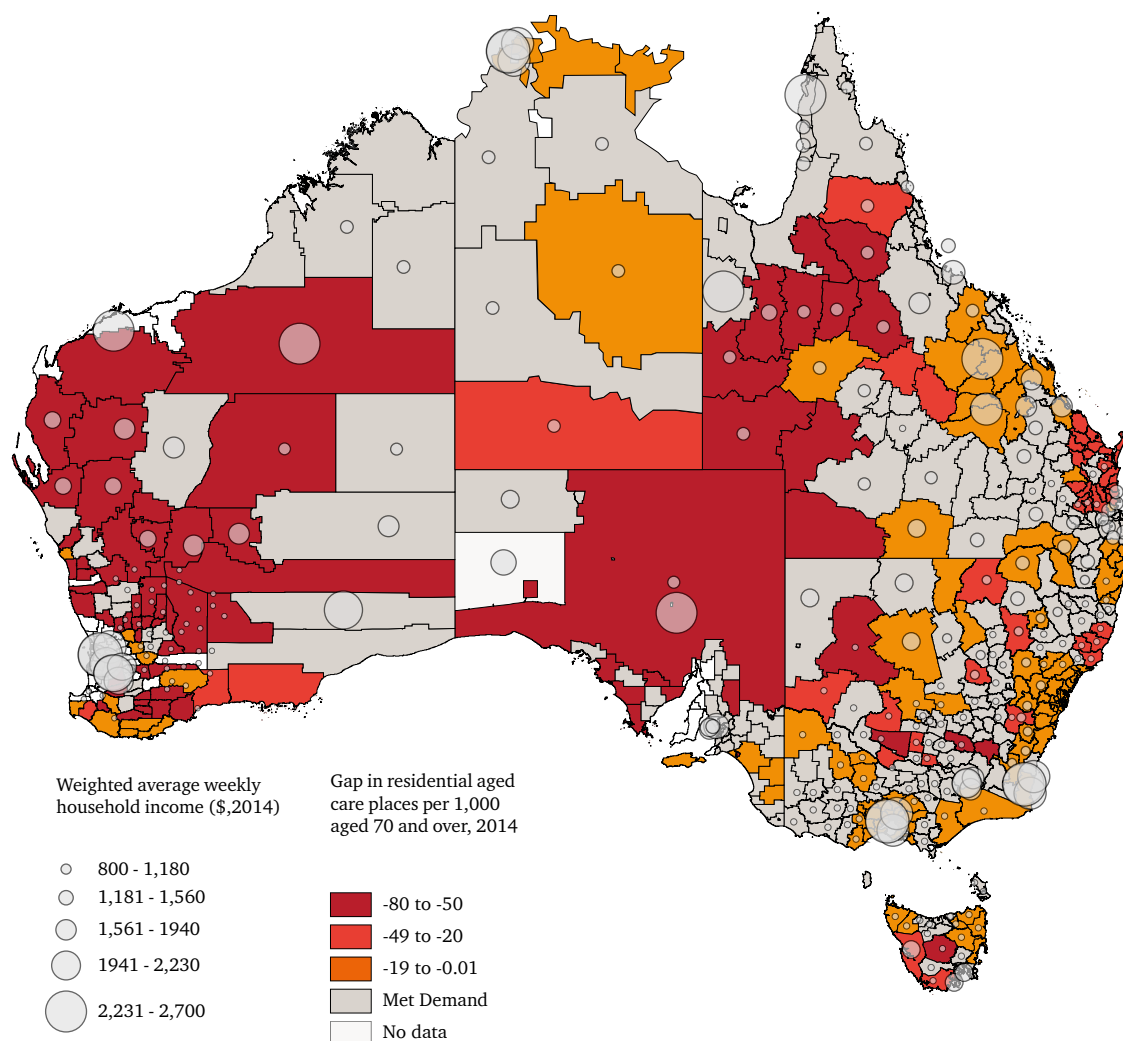
The Fourth report on the funding and financing of the aged care sector (2016) set targets for future aged care provision in Australia, considering

the projected increase in demand for services and the goal of keeping people in the community longer.⁴⁴ The targets include an aged care provision ratio of 125 places (80 residential, 45 community) per 1,000 people aged 70 years or over by 2021–22.⁴⁵

44. Aged Care Financing Authority (2016). Fourth report on the funding and financing of the aged care sector.

45. Ibid.

Figure 6: Gap in residential aged care places, 2014



Source: PwC's GEM, PHIDU. Gaps in residential care places are estimated based on an approximate threshold of 80 residential aged care places per 1,000 people aged 70 and over. A negative score indicates the LGA has less than the Commonwealth Government target of 80 residential care places per 1,000 people aged 70 and over. The beige colour indicates that the target has been met or exceeded in that LGA.

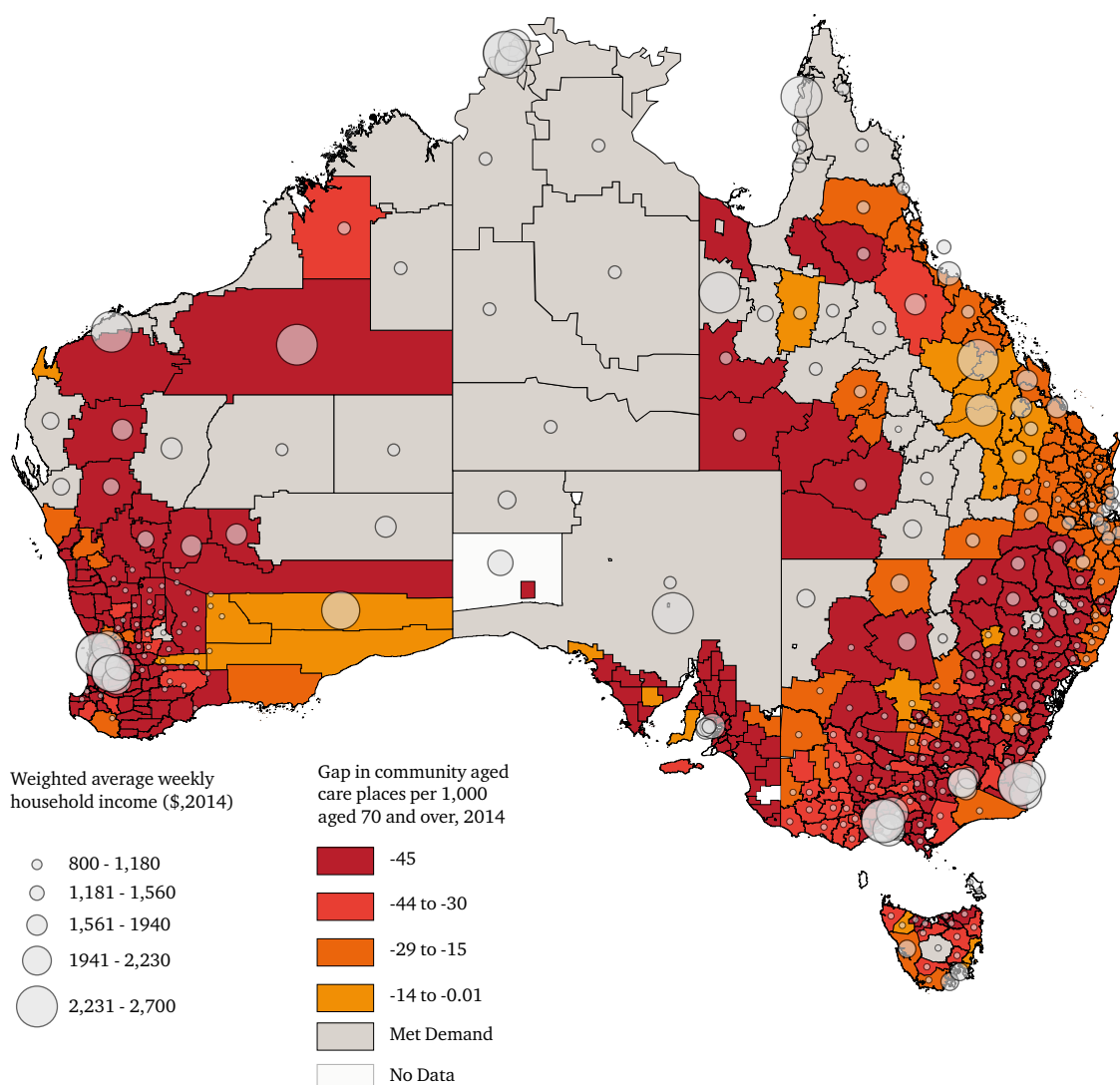
If that target were applied to the 2014 population of 2.4 million people aged 70 or older then there would be a gap of 2,118 residential aged care places and a gap of 48,320 community care places in 2014 based on PHIDU data. However, an alternative way to assess gaps would be to consider demand and supply at a more local scale as older people prefer to stay near their homes.⁴⁶ If it was assumed that most people would not want to travel outside of their LGA in order to access aged care, then there would be a total gap of 18,595 residential aged care places or around 258 residential aged care facilities (with an average size of each facility being 72 places).⁴⁷

Figure 6 shows the analysis by LGA of gaps in residential aged care places against the national target for 2014. The darkest red areas indicate LGAs with the largest gap between the number of residential aged care places and the national target (50 to 80 residential aged care places per 1,000 for that LGA).

46. Productivity Commission (2015). Housing decisions of older Australians. Productivity Commission Research Paper. Canberra: Commonwealth of Australia.

47. Based on Aged Care Financing Authority (2016). Fourth report on the funding and financing of the aged care sector – 192,370 places provided by 2,681 services

Figure 7: Gap in community aged care places, 2014

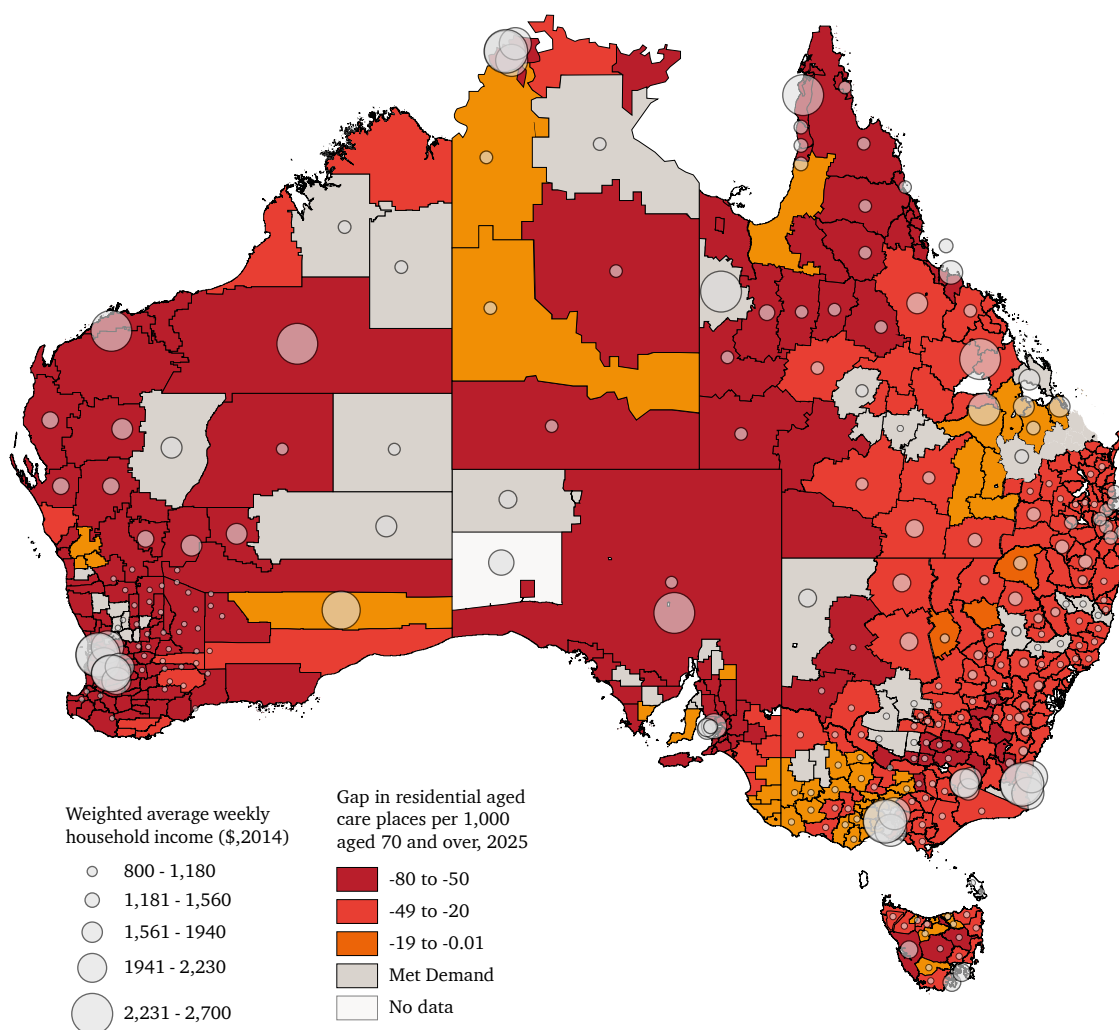


Source: PwC's GEM, PHIDU. Gaps in community care places are estimated based on an approximate threshold of 45 community aged care places per 1,000 aged 70 and over. A negative score indicates the LGA has less than the recommended 45 community care places per 1,000 aged 70 and over. The beige colour indicates that the target has been met or exceeded in that LGA. 45 places per 1,000 aged 70 and over is the Commonwealth Government target for community aged care places.

Figure 7 shows the gaps in community aged care places by LGA compared with the national target for 2014. The darkest red shading indicates LGAs where there are no community aged care places – a gap of 45 community aged care places per 1,000 against the national target.

In addition, for Figure 6 and Figure 7, the weighted average weekly household income for each LGA was mapped. This gives an indication of potential communities where there may be higher needs for support services and fewer resources to fund services and infrastructure privately.

Figure 8: Projected gaps in residential aged care places, 2025



Source: PwC's GEM, PHIDU. Gaps in residential care places are estimated based on an approximate threshold of 80 residential aged care places per 1,000 people aged 70 and over. A negative score indicates the LGA has less than the Commonwealth Government target of 80 residential care places per 1,000 people aged 70 and over. The beige colour indicates that the target has been met or exceeded in that LGA

If the national target of 80 residential aged care and 45 community aged care places per 1,000 aged 70 and over were applied to the estimated 2025 population then there would need to be 278,960 residential aged care places and 156,915 community care places to meet demand. This would mean an increase of 94,000⁴⁸ residential aged care places (an average increase of 3.7 per cent per annum) and 51,800 community care places from 2014 levels. By comparison, the number of residential aged care places increased by an average of 1.6 per cent per annum between 2007 and 2015.⁴⁹

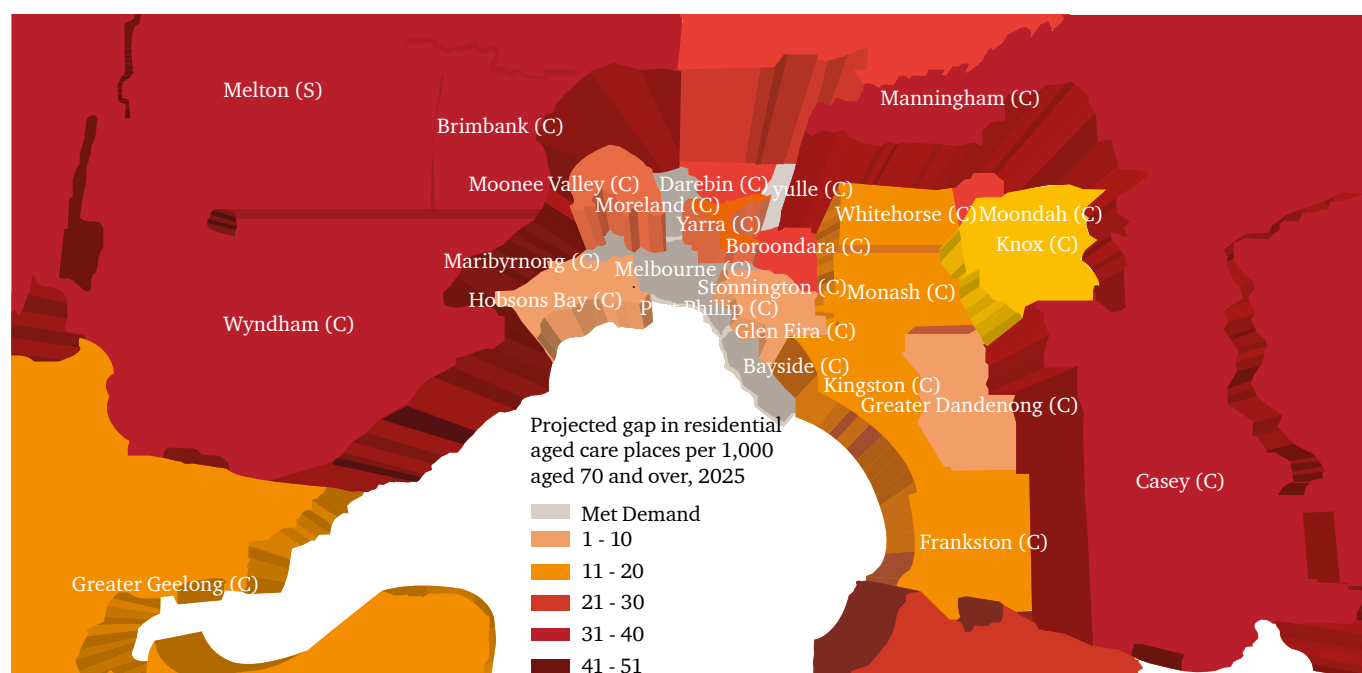
Projected demand to 2025 and 2040

Population projections sourced from PHIDU provide estimates of the population of people aged 70 years old and above in each LGA across Australia. These projections estimate that the population of people aged 70 years or older will grow to almost 3.5 million people by 2025, a 50 per cent increase from the 2014 population.

48. This compares to an estimated 82,000 additional places needing to be built between 2014 and 2025 based on the Third report on the funding and financing of the aged care sector (ACFA 2015). Our projections differ due to the use of different source data. Our projections are based on publicly available PHIDU data from 2011 in order to estimate by LGA.

49. Aged Care Financing Authority (2016). Fourth report on the funding and financing of the aged care sector.

Figure 9: Projected gaps in residential aged care places, Greater Melbourne, 2025



Source: PwC's GEM, PHIDU. Gaps in residential care places are estimated based on an approximate threshold of 80 residential aged care places per 1,000 people aged 70 and over. The beige colour indicates that the target has been met or exceeded in that LGA

These calculations do not take into account the need to rebuild current stock. The Aged Care Financing Authority estimates that over the next decade, 25 per cent of the current stock would need to be rebuilt⁵⁰ and that the average refurbishment spend per service (facility) is \$4.2 million.⁵¹ With an estimate of 2,681 facilities in Australia, if one quarter of these undergo refurbishment between 2015 and 2025, it would lead to an additional cost of \$2.8 billion.⁵²

In addition, if the current ratio of home and community support services clients per population aged 70 years or older were maintained to 2025 then there would be an increase of more than 1.1 million clients. Overall this shows a 49 per cent increase in demand for each of the three service types.

Figure 8 shows the gaps by LGA in residential aged care places that are projected to 2025 using the national target of 80 places per 1,000 people 70 years or older. The dark red shading indicates LGAs where a gap of between 50 to 80 residential aged care places per 1,000 is projected for that LGA compared to the national target. This map shows that almost all LGAs nationally would have to build new residential aged care facilities by 2025 to meet the future demand.

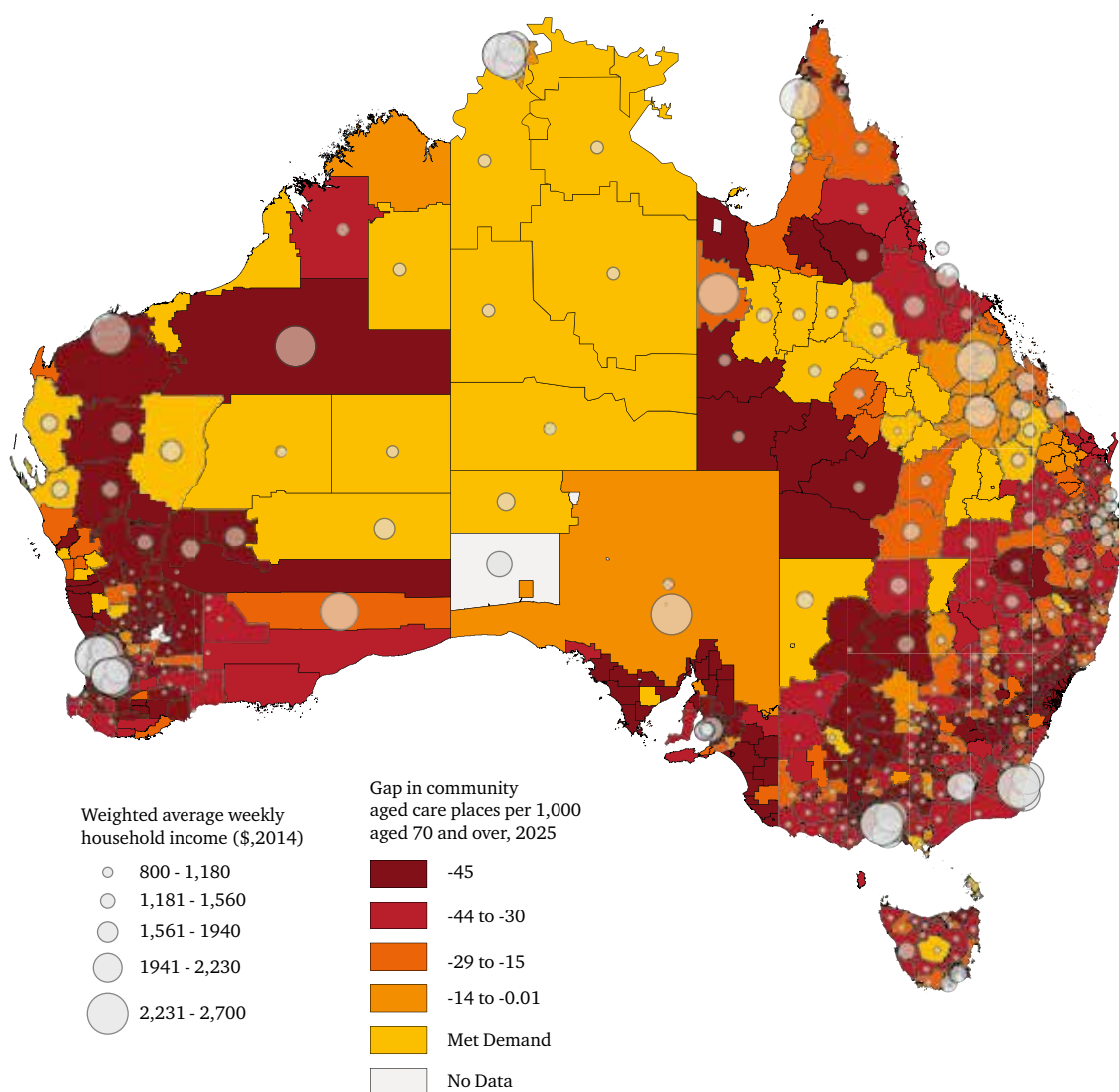
Figure 9 shows the projected gap in residential aged care places for LGAs in the Greater Melbourne area per 1,000 persons aged 70 years or older. LGAs shaded dark red represent LGAs with the highest projected gap in 2025. Our analysis shows LGAs furthest away from the LGAs of Melbourne and Geelong are projected to have the highest gap in residential aged care places by 2025.

50. Aged Care Financing Authority (2015). Third report on the funding and financing of the aged care sector.

51. Aged Care Financing Authority (2016). Fourth report on the funding and financing of the aged care sector.

52. Aged Care Financing Authority (2015). Third report on the funding and financing of the aged care sector; Aged Care Financing Authority (2016). Fourth report on the funding and financing of the aged care sector.

Figure 10: Projected gaps in community aged care places, 2025



Source: PwC's GEM, PHIDU. Gaps in community care places are estimated based on an approximate threshold of 45 community aged care places per 1,000 aged 70 and over.

Figure 10 shows the projected future need in community aged care places by LGA in 2025 using the national target (compared to 2014 service levels). The dark red shading indicates LGAs where there are no community aged care places and a gap of 45 community aged care places per 1,000 against the national target.

Projections to 2040

If the projected population growth for each LGA between 2020 and 2025 were to continue to 2040, the demand on all services would further increase. It is projected that an additional 226,060 residential aged care places would need to be built by 2040 (from 2014 levels) to meet the future demand. This would

mean that about 3,140 residential aged care facilities would need to be built if the average size of each facility was 72 places.⁵³ It is estimated that each aged care bed costs about \$217,000 in capital to build.⁵⁴ Based on this current cost estimate, \$49.1 billion in capital funding would be needed to build enough beds to meet demand by 2040.

53. AIHW (2017) Aged care services and places: Retrieved on 9/08/17 from URL: www.aihw.gov.au/aged-care/residential-and-community-2011-12/services-and-places

54. Aged Care Financing Authority (2016). Fourth report on the funding and financing of the aged care sector.

Table 4: Actual and estimated population aged 70 years and older and estimated gaps in the provision of social infrastructure to support aged care

	2014	2025	2040
Number of people aged 70 years or older	2,335,974	3,486,997	5,135,252
Residential aged care places			
Demand for residential aged care places (benchmark of 80 per 1,000 aged 70 years or older)	186,878	278,960	410,820
National gap in residential aged care places (benchmark of 80 per 1,000 aged 70 years or older)	2,118	94,200	226,060
Community aged care places			
Estimated home and community support services clients aged 70 years or older	772,317	1,152,866	1,697,810
Demand for community aged care places (benchmark of 45 per 1,000 aged 70 years or older)	105,119	156,915	231,086
National gap in community aged care places (benchmark of 45 per 1,000 aged 70 years or older)	48,320	100,627	174,287

Source: PwC's GEM, PHIDU.

Table 4 summarises the population projections, and projected gaps in social infrastructure for aged care to 2025 and 2040.

The resulting estimated gaps from this analysis should be considered to be conservative. There is analysis that suggests the national targets used as a basis for the future projections on demand for residential aged care could be an underestimate considering current usage rates.⁵⁵ In addition, the above gap projections do not include investment and implications from refurbishments. According to the Aged Care Financing Authority, the average lifetime of an aged care building is 40 years.⁵⁶

Challenges to supporting the ageing population

Growing demand

Australia has a fast growing ageing population. Table 4 demonstrates that continuing with the current model of support for Australia's ageing population would require substantial investment in order to meet the projected demand to 2025 and 2040. This investment would require both considerable capital investment to build hard infrastructure such as residential aged care facilities, and also ongoing operating costs to fund workforce and services.

The needs of the ageing population are also changing with the increasing prevalence of chronic diseases and dementia requiring more complex, high care needs among the ageing population. In Australia, dementia is now the greatest cause of disability

in those aged 65 and over,⁵⁷ with an estimated 400,800 people living with dementia and this is expected to grow to over 500,000 by 2025.⁵⁸

Sufficient workforce

Aged care facilities will struggle to meet the growing demand of high needs care in the future.⁵⁹ Aside from high cost infrastructure, there will need to be a large enough workforce to support the ageing population. A 2016 survey of aged care organisations found that there were 366,027 aged care workers (4 per cent increase since 2012) with about 64 per cent in residential aged care and the rest in home care.⁶⁰ If this workforce is to grow at the same rate as the ageing population then there will need to be 546,382 aged care workers in 2025 and 804,650 in 2040.

The aged care workforce itself is also ageing and it is already difficult to attract sufficient support for the needs of the sector today.⁶¹ A future increase in workforce demand without corresponding increases in supply

55. RSM (2016). RSM aged care sustainability review 2016; Tune, D. (2017). Legislated review of aged care 2017. Canberra: Department of Health, Commonwealth of Australia. Aged Care Financing Authority (2015). Third report on the funding and financing of the aged care sector.

56. Australian Institute of Health and Welfare (AIHW) (2012). Dementia in Australia, Retrieved 9/08/2017 from URL: www.aihw.gov.au/reports/dementia/dementia-in-australia/data.

57. Brown, L., Hansanata, E. La, J.A. (2017). Economic cost of dementia in Australia, Alzheimer's Australia, Canberra.

58. RSM(2016) RSM aged care sustainability review 2016: Canberra

59. Mavramaras, K. et al (2017) The Aged Care Workforce, 2016, Department of Health, Canberra.

60. Harrington, M, and Jolly, R. The crisis in the caring workforce. Canberra: Parliament of Australia, Commonwealth of Australia; Mavromaras, K., Knight, G., Isherwood, L., Crettenden, A., et al. (2017). The aged care workforce, 2016. Canberra: Department of Health, Commonwealth of Australia.

61. Budget (2017). Budget 2017-18 Overview. Canberra: Commonwealth of Australia.'

will mean an inability on the part of providers to recruit the right level and type of workforce that in turn could lead to unmet need, and potentially increase service prices, leading to higher costs for care per person. Recognising the need to address these supply issues, the Australian government announced in the 2017-18 budget investment of \$33 million over three years as part of the Boosting Local Care Workforce program to help deliver jobs for people in the disability and aged care sectors, targeting rural, regional and suburban areas that require strong workforce growth.⁶²

Quality of life

Aged care facilities are generally known for being places that people would prefer not to live in.⁶³ They are often designed to efficiently provide medical care which limits the potential for personal choice and control. Care and services are not necessarily designed to focus on what older people really value, such as independence or companionship and community.⁶⁴ It has been estimated that almost 60 per cent of Australians aged 70 years or over would prefer to receive formal care at home in the event that they are unable to care for themselves.⁶⁵

According to Atul Gawande's *Being Mortal*, it is clear that the current model of reactive disjointed healthcare and support is not the most appropriate approach for older people who often have more complex illnesses and are vulnerable. A 2012 AIHW study found that more than half of those in aged care showed signs of depression.⁶⁶ Suicide is an issue for older men in Australia, with the 85 years and over

age bracket having the highest self-harm death rate per 100,000.⁶⁷

The current medical model does not prioritise what older people value at that stage in their life.⁶⁸ In addition, the current system is fragmented and difficult to navigate, with no one provider responsible for an older person's care and outcomes. They cycle in and out of hospitals, which are expensive and can be a dangerous place for older people (eg hospital acquired infections).⁶⁹

Hypothetical scenario: older people remain independent and out of aged care longer

Older people want to remain independent and stay in their homes as long as possible.⁷⁰ If it were possible to keep people living in the community and supported in their homes for longer, there would be reduced demand on hard infrastructure in the future (residential aged care facilities). For this to be possible there would likely need to be better preventive care and an increase in the community care scope and service volumes with the aim for optimal health and ability, wellbeing and independence.

In a hypothetical scenario, if it were possible to shift the national residential aged care places target to focus on the population aged 80 years or older instead of those aged 70 years or older, through supporting a healthier ageing population and community care solutions that allow people to stay home longer, then the existing number of residential aged care places could be sufficient to meet future demand in 2040.

In this hypothetical scenario, even if the average cost of community aged care places (\$21,842 per person per annum⁷¹) were to double or triple, there would still be considerable fiscal savings when comparing to costs associated with residential aged care (\$217,000 per bed in capital costs,⁷² \$64,431 per person per annum operating costs.)⁷³

In line with this scenario, the recently released Legislated review of aged care 2017 recommends that government introduce a level 5 home care package as a way to keep people living in the community for longer. The review found that elderly people with high care needs (such as from dementia) are not able to be effectively cared for at home for long periods under levels 3 and 4 care and require more hours of care. Those unable to receive this additional support tend to enter residential aged care, which could potentially be avoided if an additional level of care were to be introduced.⁷⁴

The Legislated review also suggests that, if current trends were to be maintained with people not accessing residential aged care until the ages of 80-85 years old, there would likely be an oversupply of residential aged care places to 2027. However, once the baby-boomer cohort enter their 80s, the ratio of 125 (residential and community combined) aged care places per 1,000 aged 70 years and older will likely be insufficient to meet demand. The review suggests that not only would the number of aged care places need to be increased, but a more appropriate age-specific ratio would be one established for those aged 75 years or older.⁷⁵

62. National Seniors Australia (2010). The future of aged care in Australia.

63. Clough, R., Manthorpe, J., Green, B., Fox, D., et al. (2007). The support older people want and the services they need. Joseph Roundtree Foundation; WHO (2007). Global age-friendly communities: a guide; PwC (2015). Connected and coordinated: personalised service delivery for the elderly.

64. National Seniors Australia (2010). The future of aged care in Australia.

65. AIHW 2013. Depression in residential aged care 2008-2012. Aged care statistics series no. 39. Cat. no. AGE 73. Canberra: AIHW.

66. ABS (2016) Suicide in Australia: Retrieved 9/08/2017 from URL: www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/3303.0~2015~Main%20Features~Intentional%20self-harm:%20key%20characteristics~8

67. Based on PwC Australia insights from previous projects, the global PwC report on connected and coordinated personalised service delivery for the elderly advisory group discussions, WHO age friendly city criteria and Atul Gawande's *Being Mortal*

68. Levinson, DR (2010). Adverse events in hospitals: national incidence among medicare beneficiaries. Retrieved on 9/08/2017 from URL: oig.hhs.gov/oei/reports/oei-06-09-00090.pdf; Covinsky, KE, Pierluissi, E, and Johnston, CB (2011). Hospitalization-associated disability: "She was probably able to ambulate, but I'm not sure". JAMA 306(16): 1782-1293.

69. National Seniors Australia (2010). The future of aged care in Australia.

70. Aged Care Financing Authority (2016). Fourth report on the funding and financing of the aged care sector.

71. Ibid.

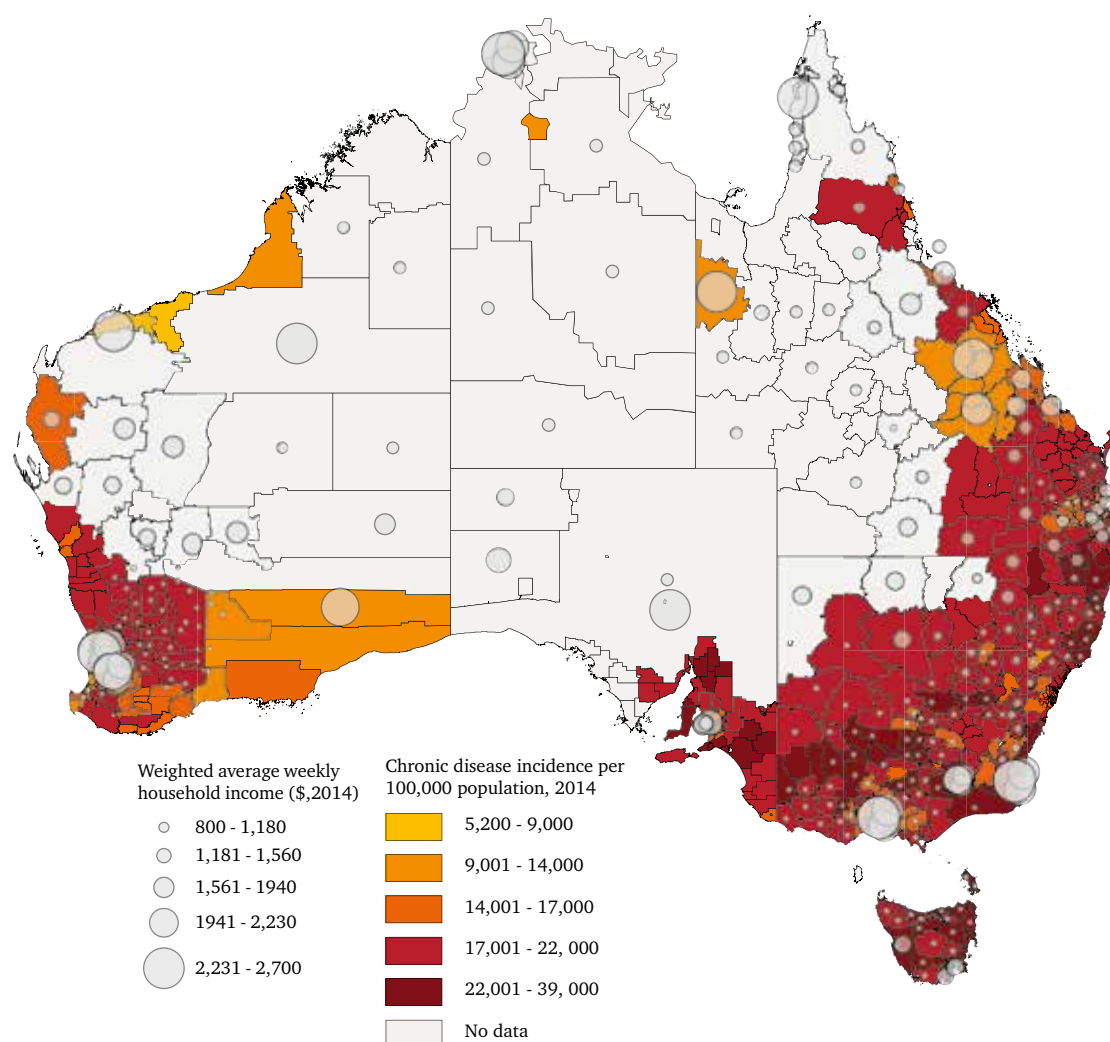
72. Based on Aged Care Financing Authority (2016). Fourth report on the funding and financing of the aged care sector which reported operational expenses of \$14.9 billion for the period 2014-15 with a total of 231,255 consumers.

73. AIHW (2016). Australia's health 2016. Australia's health series no. 15. Cat. no. AUS 199. Canberra: AIHW.

74. Tune, D. (2017). Legislated review of aged care 2017. Canberra: Department of Health, Commonwealth of Australia.

75. Ibid.

Figure 11: Prevalence of circulatory system diseases per 100,000 population, 2014



Source: PwC's GEM, PHIDU. Circulatory System Disease is used as a proxy for chronic disease.

Chronic disease

Chronic diseases are the leading cause of illness, disability and death in Australia.⁷⁶ According to the AIHW, 11 million Australians (50 per cent of the population) had at least one of eight selected chronic diseases.⁷⁷ Of these people, 5.5 million Australians (one quarter of the population) had two or more chronic conditions.⁷⁸

The most prevalent chronic diseases are circulatory system diseases and mental health conditions (both

18 per cent), followed by back pain and problems, arthritis and asthma.⁷⁹

Altogether, \$33 billion was spent on chronic diseases in 2008-09 (the last year for which disease level data is available).⁸⁰ Circulatory system diseases received the greatest allocation of funding with \$7.7 billion (10.4 per cent of total disease expenditure) spent in 2008-09, followed by oral health (\$7.2 billion) and mental disorders (\$6.4 billion).⁸¹

76. Includes arthritis, asthma, back problems, cancer, chronic obstructive pulmonary disease, cardiovascular disease, diabetes and mental health conditions

77. Australian Institute of Health and Welfare (AIHW) (2016). Australia's health 2016. Australia's health series no. 15. Cat. no. AUS 199. Canberra: AIHW.

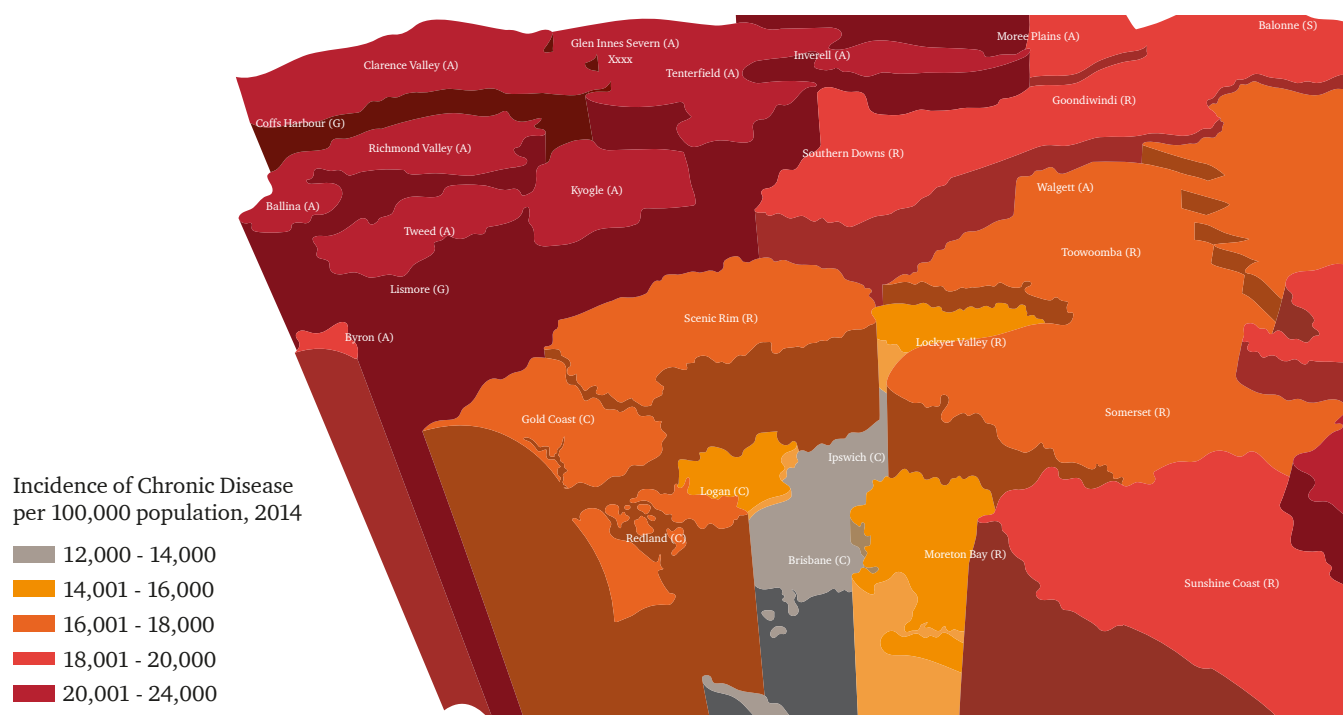
78. Ibid.

79. AIHW (2014). Australia's health 2014. Australia's health series no. 14. Cat. no. AUS 178. Canberra: AIHW.

80. Ibid.

81. AIHW (2017) chronic diseases. Retrieved on 9/08/2017 from URL: www.aihw.gov.au/chronic-diseases/

Figure 12: Prevalence of circulatory system diseases per 100,000 population, Greater Brisbane, 2014



Current demand and services mapped for chronic disease

For the purposes of mapping chronic disease demand in this report, circulatory system diseases have been used as an indicator because of the relatively high prevalence rates and related burden of disease.⁸² Circulatory system diseases are prevalent in 18 per cent of the population,⁸³ and are the second leading burden of disease in Australia (15 per cent) after cancer (19 per cent).⁸⁴

Figure 11 shows the prevalence of circulatory system diseases for each LGA across Australia (where there is data available) per 100,000 persons.⁸⁵ The dark red areas highlight the LGAs with the highest prevalence of circulatory system diseases per capita, with between 22 and 39 per cent of the population having a circulatory

system disease. Our analysis shows that the LGAs with the highest prevalence of circulatory system diseases, and therefore demand for health infrastructure, are in non-metropolitan areas (see Appendix A for tables of the ten LGAs with the highest prevalence).

Figure 12 shows the prevalence of circulatory system diseases for LGAs in the Greater Brisbane area per 100,000 persons. The dark red areas highlight the LGAs with the highest prevalence of circulatory system diseases per capita, with between 20 and 24 per cent of the population having a circulatory system disease. Figure 12 demonstrates that the further an LGA is from the metropolitan area of Brisbane, the prevalence of circulatory system disease (and therefore demand for health infrastructure) increases.

GPs have been selected as an indicator for the supply of health infrastructure as primary care is the first point of contact for patients

and where the majority of chronic disease management should take place. Hospital beds are also relevant infrastructure for chronic disease demand, however, there was insufficient publicly available information to map hospital beds by LGA for the GEM modelling. In addition, the allied health workforce is relevant for chronic disease prevention and management. However, it was also not possible to map those services by LGA.

Currently there is no agreed national target for number of GPs per population in Australia. The Commonwealth Government has used the national average of GPs per capita to help provide guidance on areas of unmet demand.⁸⁶ For the purposes of this report, it was assumed that the current national average of GPs per capita is a proxy for a benchmark on meeting demand. The 2014 national average was 71 FSE⁸⁷ GPs per 100,000 population.⁸⁸

82. Australian Institute of Health and Welfare (AIHW) (2016). Australia's health 2016. Australia's health series no. 15. Cat. no. AUS 199. Canberra: AIHW.

83. Ibid.

84. Aged two years or older

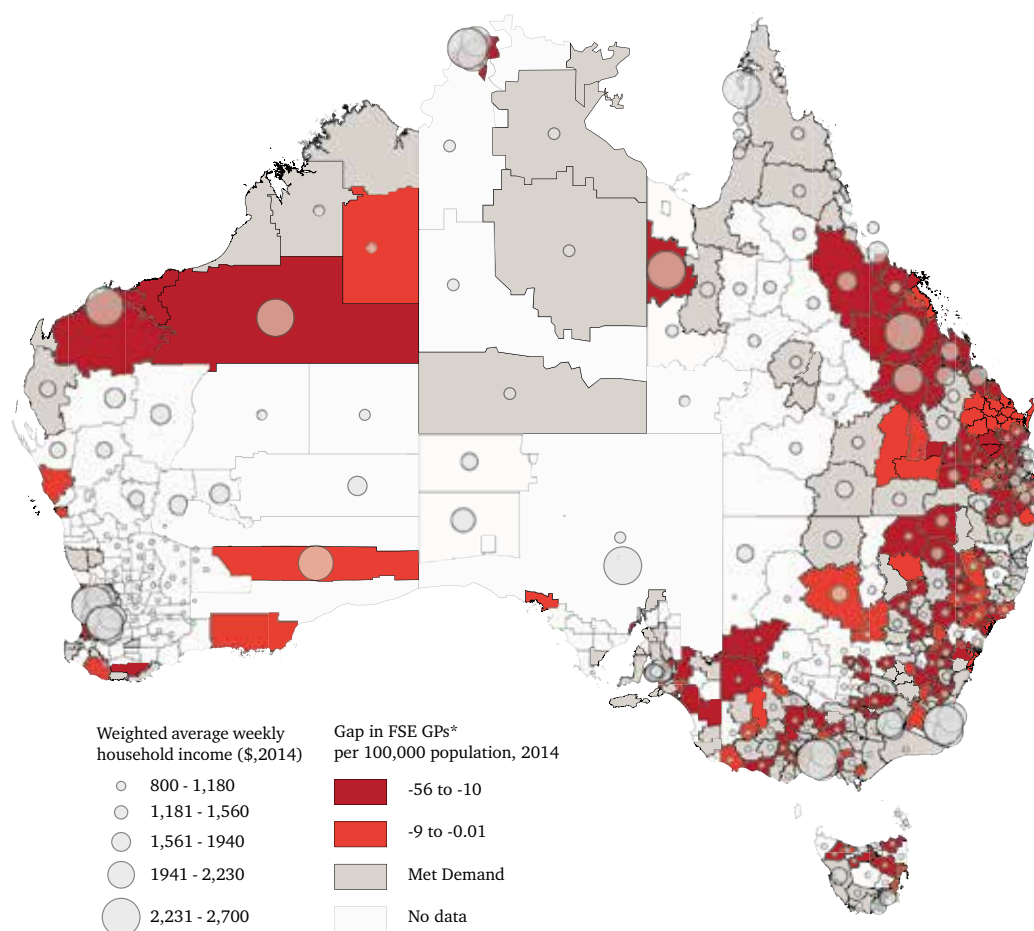
85. Kamalakanthan, A., & Jackson, S. (May 2016). The Supply of Doctors in Australia: Is There A Shortage?: University of Queensland

86. FSE is a measure of workforce activity that uses a robust mathematical model to measure workload based on Medicare billing days, services per day and hours worked. One FSE is the statistical equivalent of a workload of 7.5 hours per day, five days per week.

87. Department of Health (DoH) (2015). General practice statistics. Canberra: Commonwealth Government of Australia.

88. Productivity Commission (2017). Report on government services (RoGS) 2017 – volume E: primary and community health. Canberra: PC.

Figure 13: Gap in FSE GPs per 100,000 population, 2014



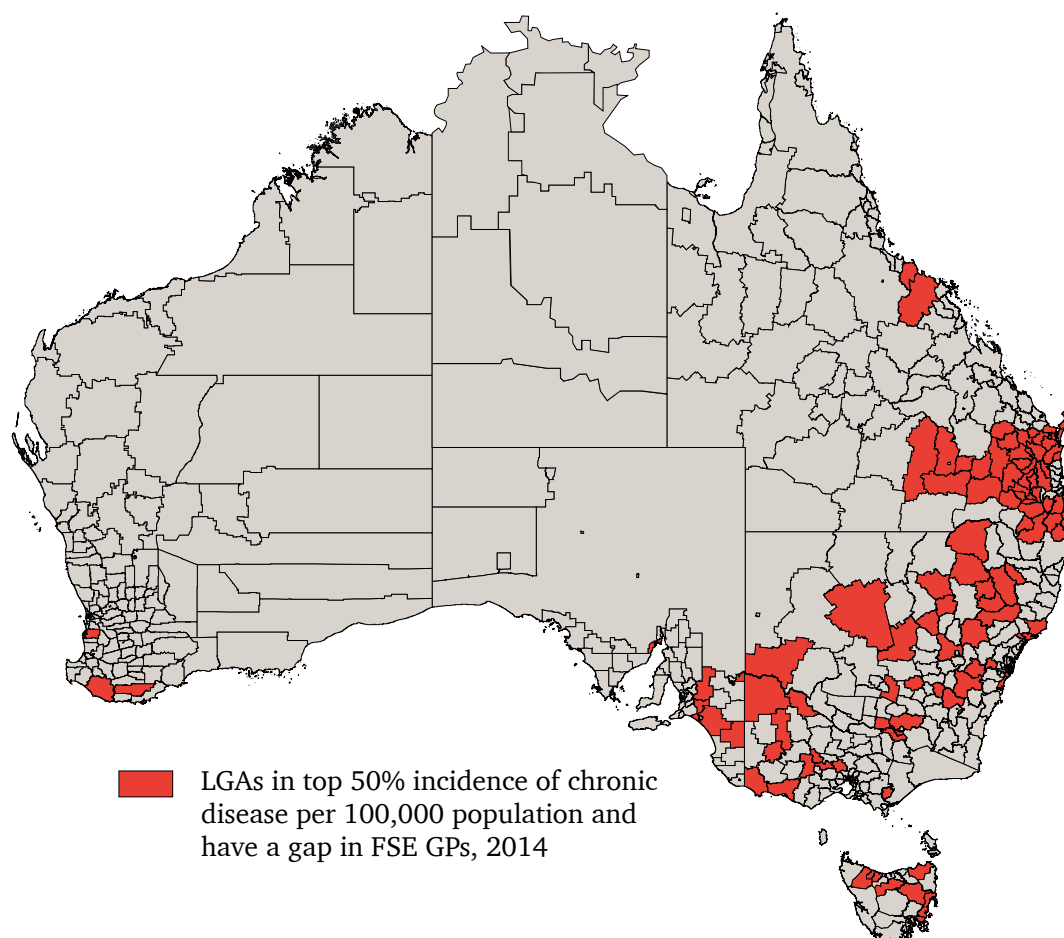
*Full Service Equivalent (FSE) General Practitioners (GPs)

Source: PwC's GEM, PHIDU. Gaps in FSE GPs are estimated based on the ratio of FSE GPs to population in each LGA. The gap or surplus reflects the LGA's FSE GP to population ratio relative to the 2014 national average of 71 FSE GPs per 100,000 population. A negative score indicates the LGA has less than 71 FSE GPs per 100,000 population. The beige colour indicates that the national average of 71 FSE GPs per 100,000 population has been met or exceeded in that LGA.

Figure 13 shows the gaps by LGA, in the number of FSE GPs relative to the size of the population using the 2014 national average of 71 FSE GPs per 100,000 population. The dark red shading depicts LGAs where the current gap is between 10 to 56 FSE GPs per 100,000 population compared to the national average. Based on

the number of LGAs with the largest gaps between the number of FSE GPs and the 2014 national average, our analysis supports the established concept that **there is unmet need for health infrastructure in regional and remote Australian communities** (see Appendix A for tables of the ten LGAs with the largest gaps).

Figure 14: LGAs with prevalence of circulatory system diseases per 100,000 population above the national average with a gap in FSE GPs, 2014



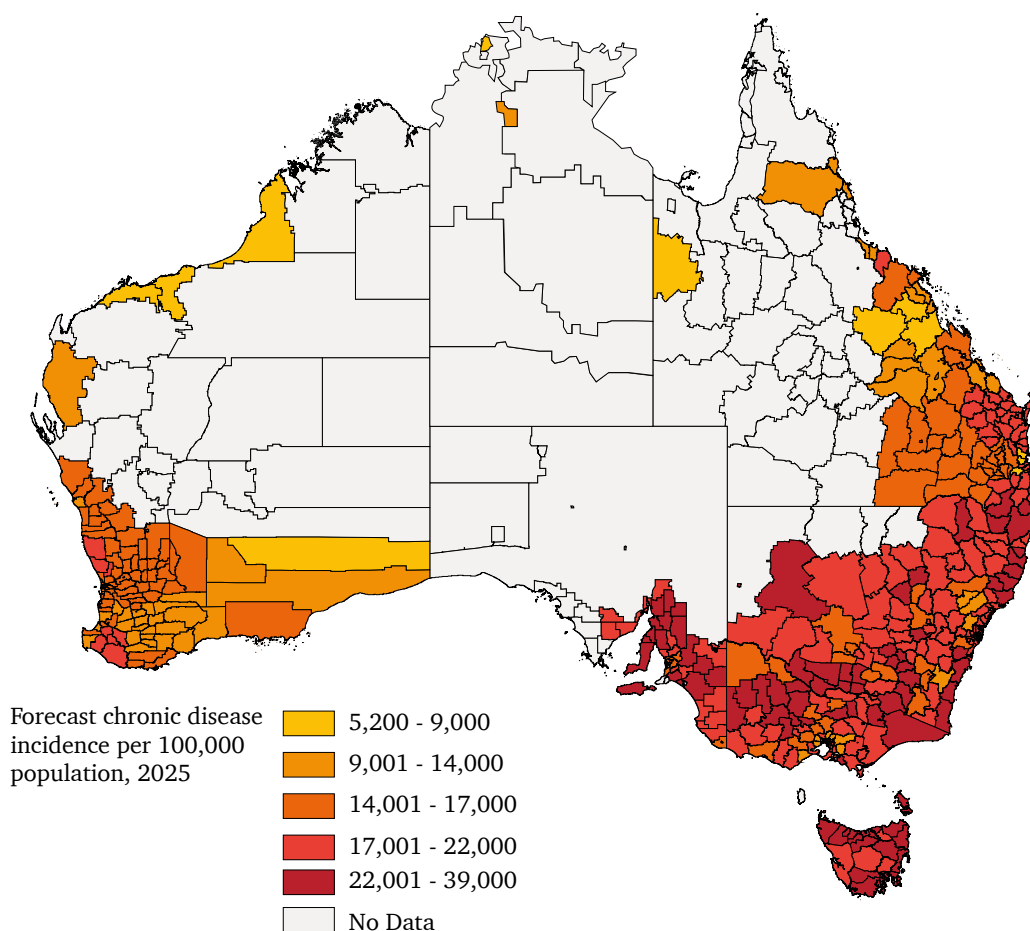
*Full Service Equivalent (FSE) General Practitioners (GPs)

Source: PwC's GEM, PHIDU. Circulatory System Disease is used as a proxy for chronic disease. Gaps in FSE GPs are estimated based on the ratio of FSE GPs to population in each LGA. The gap reflects the LGA's FSE GP to population ratio relative to the 2014 national average of 71 FSE GPs per 100,000 population. A gap indicates the LGA has less than 71 FSE GPs per 100,000 population.

Figure 14 shows LGAs with a prevalence of circulatory system diseases above the national average (the top 50 per cent for prevalence nationally) and a gap in the number

of FSE GPs. This map highlights that there are LGAs, almost exclusively in non-metropolitan areas, with high demand for chronic disease support infrastructure and a gap in FSE GPs.

Figure 15: Projected prevalence of circulatory system disease per 100,000 population, 2025



Source: PwC's GEM, PHIDU. Circulatory System Disease is used as a proxy for chronic disease.

Projected demand and services to 2025 and 2040

PHIDU data shows that between 2004-05 and 2011-13 the number of people with circulatory system diseases in Australia grew by 0.8 per cent per annum. The projections show areas of future demand if this growth rate were maintained to 2025 and 2040.

Figure 15 shows the projected prevalence of circulatory system diseases per 100,000 persons by LGA. LGAs with the highest prevalence of projected circulatory system diseases are shaded dark red.

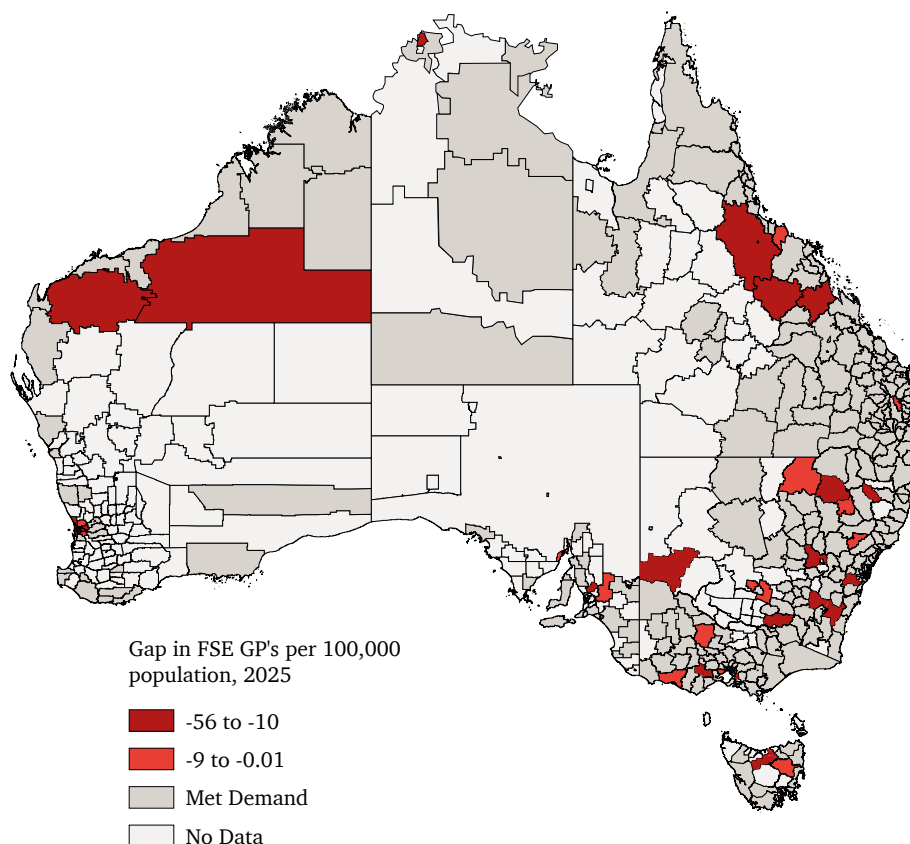
Between 2006-07 and 2015-16, the annual growth rate of FSE GPs grew by 4.4 per cent per annum.⁸⁹ A high level analysis of current GP education enrolment numbers suggests that the historical growth rate in GPs would not be unreasonable to project future growth,⁹⁰ so it is assumed that the yearly 4.4 per cent growth rate in FSE GPs will continue.

If the 2014 national average of 71 FSE GPs per 100,000 population were applied as the target for 2025, there would need to be 19,997 FSE GPs across Australia to meet the projected demand. This would mean an increase of 3,321 FSE GPs from 2014 levels.

89. Health Workforce Australia (2012). Health Workforce 2025, Medical Specialties, vol. 3.

90. PwC analysis based on National Health Survey 2004-05 and Australian Health Survey 2011-13

Figure 16: Projected gap in FSE GPs per 100,000 population, 2025



*Full Service Equivalent (FSE) General Practitioners (GPs)

Source: PwC's GEM, PHIDU. FSE GPs are forecast to grow by 4.4 per cent per annum from 2014 to 2025, based on historical FSE GP growth from 2006-07 to 2015-16. Gaps in FSE GPs are estimated based on the ratio of FSE GPs to population in each LGA. The gap or surplus reflects the LGA's FSE GP to population ratio relative to the 2014 national average of 71 FSE GPs per 100,000 population. A negative score indicates the LGA has less than 71 FSE GPs per 100,000 population. The beige colour indicates that the national average of 71 FSE GPs per 100,000 population has been met or exceeded in that LGA.

With the current growth rate in GPs per year there will be no overall gap. However, some locations will have an oversupply while others will have an undersupply. Figure 16 shows the few areas where there will be projected gaps in the provision of local GPs.

This map shows that in 2025, there are projected to be fewer LGAs with a gap in the supply of GPs than in 2014. This is driven by the greater growth in FSE GPs per annum than overall population growth.

Projections to 2040

If the growth of circulatory system diseases were to continue to 2040 at the same rate as between 2004-05 and 2011-13 (0.8 per cent per annum),⁹¹ the demand for health infrastructure will continue to increase. By 2040, 24,405 FSE GPs would be needed to meet the future demand. This would mean that an additional 7,729 FSE GPs would need to be trained and enter the workforce compared to 2014 levels.

Table 5 summarises the population projections and projected gaps in chronic disease services to 2025 and 2040.

91. Based on National Health Survey: First Results, 2014-15 – Australia which includes arthritis, asthma, back problems, blindness, cancer, chronic obstructive pulmonary disease, deafness, diabetes mellitus, hay fever and allergic rhinitis, heart, stroke and vascular disease, hypertension, kidney disease, long sightedness, mental and behavioural problems, osteoporosis, and short sightedness.

Table 5: Population with circulatory system diseases and gap in FSE GPs per 100,000 population

	2014	2025	2040
Number of people with circulatory system disease	3,703,803	4,075,437	4,592,849
Demand for FSE GPs in Australia (based on population size)	16,676	19,997	24,405
National gap in FSE GPs (benchmark of 71 per 100,000 population)	Nil	Nil	Nil

Source: PwC's GEM, PHIDU.

Challenges to support people with chronic disease

Growing demand and costs

Based on national health surveys from 2001 to 2014-15, the proportion of Australians living with at least one chronic condition has remained fairly steady at 75-80 per cent in that time.⁹² However, the demand for chronic disease care and management has increased in terms of crude numbers, with an estimated 18.3 million Australians living with at least one chronic condition in 2014-15 compared to 14.7 million in 2001.⁹³

The growing population and the increasing burden of multi-morbid, complex chronic disease has contributed to the steady increase in national health expenditure. Whereas national health expenditure made up 8.8 per cent of GDP in 2004-05, it has steadily increased to 10.0 per cent of GDP in 2014-15.

The modelling demonstrates that, on a national scale, there may be sufficient GPs within Australia to meet demand (the national average of 71 FSE GPs per 100,000 population). However, this is unlikely to translate into equitable access across the country without direct policy attention.

Minimal investments in prevention

The scale and severity of chronic diseases in Australia could be reduced through preventive measures that focus on reducing risk factors such as obesity, poor nutrient intake and physical inactivity.⁹⁴ However, health expenditure spent on prevention and health promotion has been declining since it peaked at 2.2 per cent, in 2007-08.⁹⁵

While allied health providers are able to use Medicare item numbers for people on referral from a GP through Team-Care Arrangements (previously EPC item numbers), this is currently limited to five 20-minute consultations in each calendar year.⁹⁶ Most people

with diabetes for example would need more than five allied health services (eg dietitians and podiatrists) in a year to keep well. These arrangements are inadequate, particularly for people on low incomes who cannot afford the private fees for recommended allied health services.

Burden on Australians

Chronic diseases lead to considerable burden on Australians. It can lead to pain and disability and is a leading cause of death in Australia.⁹⁷ People with multiple chronic diseases have worse health outcomes and higher healthcare costs.⁹⁸ Their healthcare needs lead to higher frequency use across various services and specialties, exposing them to potential miscommunication, wasteful expenditure (eg repeated tests) and frustration in a system that is disjointed.

While 83 per cent of GPs provided bulk billed services in Australia in 2015-16,⁹⁹ only two-thirds (65 per cent) of patients had all of their GP visits bulk billed,¹⁰⁰ leaving a

92. ABS(2015)National Health Survey 2014-2015: Canberra, Retrieved on 9/08/2017 from URL: www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/4364.0.55.0012014-15?OpenDocument

93. WHO Diet, Nutrition and the prevention of Chronic diseases – Retrieved on 9/08/2017 from URL: www.who.int/dietphysicalactivity/publications/trs916/summary/en/

94. Australian Institute of Health and Welfare 2016. Australia's health 2016. Australia's health series no. 15.Cat. no. AUS 199. Canberra: AIHW.

95. Department of Health (2014). Chronic disease management – individual allied health services under Medicare – provider information. Canberra: Commonwealth of Australia. Retrieved on 9/08/2017 from URL: www.health.gov.au/internet/main/publishing.nsf/content/health-medicare-health_pro-gp-pdf-allied-cnt.htm.

96. AIHW (2017) chronic diseases. Retrieved on 9/08/2017 from URL: www.aihw.gov.au/chronic-diseases/

97. AIHW (2017). 1 in 5 Australians affected by multiple chronic diseases. Retrieved on 9/08/2017 from URL: www.aihw.gov.au/media-release-detail/?id=60129552034

98. Health (2017). Quarterly Medicare Statistics. Retrieved on 9/08/2017 from URL: <http://health.gov.au/internet/main/publishing.nsf/Content/Quarterly-Medicare-Statistics>

99. APH (2016). Supplementary Budget Estimates 2016-2017-Health Portfolio SQ16-000392. Retrieved on 9/08/2017 from URL: www.aph.gov.au/Parliamentary_Business/Senate_Estimates/claccte/estimates/sup1617/Health/index

100. National Health Performance Authority (2015). Healthy communities: potentially preventable hospitalisations in 2013-14. Retrieved 31/03/2017 from URL: www.myhealthycommunities.gov.au/Content/publications/downloads/NHPA_HC_Report_PPH_December_2015.pdf?t=1493001793007.

number of people with out of pocket costs for their care. Those with chronic care needs and higher frequency care (not able to access bulk billed care) would be financially impacted or may forego care to save money.

Some LGAs have fewer GPs than the national average, indicating potential gaps in care coverage. As can be seen with the 2014 map of cardiovascular disease, many of the locations with a high proportion of people with the disease live in non-metropolitan areas. People in those areas may need to travel or wait for a locum to meet their healthcare needs.

Wasteful expenditure in the healthcare system

Avoidable and unnecessary treatments indicate potential wasteful expenditure in the system. Variable costs across the health sector highlight the potential for more efficient service provision and use of funds.

Potentially avoidable costs

A National Health Performance Authority report found that 600,267 (6 per cent) hospitalisations, or 2.4 million (8 per cent) bed days in 2013-14, were potentially preventable.¹⁰¹ Of these, heart failure was the largest contributor, accounting for 53,168 potentially preventable hospitalisations and diabetes complications accounted for 40,829 potentially preventable hospitalisations.¹⁰²

Variable cost

Looking at variations in costs per patient within public hospitals in each state, the Grattan Institute estimated that public hospitals in Australia spend \$1 billion each year unnecessarily. As an example, they highlight the varying costs of removing a gall bladder, which ranges from \$3,500 to \$8,000 in NSW and \$4,200 to \$8,000 in WA.¹⁰³

Unnecessary treatments

A Productivity Commission review of the literature on wasteful and unnecessary care highlighted the following key findings:¹⁰⁴

- An estimated 43 per cent of Australian adults receive inappropriate care when compared to evidence-based and consensus-based guidelines¹⁰²
- According to the Commonwealth Fund, an estimated 15 per cent of Australians undergo unnecessary repeat imaging¹⁰⁵
- In 2013-14, roughly 30 per cent of people presenting to GPs in Australia for the 'common cold' were prescribed antibiotics, even though antibiotics are ineffective for treating viral infections¹⁰⁶
- In 2013-14, 6.5 per cent of public hospitals were associated with 'adverse events' such as injuries from falls, adverse drug effects and surgical errors during hospitalisation¹⁰⁷

The Australian Commission on Quality and Safety in Health Care publishes an online Australian Atlas of Healthcare Variation which can be used as an indication of where unnecessary treatments may occur.¹⁰⁸

101. National Health Performance Authority 2015, Healthy Communities: Potentially preventable hospitalisations in 2013-14.

102. Duckett, SJ, Breadon, P, Weidmann, B, and Nicola, I (2014). Controlling costly care: a billion dollar hospital opportunity. Grattan Institute: Melbourne.

103. Productivity Commission (2015). Efficiency in health. Productivity Commission Research Paper. Canberra: Commonwealth of Australia.

104. Runciman, WB, Hunt, TD, Hannaford, NA, Hibbert, PD, Westbrook, JI, et al (2012). CareTrack: assessing the appropriateness of health care delivery in Australia. Medical Journal of Australia, 197(2): 100-105.

105. Russell, L, and Doggett, J (2015). Tackling out-of-pocket health care costs. Sydney: Menzies Centre for Health Policy, University of Sydney.

106. Steering Committee for the Review of Government Service Provision (2015). RoGS 2015 – volume E: health. Canberra: PC.

107. Ibid.

108. ACSQH (2017). Australian atlas of Healthcare Variation. Retrieved on 9/08/2017 from www.safetyandquality.gov.au/atlas

Mental Health

In Australia, it is estimated that approximately 20 per cent of adults experience a mental disorder within a 12-month period. Of these, one third (1.1 million) access treatment and support services for these disorders.¹⁰⁹ There are three types of mental disorders, which can be categorised as follows:

- **Anxiety and affective disorders** account for roughly half of the disease burden caused by mental disorders, and account for almost one in six mental health disorders experienced by Australian adults in a 12-month period.¹¹⁰ While the prevalence of anxiety and affective disorders has increased between 1997 and 2007,¹¹¹ this may be attributable (at least in part) to increased awareness and reporting.
- **Psychotic disorders**, also referred to as low prevalence disorders, affect 3 per cent of the Australian adult population every year.¹¹² Roughly 64,000 people, or 0.5 per cent of the

adult population, access treatment services for psychotic disorders annually.¹¹³ People with psychotic disorders are at particularly higher risk of physical illness.¹¹⁴

- **Substance abuse disorders** – between 1997 and 2007, the prevalence of substance use disorders decreased from 7.7 per cent of the adult population in 1997 to 5.1 per cent in 2007.¹¹⁵

Together, mental disorders led to 3,027 suicides in Australia in 2015 at a rate of 12.6 deaths per 100,000 population which is an increase from the 2006 observed rate of 10.2 deaths per 100,000 population. Mental disorders was the leading cause of death for people aged between 15 and 44 years of age in 2015.¹¹⁶

Mental Health related services

While there is still a heavy reliance on hospitalisation for those with mental disorders, Australia is considered a leader in mental health treatment, having shifted away from hospital care towards community-based services.

There are now just 39 psychiatric beds per 100,000 population compared to the OECD average of 68 per 100,000.¹¹⁷

In 2014-15, general practitioners (GPs) provided 30 per cent of all MBS-subsidised mental health-related services, at a rate of 123.5 services per 1,000 population. This is an increase of 4.4 per cent per year from 2010-11 with 34.9 per cent of people with a mental disorder accessing support services in the previous 12 months.¹¹⁸ Referrals from GPs to psychiatrists and psychologists occurred at rates of 2.0 and 9.1 respectively, per 100 mental health-related encounters.¹¹⁹

109. ABS (2008). National Survey of Mental Health and Wellbeing: summary of results, 2007. Canberra: ABS.

110. AIHW (2016). Mental health services—in brief 2016. Cat. no. HSE 180. Canberra: AIHW.

111. Ibid.

112. Health (2009) Fourth National Mental Health Plan: An agenda for collaborative government action in Mental health 2009-2014. Canberra: Commonwealth of Australia

113. Morgan, VA, Waterreus, A, Jablensky, A, Mackinnon, A, McGrath, JJ, Carr, V, Bush, R, Castle, D, Cohen, M, Harvey, C, Galletly, C, Stain, HJ, Neil, A, McGorry, P, Hocking, B, Shah, S, and Saw, S (2011). People living with psychotic illness 2010: report on the second Australian national survey. Canberra: Commonwealth of Australia.

114. Ibid.

115. ABS (1997). Mental health and wellbeing: profile of adults, Australia. Canberra: ABS; ABS (2008). National Survey of Mental Health and Wellbeing: summary of results, 2007. Canberra: ABS.

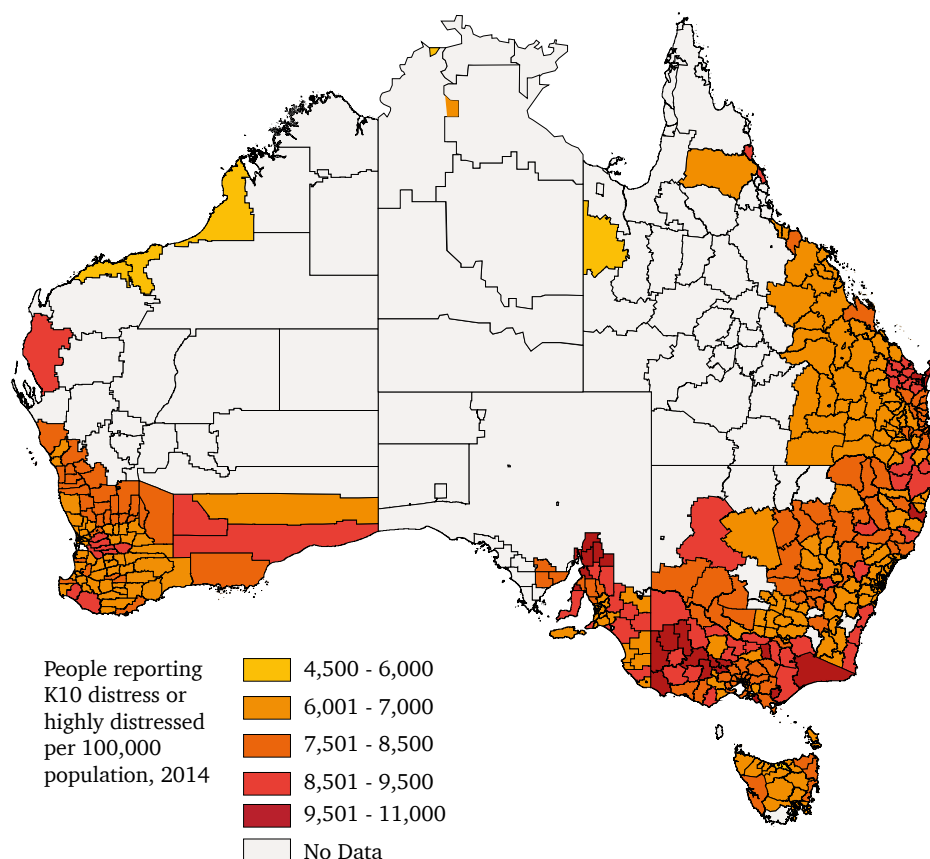
116. ABS (2016). Disability, ageing and carers, Australia: First results, 2015. Canberra: ABS.

117. Australia at the forefront of mental health care innovation but should remain attentive to population needs, says OECD.

118. AIHW (2016). Mental health services—in brief 2016. Cat. no. HSE 180. Canberra: AIHW.

119. Ibid.

Figure 17: Prevalence of people distressed or very distressed on the Kessler-10 scale per 100,000 population, 2014



Source: PwC's GEM, PHIDU

Current demand and services mapped

For the purposes of this report, the prevalence of psychological distress and anxiety has been used as an indicator of demand for social infrastructure that supports mental services.

The Kessler-10 psychological distress scale is a 10-item questionnaire used to evaluate levels of anxiety and distress. These data do not capture the prevalence of psychotic and substance abuse disorders, so the indicator represents anxiety and affective disorders or chronic mental illness demand.

Figure 17 shows the prevalence of psychological distress and anxiety per 100,000 persons (where data is available). The dark red areas highlight the LGAs with the highest prevalence of psychological distress and anxiety per 100,000 population.

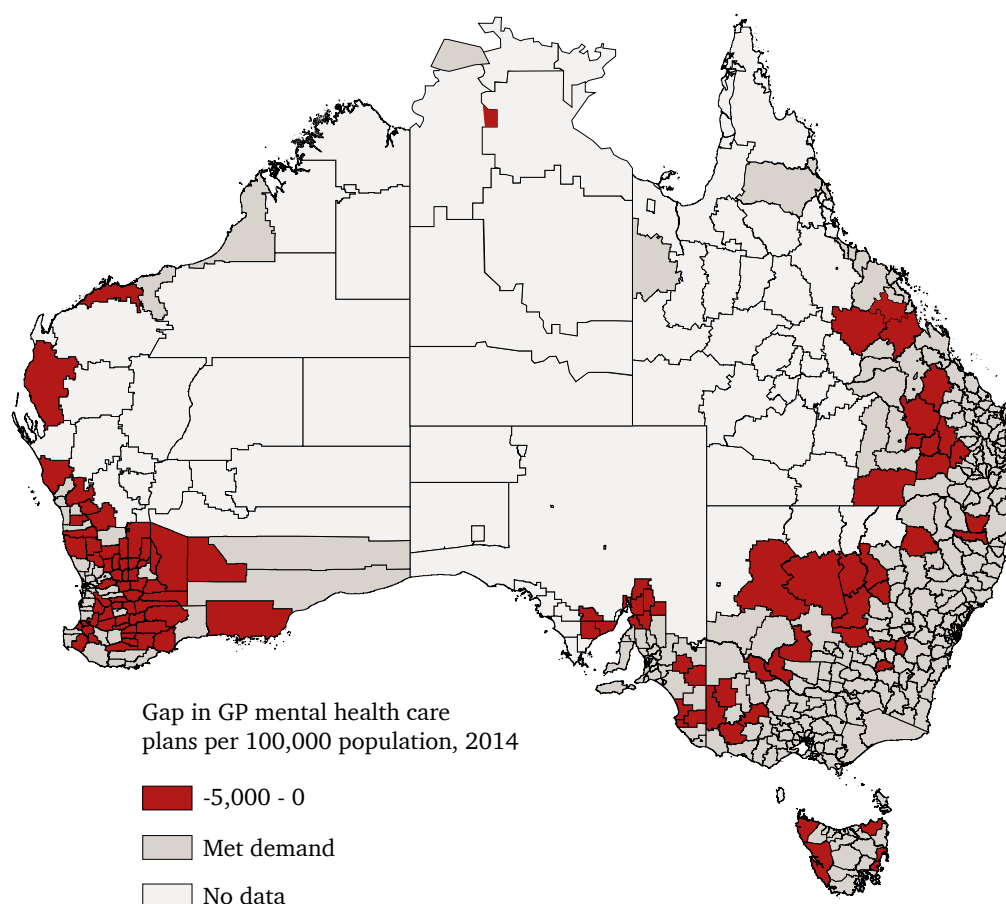
The highest prevalence of anxiety and distress can be found in rural and remote areas, in particular within South Australia and Victoria (see Appendix A for tables of the ten LGAs with the highest prevalence).

GP mental health care plans have been selected as an indicator of supply. However, it should be noted that GP mental health care plans are only one of the options available to those with a mental illness.

According to the 2007 National Survey of Mental Health and Wellbeing, 35 per cent of people with a mental health condition seek treatment. Of those that do not seek treatment, 14 per cent reported they had a need for mental healthcare.¹²⁰ Based on these findings, 44 per cent of people with a mental health condition either seek treatment, or would like to seek treatment. In order to meet this demand, 44 per cent of people with a mental health condition would require access to infrastructure for mental health, such as a mental health care plan.

120. Australian Bureau of Statistics (ABS) 2008. National survey of mental health and wellbeing: summary of results, Australia, 2007. ABS cat. no. 4326.0. Canberra: ABS

Figure 18: Gap in GP mental health care plans per 100,000 population, 2014



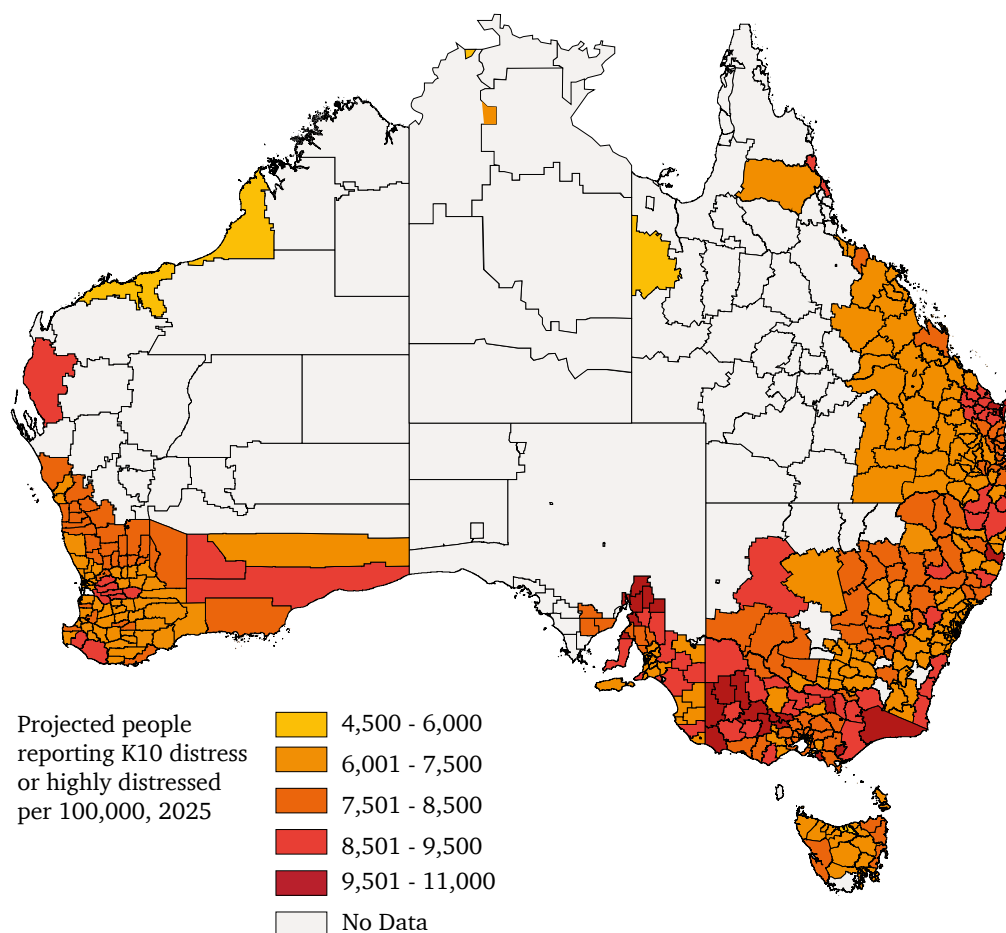
Source: PwC's GEM, PHIDU. Gaps in GP mental health care plans are estimated based on an assumption that 35 per cent of people with a mental health condition seek treatment, and of the 65 per cent that do not seek treatment, 14 per cent would like to obtain treatment. Therefore, 44 per cent of people with a mental health condition either receive, or would like to receive, treatment and is set as the threshold for each LGA. Each LGA's threshold of GP mental health care plans is based directly on the number of people in each LGA that have a mental health condition. Therefore the threshold number of GP mental health care plans differs across each LGA, however a consistent rate of 44 per cent of people with a mental health condition in the LGA is applied. A negative score indicates the LGA has less than the threshold number of GP mental health care plans issued per 100,000 population. The beige colour indicates that the target of 44,000 GP mental health care plans per 100,000 people with distress or anxiety has been met or exceeded in that LGA. A K10 score of distressed or very distressed is used as a proxy for having a mental health condition.

If that target were applied to the 2014 population of 1.8 million people with high or very high levels of distress and anxiety, there would need to be 805,474 GP mental health plans.

Figure 18 shows the analysis by LGA of gaps in the number of GP mental health care plans compared to a target of 44,000 per 100,000 people with distress or anxiety. LGAs shaded dark red represent LGAs where the current gap is up to 4,000 GP mental health care plans per 100,000 people with

distress or anxiety. There appears to be a current gap in a number of LGAs across Australia, most notably in rural and remote areas (see Appendix A for tables of the ten LGAs with the highest prevalence). This may be either due to a lack of access to GPs in these LGAs, or where there is sufficient access to GPs, they may not be providing mental health plans (either at all, or through the designated MBS code).

Figure 19: Prevalence of people distressed or very distressed on the Kessler-10 scale per 100,000 population, 2025



Source: PwC's GEM, PHIDU. It is assumed that the proportion of the population (or count per 100,000 population) that report a K10 score of distress or highly distressed remains constant from 2014 to 2025.

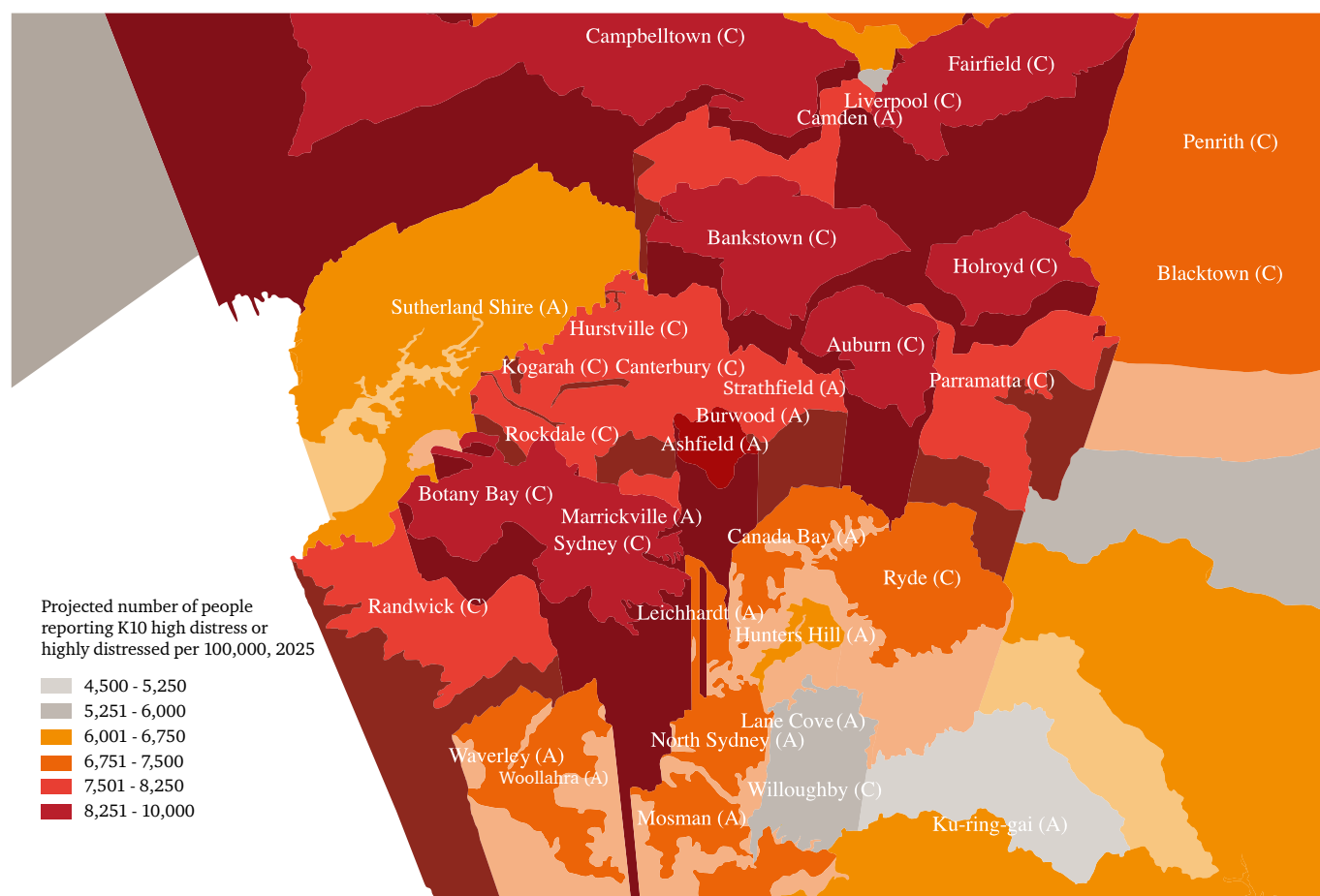
Projected demand and services to 2025 and 2040

According to the National Mental Health Survey, the prevalence of distress and anxiety has remained relatively stable over time. To project the potential demand for social infrastructure to support mental health services, the prevalence rate

in each LGA is assumed to remain stable, leading to an overall growth in demand as the population grows to 2025 and 2040.

Figure 19 shows the projected prevalence of distress and anxiety per 100,000 persons by LGA. LGAs shaded dark red represent LGAs with the highest projected prevalence of distress and anxiety per 100,000 population in 2025.

Figure 20: Prevalence of people distressed or very distressed on the Kessler-10 scale per 100,000 population, Greater Sydney, 2025



Source: PwC's GEM, PHIDU. It is assumed that the proportion of the population (or count per 100,000 population) that report a K10 score of distress or highly distressed remains constant from 2014 to 2025.

Figure 20 shows the projected prevalence of distress and anxiety for LGAs in the Greater Sydney area per 100,000 persons.

In order to project mental health-related infrastructure to 2025 and 2040, GP mental health care plans have again been used as a proxy. Given that GPs are a rate limiting factor in the provision of GP mental health care plans, the growth in MBS-subsidised Better Access services has been projected to 2025 and 2040 based on the growth in FSE GPs (4.4 per cent growth per annum, assuming the rate observed between 2006-07 and 2015-16 were to continue).¹²¹

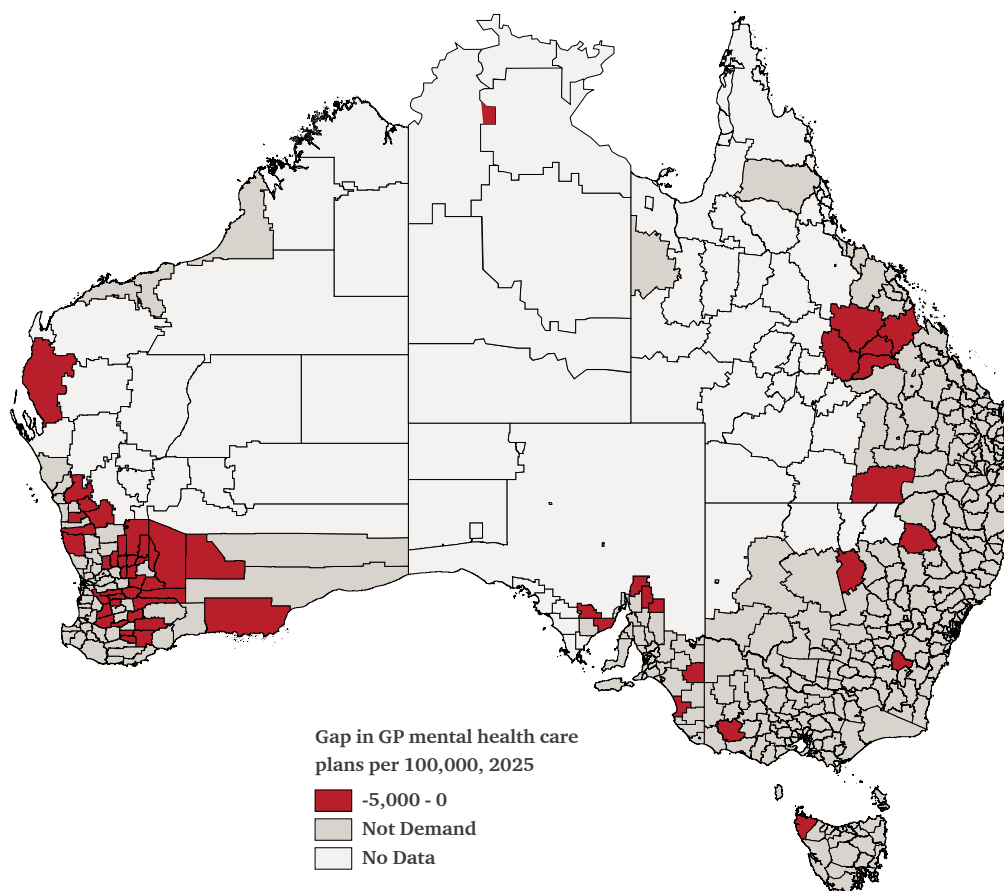
Figure 21 shows the analysis of gaps by LGA in GP mental health care plans that are projected in 2025 compared to the target of 44 per cent coverage. Growth in GP mental health care plans was assumed to grow at the same rate as FSE GPs (4.4 per cent growth per annum).

The dark red shading indicates LGAs where a gap of up to 5,000 GP mental health care plans per 100,000 population is projected. The map shows that in 2025, fewer LGAs are projected to have a gap in GP mental health care plans than in 2014. This is because the number of FSE GPs, and therefore GP mental health care plans, are projected to increase at a rate greater than the growth in the demand for mental health services.

If the target of 44 per cent of people with a mental health condition having a GP mental health care plan were applied as the target for 2025, there would need to be 963,395 GP mental health care plans across Australia to meet the projected demand. This would mean an increase of 157,921 GP mental health care plans from 2014 levels.

121. PC (2017). RoGS 2017 – volume E: primary and community health. Canberra: PC.

Figure 21: Gap in GP mental health care plans per 100,000 population, 2025



Source: PwC's GEM, PHIDU. Gaps in GP mental health care plans are estimated based on an assumption that 35 per cent of people with a mental health condition seek treatment, and of the 65 per cent that do not seek treatment, 14 per cent would like to obtain treatment. Each LGA's threshold of GP mental health care plans is based directly on the number of people in each LGA that have a mental health condition. Therefore the threshold number of GP mental health care plans differs across each LGA, however a consistent formula to determine the threshold of 44 per cent is applied. A negative score indicates the LGA has less than the threshold number of GP mental health care plans issued per 100,000 population. The beige colour indicates demand has been met or exceeded. A K10 score of distressed or very distressed is used as a proxy for having a mental health condition.

The greatest gaps are in Western Australia, highlighting the need for additional infrastructure needs in this state (see Appendix A for tables of the ten LGAs with the highest prevalence).

Table 6 summarises the population projections and projected gaps in infrastructure to support mental health services to 2025 and 2040.

Projections to 2040

If the prevalence of mental health conditions were to remain steady to 2040, as has been the case from 1997 to 2007, the increased demand for social infrastructure to support mental health services will be commensurate with population growth. By 2040, 1,173,113 GP mental health care plans would be needed to meet the projected demand. This would mean that an additional 367,639 GP mental health care plans would need to be in place compared to 2014 levels.

Table 6: Population with anxiety and distress and gap in GP mental health plans

	2014	2025	2040
Number of people with high or very high anxiety or distress	1,826,472	2,184,570	2,660,120
Demand for mental health care plans in Australia (benchmark of 44,000 per 100,000 people with anxiety or distress)	805,474	963,395	1,173,113
National gap in mental health care plans in Australia (benchmark of 44,000 per 100,000 people with anxiety or distress)	Nil	Nil	Nil

Source: PwC's GEM, PHIDU.

Based on the analysis, it would appear that there will be sufficient GP mental health plans in the future to meet demand. **However, if everyone with high or very high anxiety or distress were to receive support, then service levels would need to more than double and there would be difficulty meeting current and future demand.**

Also, sufficient supply of GPs and GP mental health plans does not necessarily mean sufficient access to services or the most appropriate services for those in need of mental health services and supporting infrastructure. It is unclear how effective these mental health plans are in meeting the needs of individuals with mental illness.

Other social infrastructure supporting mental health

People in need of mental healthcare also access services through community mental healthcare organisations. Table 7 lists the current number of community mental health patients, organisations and service contacts. According to the National Community Mental Health Care Database, in 2014-15 there were 133 public community mental health organisations. These organisations were responsible for more than 8.5 million community mental healthcare service contacts in 2014-15 to 390,000 community mental health patients. If the number of community health organisations and service contacts per 1,000 patients were to be maintained, the number of community mental health organisations and service contacts would need to increase by more than 30 per cent to 2025, and almost double by 2040.

For people with severe mental health conditions, other social infrastructure such as psychiatric beds and residential mental health services are needed to care for and support people experiencing acute episodes. As the population grows, and the demand for mental health services increases, additional hospital and residential beds will also be needed to support the projected increase in demand for mental health infrastructure.

Table 8 lists the current number of public psychiatric hospital beds, private psychiatric hospital beds, and residential mental health care service beds. As of 2014-15, the number of beds per 1,000 people with mental health conditions was 3.78, 1.47 and 1.35, respectively.¹²⁴ If these ratios were to be maintained to meet the projected demand, there would need to be a considerable increase in the numbers of beds (and therefore facilities) to 2025, and 2040. As the population continues to grow, so too will the demand on mental health services and supporting infrastructure.

Table 7: Community mental health care organisations and services

	2014 ¹²²	per 1,000 patients	2025	2040
Community mental health patients ¹²³	391,573	Nil	517,693	757,491
Community mental health organisations	133	0.3	176	257
Community mental health service contacts	8,522,624	21,765	11,267,632	16,486,861

Source: PwC analysis; AIHW.

122. AIHW (2017) State and territory community mental health care services. Canberra: Commonwealth of Australia

123. Based on AIHW (2017) State and territory community mental health care services. Canberra: Commonwealth of Australia, Data Table CMHC.2 indicating an increase from 327,873 in 2007-08 to 391,573 in 2014-15, a compound annual growth rate of 2.57 per cent. Retrieved in July 2017 from URL: mhsa.aihw.gov.au/services/community-care/

124. AIHW (2015) Specialised mental health beds and patient days. Retrieved in June 2017 from URL: mhsa.aihw.gov.au/resources/facilities/beds calculated using the number of people with high or very high anxiety or distress (Table 5).

Table 8: Specialised mental health care services and facilities

Infrastructure	2014			2025		2040	
	Facilities	Beds	per 1,000	Facilities	Beds	Facilities	Beds
Public hospitals	160	6,895	3.8	191	8,247	233	10,042
Private psychiatric hospitals	62	2,682	1.5	74	3,208	90	3,906
Residential mental health care services	179	2,471	1.4	214	2,955	261	3,599

Source: PwC analysis; AIHW.

Challenges to support people with mental health conditions

Stigma

While a proportion of people with mental health conditions are unable to gain access to required supports and services,¹²⁵ there are also a number of individuals who do not seek support due to stigma and discrimination.¹²⁶ Stigma can discourage people with mental illness from disclosing their condition, and from seeking care and support. This can lead to increased levels of anxiety and distress, deterioration of their mental, physical and emotional health, and the need for most costly and complex care.¹²⁷ In addition, physical illnesses may be prioritised by service providers due to stigma, which can result in mental health related treatment needs being overlooked or delayed.¹²⁸

Fragmented system

The mental health system is fragmented, difficult to navigate and achieve continuity of care. For people with mental illnesses and their families, treatment can be overwhelming with too many sources of information and advice.¹²⁹ Due to poor coordination and planning, there is duplication or gaps among services.¹³⁰ Mental health service providers are often limited in their capacity (and size) with programs and clinicians operating in isolation, leading to further duplication and waste.¹³¹

Complex needs

People with mental health conditions often have complex needs, experiencing both persistent mental illness and poor physical health. According to the 2007 National Survey of Mental Health and Wellbeing, 11.7 per cent of adults with a mental disorder also reported physical conditions.¹³²

For example, people with psychotic illness were more than 3 times as likely to have diabetes and more than one and a half times as likely to have a circulatory system disease.¹³³

A report by the Australian Health Policy Collaboration suggests that people with mental and physical illness often encounter a phenomenon called “diagnostic overshadowing” where one condition is focussed on to the exclusion of the other.¹³⁴ As a result, individuals do not receive the appropriate care and support required to manage complex, mental and physical health conditions, which leads to acute presentations requiring hospitalisation and lower life expectancy.¹³⁵

Despite accounting for 13 per cent of disease burden, only 6 per cent of the total health budget goes towards mental health.¹³⁶

125. ABS (2008). National Survey of Mental Health and Wellbeing: summary of results, 2007. Canberra: ABS; <http://mhsa.aihw.gov.au/background>; AIHW (2016). Mental health services—in brief 2016. Cat. no. HSE 180. Canberra: AIHW.

126. Corrigan PW, Larson JE, and Rüsch N (2009). Self-stigma and the “why try” effect: impact on life goals and evidence-based practices. *World Psychiatry*. 8: 75–81.

127. National Mental Health Commission (NMHC) (2014). The National Review of Mental Health Programmes and Services. Sydney: NMHC.

128. Ibid.

129. Ibid.

130. Ibid.

131. Ibid.

132. ABS (2008). National Survey of Mental Health and Wellbeing. Canberra: ABS.

133. Morgan VA, Waterreus A, Jablensky A, Mackinnon A, McGrath JJ, Carr V et al. 2011. People living with psychotic illness 2010. Canberra: DoHA.

134. Duggan, M (2015). Beyond the fragments: preventing the costs and consequences of chronic physical and mental diseases. Australian Health Policy Collaboration Issues paper No. 2015-05. Melbourne: Australian Health Policy Collaboration.

135. Ibid.

136. The conversation (2015). Mental health changes should be judged on outcomes, not promises. Retrieved on 9/08/2017 from URL: <https://theconversation.com/mental-health-changes-should-be-judged-on-outcomes-not-promises-51303>



***Additional key aspects of
social infrastructure***

Additional key aspects of social infrastructure

Aside from the supply indicators mapped in this report, there are many additional important components of the social infrastructure to support health and ageing, some are outlined in the following sections. It is clear that with a growing and ageing population, there will also be pressure on these components, particularly the workforce.

Medical workforce

Medical practitioners

The number of medical practitioners (which includes GPs, as well as specialists, surgeons, and specialists-in-training) employed in medicine in Australia has increased from 60,252 in 2005 to 88,040 in 2015, an average annual increase of about 4 per cent.¹³⁷ A 2012 report by Health Workforce Australia estimated a 3 per cent shortage in overall supply of doctors by 2025.¹³⁸

There were 511 geriatric medicine specialists in 2015.¹³⁹ Although there is no accurate data on the level of the unmet need, geriatric consultants,

particularly outside capital cities, are hard to fill and other medical practitioners (eg palliative medicine specialists, GPs etc.) have been filling these roles.¹⁴⁰

Nurses

The number of nurses (registered and enrolled) has increased by over 12 per cent from 303,739 in December 2012 to 342,221 in December 2016.¹⁴¹ The demand for nurses in Australia are projected to exceed supply, with a shortage of approximately 85,000 nurses by 2025 or 123,000 by 2030 under current settings.¹⁴² This shortage is linked to the ageing population and increasing complexity in health needs.¹⁴³

Another contributor to the current and projected shortfall in the nursing workforce is the poor uptake and retention rates of nurses.¹⁴⁴ Roughly 6 per cent of nurses leave the profession each year.¹⁴⁵ As these nurses go on to other professions, they are not being replaced in suitable numbers.

Australia is currently experiencing high attrition rates in courses that lead to nurse registration, historically low rates of graduate employment for nurses, and low retention rates for early career nurses.¹⁴⁶ This places a reliance on nurses in older age groups which is unsustainable given the ageing workforce. More than half of nurses are aged over 45 years, while almost one quarter are over 55 years.¹⁴⁷

Community nurses

Community health nursing is a combination of nursing practice, public health practice, health promotion and primary health care.¹⁴⁸ Community health nurses work with local communities to prevent illness and promote health and wellbeing across the lifespan by identifying barriers to wellbeing. They support people to change unhealthy lifestyles and also provide post-acute care to people in their homes.¹⁴⁹ Between 2008 and 2012 it appears that the number of community health nurses in Australia decreased from around 14,900 to 13,500.¹⁵⁰

137. AIHW (2016). Medical practitioner workforce. Canberra: AIHW.

138. Health Workforce Australia 2012: Health Workforce 2025 – Doctors, Nurses and Midwives – Volume 1

139. AIHW (2016). Medical practitioners. Canberra: AIHW.

140. The Royal Australasian College of Physicians and NZ Society of Geriatric Medicine (2012). House Standing Committee on Health and Ageing Inquiry into Dementia: Early diagnosis and Intervention.

141. Nursing and Midwifery Board of Australia (2017). Retrieved in July 2017 from URL: www.nursingmidwiferyboard.gov.au/About/Statistics.aspx

142. Health Workforce Australia 2014: Australia's Future Health Workforce – Nurses Detailed

143. Patty, A. Where future jobs will be and where they won't (2016). Retrieved in July 2017 from URL: www.smh.com.au/business/workplace-relations/where-future-jobs-will-be--and-where-they-wont-20160329-gnt70a.html

144. Health Workforce Australia 2014: Australia's Future Health Workforce – Nurses Detailed

145. Footnotes (2017) Why are nurses leaving the industry and why can't grads even get in. Retrieved in July 2017 from URL: <http://thefootnotes.com.au/why-are-nursing-leaving-the-industry-why-cant-grads-even-get-in>

146. Health Workforce Australia 2014: Australia's Future Health Workforce – Nurses Detailed

147. Footnotes (2017) Why are nurses leaving the industry and why can't grads even get in. Retrieved in July 2017 from URL: <http://thefootnotes.com.au/why-are-nursing-leaving-the-industry-why-cant-grads-even-get-in>

148. ANMF (2017). Fact Sheet: Primary Health. Retrieved in July 2017 from URL: http://anmf.org.au/documents/reports/Fact_Sheet_Snap_Shot_Primary_Health.pdf; ACN (2017) Community and primary health care nursing. Retrieved in July 2017 from URL: www.acn.edu.au/sites/default/files/advocacy/Community_and_Primary_Health_Care_Position_Statement.pdf; Australian Institute of Health and Welfare 2013. Nursing and midwifery workforce 2012. National Health Workforce Series no. 6. Cat. no. HWL 52. Canberra: AIHW.

149. ANMF (2017). Fact Sheet: Primary Health. Retrieved in July 2017 from URL: http://anmf.org.au/documents/reports/Fact_Sheet_Snap_Shot_Primary_Health.pdf

150. ANMF (2017). Fact Sheet: Primary Health. Retrieved in July 2017 from URL: http://anmf.org.au/documents/reports/Fact_Sheet_Snap_Shot_Primary_Health.pdf; Australian Institute of Health and Welfare 2013. Nursing and midwifery workforce 2012. National Health Workforce Series no. 6. Cat. no. HWL 52. Canberra: AIHW.

Allied health workforce

Psychologists

In December 2010, there were 28,800 registered psychologists in Australia¹⁵¹ and by December 2016, this had increased to 34,167,¹⁵² representing an annual growth rate of about 3 per cent. Demand for psychologists in the private sector has increased due to the introduction of the Better Access initiative and this demand outweighs supply, especially in many outer urban, rural and remote areas.¹⁵³ In addition to private settings, demand is also increasing across a range of sectors including primary care and in public and non-government health organisations targeting chronic disease management, disability services, early childhood development and more.¹⁵⁴

Occupational Therapists

In December 2012, there were about 14,000 occupational therapists (OTs) practitioners in Australia¹⁵⁵ and by 2016, this had increased to 19,260,¹⁵⁶ representing an annual growth rate of 8.4 per cent. Unlike dentistry and pharmacy where there is a competitive jobs market for new graduates due to an oversupply, Occupational Therapy Australia is “encouraged by the rise in number of registered OTs over the last couple years”.¹⁵⁷

Dietitians

In Australia, a benchmark for dietitians was set at 14 per 100,000 population, although this is considered to be outdated by the Dietitians Association of Australia.¹⁵⁸ As of 2015, there were 6,600 employed dietitians in Australia, 78.3 per cent (5,168) of whom worked in the healthcare and social assistance sector.¹⁵⁹ This is the equivalent of 22 dietitians in the healthcare and social assistance sector per 100,000 population.

The number of employed dietitians has increased 68.9 per cent over the last five years, with future growth projected to remain strong.¹⁶⁰

Physiotherapists

Health Workforce Australia estimated that between 2006 and 2012 the number of physiotherapists increased from 60.1 per 100,000 population to 88.4 per 100,000 population.¹⁶¹ The number of specialist physiotherapists is also expected to grow over the next five years, particularly in geriatric services and sports therapy. Australia’s ageing population is expected to continually drive physiotherapy services demand over the next five years with an increasing number of physiotherapy practices that focus on aged-care related services. Further, increasing

prevalence of chronic illnesses such as arthritis, osteoporosis and obesity will also drive demand.¹⁶²

However, data suggests that relatively few physiotherapists stay in the profession. In order to increase retention, Health Workforce Australia suggested expanding the scope of practice roles for physiotherapists.¹⁶³

Informal carers

In 2015, there were an estimated 2.9 million informal carers in Australia of which approximately 30 per cent were primary carers.¹⁶⁴ The proportion of carers in the population remained fairly stable between 2003 and 2012 at 12-13 per cent.¹⁶⁵

The demand for informal care is estimated to outgrow supply with the growing ageing population. One study estimated a 70 per cent increase in the number of people with disabilities between 2006 and 2031.¹⁶⁶ One report estimated a potential carer gap that may lead to only 42 per cent of people with a severe disability aged over 65 years (not living in residential care) having access to an informal carer by 2025.¹⁶⁷

151. Psychology Board of Australia (2010). Data tables: November 2010. Psychology Board of Australia.

152. Psychology Board of Australia (2017). Registrant data: reporting period: 1 October 2016 – 31 December 2016. Psychology Board of Australia.

153. Patty, A. Where future jobs will be and where they won't (2016). Retrieved in July 2017 from URL: www.smh.com.au/business/workplace-relations/where-future-jobs-will-be--and-where-they-wont-20160329-gnt70a.html

154. Ibid.

155. Occupational Therapy Board of Australia (2013). Occupational therapy registrant data: December 2012. Occupational Therapy Board of Australia.

156. Occupational Therapy Board of Australia (2017). Registrant data: reporting period: 1 October 2016 – 31 December 2016. Occupational Therapy Board of Australia.

157. Health career (2017). Are there Jobs for Occupational therapists?. Retrieved in July 2017 from URL: www.myhealthcareer.com.au/occupational-therapy/are-there-jobs-for-occupational-therapists

158. Dietitian Association of Australia (2017). The health workforce. Retrieved in July 2017 from URL: www.pc.gov.au/inquiries/completed/health-workforce/submissions/sub061/sub061.pdf

159. Job Outlook (2017). Nutritional professionals. Retrieved in April 2017 from URL: <http://joboutlook.gov.au/occupation.aspx?search=alpha&tab=stats&cluster=&code=2511&graph=IN>

160. Ibid.

161. Health Career (2017). Physiotherapy data released. Retrieved in July 2017 from URL: www.myhealthcareer.com.au/physiotherapy/workforce-in-focus.

162. Current Performance (2017). Retrieved in May 2017 from URL: <http://clients1.ibisworld.com.au/reports/au/industry/currentperformance.aspx?indid=619>

163. Health Career (2017). Physiotherapy data released. Retrieved in July 2017 from URL: www.myhealthcareer.com.au/physiotherapy/workforce-in-focus.

164. Deloitte (2015). The economic value of informal care in Australia 2015. Retrieved in July 2017 from URL: www.carersaustralia.com.au/storage/Access%20Economics%20Report.pdf

165. Australian Institute of Health and Welfare 2015. Australia's welfare 2015. Australia's welfare series no. 12. Cat. no. AUS 189. Canberra: AIHW

166. Ibid.

167. Deloitte (2015). The economic value of informal care in Australia 2015. Retrieved in July 2017 from URL: www.carersaustralia.com.au/storage/Access%20Economics%20Report.pdf

Hospital beds

The number of hospital beds in Australia per capita has decreased considerably since 1980¹⁶⁸ however the total number of beds increases each year. The number of hospital beds increased from 81,717 in 2004-05 to 92,300 in 2014-15 – an average annual increase of 1.2 per cent per annum.¹⁶⁹

Based on projected population growth, maintaining the current per capita ratio of 3.9 hospital beds per 1,000 population¹⁷⁰ would require an additional 17,818 hospital beds to be built between 2014 and 2025 and an additional 41,134 hospital beds to 2040. That would mean over 480 new hospitals at an average size of 85 beds per hospital by 2040 or about 18 new hospitals to be built each year.¹⁷¹

If the growth rate of 1.2 per cent in hospital beds were maintained to 2025, it would not be sufficient to keep up with the projected population growth rate of 1.6 per cent.¹⁷²

168. World Bank (2014). Hospital Beds. Retrieved in May 2017 from URL: data.worldbank.org/indicator/SH.MED.BEDS.ZS?locations=AU

169. AIHW (2016). Australian hospitals at a glance 2014-15. Canberra: AIHW.

170. Based on 92,300 beds in 2014-15 PHIDU population estimate for 2014-15.

171. Australian Institute of Health and Welfare 2016. Australia's hospitals 2014–15 at a glance. Health services series no. 70. Cat. no. HSE 175. Canberra: AIHW.

172. Based on PHIDU population projections to 2025.



***The system is not sustainable
nor fit for purpose***

The system is not sustainable nor fit for purpose

The analysis and modelling in this report shows that there are gaps in the provision of current social infrastructure to support health and ageing sectors. These gaps will increase with time due to the growing and ageing population and in some cases to what seems to be an unattainable scale. Huge investments will be needed to try to maintain the current system and the minimum standards of today.

In addition, despite the considerable costs of the health and ageing sectors, there are challenges in meeting people's needs, particularly those with longer term and chronic care needs.

The system is not sustainable

The projected gaps in social infrastructure to support aged care and hospital beds highlights the scale of capital and operating expenditure that will be needed. In addition, almost all related workforce would need to grow considerably by 2025 and 2040. Considering these future gaps and the scale of costs to fill them, there are questions as to whether the current trajectory is fiscally sustainable, and even if the funding were available, whether it is operationally feasible to meet the projected growth without significant systemic change.

Projected gaps in the provision of social infrastructure

By 2025, the investment of an additional \$24.0 billion in capital costs and an additional \$12.8 billion per annum in operating costs may be needed to meet the projected gap in future demand for residential aged care, community aged care, home and community support services and hospital beds. **By 2040, this could reach \$57.3 billion in additional capital costs and \$28.9 billion per annum in operating costs.** This does not include an additional estimated \$2.8 billion in refurbishment costs for residential aged care facilities in Australia between 2015 and 2025.¹⁷³



173. Aged Care Financing Authority (2015). Third report on the funding and financing of the aged care sector; Aged Care Financing Authority (2016). Fourth report on the funding and financing of the aged care sector.

Table 9: Summary of gaps and potential cost projections for aged care services and hospital beds

Infrastructure	Cost assumption	2014 gap	Costs	2025 gap	Costs	2040 gap	Costs
Residential aged care beds	\$217,000 capital cost per bed ¹⁷⁴ \$64,431 per person per annum operating cost ¹⁷⁵	2,118	\$0.5 bn capital \$0.1 bn operating pa	94,200	\$20.4 bn capital \$6.1 bn operating pa	226,060	\$49.1 bn capital \$14.6 bn operating pa
Community aged care beds	\$21,842 per person per annum operating cost ¹⁷⁶	48,320	\$1.1 bn pa	100,627	\$2.2 bn pa	174,287	\$3.8 bn pa
Home and community support services	\$2,048 per person per annum operating cost ¹⁷⁷	NA	NA	380,549	\$0.8 bn pa	925,493	\$1.9 bn pa
Hospital beds	\$200,000 capital cost per bed ¹⁷⁸ \$574 per bed day operating cost ¹⁷⁹	NA	NA	17,818	\$3.6 bn capital \$3.7 bn operating pa	41,134	\$8.2 bn capital \$8.6 bn operating pa

Table 9 lists the projected gaps in the provision of infrastructure to 2025 and 2040, with the estimated cost required to fill expected gaps.

Workforce challenges

Almost all of the workforce professions included in this report have grown considerably in the last 5-10 years and will need to continue to grow in the future. Australia will be faced with significant workforce challenges. For example, despite recent growth in the nursing workforce, the demand for nurses continues to exceed supply with a projected gap of 85,000 by 2025.¹⁸⁰ There are already challenges in attracting sufficient staff for the aged care workforce which will need to almost double by 2040 to keep up with the growing ageing population.¹⁸¹

In order to fill the current and projected gaps in the health and ageing workforce, significant investment will be needed in order to recruit and train the required number of practitioners, nurses and support/care staff.

Not meeting people's health and ageing needs

The current health and ageing sectors already struggle to meet the needs of all Australians. Costs are rising, as are people's expectations of their support and care, and of the system. The health sector was designed to manage acute illness and injury and not to deliver complex, longer term care well, which is what the majority of people today and in the future will need.

It is difficult to shift focus to proactive, preventive support and broader wellbeing when health leaders are having to manage the urgent needs of the system today. As a result, there is currently little investment in keeping people well. Health expenditure spent on prevention and health promotion has been declining since it peaked at 2.2 per cent, in 2007-08.¹⁸²

174. Aged Care Financing Authority (2016). Fourth report on the funding and financing of the aged care sector.

175. Based on Aged Care Financing Authority (2016). Fourth report on the funding and financing of the aged care sector which reported operational expenses of \$14.9 billion for the period 2014-15 with a total of 231,255 consumers.

176. Aged Care Financing Authority (2016). Fourth report on the funding and financing of the aged care sector.

177. Ibid.

178. Health and Human services (2017). Infrastructure and Planning delivery. Retrieved in April 2017 from URL: www.capital.health.vic.gov.au/Project_proposals/Benchmarking/Hospital_capital_planning_module. Ac

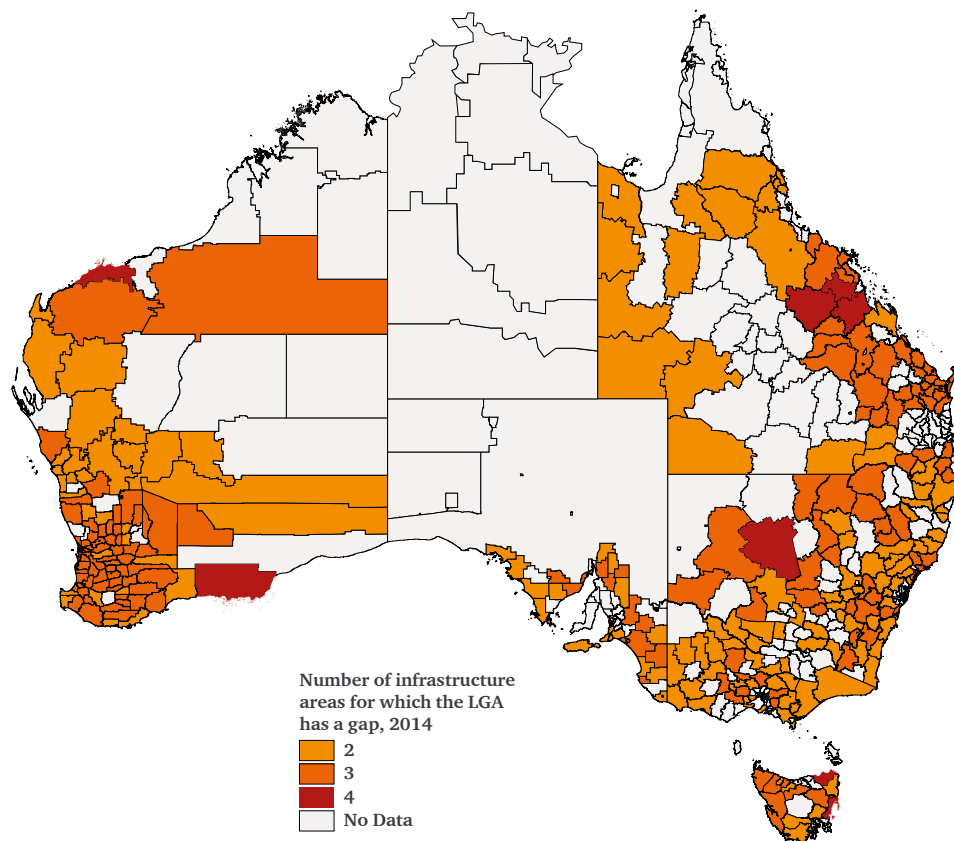
179. National Hospital Cost Data collection (2014). Retrieved in April 2017 from URL: www.ihpa.gov.au/sites/g/files/net636/f/publications/nhcdc-round18.pdf.

180. Health Workforce Australia 2014: Australia's Future Health Workforce – Nurses Detailed

181. Harrington, M, and Jolly, R. The crisis in the caring workforce. Canberra: Parliament of Australia, Commonwealth of Australia; Mavromaras, K., Knight, G., Isherwood, L., Crettenden, A., et al. (2017). The aged care workforce, 2016. Canberra: Department of Health, Commonwealth of Australia.

182. Australian Institute of Health and Welfare 2016. Australia's health 2016. Australia's health series no. 15. Cat. no. AUS 199. Canberra: AIHW

Figure 22: LGAs with gaps in two or more social infrastructure areas, 2014



Source: PwC's GEM, PHIDU. This map illustrates LGAs that have a gap in two or more infrastructure domains.

The system is fragmented and difficult to navigate for people with chronic and complex needs, leading to a frustrating patient experience, variable quality of care and costly inefficiencies. Siloes in the system and the lack of shared patient data make it very challenging for service providers to collaborate for their patients. This means that patients with complex needs (eg multiple diseases) aren't necessarily receiving holistic care that considers all of their needs.

In addition, services don't necessarily take into consideration what people value for their health, wellbeing and life. For example, older people highly value their independence while services are often designed to efficiently provide care which limits the potential for personal choice and control. People have little accountability for their health and wellbeing and rely heavily on the medical workforce. The information

asymmetry, culture and fragmentation in the health system doesn't support people taking more ownership for their health and wellbeing. There will be increasing pressure from citizens to have a health and ageing system that meets their needs and expectations. Technology is putting information into the hands of citizens about their own health like never before.

Services are funded based on activity (service volumes) and patient outcomes are not tracked or incentivised. This approach leads to inefficiency (avoidable, variable and unnecessary treatments) and lack of clarity on impact and value for money. It does not incentivise collaboration or innovation, both of which will be critical for the future.

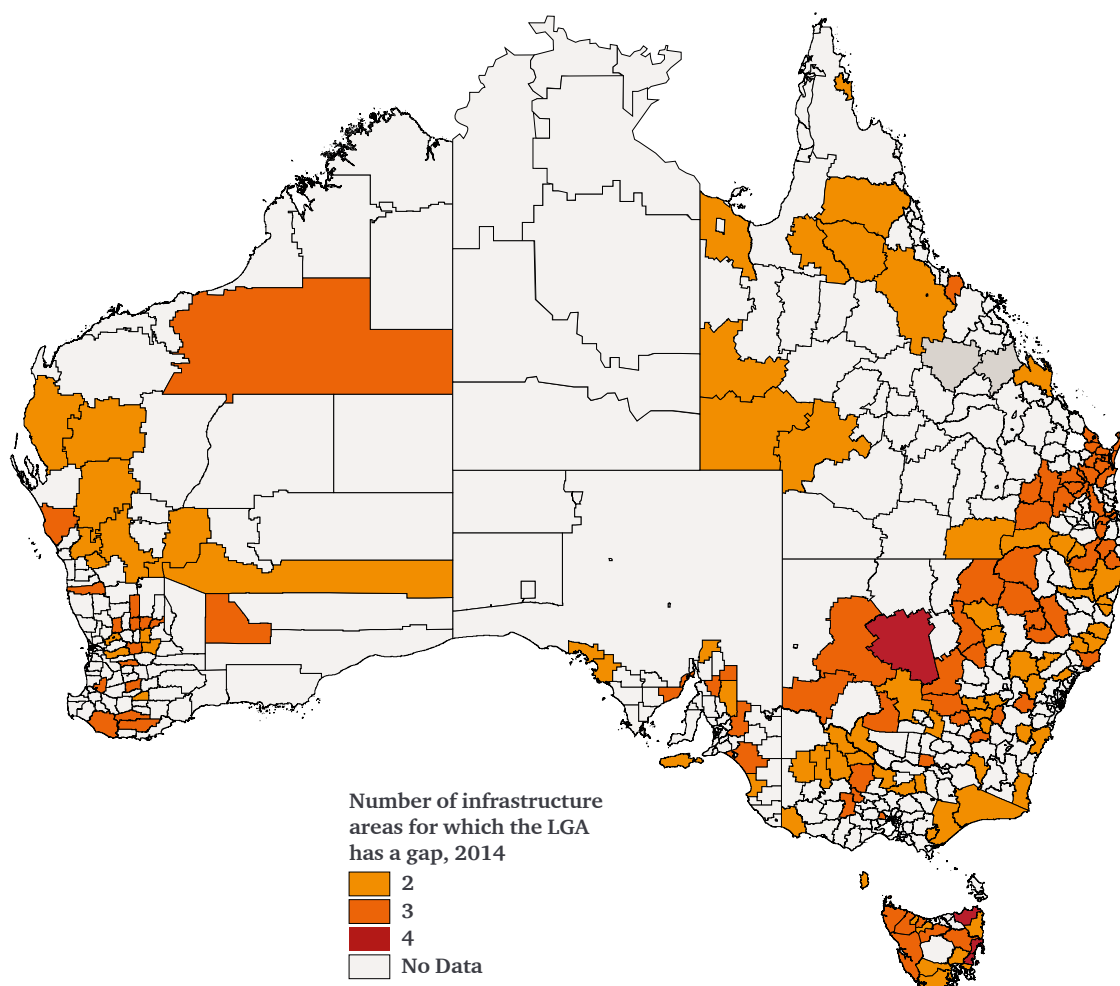
Even if logistically possible, simply scaling up and doing more of the same in the future will mean a very costly system, and one that is increasingly seen as no longer fit for purpose.

Will drive further inequity

Our analysis of current and projected gaps in the provision of social infrastructure for health and ageing illustrates that there is a disparity between metropolitan and non-metropolitan regions of Australia (Figure 22).

This analysis shows that, in 2014, 392 of 577 LGAs nationally had gaps in two or more health and ageing supply indicators that were mapped. As Figure 22 shows, there are a large number of non-metropolitan LGAs that have gaps in the provision of social infrastructure for health and ageing.

Figure 23: LGAs with gaps in two or more infrastructure areas and have a low SES score, 2014



Source: PwC's GEM, PHIDU. This map illustrates LGAs that have a gap in two or more infrastructure domains and fall in the bottom 50 per cent of Socio-Economic Indexes For Areas (SEIFA) scores.

Figure 23 shows the LGAs with gaps in the provision of social infrastructure for two or more health and ageing supply indicators that are also in the lower 50 per cent of socioeconomic scores in Australia. Altogether, 184 of the 577 LGAs in Australia have gaps in provision for two or more supply indicators and are below average in terms of socioeconomic score.

This provides an indication of the inequity that already exists, with many non-metropolitan and low socioeconomic status areas experiencing gaps in provision of social infrastructure for health and ageing. As demand increases in the future, there is a risk that gaps will increase and drive greater inequality.

***Part B –
What we can do
about it***



*A system to meet future
community needs*

A system to meet future community needs

The need to think differently about health and ageing

The challenges being faced by the healthcare system are not necessarily new, nor specific to Australia. A 2016 OECD report showed that healthcare spending has grown faster than economic growth in all OECD countries, and will become unaffordable without reform.¹⁸³ It has been estimated that healthcare spending will increase to over 40 per cent of government expenditure (up from the current 25 per cent) by 2040 if we maintain the current momentum.¹⁸⁴

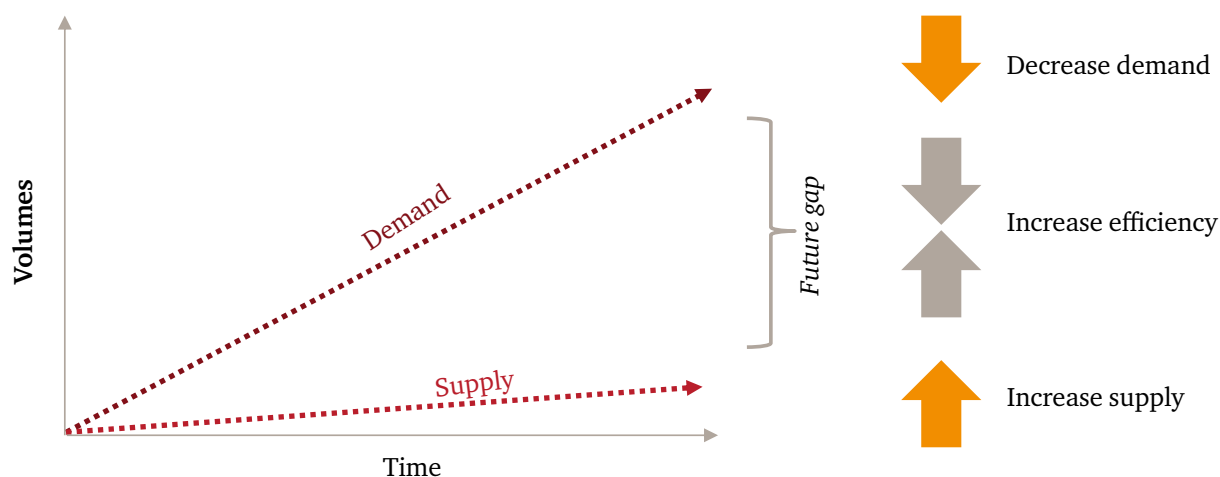
The modelling in this report shows that the scale of future community needs will be considerable. To close the potential future gaps, Australia needs different approaches to decrease demand, increase efficiency of the system, and increase supply of evidence informed, cost effective services.

There is room to improve efficiency, with wasteful expenditure being one area for improvement in the current activity funded system.¹⁸⁵ There is also the potential that future technological advancements may help identify the most effective treatments such as genetic testing for targeted cancer therapies and/or real world data, and therefore reduce resources spent on ineffective treatments. However, these improvements alone are unlikely

to be enough to make the system sustainable. Shifting the growing costs of health to individuals is also not viable and undermines equity – a fundamental goal of the Australian healthcare system.

There is a need to think differently about health and ageing if we are to meet the needs of Australians in the future. Doing more of the same will mean a very costly health system and the system is also no longer fit for purpose in many ways. It is designed around illness, not wellbeing. It is not built to deliver complex, longer term care well, which is what the majority of people today and in the future need with large and growing portions of the population over 70 and/or with a chronic disease.

Figure 24: Illustrative graphic on potential levers to meet future demand gaps



183. OECD (2015), Fiscal Sustainability of Health Systems: Bridging Health and financial perspectives, OECD publications, Paris

184. Ellery, D. Australia's spending on healthcare unsustainable, CSIRO futurist says (2016). Retrieved in April 2017 from URL: www.smh.com.au/national/health/australias-spending-on-healthcare-unsustainable-csiro-futurist-says-20160519-goys7x.html

185. Productivity Commission 2015, Efficiency in Health, Commission Research Paper, Canberra. JEL codes: I10, I18.

Prevention and early intervention initiatives could help shift the demand curves for the most costly health infrastructure (acute care). Supporting people at high risk (eg significant weight gain/obesity) or high impact (eg early childhood) junctions in their life could help prevent illness and the demand for high cost health infrastructure.

PwC Australia believes there is a need for reform and investment in prevention and wellbeing. This has been articulated in various ways including the following examples of previous public reports:

- Reimagining health reform in Australia: Taking a systems approach to health and wellness¹⁸⁶
- Healthcare reform: Why the stars are finally aligning¹⁸⁷
- Weighing the Cost of Obesity: A case for action¹⁸⁸
- New Health: A Vision for Sustainability¹⁸⁹
- Creating a mentally healthy workplace – Return on investment analysis¹⁹⁰
- Putting a value on early childhood education and care in Australia¹⁹¹
- The value of Indigenous sight – An economic analysis¹⁹²
- A high price to pay: The economic case for preventing violence against women¹⁹³
- Australia's social purpose market: Understanding funding flows and exploring implications¹⁹⁴

The point of view in this report builds on the PwC and Strategy& perspectives, incorporating experience

and expertise-driven, and passionate insights from an Advisory Group.

Principles of a future system

Design principles were developed with the Advisory Group¹⁹⁵ and using insights from international examples. The Advisory Group agreed that it is important to shift away from the current medical model that focuses on illness rather than wellbeing and that the design principles should be considered as part of any major future reforms or investments.

- **Risk and outcomes focussed** – investment and activity should be focussed on impact for people's wellbeing and what they value (outcomes that matter to them). There should be a focus on identifying risks to people's health and wellbeing and intervening based on evidence (noting this may lie outside of the current health system scope).
- **Person centred** – Care is organised around the recipient rather than being driven by the provider. The system supports people to support themselves by focusing on the independence and accountability in health and wellbeing. Services/support/care is designed to consider what people value in their healthcare, which will differ for each individual. Care is more self-directed and offers more choice.
- **Access and equity** – people can have access to appropriate quality support and care that is affordable

and effective, but also sensitive to the need for people to take personal responsibility. Universality is challenged and those with the higher needs get more and appropriate support.

- **Effective and efficient** – reduce wasteful expenditure in the system and minimise investment in activities that do not support desired outcomes. Quality and safety are high priority performance measures that are transparent and consistently tracked.
- **Integrated care and support** – support is coordinated and comprehensive across the system.

These principles are not new and are in line with national and international strategic reports on the need for population health reform such as:

- Australia: The Healthiest Country by 2020¹⁹⁶
- National Strategic Framework for Chronic Conditions¹⁹⁷
- Chronic failure in primary care¹⁹⁸
- Population health systems – Going beyond integrated care¹⁹⁹
- Healthy Populations: Designing strategies to improve population health²⁰⁰
- One Person, One Team, One System²⁰¹
- The Strategy that will fix health care²⁰²
- Legislated review of aged care 2017
- Shifting the dial: 5 year productivity review

186. Bartlett, C., Butler, S., Haines, L. Reimagining health reform in Australia: Taking a systems approach to health and wellness (2016). PwC

187. Healthcare reform (2014): – Why the stars are finally aligning. PwC

188. Weighing the cost of obesity (2014): A case for action. PwC

189. PwC (2017). New Health: A vision for sustainability.

190. PwC (2014). Creating a mentally healthy workplace – Return on investment analysis.

191. PwC (2014). Putting a value on early childhood education and care in Australia.

192. PwC (2012). The value of Indigenous sight.

193. A high price to pay: The economic case for preventing violence against women (2014). PwC

194. Public Sector Research Centre: PwC (2017). Retrieved in July 2017 from URL: www.pwc.com/gx/en/industries/government-public-services/public-sector-research-centre/australia/australia-social-purpose-market.html

195. See Appendix E for Advisory Group biographies

196. Australia – the Healthiest Country by 2020: National Preventative Health Strategy (2009). Canberra: Commonwealth of Australia, Preventative Health Taskforce

197. Australian Health Ministers' Advisory Council, 2017, National Strategic Framework for Chronic Conditions. Australian Government. Canberra.

198. Swerissen, H, and Duckett, S (2016). Chronic failure in primary care. Grattan Institute: Melbourne.

199. KingsFund (2017). Population Health Systems. Retrieved in July 2017 from URL: www.kingsfund.org.uk/publications/population-health-systems

200. Alderwick H, Vuik S, Ham C, Patel H, Siegel S. Healthy Populations: Designing Strategies to Improve Population Health. Doha, Qatar: World Innovation Summit for Health, 2016

201. PwC (2014) One person, One team, One system. Retrieved in July 2017 from URL: www.pwc.co.uk/assets/pdf/one-person-one-team-one-system.pdf

202. Lee, H., Porter, M. The strategy that will fix Healthcare (2013). Retrieved in July 2017 from URL: <http://hbr.org/2013/10/the-strategy-that-will-fix-health-care>

Examples of system changes that illustrate these design principles

A high level scan was conducted to identify examples of system reform and initiatives in line with the design principles. Examples are highlighted for each design principle, however, there is clear overlap with each example representing more than one of the principles. The examples are meant to help illustrate how the principles could come to life in the real world, including the potential benefits and considerations for implementation.

Risk & outcomes focussed

Bromley by Bow Centre UK – help create a cohesive, healthy, successful and vibrant community

The Bromley by Bow Centre is a local charity that aims to support the community in four main ways:

- support people to overcome chronic illness and unhealthy lifestyles
- enable people to learn new skills
- support people to become less dependent and to find work and
- provide the tools to create an enterprising community

The services are accessible to everyone and they specialise in supporting people experiencing the most disadvantage. The centre provides primary care services and social prescribing for non-medical ways to improve health and wellbeing including social care, education and training and guidance. The centre has a holistic range of services that aim to help people build capability and create supportive social networks in the community.

The centre provides accessible and integrated care to the community but also targets risk areas in people's lives that sit outside of the health sector but influence health and wellbeing. The centre has provided support to

thousands of people each year and has helped create new businesses and jobs in the community.²⁰³

Counties Manukau Health New Zealand – System integration

Counties Manukau Health provides health and disability services for the ethnically diverse population of over 500,000 in the region. Integrated care has been a major focus for the district and they have been re-orienting the health system around primary and community care.

Local partnerships between the GPs and hospitals were organised to treat patients within the community and supported with training, resources, data and care pathways. These partnerships had shared funding, accountability and outcomes targets with the goal of shifting funding from the acute care to the community. GPs have capitated funding and primary care has been expanded to

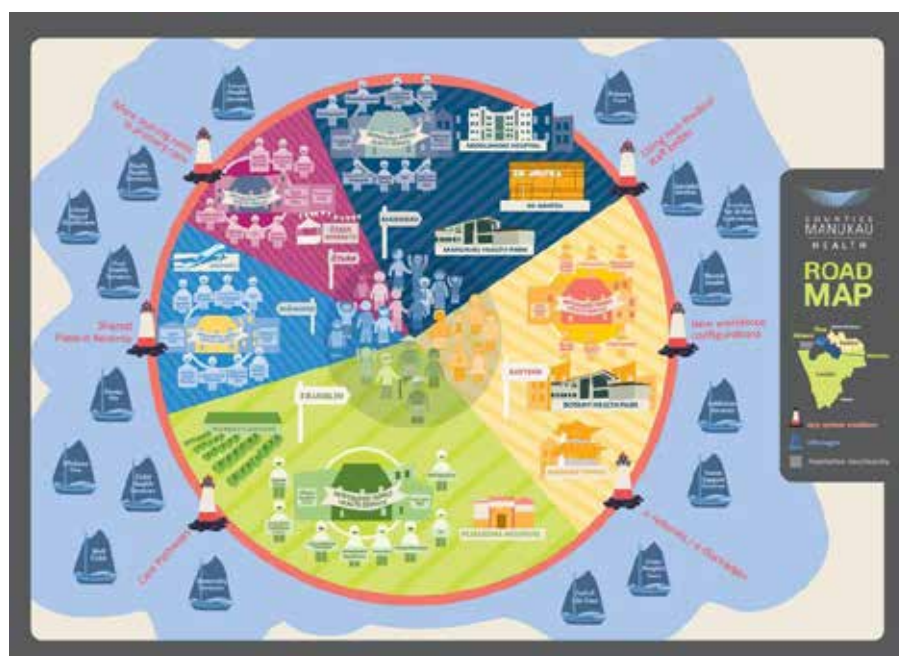
include more prevention and early intervention. A co-design process was used to develop the new, local models of care with the patient experience at the heart of the design and the target of keeping people out of hospital. This led to new pathways and new workforce configurations.

Risk stratification helps care providers identify people and families that will likely need health or social support with a local nurse driving a lot of the prevention and early intervention contact and care planning.

Change and communication planning has been a critical part of the system transformation. Accessible communication tools such as roadmaps and videos have been helpful in stakeholder engagement and communication to the community.

The systems changes have been collaborative and iterative, with time for success (changes did not happen overnight). The system integration has led to reductions in acute and care home utilisation rates.²⁰⁴

Figure 25: Counties Manukau communication tool: Health Roadmap



203. Siegel, S. et al (2016). Healthy Populations Designing Strategies to Improve Population Health, WISH Innovation Summit for Health and Qatar Foundation.
204. Alderwick, H. et al (2015) Population health systems – Going beyond integrated care, The King's Fund.

ThedaCare, Wisconsin, US – Accountable Care

Since the Affordable Care Act passed in the US in 2010, a number of Accountable Care models have been implemented. These Accountable Care Organisations are seen as the key to reducing healthcare expenditure with their triple aim of improving the experience of care, the health of populations, and reducing per capita costs.²⁰⁵

One example of Accountable Care in the US is ThedaCare, which has a focus on continuously improving processes and prioritising elements of care that add the most value to the patient experience. Interdisciplinary teams were established comprising physicians, nurses, care managers, and pharmacists. These teams are assigned to meet patients immediately upon admission and work with them to create a single, tailor-made and authoritative care plan. The team then meets each day with the patient as part of a 'bedside conference.' Nurses are accountable for monitoring progress of the plan against agreed guidelines and make recommendations to the team if any barriers to recovery are identified. The pharmacist is accountable for medication-related outcomes.²⁰⁶

The system also deliberately integrates social care, with a social carer meeting every patient within 90 minutes of admission, and arranging further assessments, home visits, and ongoing support as required. Patient satisfaction has soared to 95 per cent, length of admissions has fallen by 17 per cent, and costs of inpatient care have fallen by 25 per cent.²⁰⁷

Western Sydney Alliance – Diabetes prevention strategy

Western Sydney is a particular 'hotspot' for diabetes and diabetes risk in Australia with disease rates higher than the New South Wales (NSW) average. Projections show that, unaddressed, this will lead to considerable costs and an unsustainable burden on the health system in Western Sydney.²⁰⁸

In Western Sydney the Local Health District (WSLHD), Primary Health Network (WSPHN), and Diabetes NSW have partnered with the NSW Department of Premier and Cabinet (DPC) to form a Western Sydney Diabetes Prevention Alliance. The Alliance has developed a prevention strategy that is targeted to the specific needs of the region.

The prevention strategy focuses on prevention for those at risk of type 2 diabetes. It is a comprehensive plan that includes evidence based initiatives covering four main areas: improving food consumption, increasing physical activity, building healthy environments, and workplace wellness programs, across various environments and with various stakeholder groups.

The prevention strategy has started to be implemented in Western Sydney and its reach is intended to expand.

Person centred

Jönköping County Council Sweden – Improving quality of life

The Jönköping County Council organises health care services for its residents with the aim of improving quality of life for people. Jönköping has an integrated system and uses patient pathways and experiences to map services and improve care for patients. Planning and care design are based on the needs of population groups

including: children and young people, people with mental health conditions, people living with drug and alcohol addiction, and older people. Population level data is used to understand and track health outcomes for these groups.

Jönköping invests in the power of social interactions and advice from peer groups to help people manage their own health. 'Learning cafes' and 'life cafes' provide opportunities for people to come together to share experiences and insights.

The benefits of Jönköping's public health approach are seen in its relatively high performance according to public health indicators (eg reported health and wellbeing status).²⁰⁹

National Disability Insurance Scheme (NDIS) Australia – A lifetime approach

The NDIS is a national scheme that provides support to people with significant and permanent disability (less than 500,000 people in Australia). The scheme is currently being rolled out and replaces a supply-driven system. The NDIS provides an example of how models of support and care can be reformed in Australia, particularly to support people's choice and what they value most.

The NDIS takes a lifetime approach, investing in people with disability early to improve their outcomes later in life. It provides people with individualised support and the flexibility to manage their supports to help them achieve their goals and engage in society.

The NDIS is a shift from block funding to an uncapped, consumer empowerment/demand-driven model based on consumer budget. This model funds long-term, high-quality care and support. The scheme is jointly governed and funded by Commonwealth and State/Territory Governments.

205. Barnes, A, Unruh, L, Chukmaitov, A, and van Ginneken, E (2014). Accountable care organizations in the USA: types, developments and challenges. *Health Policy* 118(1): 1-7.

206. McClellan, M, Kent, J, Beales, S, Macdonnell, M, Thoumi, A, Shuttleworth, B, and Cohen, S (2013). Focusing accountability on the outcomes that matter. World Innovation Summit for Health, Report of the Accountable Care Working Group..

207. Ibid.

208. Western Sydney Local Health District (2017). Taking the heat out of Diabetes Hotspot. www.wslhd.health.nsw.gov.au/ArticleDocuments/1336/WSLHD_Taking_the_heat_out_diabetes_hotspot.pdf.aspx

209. Kings fund (2017). Jönköping County Council, Sweden. Retrieved in July 2017 from URL: www.kingsfund.org.uk/topics/integrated-care/integrated-care-map

Affordable access and equity

Canterbury, New Zealand – One System, One budget

The locally driven system changes in Canterbury, New Zealand is a good example of how a more integrated and person centred system can lead to efficiencies and consistent and equitable support.

Analysis showed that the district health system's operating model was unsustainable and that the capital investment and workforce needs to meet future demand would not be possible. It was clear that the system needed to change and those within it were given the responsibility to design and drive the changes.

The strategic goals and principles of the system were developed with the patient at the centre. As part of this HealthPathways was created, a local agreement developed with acute and primary care physicians on the best pathways for patients with specific conditions and how the care should be integrated.

This initiative plus a new referral management system led to more efficient and appropriate referrals that are in line with the agreed patient pathways. This led to shorter waiting times (by better managing unnecessary referrals) and meant that specialists could focus on the patients with the highest needs. In addition, the HealthPathways meant that clinicians were supporting patients in a consistent and equitable way.

Canterbury's drive to improve the system has also seen additional benefits such as lower admission and readmission rates and hospital length of stay.²¹⁰

Effective and Efficient

Gesundes Kinzigtal, Germany – Triple Aim

Gesundes Kinzigtal GmbH is a healthcare management company that was established in 2005 and is currently one of the few population based integrated care systems in Germany.²¹¹ The company works with local physicians, another healthcare management company and health insurers. Their goal is to improve three key issues of any health care system: cost, health, and care (triple aim).

The company holds long term contracts and accountability with a capitated budget for their insured population and includes residents in its governance structure. It provides integrated health care services and chronic disease care management with shared (with the patient) decision making. Risk stratification is used to identify those with highest needs for health or social support. The company also promotes healthier community environments such as a community investment fund and promoting healthy lifestyles and workplace initiatives.²¹²

The system has shown measurable benefits including lower costs per person, reduced over and under use of the system and higher care quality.²¹³

210. Kings fund (2017). Integrated Care Map. Retrieved in July 2017 from URL: www.kingsfund.org.uk/topics/integrated-care/integrated-care-map

211. Gesundes Kinzigtal: International website: Integrated care and Health care managers. (2017). Retrieved in July 2017 from URL: www.gesundes-kinzigtal.de/international-website/

212. www.wish-qatar.org/app/media/download/2743

213. Gesundes Kinzigtal: International website: Integrated care and Health care managers. (2017). Retrieved in July 2017 from URL: www.gesundes-kinzigtal.de/international-website/

Integrated care and support systems²¹⁴

Kaiser Permanente, United States – Trusted partners in total health

Kaiser Permanente is one of the largest US not-for-profit health plans, serving more than 11.3 million members.²¹⁵ It is a regularly cited example of how a high performing organisation can improve outcomes on a population level through integrated and preventive care.²¹⁶

Kaiser Permanente uses capitated budgets, population risk stratification and case management for patients with complex needs. Community Health Needs Assessments are used to help identify and measure local needs and identify resources to help communities realise ‘total health’ of the mind, body and spirit in all environments.²¹⁷ Community Health Initiatives go beyond the health system and include initiatives that target economic vitality of families and communities, neighbourhood safety and social and emotional wellness.

Alzira, Spain

Introduced in Spain in 1999, the Alzira model is an example of how out-of-hospital care can be incentivised, and the benefits that this can bring to the patient, staff and government.²¹⁸

Alzira holds long term contracts with the cities of Valencia (15 years with option for an extra 5) and Madrid (30 years), allowing for long term investment decisions to be made. There is a single integrated electronic patient record and a unified IT system that operates across services so that a record can be taken anywhere and at any time.

In Alzira, acute, community, mental health and primary care are fully integrated and take a fully capitated budget that is paid by the local government. They provide all health services in the area including primary care (GPs in Spain are all salaried). There has been a shift in the service management towards health management, which has led to a focus on prevention and health promotion.

Through this fully integrated system Alzira manages to deliver care at a significantly lower cost. Through Alzira, reduced emergency admission rates, readmission rates, increased outpatient major surgery rates and increased patient satisfaction have been observed.

Summary of reform examples

The above examples show that public health reforms are happening across the world (in different ways) and can be impactful with the right resources, time and investment.

There are consistent themes across the examples including:

- There is a clear vision and direction with the community need at the heart of it
- Long term, strategic planning for community needs
- Patient and population level data is used to understand community needs and health outcomes
- An understanding of what impacts health and wellbeing and where these risk factors can be influenced in local settings for different population groups (not just those with illnesses)
- A shift from investing in reactive acute care to proactive preventive support through primary care and community initiatives
- Local communities are designing and driving the change, including private and public stakeholders outside of the system
- The personal pathways and experience in the system is the starting point for redesign, not the structure of current supply models
- New workforce models and investing in training, better leveraging skills of non-medical staff
- An environment of collaboration and trust among stakeholders through the united goal of providing better support to communities
- People are supported and encouraged to take more ownership for their health and wellbeing

214. For further examples of integrated care models, the Kings Fund has developed a virtual map of integrated care examples across the world: Kings fund (2017). Integrated Care Map. Retrieved in July 2017 from URL: www.kingsfund.org.uk/topics/integrated-care/integrated-care-map

215. Kaiser Permanente (2017). Fast facts. Retrieved in July 2017 from URL: share.kaiserpermanente.org/article/fast-facts-about-kaiser-permanente/

216. Kings Fund (2017). Population Health Systems. Retrieved in July 2017 from URL: www.kingsfund.org.uk/publications/population-health-systems

217. Kaiser Permanente (2017). Retrieved in July 2017 from URL: healthy.kaiserpermanente.org/

218. PwC (2014). Lessons from Alzira: an NHS provider perspective. Retrieved in July 2017 from URL: www.pwc.co.uk/industries/government-public-sector/healthcare/insights/lessons-from-alzira-an-nhs-provider-perspective.html



***A proposed future model for
Australian health and care***

How the proposed future model could apply for higher needs groups

The high level elements of a proposed future model were developed using the design principles, Advisory Group discussions and international examples of success. Figure 26 summarises the main elements of a potential system.

Figure 26: Summary of the proposed future model elements



Primary focus on health and wellbeing

The system should focus on keeping people as well as possible for as long as possible. Community initiatives are designed to support wellbeing, based on evidence of risk factors that lead to illness. There needs to be considerable investments in prevention, early intervention and supporting health literacy and personal accountability to keep people well as long as possible. People need to play a leading role in their health and wellbeing and be supported to do this. It should be clear how they can influence their health and wellbeing, their accountability in that and how to best find support in the system when they need it.

A focus on determinants of health and wellbeing such as education and social support networks,²¹⁹ will require support outside of the healthcare system as well. Impacts on people's health and wellbeing should be a consideration for all policy development.

219. World Health Organization. Chronic diseases and health promotion — integrated chronic disease prevention and control. Geneva, Switzerland: WHO; 2016.

Targeted support for those that need it

The future system must have the capacity to support those that are at high risk of poor health outcomes and high needs care, such as people with chronic disease, mental health challenges and the ageing population, with the goal to keep them as well as possible. Integrated, multidisciplinary teams (which may include professionals outside of the health system, such as social care workers) should be much more widely available than they currently are, to assess and support those at/with high risk and complex care needs.

Holistic and integrated health with early intervention initiatives can help keep people out of acute care. Support is designed to incorporate what people value (eg independence for older people) and outcomes such as wellbeing, patient experience and hospital avoidance are more important than activity.

Predictive analytics and risk stratification are tools that could help identify people that are at risk. To support personal accountability and choice, people should be part of their own health and wellbeing planning.

Funding could be provided to people or individuals to allow them to select services most appropriate for them (with guidance), such as with the NDIS model, sometimes referred to as personalised budgets or consumer-directed care.

Optimise effective high needs care

Acute and high care (eg dementia) needs will always be required. The risks and negative impacts or experiences from high-level care should be minimised and efficiency and effectiveness maximised. In these cases, therefore, very high quality care should be provided to support people to reach optimal health as soon as possible and be supported to recover in the community where appropriate. Acute and high care resources should be for those with the highest and emergency needs.

Potential benefits of such a system

Transitioning towards a focus on health and wellbeing, while providing targeted support for those in need, would lead to a system that is able to produce better health outcomes, create a better patient experiences, while achieving improved value for money.

Health Outcomes

Shifting focus to a preventive, population health and wellbeing model would mean that there would be a better chance at positively influencing factors that impact health. Prevention and early intervention (targeted support based on risks) would hopefully reduce avoidable disease and suffering in the community and therefore reduce demand on the highest cost services (eg acute care).

Patient experience

Providing support and care to people that is in line with what they value and expect would create a model in which individuals have a better experience with the system, and could lead to better, and more regular engagement. By feeling more engaged with the system and service providers, this in turn could lead to people feeling more empowered and responsible for their own health and wellbeing. This should help achieve improved outcomes, and lead to reduced demand.

Value for money

Focusing on outcomes would mean less wasteful spending in the system and potentially greater value for money (i.e. disinvestment from activity that produces no or negligible health outcomes benefit and redirection to more effective services). Providing more care in the community would take pressure off of the high care, most expensive services.

It should be noted that it is unclear whether reducing disease would lead to lower healthcare costs per person over a lifetime, however, according to the World Health Organisation, the benefits of prevention leads to long-term health and economic benefits and improves the health of future generations.²²⁰

220. Ibid.

How the proposed future model could apply for higher needs groups

The shift in focus from illness to health and wellbeing would mean different interactions and experiences for the people in our three focus areas: ageing well, chronic disease and mental health. Not only should health and wellbeing outcomes be measured and drive the system, but what people value in their care should be a focus. Person centred care is a way of providing services that includes patients and what they value to achieve the best outcome. Firstly service providers need to understand what people value and how services can be designed or flexed to best meet people's care needs. Care is more self-directed and offers more choice. More person centred care should lead to higher quality care that improves health outcomes for patients and reduces burden on the system.²²¹

There are fundamentals that most people will value such as safe, quality care, being treated with respect and guidance they can trust. Beyond that there are some consistent factors that people value in their care and support, for example, independence for older people, and these factors would be considered in designing support and care. Individual preferences will vary and may change with time. These should be captured in care planning on an individual level.

The following sections outline the general preferences for the three focus areas and how the system could work to provide them support and care. It should be noted that the detailed care/support design would need to be developed locally (locality or place based), considering the local context

and needs. For example, the model would have to be specifically tailored to the context of remote and rural locations. The needs and preferences of Australia's Indigenous communities would be relevant for remote and metropolitan locations.

Health and Wellbeing for Indigenous Communities

The concept of health for Indigenous people is seen as encompassing more than just the physical health of individuals, but also the social, emotional, spiritual and cultural wellbeing of an individual, and their community.²²² For Indigenous people, connection to land and culture is central to wellbeing, giving individuals a sense of social identity and responsibility.²²³

There is now growing evidence to suggest that connectedness to culture and cultural strengthening are protective factors that lead to better health and wellbeing for Indigenous people.²²⁴ In both the 2002 and 2008 National Aboriginal and Torres Strait Islander Surveys, stronger attachment to traditional culture was associated with better self-assessed health (as well as other social outcomes) for Indigenous Australians.²²⁵

In order to provide culturally-specific support and care to Indigenous people, and to respect the right to exercise self-determination (the right for people to make decisions concerning their own lives, their own communities, and the right to retain their culture and to develop it),²²⁶ Aboriginal Community Controlled Organisations and Aboriginal Community Controlled Health Organisations have, and should continue to have, a key role in the health and wellbeing of Indigenous Australians.

221. Health Innovation Network, What is person-centred care and why is it important, South London.

222. Garvey D (2008), Review of the social and emotional wellbeing of Indigenous Australian peoples – considerations, challenges and opportunities

223. Health Info Net (2017). Other mental health conditions. Retrieved in July 2017 from URL: www.healthinonet.ecu.edu.au/other-health-conditions/mental-health/reviews/our-review; www.mhpod.gov.au/assets/sample_topics/combined/Mental_Health_Care_for_Indigenous_Australians/4IND_objective1/index.html.

224. Colquhoun, S, and Dockery, AM (2012). The link between Indigenous culture and wellbeing: qualitative evidence for Australian Aboriginal peoples. Centre for Labour Market Research and School of Economics and Finance, Curtin University, http://ceebi.curtin.edu.au/local/docs/2012.01_LSIC_qualitative_CLMR1.pdf. Accessed April 2017.

225. Dockery, AM (2010). Culture and wellbeing: the case of Indigenous Australians. Social Indicators Research, 99(2): 315-332; Dockery, A.M. (2011). Traditional culture and the wellbeing of Indigenous Australians: an analysis of the 2008 NATSISS. CLMR Discussion Paper 2011/01, Centre for Labour Market Research, Curtin University, May.

226. RCIADIC (1991). RCIADIC: National reports [Vol 1-5], and regional reports. Canberra: Australian Government Publishing Service.

Ageing well

Australia has a growing ageing population with an unsustainable approach to supporting these people in the future in healthcare and aged care.

A global PwC report on connected and coordinated care for the elderly²²⁷ proposes that the older person's needs should be at the heart of developing a new model, instead of the needs of the system.

What do people value in ageing

In thinking about the proposed future model for ageing well, older person's perspective and what they value should be understood and at least considered. There appears to be relatively limited public information on what older people specifically in Australia value in their care. The PwC, Advisory Group

and global insights suggest the following categories should be considered:²²⁸

- **Independence** – Older people want to maintain their independence for as long as possible and have choice and control in how they live their lives
- **Housing** – Affordable and safe housing options in their community
- **Social connection** – It is important for older people to continue to participate in society and maintain valuable relationships, they need something to live for
- **Proximity to home** – People want to live and interact in the community they know and lived in
- **Mobility** – Older people need appropriate transport options to maintain independence and participate in society
- **Accessible information** – information should be provided in a way that older people can

understand. It should help them understand their health and wellbeing and the options available to them

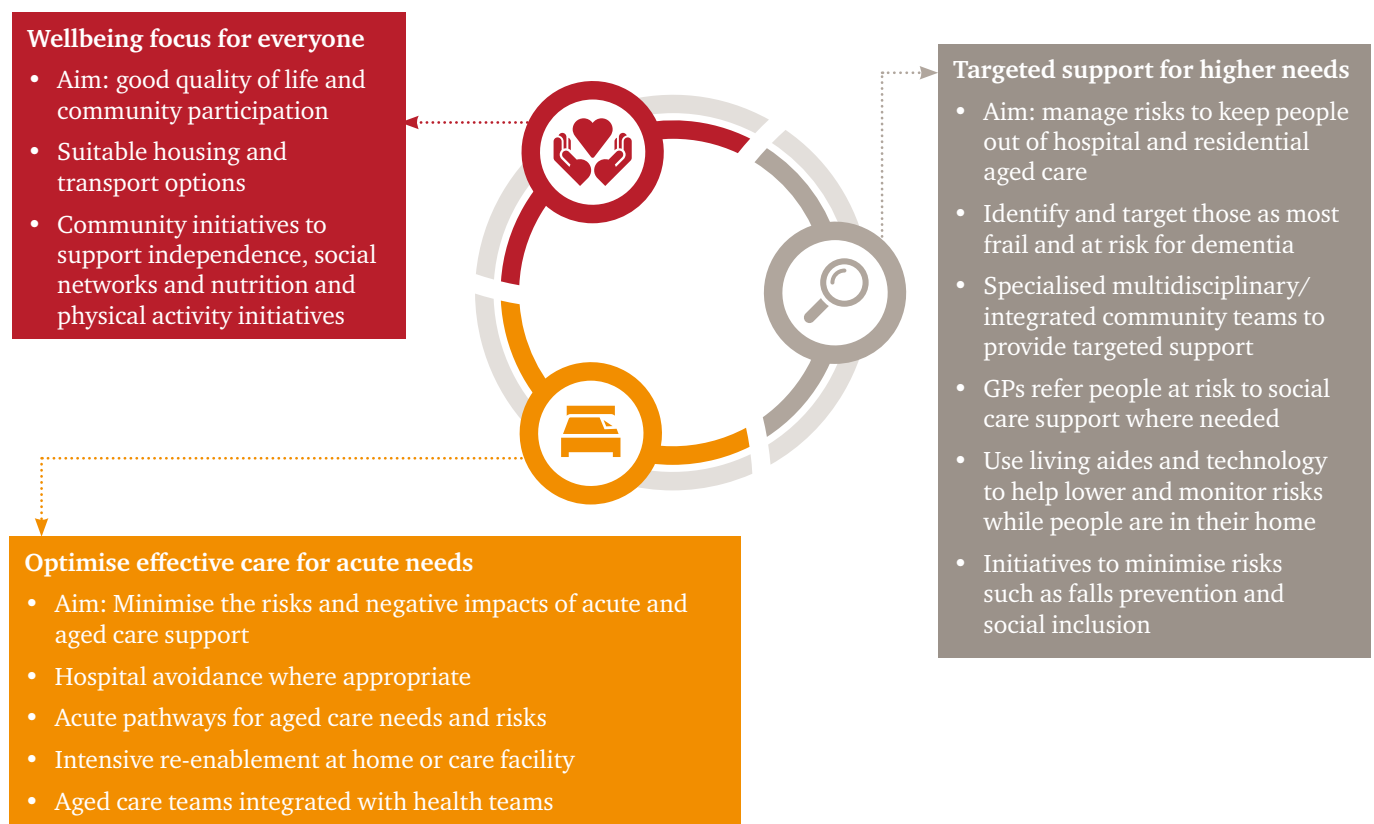
- **Pain management** – Minimise discomfort from illness
- **Life advice** – older people value guidance on support and considerations to maintain their independence and quality of life such as financial advice.

To meet these needs, a support system would need to be more holistic and shift from medical care for illness to keeping people well and in the community.

Ageing well in the proposed future model

If the principles of the proposed future model were applied specifically to the needs of the ageing population, including the person centred considerations above, then the model could include the components in Figure 27.

Figure 27: Focus of the future state for ageing well



227. PwC (2015). Connected and coordinated: Personalised service delivery for the Elderly.

228. Based on PwC Australia insights from previous projects, the global PwC report on connected and coordinated personalised service delivery for the elderly advisory group discussions, WHO age friendly city criteria and Atul Gawande's Being Mortal



Under such a model, the level of displacement that can occur as individuals transition from independent living arrangements to residential aged care could be better dealt with through the use of blended models of care. For example, under the current model people living at home or in retirement villages often move away from family, friends and community into a residential aged care facility as their needs increase. Models that support ageing in place could avoid this disruption. Freedom Aged Care, for example, offers a blended model where older people are able to move into a retirement village, but are guaranteed care in their own home until the end of their lives.²²⁹

Wellbeing focus for everyone

Policy, community initiatives and investments are developed considering the needs of the growing ageing population. Their needs are considered in urban planning and investments. The World Health Organization (WHO) has developed an age-friendly city checklist that emphasises the need for green spaces and appropriate paths for older people to walk, accessible transport options and sufficient and affordable housing with options to modify for needs.²³⁰

Community initiatives are designed to help people maintain their health and wellbeing and prevention efforts focus on supporting people where there is evidence of risk reduction. For example, for everyone, and especially the older population, nutrition, physical activity, mental exercise (challenging the brain) and social inclusion are critical to maintain wellbeing and manage

cognitive decline.²³¹ A meta-analysis of the impact of physical activity as a protective factor against neurodegenerative disease found that low or no physical activity increases the risk of dementia almost 1.4 times compared to high physical activity.²³²

In Manitoba, Canada, there is an age-friendly initiative that is a comprehensive, multi-faceted approach to addressing the needs of a growing seniors' population, built on the WHO healthy aging framework.²³³ Having been selected as one of 33 age-friendly cities worldwide in 2006, the initiative involves 27 communities in Manitoba focussed on designing policies, programs and services that make it easier for older adults to stay active and healthy, so that they can continue to contribute economically and socially. In Manitoba, the areas identified as priorities are transportation, housing and communication.²³⁴

Another example would be the Katholieke Bond voor Ouderen (KBO), The Netherlands where there is a centre focussed on elderly activities to support entertainment and empowerment. Programs include book clubs, exercise, crafts and skills building (eg using new technologies) and results indicate improvements in confidence and reduced feelings of exclusion.²³⁵

Targeted support for higher needs

Individuals who would be at risk for high needs care (eg acute care) are identified through risk stratification tools or touch points with the system such as their GP or home support personnel. For example, those that

are most frail or showing risk factors for dementia would be identified and targeted support would be developed for them.

Multidisciplinary, integrated teams understand the specific needs and risks of the ageing population and work in the community to provide targeted support. They develop care plans to reduce the risk factors which could include community support services (outside of the health system). There would be effective interventions to reduce the risk for falls or loneliness. In addition, the team would know about the most recent and relevant technologies to support the person (eg living aids) or manage their risks (eg remote monitoring).

ChenMed is a primary group practice in the US that provides services to lower and moderate income elderly patients and is an example of how targeted support can be effective and efficient. They receive capitated, risk adjusted funding (US Medicare Advantage) and invest in longer and more regular visits with patients. They have multiple specialties on site, embrace a culture of collaboration and communication and have developed their electronic medical record and decision support system. They know that transportation is a challenge for their patients so they provide free transportation to attend appointments and services.²³⁶ ChenMed is considered successful with improved patient satisfaction, better medication compliance and lower rates of local hospital use compared to peers.²³⁷

229. Freedom Aged care (2017). Retrieved in July 2017 from URL: www.freedomagedcare.com.au/our-vision-promise

230. WHO (2007). Age friendly Checklist.

231. Hindawi (2017). 5 simple steps. Retrieved in July 2017 from URL: www.hindawi.com/journals/jar/2012/384875; www.yourbrainmatters.org.au/5-simple-steps

232. Brown BM, Peiffer JJ, and Martins RN (2013). Multiple effects of physical activity on molecular and cognitive signs of brain aging: can exercise slow neurodegeneration and delay Alzheimer's disease? *Molecular Psychiatry* 18: 864-874.

233. Manitoba (2017) Senior and Healthy Ageing. Retrieved in July 2017 from URL: www.gov.mb.ca/shas/afmb/index.html

234. Public Health Agency of Canada (2017). Retrieved in July 2017 from URL: www.phac-aspc.gc.ca/publicat/2009/be-eb/manitoba-eng.php; www.gov.mb.ca/seniors/afmb/what.html

235. Kurian, R, and Uchiyama, C (2012). Models of elderly care in Japan and The Netherlands: social quality perspectives. *International of Social Quality*, 2(1): 74-88.

236. Glen, B. How one primary care practice innovated to improve outcomes for high-risk Medicare patients (2013). Retrieved May 2017 from URL: <http://medicaleconomics.modernmedicine.com/medical-economics/content/tags/access/how-one-primary-care-practice-innovated-improve-outcomes-high>

237. Tanio, C., & Chen, C. (2013). Innovations At Miami Practice Show Promise For Treating High-Risk Medicare Patients. *Health Affairs*, 32(6), 1078-1082.

Optimise effective care for acute needs

Older people will have more frequent acute care visits. They should be discharged as soon as they are able to complete recovery in their homes. A focus on improved re-enablement in the community for older people could reduce costs (eg fewer bed days and readmissions) and provide a better experience for them.²³⁸

Unnecessary hospital admissions can and should be avoided. Some care could be provided in people's homes or in their aged care facilities as an alternative or preventive measure. In Australia, under the Geriatric Rapid Acute Care Evaluation (GRACE) model, hospital staff work in collaboration with general practitioners and aged care facility staff to provide some healthcare services for people in aged care facilities to avoid unnecessary hospital admissions and decrease lengths of stay.²³⁹ The program has been in place for more than ten years and appears to have a positive impact on aged care residents.²⁴⁰

Aged care facilities could be reoriented to better meet the needs of older people. The Pioneer Network in the US is dedicated to helping shift aged care to a more person centred model where flexibility and self-determination are embraced and practiced.²⁴¹ The network helps provide resources to help transform aged care facilities and the culture in them away from a medical and institutional model of care to one where care is individualised and with individual choices respected.²⁴²

Dementia community nurses and allied health staff

The Advisory Group suggested Australia's use of the maternal and child health nurses model, which provides support and care for babies and infants, particularly those that are vulnerable, through key ages and stages checks, and enhanced maternal and child health services if necessary, as one which could be instructive in identifying and supporting people with dementia.

People with dementia could be better identified and supported, specifically in non-metropolitan areas, if part of the responsibility of community nurses involved helping families to identify dementia symptoms, understand the disease, and understand and navigate the system in order to provide dementia care for those in need. This would help families' better support and care for loved ones with dementia in the community for as long as possible. In addition, psychologists could be funded to assist with accurate diagnostic assessments, care coordination and planning, and to use goal-directed treatment plans for the individuals and their families. This may be particularly appropriate in early stages of the disease, where psychologists could specifically address modifiable risk factors for dementia such as low physical activity, depression, poor sleep and low cognitive activity. They could work in collaboration with nurses and medical practitioners to ensure that cardiovascular disease is well managed. These modifiable risk factors contribute to 30-50% of dementia risk and need to be detected and managed as early as possible.²⁴³ The use of technology could be incorporated into such models to ensure ongoing active engagement and surveillance of symptoms.

Current reforms in Australia

In 2011, the Commonwealth Government announced a staged program of aged care reform to 2022, with the intention of achieving a nationally consistent and sustainable aged care system. This included the phased increase of provision ratios and home care places. An independent Commissioner and independent bodies to oversight and regulate the aged care system were also established.²⁴⁴

In 2016, the Aged Care Roadmap was launched. The Roadmap outlines the intention to transition the aged care system to one that is:²⁴⁵

- **Consumer driven** – patients educated and proactively making decisions about care options and plans;

- **Market driven** – based on consumer needs and preferences; and;
- **Sustainable** – consumers responsible for accommodation and living costs, with reimbursements used to help consumers with affordability.

These reforms continue to be implemented, with Home Care Packages and Commonwealth Support expected to be integrated in 2018. As part of the 2017-18 budget, the Australian government also committed to investment of \$33 million over three years as part of the Boosting Local Care Workforce program to help deliver jobs for people in the disability and aged care sectors, targeting rural, regional and suburban areas that require strong workforce growth.²⁴⁶

238. PwC (2015). Connected and coordinated: Personalised service delivery for the elderly.

239. ACI (2013) – Geriatric Rapid Acute care Evaluation –GRACE. NSW Department of Health

240. Ibid.

241. Pioneer Network program (2017). Retrieved in July 2017 from URL: www.pioneernetwork.net

242. Pioneer Network – Cultural change in long-term care program. Retrieved in July 2017 from URL: – www.programsforelderly.com/nursing-pioneer-network-long-term-care-culture-change.php

243. Norton, S., Matthews, F., Barnes, D., Yaffe, K., Brayne, C. (2014). Potential for primary prevention of Alzheimer's disease: an analysis of population-based data. *Lancet Neurology*; 13: 788-94.

244. Aged care Roadmap. (2017). Retrieved in July 2017 from URL: https://agedcare.health.gov.au/sites/g/files/net1426/f/documents/04_2016/strategic_roadmap_for_aged_care_web.pdf

245. Ibid.

246. Budget (2017). Budget 2017-18 Overview. Canberra: Commonwealth of Australia

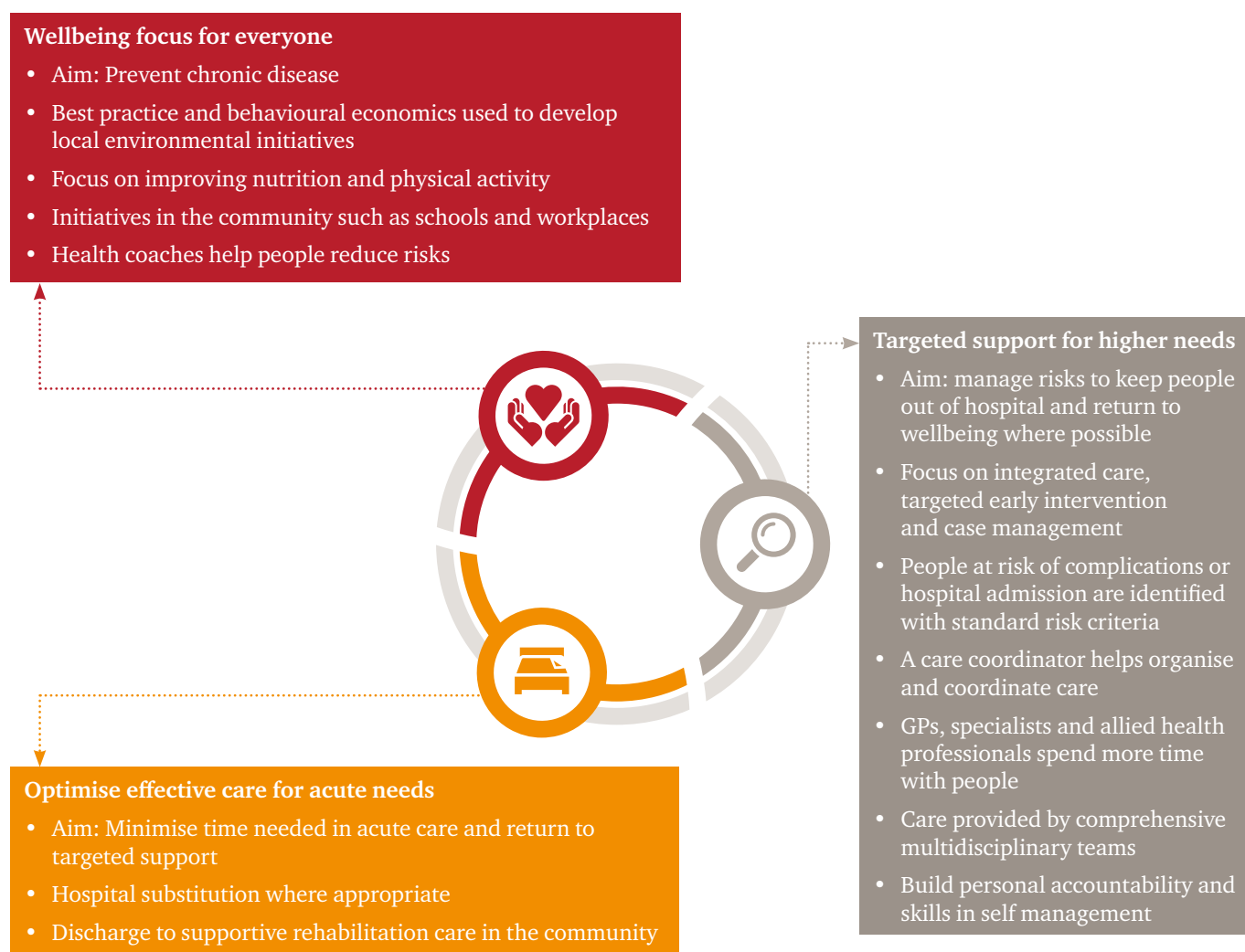
Chronic disease

A large portion of the population in Australia has at least one chronic disease.²⁴⁷ It will be critical to the future sustainability of the system that chronic disease is managed in an effective way where patients can take a leading role in managing their disease and minimising risks. For this to be possible, the patient's perspective needs to be considered.

What do people value in chronic disease management

People's expectations of healthcare are changing, with people not only valuing affordability and access to quality care. There is now also an expectation that an individual will be able to self-manage their health, receive flexible, responsive and integrated service delivery, utilise eHealth systems, and have good relationships and effective communication with health professionals.²⁴⁸

Chronic disease management in the proposed future model



247. AIHW (2017). 1 in 5 Australians affected by multiple chronic diseases. Canberra

248. Health Consumers NSW (2012). Chronic Disease Consumer Issues Paper. Retrieved in March 2017 from URL: www.adma.org.au/clearinghouse/doc_download/145-hcnsw-chronic-disease-consumer-issues-paper.html.

Wellbeing focus for everyone – Disease prevention

Lifestyle factors such as nutrition, physical activity, alcohol consumption and smoking are the biggest modifiable risk factors for chronic diseases with obesity being a major indicator for the risk of potential disease.²⁴⁹ People should be supported to develop and maintain healthy behaviours and habits to minimise risk as most chronic disease is preventable. Behavioural science literature finds that people's choices are influenced by their environment and that they have limited attention, self-control and cognitive ability to change their habits over the long term. For example, individuals prefer instant gratification through unhealthy snacks and often procrastinate over exercising. Behavioural science evidence has found that this is because individuals regard their future selves as entirely different individuals and therefore rarely change their habits in the present to achieve their long term goals.²⁵⁰ Therefore it is important to understand this context and invest in environmental prevention opportunities. It is clear that the historical approach of just healthy lifestyle campaigns is not sufficient to drive sustained behavior change.

The field of behavioral economics looks at the effects of psychological, social, cognitive and emotional factors in people's decision making. This capability should be engaged in developing national best practice for community wide environmental initiatives to reduce the risk factors for chronic disease. For example, some studies have shown that the positioning and availability of healthier foods (relative to the unhealthy foods) such as fruit and water can reduce overall consumption of unhealthy foods and calories.²⁵¹ In another example,

the Public Health Agency of Canada was able to increase physical activity through an air miles incentives program at YMCA locations across the country.²⁵² Where there is no established best practice standard or limited evidence on effectiveness, the behavioral economics approach of understanding relevant underlying behavioral considerations and testing to identify the most effective intervention iterations, should be incorporated into planning prevention initiatives.

Environmental prevention initiatives should be developed on the community level (using national insights) and should focus on healthy eating, increasing physical activity and reducing smoking across the various community environments. These initiatives would be led by community leaders and organisations (outside of health) such as schools, employers, community organisations and food providers which would require commitment and collaboration in the community. Initiatives could include:²⁵³

- Increasing availability of healthy food and reducing availability of unhealthy foods (including portion sizes)
- Workplace/school wellness initiatives (including family members)
- Community health coaches
- Nutrition counselling/information sessions
- Access to walking and cycle paths
- Technology, focussed on surveillance and feedback regarding unhealthy behaviours and appropriate evidence based and targeted ehealth interventions.

LiveLighter, Australia

The LiveLighter campaign aims to help Australians eat well and move more to reduce their risk of heart disease, type 2 diabetes and some cancers. LiveLighter runs in Western Australia, Victoria, the ACT and Northern Territory. The most recent television campaign in Victoria urged Victorians to reduce the number of sugary drinks they consume. Initial results showed that over the campaign period, the prevalence of Victorian adults drinking more than 1 litre of sugary drink per week reduced significantly. This is an important result given that sugary drinks are the highest contributor to added sugar in Australians diets, and cutting back can reduce a person's risk of overweight and obesity, and associated chronic disease.

Where local GPs identify that someone is at risk for chronic disease (eg obese, high blood pressure or cholesterol, insulin intolerance etc), they could be referred to health coaches to help improve their health and reduce risk. In some cases, social prescribing may be a more appropriate way to improve someone's health and wellbeing where there would then be a referral to the appropriate social support (e.g dance classes, exercise groups, fishing groups, etc). An example from Kaiser Permanente in the US shows how a phone based wellness coaching service can be successful. They provide a free evidence based, multilanguage coaching service to help people with smoking cessation, stress management, physical activity, weight management and healthy eating.²⁵⁴ Coaches are

249. WHO (2017). Preventing chronic diseases: A vital investment. Retrieved in April 2017 from URL: www.who.int/chp/chronic_disease_report/contents/part3.pdf?ua=1.

250. Roberto, CA, and Kawachi, I (2015). Behavioural economics and public health, Page 9, Oxford University Press, New York.

251. Chance, Z, Dhar, R, Hatzis, M, and Bakker, M (2016). How Google optimized healthy office snacks. Harvard Business Review

252. Loyalty One (2014). Public agency of Canada, YMCA and air miles reward program partnership drives physical activity among Canadians including youth, available from URL: www.loyalty.com/news-events/latest-news/news-releases/public-health-agency-of-canada-ymca-and-air-miles-reward-program-partnership-drives-physical-activity-among-canadians-including-youth.

253. WHO (2017). Preventing chronic diseases: A vital investment. Retrieved in April 2017 from URL: www.who.int/chp/chronic_disease_report/contents/part3.pdf?ua=1.

254. Kaiser Permanente (2017). Wellness Coaching by Phone: Frequently asked questions. Retrieved in July 2017 from URL: https://healthy.kaiserpermanente.org/static/health/en-us/pdfs/oh/oh_wellness_coaching_faqs.pdf

well trained and use evidence based methods to help people set goals, connect to other relevant resources and track progress.²⁵⁵ One follow up study found that people that participated in the weight management coaching had positive experiences and significant weight loss overall (BMI reduction).²⁵⁶

Targeted support for higher needs – Effective disease management

Once people have a chronic disease like cardiovascular disease or diabetes, effective management of the disease can save people burdensome complications and unnecessary healthcare costs.²⁵⁷ Care in the system should focus on keeping people as well as possible and effective, integrated chronic disease management. This will require clinicians to collaborate and help identify, manage and educate patients with chronic disease, with the onus on primary care. High risk patients can be identified through risk stratification and referred to a care coordinator.

A care coordinator will be the main contact for a person to manage their disease, tailor their experience and should help them to:

- set goals for healthy lifestyle changes and disease management
- build understanding, confidence and skills in self-management
- plan for and organise appropriate care across the health system (GP, specialists, allied health etc.)
- recover in the community from acute episodes
- identify and initiate other care needs outside of the health system
- collect, manage and share information across appropriate clinicians, other workforce (eg social care) and the patient

Western HealthLinks, VIC

Western HealthLinks is a pilot program funded by the Victorian Department of Health and Human Services (DHHS) to improve health outcomes for people living with chronic disease. Initiated in November 2016, it is a three-year pilot and aims to reduce unplanned hospital readmissions.²⁵⁸

People identified as being high users of the Emergency Department, having frequent inpatient admissions, or having multi-morbidities, are given the opportunity to enrol in the service. Patients are assigned a Health Navigator who coordinates their care, both in and out of hospital, between acute and primary care teams. A comprehensive care plan is developed, and interventions required in the home or in the community are provided.²⁵⁹ Patients are monitored through regular home visits and phone check-ups. There is also access to 24/7 phone support post discharge from hospital.²⁶⁰

MonashWatch, VIC

MonashWatch is a pilot being conducted in partnership, between the Department of Health and Human Services and Monash Health, aimed at reducing avoidable hospitalisation. A selection of 400 patients with chronic care needs are enrolled to receive telephone based self-rated health assessments two to five times a week. A decision support application is used to create an alert to any decline in health, which triggers follow up. Nursing and allied health clinicians act as MonashWatch Health Coaches, providing assistance ranging from transport to arranging hospital admission, all the while ensuring the patient's GP remains as the coordinator of care.²⁶¹

- collaborate with family members
- identify other support tools such as social networks

Ultimately the person should build a trusted relationship with their care coordinator and a positive experience for people should be a measure of success (patient feedback). There should be no limit on the number of visits to the GP or allied health care professionals to help manage the disease.

The care coordinator could be a specialised nurse and support could be delivered through telemedicine

where necessary (eg remote and rural locations). The EUROACTION trial in Europe is an example of how a nurse-led coordinated care program can reduce chronic disease risk factors. The program included patients with or at of risk of coronary heart disease, used a multidisciplinary team approach with a focus on lifestyle factors and included family members to reduce risk. The program made a difference in improving people's lifestyle and reducing cardiovascular risk factors.²⁶²

255. Kaiser Permanente (2017). Kaiser Permanente Study: Telephone Wellness Coaching Aids Significant Weight Loss. Retrieved in July 2017 from URL: <https://share.kaiserpermanente.org/article/kaiser-permanente-study-finds-telephone-wellness-coaching-helps-members-achieve-significant-weight-loss/>

256. Schmittiel, J. A., Adams, S. R., Goler, N., Sanna, R. S., Boccio, et. al (2017), The impact of telephonic wellness coaching on weight loss: A "Natural Experiments for Translation in Diabetes (NEXT-D)" study. Obesity, 25: 352–356

257. Duckett, S., Swerrissen, H. Chronic Failure in Primary Care (2016). Grattan Institute

258. Western Health Links (2017). Retrieved in July 2017 from URL: www.westernhealth.org.au/Services/HealthLinks/Pages/default.aspx

259. Ibid.

260. Ibid.

261. EUROACTION Trial (2008). Retrieved in May 2017 from URL: www.escardio.org/The-ESC/Press-Office/Press-releases/The-EUROACTION-Trial

262. Monash Health (2017). Monash Watch: Pilot services. Retrieved in July 2017 from URL: www.monashhealth.org/images/MonashWatch_-_DLBrochure_v0.8.pdf

Optimise effective care for acute needs – Supportive rehabilitation

For those with chronic disease that need to use acute care, the goal would be to help them recover and return to targeted support as soon as possible. In addition, there should be a focus on avoiding the risk of readmission for these patients.

For lower acuity needs, some care could be managed in people's home through a hospital in the home model which has proven to be effective in reducing mortality, readmission rates and cost. It also leads to higher patient satisfaction, and lower burden on carers.²⁶³

The established chronic disease care coordinators should play an active role in helping people receive support to recover and rehabilitate in the community (supportive discharge management). Disease specific rehabilitation support (post acute care) has been shown to reduce unplanned hospitalisations and readmissions.²⁶⁴

Current reforms in Australia

There have been a range of reform initiatives and trials in the last 20 years. Examples of these include the Coordinated Care Trials first introduced in 1997 to explore models of care involving multidisciplinary care planning and service delivery,

the Chronic Disease Management program in NSW targeting avoidable acute service through community care, the Medibank CarePoint/CareFirst pilots of integrated healthcare and social services, and the current Health Care Homes Trial to improve care for patients with chronic and complex conditions through ongoing coordination with a 'home base' medical practice.

Other key reforms have been the introduction of Personally Controlled Electronic Health Records (since changed to MyHealth records), and the establishment of the Australian Digital Health Agency. Although the uptake of MyHealth records has been slower than anticipated, the use of electronic health records provides a tool for the better coordination and management of people's healthcare and support needs, a valuable data capture tool to help inform decision making at both an individual and population level, and should help improve more efficient and safe healthcare.

There have been investments in prevention and early intervention, with national plans and strategies such as the Australian Better Health Initiative, followed by the National Partnership Agreement on Preventive Health. This led to the establishment of the Australian National Preventive Health Agency (ANPHA), although this closed in 2014 with its functions transferred to the Department of Health.

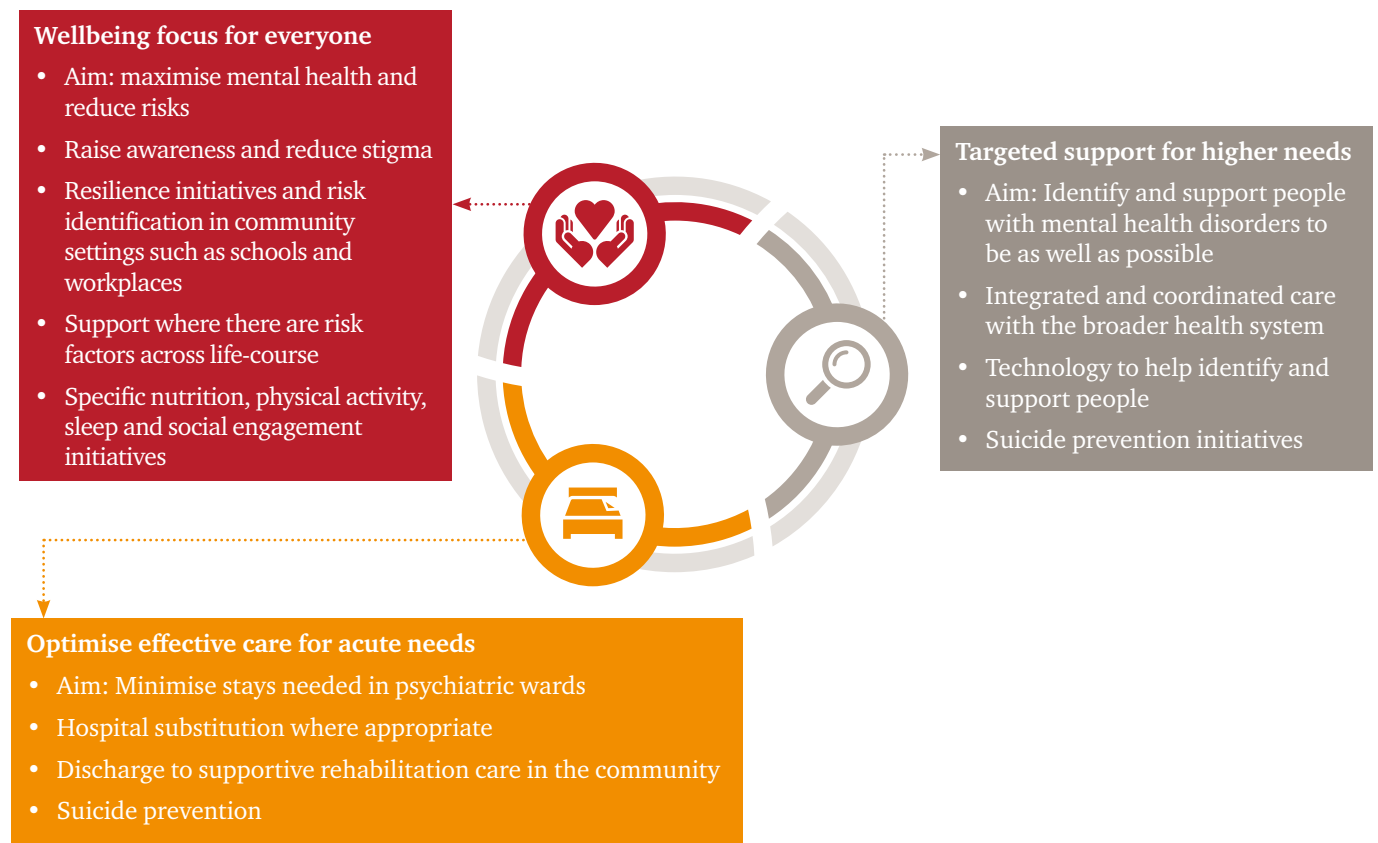
Primary Health Networks (PHNs) were established in 2015 to increase "the efficiency and effectiveness of medical services for patients, particularly those at risk of poor health outcomes, and improving coordination of care to ensure patients receive the right care in the right place at the right time." In carrying out this objective, PHNs are able to work with and commission prevention and treatment activities in communities, primary care, and health services in their catchment area in order to achieve better outcomes.

In 2017, the Australian Health Ministers' Advisory Council released the National Strategic Framework for Chronic Conditions. The framework provides high level guidance to a more effective and coordinated national response to chronic conditions.

263. Caplan, GA, Sulalman, NS, Mangin, DA, Ricauda, NA, Wilson, AD, and Barclay, L (2012). A meta-analysis of "hospital in the home". Medical Journal of Australia, 197(9): 512-519.

264. Dunlay, S. et al (2014). Participation in Cardiac Rehabilitation, Readmissions and Death After Acute Myocardial Infarction, 127(6), American Journal of Medicine.

Mental Health support in the proposed future model



It is beneficial to society for as many people as possible to have good mental health, which can be described as a state of wellbeing in which the individual realises his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community.²⁶⁵

It is estimated that at least one in five people in Australia are dealing with a mental health disorder each year.²⁶⁶ Mental health disorders can carry a huge burden, impact people's ability to function and considerably reduce life expectancy.²⁶⁷

What do people value in mental health support

In Australia, the National Mental Health Consumer and Care Forum analysed what consumers and carers want from a mental health support and care system. These values should be considered when designing and implementing a future model. The following elements were highlighted:²⁶⁸

- **Respect and dignity:** to be listened to and treated with respect and dignity, recognised as a person, not a mental illness, and free of discrimination and stigma
- **Quality mental health services:** to be able to access and receive timely, respectful and responsive quality services that are individualised, holistic, integrated and recovery oriented
- **Genuine input:** to have genuine input into their care, treatment and support needs, and be heard when they express concerns about negative effects of medication and treatment
- **Carer support:** support for carers, specifically knowledge and information about caring, mental illness, services, coping strategies and support

265. WHO (2012). Risks to mental health: An overview of vulnerabilities and risk factors.

266. AIHW (2016). Mental health services—in brief 2016. Cat. no. HSE 180. Canberra: AIHW.

267. WHO (2012). Risks to mental health: An overview of vulnerabilities and risk factors.

268. MHPOD (2017). What are the new changes to MHPOD? Retrieved in July 2017 from URL: www.mhpod.gov.au/assets/sample_topics/combined/Trauma_and_Mental_Health/assets/resources/brochure.pdf

The proposed model for mental health is similar to the chronic disease focus areas (eg the role of a care coordinator for targeted support) however there are additional complexities in preventing and treating mental health such as the challenge of stigma being a major barrier to identifying and treating mental illness.

Wellbeing focus for everyone – Resilience and reducing risk

Risks to mental health manifest themselves at all stages in life and so community prevention and early intervention initiatives should be developed across the life-course based on potential risks. There are many risk factors for mental wellbeing, some of the major ones include:²⁶⁹

- High stress
- Disability and poor physical health
- Unhealthy diet and lack of physical activity
- Exclusion from society/isolation
- Lack of education and employment opportunities
- Violence, abuse and discrimination

Mental health is a good example of how health is determined by many factors outside of the system and emphasises the need for collaboration across different public and private sectors, with the potential for health to take a leading role. Inequity and social determinants are major drivers of mental health status and cannot be ignored. Vulnerable population groups will need additional support to attain optimal physical and mental health.

There needs to be awareness and leadership in all major organisations to reduce stigma and help create mentally healthy environments.

Workplace mental health initiatives could even create a return for employers in improved productivity.²⁷⁰

Public campaigns and local leaders can focus on helping to reduce stigma and raise awareness around mental health challenges, risks and symptoms.

Stress is part of life and can increase risks for mental health disorders. Resilience and reactions are very personal but community programs can help build positive coping mechanisms and habits such as supporting exercise and meditation as examples.²⁷¹

Targeted support for higher needs

Physical and mental health are closely linked and so services need to be integrated and mental health should be integrated into all health policy. To better care for people, a stronger focus on chronic mental illness is needed, requiring better training and support for all health workers.

Multidisciplinary teams should include mental health experts. Risk stratification can help identify people that are at highest risk and people on the 'front lines' of society (eg teachers, welfare workers, employers etc.) can help to identify and help those at risk and/or initiate crisis management. Like with the chronic disease proposed model, a care coordinator can help people to navigate the system and take more control of their health and wellbeing.

There can be many support mechanisms outside of the health system as well. For example, there is evidence that trained non-clinical staff and volunteers can help with suicide prevention.²⁷²

Well organised support lines can help give people an option to reach out but also allow easy follow up, regardless of where someone lives. For example, a tele-help (portable alarm device) program with proactive follow up calls in Italy was able to significantly help reduce suicide rates among elderly people.²⁷³

Optimise effective care for acute needs

For people with the highest needs, there could be community support options that would be less disturbing and costly than hospital admission. For example, in the UK the Drayton Park Crisis House is a women's only residential crisis facility that provides a supportive, safe environment and psychological services as an alternative to hospital admission.²⁷⁴

For those that need acute service, there should be community resources to support recovery and rapid re-enablement when they are discharged. In Ontario Canada there are community mental health workers that directly work with hospital staff to provide a more seamless transition to community care which has led to a considerable reduction in hospital readmission rates.²⁷⁵

Suicide prevention programs should be integrated into all parts of the system.²⁷⁶

269. WHO (2012). Risks to mental health: an overview of vulnerabilities and risk factors.

270. PwC (2014) Creating a mentally healthy workplace: Return on Investment Analysis

271. Semel Institute for Neuroscience and Human Behaviour (2017). How do you cope?. Retrieved in July 2017 from URL: www.semel.ucla.edu/dual-diagnosis-program/News_and_Resources/How_Do_You_Cope

272. WHO (2014). Preventing Suicide: A global Imperative.

273. WHO (2010). Towards Evidence based Suicide Prevention Programs

274. Killaspy, H., Dalton, Joy., McNicholas, S., Johnson, S. The Psychiatrist Mar 2000, 24 (3) 101-104

275. Ontario Local Health Integration Network (2015). Investing in Community Mental Health and Addictions Services: Ontario Connecting People With The Care They Need Closer to Home.

276. WHO (2014). Preventing Suicide: A global Imperative.

Current reforms in Australia

In 2012, COAG released the Roadmap for National Mental Health Reform 2012 – 2022 report, outlining the vision for mental health in Australia. The focus of the Roadmap was on improved access to data, indicators to measure progress, and setting evidence based targets to addressing mental health in Australia.²⁷⁷

In 2012 the National Mental Health Commission (NMHC), and a number of state level commissions were established. The NMHC conducted a review of mental health programs and services, the findings of which were released in 2014.²⁷⁸

Since the report was released, mental health system reform has been underway with a \$192 million

Strengthening mental health care in Australia reform package, to support individuals and their families across Australia, announced in 2016.²⁷⁹

The Fifth Mental Health Plan for 2017-2022 outlines expected future mental health reforms, which focus on seven priority areas:²⁸⁰

- Integrated replanning and service delivery
- Coordinated treatment and supports for people with severe and complex mental illness
- Suicide prevention
- Aboriginal and Torres Strait Islander mental health and suicide prevention
- Physical health of people living with mental health issues
- Stigma and discrimination reduction
- Safety and quality in mental health care

MindStep program, Australian Unity

MindStep is an evidence based, low intensity cognitive behavioural intervention (LICBI) delivered by trained mental health coaches to help insured clients, who have had a recent hospital admission due to depression or anxiety, transition back into the community.

An independent evaluation using eight months of clinical data showed that 55 per cent of enrolled clients fully recovered, while more than three-quarters experienced clinically significant improvement in their symptoms. Readmissions reduced by 2.5 episodes, claim costs reduced, and average length of stay decreased by 12.5 days.



277. Road Map to National Mental Health Reform – 2012-2022. Retrieved in July 2017 from URL: www.coag.gov.au/sites/default/files/communique/The%20Roadmap%20for%20National%20Mental%20Health%20Reform%202012-2022.pdf

278. Mental Health Commission (2014). Contributing Lives, Thriving Communities – Review of Mental Health Programmes and Services. Canberra: Commonwealth of Australia

279. Health (2016). 2016-2017 MYEFO Drives Health Reform. Canberra: Commonwealth of Australia

280. Health (2016). Fifth National Mental Health Plan. Canberra: Commonwealth of Australia



***Considerations for shifting
to the proposed future model***

Considerations for shifting to the proposed future model

Considerable changes needed to 2025

Pursuing incremental changes to the health system are relatively low risk from a political and financial perspective. However, it will not be enough to meet the future needs for Australians. The most impactful changes to the system require fundamental shifts in investment and mindset. If Australia is to have a model focussed on wellbeing (instead of illness), that has an integrated and outcomes focussed approach by 2025 or even 2040, a shift in policies and investments would need to begin now. There already exist a range of promising reforms, but these would need to be scaled up and supplemented with other whole of system approaches.

Enablers of the proposed future model

The following are enablers that the Advisory Group felt were fundamental to evolve to the proposed future model.

Joint Commonwealth/State leadership

For a future system to be successful, there needs to be shared accountability and incentives to provide integrated support and care across Commonwealth and State/Territory jurisdictions. This should be across Departments and not just restricted to health, including a stronger integration of health and human services, housing, and local government.

Shared accountability across the social infrastructure providers, and consideration of the social determinants of health, will support the potential for prevention and more holistic care for people.

Political leadership is also needed to commit to long term, stable investment to improve the system.

Local/community leadership

Local and community leadership is critical for the successful implementation of policies and programs and to develop solutions that are fit for the needs of communities. This includes individuals, local government, service providers, businesses, and local community organisations.

Local community buy-in, design and ownership increases the likelihood of new models of care and initiatives being successfully implemented and effective in delivering outcomes. Local collaboration and sharing of resources, knowledge, and infrastructure could lead to more efficient, and effective service provision for the community.

Funding for outcomes

Funding for health and wellbeing outcomes will incentivise more valuable support and care (as opposed to just activity) and reduce wasteful expenditure in the system. Pooled and capitated funding could break down some of the siloes that currently exist and encourage collaboration between service providers and disciplines. It would also lead to more investment in risk reducing strategies and illness prevention, even outside of the healthcare system.

Longer term funding arrangements would support continuity of care and investing in local populations through prevention and early intervention. Areas and populations with higher needs would need higher levels of investment, support and care.

Health and wellbeing literacy and accountability

Information needs to be available and easily accessible for everyone. There also needs to be a better understanding of the responsibilities that people need to take in their own health and wellbeing, particularly in lifestyle factors and identifying risks early on. The use of incentives and behavioural economics could help drive this change in perspective.

People should be better educated about the costs and consequences associated with risk factors, behaviours, and health and wellbeing outcomes. This way, there should be no uncertainty and surprise at the costs and outcomes of different actions, either by an individual, or through use of infrastructure for health and ageing.

Where an individual's illness requires contact with healthcare services, there should be shared decision making between patients and providers so that they are able to make an informed decision about their choice of care, enabling them to incorporate what they value most into the process.

Quality, safety and data transparency

Access to high quality patient data would facilitate better coordination of care and reduce fragmentation. Making data open and transparent supports accountability, and serves as a real-time feedback mechanism to monitor and track performance and outcomes. Access to data would allow for predictive analytics to identify those with highest needs and customise the level and type of support and care needed.

Data would also be a valuable input into evaluations to assess the impact of support and care on achieving outcomes. Where there are performance and safety issues, data can be used by 'honest brokers' to address any issues that occur, and maintain integrity within the system.

Technology and innovation

Technology and innovation will be a key enabler to improving access and effectiveness of care and support. As an example, where there are gaps in provision of infrastructure for health and ageing in rural and regional areas of Australia, technology could provide a cost effective way to improve access (beyond the telehealth programs that already exist). The telehealth infrastructure needs to be part of an integrated data system and secure data sharing across providers will be critical for the future.

Tapping into existing social media networks and digital tools provides a channel to quickly disseminate information to people in a format of their own choosing, particularly for education, awareness, or light touch support. Other innovative technologies that could create more dynamic models of support and care should be explored. Digital tools will eventually become more individualised and person centred, with techniques and

Mental health apps

Synergy is an online platform that provides digital mental health support and care for young people in Australia. The online platform includes a range of complimentary products, certified apps and web-based interventions, enabling people to navigate and select personalised support to suit their needs and preferences.²⁸¹

Synergy provides seamless and integrated support and care, with users able to access both online and face-to-face services. This empowers people to manage and own their own mental health and wellbeing.²⁸²

A shift in workforce roles and culture in Denmark

In Denmark, municipalities are required by law to assess if a person in need of home care services could benefit from a reablement scheme in the form of specific training to regain the skills necessary for daily living. As a consequence, 80 per cent of older people applying for permanent home care services are given short-term reablement interventions instead, with a reported 60 per cent self-sufficiency post-intervention.²⁸³

The social care and occupational therapy workforce have had their roles shift from one that is passive in nature to one that is more active. Reablement is delivered with the individual at the centre, with a focus on helping older people achieve their goals. Data from the reablement workforce in Denmark also indicates that care workers delivering reablement interventions find their work more rewarding, believe older people's needs are being better met, and have higher morale and retention.²⁸⁴

tools from other industries providing valuable lessons. As valuable as these technologies may be, the right balance needs to be achieved between interoperability and privacy.

Workforce capacity, capability and culture

With changing technology and models of care there will need to be new roles in the future and better use of the skills and expertise of the available workforce.

To reduce the burden placed on acute care specialists, better use could be made of the rest of the medical and non-medical workforce. Nurses could be trained to take on greater community and prevention roles,

taking responsibility for care and support where a GP would not be needed. Allied health professionals could be better used to provide more affordable and accessible care and support, especially for high risk groups. Better linkage and coordination among allied health professions, and with medical practitioners, would help meet demand, and keep people well and in the community for as long as possible.

Non-clinical staff could be just as effective with certain preventive measures at a lower cost. Effective prevention work does not always require clinical personnel. Health promotion, public health, community development and social support are all non-clinical roles needed in the workforce to enable the system of the future.

281. Young and Well: Synergy (2017). Retrieved in July 2017 from URL: www.youngandwellcrc.org.au/synergy

282. Ibid.

283. Rostgaard, T (2016). Socially investing in older people – reablement as a social care policy response? *Research on Finnish Society*, 9: 19-32.

284. Ibid.

A shift in the roles, responsibilities, and ways of working for the workforce will mean that dependency ratios and targets will need to be revisited (accounting for informal care). Adjustments would need to be made to the intake, training, and skills mix for the different workforces. Any ratios, training and resourcing will also need to take into account the gaps and needs of rural and remote communities, which are historically under-resourced compared to their metropolitan counterparts. How these gaps are addressed in future may mean a greater reliance on allied and other workforce types.

Barriers to progress

The following sections outline some of the critical barriers to reform and progressing to the proposed future model in Australia, identified by the Advisory Group.

Political and legislative challenges

From a political perspective, it is relatively risky to attempt major reforms in health. Investing in building a new hospital or state of the art research facility receives more media and public attention than investing in well established, community support and care programs.

The benefits from long term investments such as preventive health often extend far beyond political cycles. Those that need to take the risks and invest today will be unlikely to realise all of the future rewards. Investment in initiatives focussed on prevention and wellbeing are often short-term and cyclical, concluding before outcomes can feasibly be expected. Ideally, these initiatives need stable, long term funding to be successful. The pressure to deliver immediate returns leaves little room to innovate and iterate which further impedes progress.

In addition, there are legislative barriers that limit clinical workforce scope and the potential for private players and non-government organisations to participate.

Funding and incentives

The current incentives structure and funding approach in the system is seen as one of the most critical barriers to change by the Advisory Group. Incentivising (eg through fee for service models) siloed, fragmented and disconnected activity leads to inefficiency and lack of clarity on impact and value for money. This approach does not incentivise collaboration or innovation, both of which will be critical for the future. In addition, it does not incentivise a person centred view on care.

The Commonwealth and State/Territory Government divide in health funding and performance management leads to cost shifting and can create barriers to integration, coordinated investment in prevention, and trust among stakeholders. For example, if Commonwealth Government funded Primary Health Networks (PHNs) invest in better primary or community-based care this could lead to reduced acute care, which benefits the State funded hospital system.²⁸⁵

The current model of fee-for-service rewards activity irrespective of and without accountability for, desired outcomes, which may require greater effort to achieve. Changing the way in which fundholders commission, and service providers are remunerated, would be a significant transformation from the current system, and could be met with initial concern and uncertainty. Such a shift would also impact on existing agreements between Governments, government entities, insurers, service providers, and the workforce.

A medical model mindset and inertia

There is widespread appreciation that there are a number of factors outside of the health system that influence health and wellbeing. It has been estimated that social determinants of health are responsible for approximately

50 per cent of the health of a population.²⁸⁶ So a focus on illness treatment will limit the system's ability to influence the population's health and wellbeing.

All clinicians in the current system have been trained, staffed, funded and organised around the medical model that is siloed and focuses on illness. This is deeply ingrained in the way people think about the health system and the roles of different stakeholders. There needs to be a cultural shift to get providers and the population (not just patients) to view the system from a preventive, population health and wellbeing perspective. Clinicians would need to spend more time exploring and understanding the root cause of illnesses and what patients value from their healthcare services, and individuals would need to be more active in managing their own health and wellbeing. Shifting away from the medical model mindset is likely to be met with scepticism and would require long term change management, awareness and education.

Lack of quality information

The lack of integrated, population level (and related) data in Australia is the cause of many limitations in the current system. Clinicians do not always have the full picture when trying to understand and support people's needs. Reporting on outcomes is difficult, and there is little transparency on performance, safety and quality. Where data is available, there are interoperability challenges and reporting inconsistencies. Data sets are not linked around the individual and this is a major barrier to whole person care and more integrated approaches however, patient privacy is a major area of concern and needs to be taken into consideration.

285. Although the Commonwealth funds about 46 per cent of hospital activity: ANHFP (2016) National Report 2016. Canberra: Commonwealth of Australia
286. SA Health (2011) Health in all policies: Background and practical guide. Government of South Australia



***A new approach to innovation
and developing new models
of care***

A new approach to innovation and developing new models of care

Considering the scale and complexity of changes needed to the system, to achieve the proposed future model, and the barriers to reform, planning a feasible way forward and clear next steps is complicated. However, this can no longer be a reason for inaction or just a focus on incremental changes. The costs and the community needs of the future are too great to allow barriers to prevail.

The following sections outline considerations and potential ways forward for Australia to potentially achieve the proposed future model that focusses on prevention, population health and wellbeing.

Lessons from previous and current reform initiatives

The lessons from previous and current reform initiatives need to be understood and built upon. For example, previously, the Coordinated Care Trials were developed to test whether multi-disciplinary care planning and service coordination can lead to improved health and wellbeing for people with chronic health conditions or complex care needs (including pooled funding).²⁸⁷

It serves as a good example of how the Commonwealth and State/Territory Governments can collaborate and use pooled funding to test and innovate. The 2007 second round evaluation of the trials found that they provided evidence of improved access to services, self-reported health and wellbeing, and health-related empowerment.²⁸⁸ However, it also found that the complexity in establishing the trials led to delays and that robust governance and management are critical for success. Despite the large investment in the care coordination trials and the resulting access and health and wellbeing improvements, the insights from the trials have not been translated into health reform. It appears that the current funding model (fee for service) and the challenges around scaling change were particular blockers for progress.²⁸⁹

The Health Care Homes initiative is the next iteration of care coordination (more than ten years after the care coordination trials) for people with chronic and complex conditions. The initiative includes care planning with patients, team based care coordination between primary, acute and specialist care, and monthly payments (capitated) to GPs per enrolment for the management of chronic disease in 10 PHN areas covering 65,000 patients.²⁹⁰ The initiative recently started and is a two

year trial. Despite being in the early stages, commentary already suggests the funding to support the initiative may not be sufficient to be successful.²⁹¹ There is also a question of whether the Health Care Homes model is really just a bolt-on to existing approaches to primary, community and acute care models. Whilst the Health Care Homes model might lead to better coordination, it is debatable how far it is really shifting the dial in terms of care organised around and responsive to the individual. There is little incentive for all parts of the system to work together.

A continuation of existing trials is, therefore, unlikely to lead to the level of change and reform needed. We need to take the best of these initiatives, learn from the challenges and develop a community based trial approach that can be organised more efficiently and manage more complex scope with a broader set of stakeholders in the community.

The UK has invested in 50 'Vanguard' sites (locations) that are developing and testing new models of care to support the future strategy for the UK National Health Service (NHS) outlined in the 2014 Five Year Forward View. It calls for a focus on prevention, empowering patients and engaging communities and diverse solutions to support more innovative and disruptive models as opposed to incremental change.²⁹²

287. APH (2017) Coordinated care trials. Canberra: Commonwealth of Australia

288. AHHA (2015) Pathways to reform: Health funding and reform of Federation. Australian Healthcare and hospital association 2015

289. PwC insights and conversations with stakeholders

290. Health (2017) Health Care Homes: for health professionals. Canberra: Commonwealth of Australia

291. Aubusson, K. (2016). Radical Medicare revamp will fail patients as Health Care Homes trial funding falls short, says doctors. Sydney Morning Herald. Retrieved in July 2017 from URL: www.smh.com.au/national/health/radical-medicare-revamp-will-fail-patients-as-health-care-homes-trial-funding-falls-short-say-doctors-20161106-gsj6y9.html

292. Five year forward Review (2014). Retrieved in July 2017 from URL: www.england.nhs.uk/wp-content/uploads/2014/10/5yfv-web.pdf

The Vanguards are led by the NHS with support around co-design, evaluation, governance, and commissioning. It is an example of commissioning local communities to develop and own innovative solutions to meet agreed health and wellbeing outcomes.²⁹³ They have been operating for a few years already and some of the initial lessons learned include:

- **Not being afraid to fail** – without the ability to fail and learn lessons, the Vanguards would be unable to push themselves hard enough and would revert to being ‘safe innovators’.²⁹⁴ Failure can be a good thing if it helps to learn what works, and to share with others what doesn’t²⁹⁵
- **Peer support** – key to success is collaboration, cooperation and peer-to-peer learning between Vanguard sites.²⁹⁶ It is not just the system changes and big success stories that should be shared, but also the simple things such as new processes that can make incremental improvements²⁹⁷
- **Enabling environment** – there needs to be capacity and time for change to occur, which means having freedom from performance targets and regulation, allowing sites to select their own priorities and having time to implement local transformational change²⁹⁸
- **Embrace diversity** – the scale of Vanguards, in terms of number and range of partners, may present a significant challenge

Girls Education Challenge, UK³⁰²

The Girls Education Challenge (GEC) was launched in 2012 to disburse £300 million to 37 individual projects across 18 countries to implement new and effective ways to get girls into school, keep them there and make sure they receive a good quality education in ways which are sustainable beyond the GEC funding.

GEC projects were selected under three funding windows: Step Change – scaling up successful interventions that are already having a positive impact; Innovation – applying new interventions such as technological innovations, developing new partnerships, adapting proven solutions for new geographies, communities or age groups; and Strategic partnerships – creating new partnerships with the private sector.

These funding windows have resulted in the scaling up of successful interventions, a number of new and innovative interventions being implemented, new partnerships being developed, and new private sector entrants. This has led to classrooms being built/renovated, teachers trained, the disbursement of textbooks/student kits, more than £18 million in bursaries/stipends/cash transfers, and more than 2 million girls being reached through the GEC.

with differences in knowledge, understanding, priorities, ways of working etc. However, over time, this diversity will drive radical new design and ways of working²⁹⁹

- **Empowerment** – if given the opportunity, the workforce will become advocates for change, and given freedom and the skills, will innovate themselves³⁰⁰
- The Australian Coordinated Care Trials and Health Care Homes initiatives were and continue to be driven by government with mandated scope which may limit the potential of local leadership and innovation. There are examples where commissioning

market responses to meet specified public outcomes, and not mandating the approach or participants, can drive innovative solutions, collaborations and local leadership. For example, the Girls Education Challenge in the UK commissioned projects with the aim of getting more disadvantaged girls in developing countries into school through the use of funding rounds focussed on step change, innovation, and strategic partnerships, underpinned by quality evaluation. This approach has led to new interventions and new partnerships, including with the private sector, to deliver social outcomes.³⁰¹

293. New Care Models: Vanguards developing a blue print for the future NHS and care service (2016). Retrieved in July 2017 from URL: www.england.nhs.uk/wp-content/uploads/2015/11/new_care_models.pdf

294. Anderson, I. Evolution of care: where will the vanguards be in five years’ time? (2005) Retrieved in July 2017 from URL: www.health.org.uk/blog/evolution-care-where-will-vanguards-be-five-years%E2%80%99-time

295. NHS (2017) Top tips for spreading new care models across the health and care system. Retrieved in July 2017 from URL: www.nhsconfed.org/resources/2017/02/spreading-new-care-models-across-health-and-care

296. Anderson, I. Evolution of care: where will the vanguards be in five years’ time? (2005) Retrieved in July 2017 from URL: www.health.org.uk/blog/evolution-care-where-will-vanguards-be-five-years%E2%80%99-time; Berwick, D. How are the new care model vanguards working to improve outcomes? (2016) Retrieved in May 2017 from URL: www.kingsfund.org.uk/blog/2016/11/how-are-new-care-model-vanguards-working-improve-outcomes

297. NHS (2017) Top tips for spreading new care models across the health and care system. Retrieved in July 2017 from URL: www.nhsconfed.org/resources/2017/02/spreading-new-care-models-across-health-and-care

298. Anderson, I. Evolution of care: where will the vanguards be in five years’ time? (2005) Retrieved in July 2017 from URL: www.health.org.uk/blog/evolution-care-where-will-vanguards-be-five-years%E2%80%99-time

299. Fletcher, B (2016). What does the future hold for clinical directors in the NHS. Nuffield Trust comment.

300. NHS (2017) Top tips for spreading new care models across the health and care system. Retrieved in July 2017 from URL: www.nhsconfed.org/resources/2017/02/spreading-new-care-models-across-health-and-care

301. Girl Education Challenge (2013) Retrieved in July 2017 from URL: www.gov.uk/guidance/girls-education-challenge

302. Ibid.

A new approach to drive local innovation and new models

A more sophisticated and broad-based approach to innovation and improvement would support the development of future models of care that are fit for purpose for Australia. There are many promising international examples but, these need to be tailored to, and tested in, the Australian context.

Ideally there first needs to be a national strategy and plan (with Australian Health Ministers' Advisory Council buy-in) that articulates the principles for the future and how this can be practically achieved. This is the ideal starting point, however, it is recognised that agreement on such a strategy would take time and action is needed sooner rather than later. There may be opportunities to initiate some early actions while the plan is progressing.

The National Strategic Framework for Chronic Conditions is a step in the right direction in supporting national reform for a more sustainable and person-centred health system through effective prevention and management of chronic conditions.³⁰³ However, there needs to be an effective approach to innovate, develop and scale solutions that support the proposed future model and sustainability of the system.

The recently released Productivity Commission report, *Shifting the Dial*, supports such an approach, suggesting the need for practical, local integration and innovation.

The international examples outlined in this report illustrate that co-designed place based initiatives that start with a preventive, population health and wellbeing approaches, can be impactful. **Communities in Australia should be empowered to innovate, design, develop and test evidence informed models that are in line with the design principles and help meet current and future local needs.** Successful initiatives should inform future health and social service reform policy.

Options to support local trials and innovation

There are various ways to invest in and initiate the system-wide changes that are needed. Drawing from international examples, Figure 28 outlines a scale of potential options considered to drive innovation nationally and progress towards the proposed future model.

Regardless of which option is considered most favourable, agreed principles such as the ones drafted by the advisory group in this report should guide future investments and accountability.

Principles of a future system:

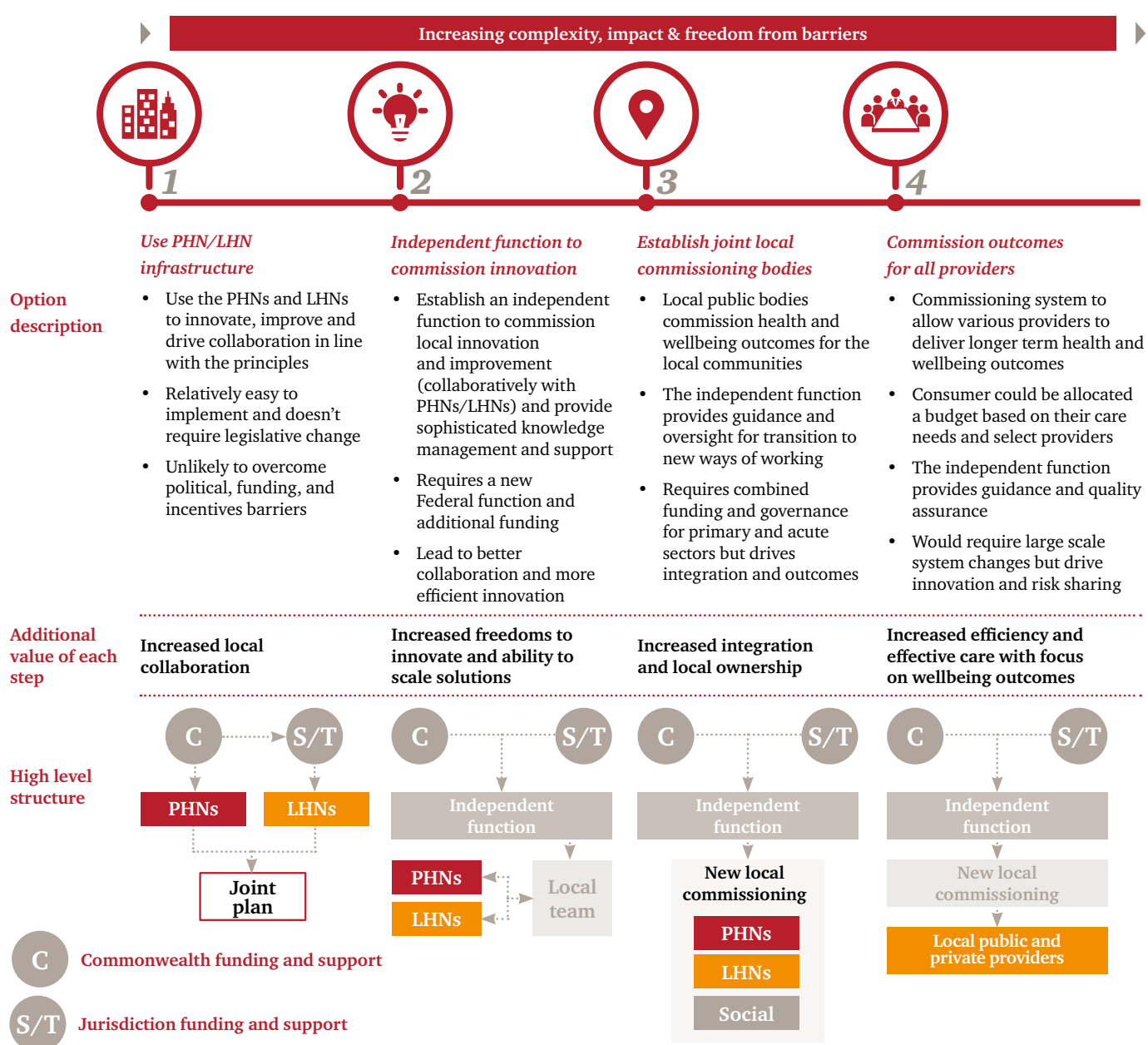
- Risk and outcomes focussed
- Person centred
- Affordable access and equity
- Effective and efficient
- Integrated care and support

Progressing from left to right in the graphic, the overall potential impact of the option increases, but so does the complexity of implementation. The options on the right would lead to greater risk sharing in the community and a more rapid shift towards the proposed future model, but would require more drastic changes to implement (eg legislative changes). The options could also be seen as a progression of steps. Starting with option 1 does not preclude progression to the next option on the spectrum with time. In assessing options, the overall feasibility, potential to overcome identified barriers and potential of achieving the proposed future model should be considered.



303. Australian Health Ministers' Advisory Council, 2017, National Strategic Framework for Chronic Conditions. Australian Government. Canberra.

Figure 28: Overview of options to support local innovation and improvements



Option 1: Use established PHN and LHN infrastructure

The PHNs were established in 2015 to increase the efficiency and effectiveness of medical services for patients, particularly those at risk of poor health outcomes, and improving coordination of care across primary, community and acute care.³⁰⁴ An example of a PHN taking the lead in developing local innovation and collaboration is the WA Primary Health Alliance (WAPHA).³⁰⁵

It is dedicated to building a patient centred primary and social care system and WAPHA is investing in community engagement and collaborative improvements in care such as co-design workshops to refine patient service models (eg chronic pain).

The PHNs could work with Local Hospital Networks (LHNs) to identify and agree a target area or cohort and target health outcomes (eg reduced hospital readmissions). Teams from both organisations could work together to co-create local solutions

that are in line with the design criteria (person centred, integrated and outcomes focussed) and better meet the community's needs. This could all be documented in a joint population health plan. A step further would be to include social care into the joint population plans. While this would increase the number of stakeholders and complexity, it would also increase the potential for more holistic, person centred care. The Sustainability and transformation plans in the UK would be an example of this approach.

304. Health (2015) PHN background. Canberra: Commonwealth of Australia

305. WAPHA (2017) Retrieved in July 2017 from URL: www.wapha.org.au/

PHNs could receive additional capitated funding to commission the relevant outcomes. Depending on the agreements, a 'shadow arrangement' which would allow current health providers to take on new responsibilities, could be organised to deliver local services and outcomes.

Successes should reduce demand on the acute system (the Commonwealth Government has an explicit expectation around reducing hospital admissions³⁰⁸). Insights should be shared back to the Commonwealth Department of Health and potentially incorporated into the next round of national health agreements with the States and Territories. Eventually, this could evolve into capitated funding for PHNs and LHNs to manage local health and wellbeing outcomes.

For such an approach to start, PHNs would need to be allocated additional funding and more explicit authority to drive local outcomes (eg reduced hospitalisations). These suggestions are in line with the recent Grattan report **Building better foundations for primary care**.³⁰⁹

There are challenges around benefits realisation³¹⁰ that would need to be resolved for the PHNs and LHNs to be successful. As currently structured, additional funding for Commonwealth Government led PHNs could effectively lead to reduced demand on the acute system, leading to capacity and cost avoidance benefits to the States and Territories run hospital systems. The benefits of reduced hospital demand are complex with the States and Territories primarily benefiting.³¹¹

Sustainability and transformation plans

At the end of 2016, 44 geographic locations in the UK launched five year Sustainability and transformation plans (STPs), where health and social care leaders (NHS and local councils) developed shared proposals to improve health and care locally which will guide NHS funding going forward.³⁰⁶ It should be noted that the process of developing local STPs has been challenging with tight timeframes, varying levels of engagement, policy and incentives barriers and shifting political emphasis.³⁰⁷

Benefits of option 1:	Option 1 would support increased local collaboration. It is the easiest to implement and roll out in a nationally consistent way and would not require immediate legislative change.
Challenges of option 1:	<p>Under existing legislation, there would be difficulties in establishing pooled funding, which may be the best way to overcome the funding and incentive barriers. However, questions around contribution from whom, where and how benefits are recognised and accrued would need resolution.</p> <p>Local collaboration would be restricted by potential conflicts of interest (eg local budgets and funding) and cooperation would be driven more by goodwill than incentives in the system. Current hospital funding arrangements incentivise activity and by implication less demand means lower revenue. This would be a challenge for the acute system as many costs are fixed regardless of activity, meaning lower revenue would lead to higher net costs. This issue would need to be addressed in any option put forward.</p> <p>This option would be primarily focussed on the healthcare services scope, leaving out the broader social and wellbeing perspectives. Inertia and medical model mindsets are barriers that provide further likely challenges.</p>

306. View sustainability and transformation plans retrieved in July 2017 from URL: www.england.nhs.uk/stps/view-stps/

307. Kingsfund(2016) Sustainability and transformation plans in the NHS. Retrieved in July 2017 from URL: www.kingsfund.org.uk/sites/files/kf/field/field_publication_file/STPs_in_NHS_Kings_Fund_Nov_2016_final.pdf

308. Australian Institute of Health and Welfare. National Healthcare Agreement: PI 18 – Selected potentially preventable hospitalisations, 2016.

309. Duckett, S., Swerissen, H., and Moran, G. (2017). Building better foundations for primary care. Grattan Institute.

310. Benefits Realisation is a way of measuring, monitoring and allocating impacts (benefits) of a program

311. The Commonwealth Government does provide approximately 40 per cent of the total hospital funding to States and Territories: Administrator National Health Funding Pool, 'National Health Reform Public Hospital Funding: National report – October 2016'.

Option 2: An independent function with the capability to guide and commission innovation and improvement (Innovation Accelerator)

Establishing a new national function or an 'Innovation Accelerator' to guide and commission testing of new models, could help drive local innovation in a more unfettered, efficient and consistent way than investing in PHNs alone (option 1). This option aims to overcome many of the identified barriers by introducing a new function that sits outside of the health, ageing and social sectors and so would be less influenced by vested interests, better able to support system level thinking and better able to develop a more objective point of view towards innovation, emerging evidence and reform for Australia.

The Innovation Accelerator would commission local teams to develop trial sites that test and refine local, co-created solutions that are in line with the principles and the proposed future model – similar to the Vanguard sites in the UK. It would provide a safe testing environment for new models of care on the ground and not *direct* the innovation trial sites, but rather guide and 'shield' them from the constraints of existing governance and funding arrangements where needed. For example the Innovation Accelerator could commission local trial sites to develop and test an approach to reducing avoidable hospital admissions and readmissions through person-centred, prevention initiatives.

Local teams should include PHNs and LHNs but also other community players that have a stake in the community's health and wellbeing (eg large employers, health insurers or social services). These teams could develop innovative models and programs in line with the design principles and develop an expression of interest (EOI)

for funding. The EOIs would need to include details on how the trials would support the design principles and how teams would work within or around the current system and with existing organisations, to minimise the risk of further fragmentation.

The Innovation Accelerator could negotiate and agree Memoranda of Understanding (MoUs) with local teams to agree objectives, measures, funding, performance management, reporting, collaboration and potential legislative freedoms needed. Pooled funding (from the Commonwealth and State/Territory Governments) would be provided, through the Innovation Accelerator, to deliver on agreed health and wellbeing outcome targets.

In summary, the Innovation Accelerator could provide national leadership to:

- support thinking outside of current arrangements
- commission market solutions that drive innovation and system improvements using the design principles as core objectives
- negotiate and help to provide the environment needed for local sites
- help sites develop effective, local co-designed approaches
- collect and share evidence and insights nationally
- identify opportunities to scale innovations and develop reforms
- convene appropriate debate on safety and quality with respect to innovations
- report back on solutions and evaluation outcomes

The commissioning of local co-developed solutions should drive innovation but also collaboration and new partnerships across stakeholders that would otherwise work mostly in siloes. A nationally consistent approach (through the Innovation Accelerator) should drive efficiency by helping trial sites to navigate complexity and accountability. Where local sites have developed innovative solutions and insights for Australia, the Innovation

Accelerator would play a leadership role in helping to convert these into reforms and change for Australia.

There are challenges that come with establishing the Innovation Accelerator. It would require intergovernmental approvals and sufficient funding to be successful. However, the health system is one of the largest budget items and employment sectors in Australia³¹² and so an Innovation Accelerator to enable more efficient and effective innovation and improvement would be warranted and relevant over the long term.

Setting up the function as a new independent body has its merits, but the process would be complex and it could take some years to establish. A more practical alternative could be to create a new capability within an established, relevant Commonwealth body such as the Australian Commission on Safety and Quality in Health Care (ACSQHC). Relevant approvals would be needed to increase the scope and funding of the Commonwealth body to include the new function, however, this approach is likely simpler than establishing an entirely new independent body. If successful after an 'incubation' period, and deemed necessary after an analysis of the potential legal and governance implications, the independent function could be later transitioned to a new independent body.

The Innovation Accelerator would need to have sufficient funding to commission and support successful local testing and the authority to allow testing sites to overcome some of the legislative barriers for testing purposes such as the current health workforce scope and remuneration. Funding equivalent to \$500 million or less than one half of one per cent of current Commonwealth Government and State/Territory health spend of \$115.4 billion³¹³ could provide an effective initial pooled budget to establish and maintain the Innovation Accelerator and to fund and support a portfolio of community trial sites with varying sizes and scopes.

312. Budget (2016). Budget 2016-17 Overview. Canberra: Commonwealth of Australia

313. AIHW (Australian Institute of Health and Welfare) 2017. Health expenditure Australia 2015–16. Health and welfare expenditure series no. 578 Cat. no. HWE 68. Canberra: AIHW

Benefits of option 2:

Option 2 helps to overcome the challenge of trying to improve the system from within. The option would create a source of pooled funding to better incentivise market developed innovation, local leadership, collaborations and partnerships and outcomes focussed activities. Community teams could be enabled to develop solutions that include broader social and prevention goals in line with the design principles. Critically, it would free those charged with innovating from the constraints that prevent that happening (barriers).

The independent function would help identify (through the trial sites) and pave the way for reforms that improve care and support the future sustainability of the system.

Starting with the outcomes required and working backwards to derive solutions would be key to success; as would co-creative approaches fully embracing the principle or person centred design.

Challenges of option 2:

Option 2 would require additional budget to be successful and necessary approvals to extend the scope of one of the current Commonwealth bodies to include the Innovation Accelerator.

The model would require approval from the Commonwealth and State/Territory Governments.

In some cases, local trial site teams will need to navigate the complexity of operating in the current system as well as the new model. The Innovation Accelerator and trial sites will need to be protected from national political and budget fluctuations.

There is potential for industrial relations challenges with changes to roles, responsibilities and incentives.

The funding would need to be secure for a reasonable period and there would need to be governance arrangements in place to allow for a level of independence from political cycles and partisan demands. However, there would still need to be robust transparency and accountability around the overall strategy and resulting investments through the Innovation Accelerator.

Option 3: Establish joint local commissioning bodies

Local commissioning bodies (separate local legal entities or bodies corporate) could be established and manage funding and commission outcomes for local primary, community, acute and social services (based on geographical location). These bodies could lead local development and roll out of best practice in the local context (through commissioning). Local bodies would receive a capitated budget from the Commonwealth

Government and States and Territories for their population and so would be incentivised to maximise impact for the community.

This model builds on option 2 with the independent function potentially supporting new local bodies corporate. There would be an agreed scope and targets for each local body however there would also be a certain level of autonomy to develop local solutions. It is assumed that the core providers would remain the public services (PHNs, LHNs and social care).

However, some funding could go to initiatives outside of the standard health and social system if they are deemed to support health and wellbeing and likely to reduce costly health system demand. For example, there could be a locally developed initiative to identify and support older people at risk of social isolation.

This option would require a reorganisation of the system to allow for one governance and funding channel for local communities. For this to be successful, there would need

New Zealand District Health Boards

In New Zealand there are 20 District Health Boards that are responsible for the planning and delivery of health and disability services for local needs. They receive funding based on the geographical area's population and demographics (high need populations are allocated additional funding). Some of the leaders on the board are appointed by the Minister of Health and some are locally elected. Performance against objectives are tracked and transparent and the boards report to the Minister for Health.

Benefits of option 3:	Over and above Option 2, this option would lead to completely pooled funding and integration that could support a broader perspective on preventive, population health and wellbeing (eg social determinants of health). This option would drive local community design, accountability and participation in new models. The commissioning responsibility would be more closely linked to community needs and all will benefit from keeping people well as long as possible.
Challenges of option 3:	<p>This option would require creation of new local bodies to provision local services, which would require legislative changes and a large scale national transformation that would take years to implement. Local communities would need to obtain and develop needed capability to successfully commission locally.</p> <p>There would need to be national accountability to ensure local communities meet minimum standards and minimise the potential for corruption.</p> <p>There is increasing potential for industrial relations challenges with changes to roles, responsibilities and incentives.</p>

to be strong local leadership, clear guidance and targets and a quality control mechanism to avoid corruption and ensure minimum standards for communities.

Option 4: Commission outcomes for all providers

In the final option, the local commissioning bodies could be organised similarly to the third option however with additional flexibility in allowing private and public providers to propose and take on solutions for the community.

This model could give rise to organisations that are willing to take on the accountability of care for certain populations for the potential of providing more efficient and better care. International examples highlighted in this report show that

these structures have the potential to reduce costs and improve the health and wellbeing of communities. In addition, consumer directed care could be considered, such as what is developing with the NDIS model, to provide people with choices regarding the care they receive and where they receive it.

The benefits of these structures take time (and in particular typically require a different investment model with a longer term payback) and so longer term contracts would ideally need to be agreed (eg 10 years). There would need to be sufficient controls in place to manage potential abuse of the system and ensure local communities are receiving a minimum standard of care. A full competitive tender process may not be needed in most cases as most responses should include current providers (eg PHNs) and so could be easily identified as the most capable providers.³¹⁴

Benefits of option 4:	The final option has the highest potential for innovation and evolution to the proposed future model with pooled funding, integration, shared risk and incentives to drive health and wellbeing outcomes. Private players could potentially adapt, innovate and incorporate new technological solutions more quickly.
The Challenges of option 4:	This option would have the highest level of changes needed and complexity in implementation. There would need to be considerable investments in avoiding potential abuse of the system and ensuring quality and safety.

314. Providers identified as most capable of delivering services in a specific location

Recommendation: Start with an independent function (Innovation Accelerator)

Considering feasibility, potential to overcome identified barriers in the system and potential of achieving the proposed future model, the Advisory Group recommend option 2 – the Innovation Accelerator because:

- The option provides the best balance of impact and ease of implementation of all of the four solutions considered
- It would provide a mechanism to focus on innovation, improvement and health reform from a national and systems perspective. There are great examples of improvement initiatives in the country but these are unfortunately limited to operate in the current siloes of the system – a systems perspective is needed
- Dedicated, strategic resources and funding that sit outside of the health and social care sectors will allow more independent innovation, improvement and reform development that is less hindered by vested interests
- The independent accelerator can provide a national mechanism to support collaboration for reform across government bodies and a more consistent approach to improvements in the system
- This approach would provide a national resource to build evidence and insights for better support and care and help navigate the complexities and barriers to change in the system.
- Establishing an independent function can act as a building block to drive future reforms and progression towards more local commissioning

The Innovation Accelerator would drive more independent, market driven, integrated and strategic change than option 1 (just investing more in PHNs), as PHNs wouldn't have the same broader systems perspective or authority to drive the same level of impact.

The Australian Commission on Safety and Quality in Health Care is a respected, independent organisation with leadership that has experience working with various Government stakeholders and so may be the best place to embed the Innovation Accelerator.

National approach for establishing the 'Innovation Accelerator'

The description below outlines the potential high level steps to establish the national Innovation Accelerator. A full scope and feasibility study could be initiated as a next step to develop the approach in more detail.

1. Agreed strategic direction calling for system wide change

As a first step, a national strategic plan and strategy for change would need to be developed with a clear vision, principles, goals and targets for the future of health and wellbeing in Australia. The plan should have a longer term perspective (eg a ten year scope) and investment focus that goes beyond health. The plan should outline the scope and funding for the Innovation Accelerator and be endorsed by the Council of Australian Governments (COAG). This is the ideal starting point, however, it is recognised that agreement on such a strategy would take time and action is needed sooner rather than later. There may be opportunities to initiate some early actions while the plan is progressing.

2. Funding for the Innovation Accelerator and trial sites

A dedicated budget should be created for improving the health and wellbeing system for the future. This budget should be distinct from current health system funding and would be pooled across the Commonwealth Government and states and territories.

The approach would need to have the support of the Australian Health Ministers' Advisory Council (AHMAC) and be approved by COAG (preferably through an intergovernmental agreement), with a commitment from the Heads of Government to establish and fund the Innovation Accelerator within a current Commonwealth body as well as the first trial site projects (perhaps 10 sites initially). Less than 1 per cent of the current \$160 billion per annum of government spending on health could be set aside in the first five years to fund the Innovation Accelerator and trial sites. A working budget could therefore be \$100-150m per annum. In addition, part of the funding (perhaps 5-10%) would need to be allocated to commission quality independent evaluations of the overall Innovation Accelerator and of each trial site.

3. Establishing an 'Innovation Accelerator' to guide and commission innovation and improvement

The Innovation Accelerator could sit as a function within a relevant Commonwealth body such as, the Australian Commission on Safety and Quality in Healthcare. Relevant approvals would be needed to increase the scope and funding of the Commonwealth body to include the new function.

It would need the leadership, capability and authority to contract with and fund trial sites and make a considerable number of decisions (eg scope for sites to work outside of legislative barriers) without having to continually escalate for approvals. The Innovation Accelerator leadership could report to the relevant Commonwealth body's leadership (eg the ACSQHC) and the Minister for Health.

4. Establishing the governance and control regime

The role, functions and governance of the Innovation Accelerator would need to be established. There would need to be agreed arrangements and parameters within which the trial sites would operate and these would include:

- Overarching 'rules' for how trials would operate
- Budget availability and allocation for agreed scope
- Freedoms and flexibilities to be granted
- Requirements to work with the rest of the system
- Reporting and evaluation arrangements
- How any exceptions or requests beyond the freedoms and flexibilities would be dealt with

5. Innovation Accelerator team

A new, multidisciplinary team will need to be hired to manage the Innovation Accelerator's responsibilities. Critical capabilities and expertise will need to include commissioning, innovative models of care, knowledge management, co-design, communications, and health reform. The team will need to:

- Develop request for proposal materials that will enable market driven, innovative responses in line with the design principles
- Evaluate and prioritise EOI responses using agreed criteria (eg proposed future model sustainability, scale, risks, overall impact etc.)
- Commission trial site programs, manage MOUs and progress
- Support trial site initiation including guidance on successful co-design sessions
- Facilitate knowledge sharing across sites
- Manage reporting for sites and the Innovation Accelerator overall
- Commission evaluations of the trial sites and action outcomes

Recommended early actions to initiate the Innovation Accelerator include the following:

- Develop and agree an overarching national, longer term vision and strategy that supports sustainability of the system and the direction for reform. Ideally this would be developed in a collaborative way with representation from key leaders at the Commonwealth and State/Territory level and could include participation from:
 - Council of Australian Governments (COAG) and the COAG Health Council
 - Australian Health Ministers' Advisory Council (AHMAC)
 - Commonwealth Government Departments including:
 - Department of Prime Minister and Cabinet
 - Department of Health
 - Department of Social Services
 - Department of Finance
 - State/Territory Government DepartmentsHowever, full agreement across all relevant stakeholders should not be a barrier to progress. As suggested by the Productivity Commission, reforms could be pursued on a bilateral and multilateral basis
- An implementation plan could be developed to identify the practical steps, clear accountability and cost estimates for bringing the above vision and strategy to

life. The Innovation Accelerator and trial sites should be a major component of this plan.

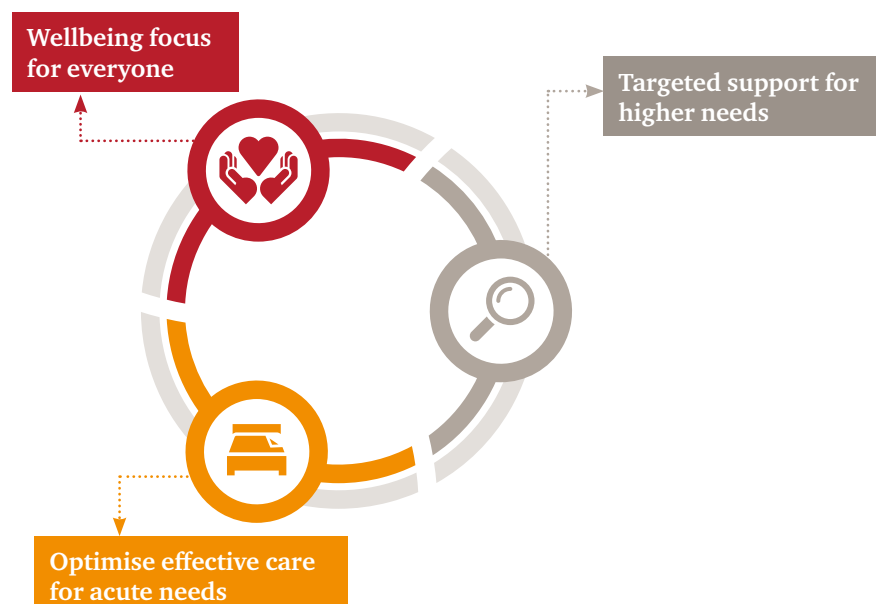
- An appropriate independent Government body (eg Productivity Commission) should undertake a review to scope out the Innovation Accelerator and potential trial sites and to assess and recommend the best governance structure, roles and responsibilities, powers, resourcing, and high level strategy and target outcomes.
- A longer term, dedicated pool of funding for the Innovation Accelerator and the trial sites will need to be allocated to support the implementation plan and should be included in the next round of impending Health Care Agreements.

Approach to establishing trial sites

The organisation and set up for trial sites will be critical for success. The Innovation Accelerator team will help sites through the process and provide guidance to overcome barriers. The potential steps for setting up a trial site are outlined below.

1. Strategic outcomes for trial sites

The Innovation Accelerator team identifies the overarching outcomes that should be commissioned based on the principles and proposed future model elements (and related population groups), including:



1. Wellbeing focus for everyone
2. Targeted support for higher needs
3. Optimise effective care for acute needs

Individual sites would be charged with tailoring these overarching aims to local circumstances and needs. There may be merit in having a mixed portfolio of focus areas to test different initiatives. This is similar thinking to the NHS Vanguard where five different care models are being tested.

2. EOIs – preparing a prospectus or information memorandum

The Innovation Accelerator team would develop a prospectus or information memorandum to communicate the outcomes that it would commission for and other relevant scope such as potential total budget or budget per population. This should include enough detail to support innovative EOIs from the market but not prescribe the approach or key player/partnerships.

3. Expression of interest (EOIs)

Local teams (shadow joint commissioning bodies) would submit EOIs outlining the suggested approach, budget request, collaboration partners, how the trial site would operate with the current system and the potential benefits to the community including how it would support overall sustainability of the system if successful.

If there is sufficient interest and organisational capability, the local trial would receive funding to run co-design sessions to further scope their site approach. This would include providers acting together plus recipient/consumer participation – collaboration between local groups will be critical to success and consideration for potential funding.

As part of this evaluation process, teams submitting EOIs would need to present to the Innovation Accelerator team on their thinking and proposals and demonstrate that they have the support of all constituent bodies. There would be the opportunity to refine thinking and proposals through a dialogue process.

4. The importance and role of community interest and co-design response

From the beginning, trial site teams would initiate a conversation with relevant local stakeholders and leaders around interest to become a trial site and the submission of the EOI.

If there is sufficient interest and support, the relevant stakeholders in the community would come together initially to agree overall objectives, ways of working, governance and incentives and this would feed into the EOI.

If successful in the EOI, parties would come together on multiple occasions to co-design and refine their approach to meeting the strategic objectives and making the trial sites work. From this they would develop a memorandum of understanding (MoU) for all stakeholders that would participate in the trial site approach. The MoU would need to consider and address conflicts of interest and agreed ways of working.

The trial site team and relevant community stakeholders should articulate all requirements or legislative protections for their co-designed approach if needed.

5. Negotiation and agreement of terms

Using the insights developed in steps 3 and 4, the community and the Innovation Accelerator enter into a contract that outlines:

- The site objectives and measures
- The approach that will be tested and timelines
- All stakeholders involved
- Major roles and responsibilities to enable success
- Identified team leaders and escalation approaches
- Technology needed
- Knowledge sharing and reporting steps
- Funding tranches
- Independent evaluation timing and criteria

The Innovation Accelerator acts as an over-arching commissioning body that effectively commissions the pilot sites to derive solutions that accord with the over-arching principles, for which a budget is allocated. The trial site teams co-create solutions that are intended to secure the agreed outcomes, all consistent with the design principles.

6. Site initiation and roll out

The trial sites initiate and roll out the contracted approach. The Innovation Accelerator team provides guidance and support to help sites avoid the usual barriers/challenges in transformation type projects (eg communications and change considerations). Key stakeholders come together regularly to manage the project and discuss progress and challenges.

7. Knowledge sharing, monitoring and reporting

Trial site teams would report progress regularly to the Innovation Accelerator team. There should be common approaches (to allow for comparability) but reporting standards should not be too intensive as to over burden the team. Local team leaders from the different sites come together a few times per year to discuss their progress and share insights.

If something is not working, the local teams should seek help from the Innovation Accelerator team. It should be discussed and agreed where iteration may be necessary.

An independent evaluation should be commissioned by the Innovation Accelerator team after trial sites have had sufficient time to setup and iterate (eg after three years of five in total scope).

8. Finalise and evaluate

After an agreed amount of time (eg five years) or when the trial site has achieved its objectives, the project can wrap up. Leaders come together to synthesise their views of the project and how to wrap it up. Where appropriate sites can discuss and agree keeping successful processes in place.

An independent evaluation should be conducted to collect and synthesise the learnings from the site. The evaluation should specifically outline reform implications and potentials to scale

the successful approaches. One of the assessment criteria will need to be the impact on local health and social services budgets to help ensure trial sites that are considered successful would support value for money and the future sustainability of the system.

9. Insights for reforms and initiatives

Learnings and innovations from the trial sites will be brought in to the overall strategy and reform perspective. Where possible, the potential to scale successes will be developed.

Insights to consider in setting up trial sites

Based on the international examples and insights from the Advisory Group, there is further guidance on how the trials could be set up and managed. It will be critical to get the right stakeholders (beyond just health workforce) involved in the design and accountability for the site and to protect them from the usual barriers and issues.

Allow participation from local and non-traditional stakeholders

Importantly, there is a growing recognition that ideas for reform are likely to be developed at the local level, and with stakeholders who are not usually considered the norm in current conversations on health reform. For instance, it is possible that social enterprise efforts could lead to meaningful solutions to complex and locally based challenges. The key issue is how to open up the defining of local problems to a broader set of innovators, particularly those who are more connected to the wider social and economic needs of citizens.

Start with the right sites and people

Trialling new ways of working will be challenging and require positive attitudes. Strong local leadership (in and beyond health) will be critical to set the direction, inspire people and give them room to innovate and share success. This should be considered in selecting the first sites. It may be best to set up the first sites in locations where community leaders already convene and collaborate well and where there is not immense financial pressure on budgets. In those sites, the stakeholders capable of changes should be involved. For example, for Canterbury's HealthPathways, people were identified as those that could make a difference (across all levels) and included in the design and implementation of reforms.

Co-design approach

Invest in a well organised co-design and collaboration approach. Bring local people together, under a shared vision, to improve the system for the people in it and let them design the trials they want for their community. This should include a variety of stakeholders inside and outside the health system. This approach supports buy in for the future changes and new thinking as designs are based on the shared vision and not the current health system. People are more likely to help drive change that they helped create. It can also be a way to start to build trust and relationships among community stakeholders and develop solutions that are most appropriate for the local community.

Accountability

There needs to be clear governance, roles and responsibilities and project and community outcomes targets. People should be realistic about what is achievable and then held accountable for the agreed actions and plans. Sites should be careful not to overcommit to outcomes in the beginning.

Communications and change

As with any transformation, communications and change aspects of the projects will be critical for success. Change management and stakeholder engagement should be built in to plans and timelines. There needs to be resources to develop clear, transparent communications to teams and the community about what is happening and what the ultimate goals is. For example, Counties Manukau used communication tools to inform and inspire people.

Protect the sites

The sites should have dedicated and protected funding and resources for at least 5 years. Large scale changes will take years to implement and embed so sites should not be expected to deliver outcomes immediately (i.e. don't over evaluate along the way). The reporting and administrative burden associated with the trials should not be overly burdensome.

Teams across trial sites should be given time to come together and share experiences and lessons learned as a community of practice.



Further considerations

Further considerations

Aside from investing in a new approach to innovate and reform, there are other well-known initiatives and investments that are needed to improve the system for the future and should be considered now as well. Some have been discussed and become particularly evident in the development of this report and are outlined below.

Make a range of hard infrastructure investments

While the current system is unsustainable, there will always be a need for acute care services and aged care support and facilities. There will need to be considerable additional investment in capital infrastructure to meet the needs of the future, particularly in aged care facilities. As this report demonstrates, these gaps already exist in many places, and can often be found in non-metropolitan and/or low socioeconomic status areas. Investment needs to happen now to deal with the highest need future trajectories (that can't be prevented). The Commonwealth Government could potentially further support future private investment in capital infrastructure through direct capital or land grants, tax incentives and/or subsidies. All new capital investments should lead to person centred designs that are intended to support people in ways that they value.

Infrastructure should be built with flexibility to meet changing needs, person centred care and the proposed future model.

Identify and reduce wasteful expenditure and/or unnecessary treatment in the system

Evidence based national standards, guidelines and resulting campaigns and training can help reduce some of the wasteful expenditure and unnecessary costs in the system. For example, analysis by the Australian Commission on Safety and Quality in Health Care (ACSQHC) found that there were over 30,000 knee arthroscopy surgeries in 2012-13 even though there is evidence that the surgery is of limited value for people aged 55 years or older with osteoarthritis and may actually cause harm.³¹⁵ This is just one indicative example of the scale of costs and harm that could be avoided. Where there is strong evidence of inefficacy or inappropriate use, treatments should no longer be publicly funded. The ACSQHC could be given additional authority to identify and reduce waste.

In 2015, a Medicare Benefits Schedule Review was announced to assess the alignment of MBS funded services with contemporary clinical evidence, with the aim of improving health outcomes for patients.³¹⁶ The priority areas include concerns about safety, clinically unnecessary service provision and accepted clinical guidelines.³¹⁷ An interim report released in 2016

highlighted a number of key issues for further exploration.³¹⁸

End of life care is an area of the health care system where improvements could be made to better support patients, deliver on what they value, and potentially reduce unnecessary treatment. One study in the US estimated that 25 per cent of healthcare costs are spent in the last year of life.³¹⁹ Allowing patients to make an informed decision about the intensity of care they wish to receive at the end of their life would likely reduce costs of care, while simultaneously increasing the quality of care patients receive as part of end of life care.³²⁰ There could be national guidance and standards to support this.

Implement straightforward prevention and early intervention initiatives

Prevention or early intervention initiatives, that are relatively straightforward and where there is considerable evidence of effectiveness and cost effectiveness, should be rolled out nationally. These would be considered to be established and would not necessarily need to be tested by local teams. For example, school based diet and physical activity obesity prevention programs³²¹ or falls prevention programs for older people at home or in residential aged care facilities.³²²

315. ACSQHC (2017). Australian atlas of Healthcare Variation. Retrieved on 9/08/2017 from www.safetyandquality.gov.au/atlas

316. Health (2015) Outcomes: Medicare Benefits Schedule Review Taskforce meeting 3 July 2015. Canberra: Commonwealth of Australia.

317. Ibid.

318. Health (2016) Medicare Benefits Schedule Review Taskforce – Interim Report to the Minister for Health. Canberra: Commonwealth of Australia

319. Curtis, JR, Engelberg, RA, Bensink, ME, and Ramsey, SD (2012). End-of-life care in the intensive care unit: Can we simultaneously increase quality and reduce costs? *American Journal of Respiratory Critical Care Medicine*, 186(7): 587-592.

320. Ibid.

321. Wang Y, Cai L, Wu Y, et al. What childhood obesity prevention programmes work? A systematic review and meta-analysis. *Obesity reviews : an official journal of the International Association for the Study of Obesity*. 2015;16(7):547-565.

322. Church J, Goodall S, Norman R, Haas M. An economic evaluation of community and residential aged care falls prevention strategies in NSW. Sydney: NSW Ministry of Health; 2011.

Support remote/ rural locations

The maps presented in this report show unsurprisingly that remote and rural locations do not have the same infrastructure for health and ageing support as metropolitan areas. Many of these locations also have a lower than average household socio-economic status score meaning that these populations would be particularly vulnerable without infrastructure for health and ageing.

There needs to be further investment in innovative solutions to provide better coverage for such locations. Telehealth and telemedicine programs are one option to help navigate the challenge. The WA Country Health Service (WACHS) has a sophisticated telemedicine emergency services program for remote and rural locations in Western Australia. The Emergency Telehealth Service program provides specialist support to local country clinicians via high-definition videoconference, helping save lives and improve patient outcomes as well as supporting regional clinician education and retention.³²³

In addition, solutions need to be tailored to or specifically developed for the rural and remote Indigenous communities that have specific health challenges.

Another consideration could be subsidies to train and upskill people that are already living in remote and rural locations to support the future sustainability of the workforce. Many doctors that are incentivised to go to remote and rural locations don't stay in the long term.³²⁴ In the future, there may be additional scope for non-clinical community and prevention roles and so training will be less resource intensive than for clinicians.

Establish high quality health and social systems data

High quality health systems data will be critical to:

- better understand community needs
- identify those at risk that could benefit from targeted support
- drive safe and high quality service provision
- assess impacts of potential interventions

Regardless of the direction of the forward strategy, high quality data will be needed and is not available today.

The My Health Record (MHR) is an online health record that stores a digital summary of patient's health information including treatments, diagnoses and details of interactions with the healthcare system. The MHR is an important part of the national health reform agenda and is meant to support an agile and sustainable system including more empowered patients. To date, there have been challenges with low uptake numbers. The recent decision by the Commonwealth Government to move the MHR system to opt-out for patients will ensure that all patients will have a record by the end of 2018.

The MHR could be a starting point to collect critical population level data. For this to be possible, it would need to evolve to include data outside of the health system as well.

Invest in a workforce for the future

As outlined in this report and various other previous reports, there will be considerable gaps in critical workforce roles in the future such as nurses, allied health professionals, general physicians, geriatricians and general practitioners, aged and disability support staff. Increasing the difficulty to attract foreign workers for disability and ageing support roles would put further pressure on the system (eg immigration changes).

Allied health professionals could help reduce some of the strain on the system through prevention and early intervention, however currently only five visits per year are subsidised by the system. Lifting or increasing this limit could allow allied health professionals to play a greater role in prevention and chronic disease management and shift pressure away from more costly GPs and acute care. Where appropriate, some clinical scope that is managed by GPs could be managed by pharmacists or nurse practitioners such as administering vaccines, monitoring blood pressure, diabetes testing, and issuing some medical certificates and repeat prescriptions.³²⁵

Planning for the workforce of the future needs to start now. All newly trained clinicians should be educated in line with the proposed future models and design principles. New roles will need to be developed to meet future needs (eg data analytics capability or community prevention roles) and these should be identified and scoped now to meet future need.

323. Southern Inland Health Initiative Program Evaluation Key Findings November 2016. Economic midway evaluation conducted by PwC Australia

324. Health (2013) Rural recruitment and retention strategies. Canberra: Commonwealth of Australia

325. Productivity Commission 2015, Efficiency in Health, Commission Research Paper, Canberra.

Appendices

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Appendix A

Infrastructure for health and ageing supply and demand by LGA

Ageing well

Table 10 lists the ten highest LGAs in Australia with the greatest gaps (numerically) in residential aged care places in 2014. This table also demonstrates that LGAs with gaps in residential aged care places are also likely to have gaps in community aged care places.

Table 10: LGAs by gaps in residential aged care, 2014

Rank	LGA	State	Population aged 70 years or older, 2014	LGA population 2014	Gap in residential aged care, count	Gap in community aged care, count
1	The Hills Shire (A)	NSW	15,476	187,826	-603	-221
2	Sunshine Coast (R)	QLD	44,003	335,874	-462	-902
3	Moreton Bay (R)	QLD	37,476	417,137	-445	-1,091
4	Canterbury (C)	NSW	15,018	150,524	-408	-355
5	Mornington Peninsula (S)	VIC	24,482	153,800	-403	-1,042
6	Manningham (C)	VIC	17,188	118,521	-364	-738
7	Stirling (C)	WA	23,237	227,404	-363	-503
8	Gosnells (C)	WA	8,464	123,993	-322	-230
9	Unincorporated ACT	ACT	29,365	385,996	-318	-239
10	Port Macquarie-Hastings (A)	NSW	14,341	77,481	-299	-362

Source: PwC's GEM, PHIDU.

Table 11 lists the ten highest LGAs in Australia with the greatest gaps (numerically) in residential aged care places that are projected in 2025. These LGAs with projected gaps in residential aged care places are also projected to have gaps in community aged care places. Six of these LGAs with the greatest gaps in residential aged care places across Australia are in QLD.

Table 11: LGAs by gaps in residential aged care, 2025

Rank	LGA	State	Population aged 70 years or older, 2025	LGA population 2025	Gap in residential aged care, count	Gap in community aged care, count
1	Moreton Bay (R)	QLD	66,463	506,456	-2,764	-2,396
2	Gold Coast (C)	QLD	83,758	652,275	-2,399	-2,266
3	Logan (C)	QLD	41,951	386,746	-1,995	-1,552
4	Sunshine Coast (R)	QLD	61,842	389,367	-1,889	-1,705
5	Unincorporated ACT	ACT	48,545	476,771	-1,853	-1,614
6	Casey (C)	VIC	40,425	342,750	-1,668	-1,373
7	The Hills Shire (A)	NSW	27,911	212,109	-1,598	-781
8	Brimbank (C)	VIC	31,556	248,665	-1,517	-1,186
9	Brisbane (C)	QLD	126,318	1,466,228	-1,506	-3,088
10	Fraser Coast (R)	QLD	29,076	115,213	-1,380	-1,019

Source: PwC's GEM, PHIDU.

Chronic diseases

Table 12 lists the ten highest LGAs in Australia with a population of more than 1,000 people in terms of prevalence of circulatory system diseases. This table demonstrates the increased prevalence of circulatory system diseases in non-metropolitan areas, and therefore demand for health infrastructure, with each of the top ten LGAs found in non-metropolitan areas, and having populations of less than 40,000 people.

Table 12: LGAs by highest prevalence of circulatory system disease per 100,000 population, 2014

Rank	LGA	State	Circulatory disease per 100,000 population, 2014	LGA population 2014
1	Glamorgan/Spring Bay (M)	TAS	34,012	4,493
2	Yankalilla (DC)	SA	29,129	4,604
3	Victor Harbor (C)	SA	28,304	14,948
4	Tasman (M)	TAS	27,523	2,398
5	Great Lakes (A)	NSW	27,520	36,500
6	Yorke Peninsula (DC)	SA	26,737	11,068
7	Eurobodalla (A)	NSW	26,180	37,606
8	Nambucca (A)	NSW	25,611	19,655
9	George Town (M)	TAS	25,574	6,819
10	Dorset (M)	TAS	25,239	7,102

Source: PwC's GEM, PHIDU. LGAs with a 2014 population size of less than 1,000 have not been included.

Table 13 lists the ten LGAs in Australia with the greatest gaps between the actual number of FSE GPs and the 2014 national average, all subject to having a population of more than 1,000 people. While the population of these LGAs ranges from 11,000 to 123,000 people, all of these LGAs are considered non-metropolitan, highlighting the unmet need for health infrastructure in regional and remote Australian communities.

Table 13: LGAs by gap in FSE GPs per 100,000 population, 2014

Rank	LGA	State	Gap in FSE GPs per 100,000 population, 2014	LGA population 2014
1	West Tamar (M)	TAS	-56	23,146
2	Wollondilly (A)	NSW	-51	47,015
3	Kogarah (C)	NSW	-51	61,031
4	Meander Valley (M)	TAS	-49	19,576
5	East Pilbara (S)	WA	-49	13,028
6	Gosnells (C)	WA	-47	123,993
7	Dardanup (S)	WA	-46	14,063
8	Ashburton (S)	WA	-45	11,017
9	Palerang (A)	NSW	-43	15,459
10	Litchfield (M)	NT	-43	22,077

Source: PwC's GEM, PHIDU. Gap in FSE GPs is estimated based on the national average of 71 FSE GPs per 100,000 people in 2014. LGAs with a 2014 population size of less than 1,000 have not been included.

Table 14 lists the ten highest LGAs in Australia with a population of more than 1,000 people in terms of projected prevalence of circulatory system diseases in 2025. While the LGAs with the highest prevalence of circulatory system diseases are similar to those for 2014, the prevalence is projected to increase within each LGA.

Table 14: LGAs by highest prevalence of circulatory system disease per 100,000 population, 2025

Rank	LGA	State	Circulatory disease per 100,000 population, 2025	LGA population 2025
1	Glamorgan/Spring Bay (M)	TAS	38,800	4,334
2	Victor Harbor (C)	SA	34,668	13,429
3	Yankalilla (DC)	SA	34,633	4,260
4	Central Goldfields (S)	VIC	33,523	10,075
5	Great Lakes (A)	NSW	30,947	35,715
6	Yorke Peninsula (DC)	SA	29,674	10,973
7	Nambucca (A)	NSW	29,608	18,707
8	Tasman (M)	TAS	29,545	2,458
9	Eurobodalla (A)	NSW	28,597	37,881
10	George Town (M)	TAS	28,292	6,782

Source: PwC's GEM, PHIDU. LGAs with a 2025 population size of less than 1,000 have not been included.

Table 15 lists the ten LGAs in Australia with the greatest gaps between the projected number of FSE GPs in 2025 and the 2014 national average, all subject to having a population of more than 1,000 people. The gaps in FSE GPs per 100,000 population are projected to decrease between 2014 and 2025, although the LGAs projected to have gaps in FSE GPs will continue to be those in regional and remote areas.

Table 15: LGAs by gap in FSE GPs per 100,000 population, 2025

Rank	LGA	State	Gap in FSE GPs per 100,000 population, 2025	LGA population 2025
1	West Tamar (M)	TAS	-44	23,874
2	Gosnells (C)	WA	-41	181,493
3	Wollondilly (A)	NSW	-39	53,639
4	Kogarah (C)	NSW	-39	70,462
5	East Pilbara (S)	WA	-37	15,534
6	Ashburton (S)	WA	-33	13,930
7	Mundaring (S)	WA	-33	56,331
8	Meander Valley (M)	TAS	-31	19,922
9	Serpentine-Jarrahdale (S)	WA	-29	29,247
10	Narrabri (A)	NSW	-28	16,630

Source: PwC's GEM, PHIDU. Gap in FSE GPs is estimated based on the national average of 71 FSE GPs per 100,000 people in 2025. LGAs with a 2025 population size of less than 1,000 have not been included.

Mental health

The highest prevalence of anxiety and distress can often be found in rural and remote areas. Table 16 shows that, of all the LGAs in Australia with a population of at least 1,000 people, all ten LGAs with the highest prevalence of anxiety and depression are located within either South Australia or Victoria.

Table 16: LGAs by highest prevalence of anxiety and distress per 100,000 population, 2014

Rank	LGA	State	K10 score of distressed or highly distressed per 100,000 population, 2014	LGA population 2014
1	Greater Dandenong (C)	VIC	10,775	149,518
2	Flinders Ranges (DC)	SA	10,710	1,633
3	Latrobe (C)	VIC	10,639	73,662
4	Northern Grampians (S)	VIC	10,334	11,719
5	Brimbank (C)	VIC	10,207	197,704
6	Hepburn (S)	VIC	10,206	14,888
7	Peterborough (DC)	SA	10,197	1,702
8	Mount Remarkable (DC)	SA	10,185	2,827
9	Port Pirie City and Dists (M)	SA	10,170	17,648
10	Darebin (C)	VIC	10,046	148,728

Source: PwC's GEM, PHIDU. LGAs with a 2014 population size of less than 1,000 have not been included.

Table 17 lists the ten highest LGAs in Australia, with a population of more than 1,000 people, in terms of the current gap between the number of GP mental health care plans and the 2014 demand. Of these ten LGAs, nine are from either South Australia or Western Australia, suggesting an immediate need for mental health infrastructure in these two jurisdictions.

Table 17: LGAs by gap in GP mental health care plan per 100,000 people with distress or anxiety, 2014

Rank	LGA	State	Gap in GP mental healthcare plans per 100,000 people with distress and anxiety, 2014	LGA population 2014
1	Flinders Ranges (DC)	SA	-3,498	1,633
2	Kimba (DC)	SA	-3,399	1,100
3	Coorow (S)	WA	-2,991	1,061
4	Carnarvon (S)	WA	-2,943	6,142
5	Peterborough (DC)	SA	-2,839	1,702
6	Kingston (DC)	SA	-2,397	2,353
7	Kellerberrin (S)	WA	-2,291	1,202
8	Southern Mallee (DC)	SA	-2,180	2,077
9	Broomehill-Tambellup (S)	WA	-2,143	1,155
10	Bogan (A)	NSW	-2,134	3,078

Source: PwC's GEM, PHIDU. LGAs with a 2014 population size of less than 1,000 have not been included.

Table 18 shows the ten LGAs in Australia projected to have the highest prevalence of distress and anxiety in 2025. While these LGAs are the same as those for 2014, this is expected given the prevalence has been projected to remain stable. However, the number of people within each LGA with distress and anxiety is projected to grow.

Table 18: LGAs by highest prevalence of anxiety and distress per 100,000 population, 2025

Rank	LGA	State	K10 score of distressed or highly distressed per 100,000 population, 2025	LGA population 2025
1	Greater Dandenong (C)	VIC	10,775	185,892
2	Flinders Ranges (DC)	SA	10,710	1,858
3	Latrobe (C)	VIC	10,639	83,780
4	Northern Grampians (S)	VIC	10,334	12,442
5	Brimbank (C)	VIC	10,207	248,665
6	Hepburn (S)	VIC	10,206	16,207
7	Peterborough (DC)	SA	10,197	1,871
8	Mount Remarkable (DC)	SA	10,185	3,107
9	Port Pirie City and Dists (M)	SA	10,170	17,564
10	Darebin (C)	VIC	10,046	192,803

Source: PwC's GEM, PHIDU. LGAs with a 2025 population size of less than 1,000 have not been included.

Table 19 lists the ten highest LGAs in Australia in 2025 for gaps in GP mental health care plans per 100,000 people with distress and anxiety. Based on these projections, seven of ten LGAs with greatest gap in mental health infrastructure are in Western Australia, highlighting the need for additional infrastructure needs in this state.

Table 19: LGAs by gap in GP mental health care plan per 100,000 people with distress or anxiety, 2025

Rank	LGA	State	Gap in GP mental healthcare plans per 100,000 people with distress and anxiety, 2025	LGA population 2025
1	Perenjori (S)	WA	-3,745	1,198
2	Kimba (DC)	SA	-3,399	1,265
3	Narembeen (S)	WA	-3,305	1,055
4	Bruce Rock (S)	WA	-3,305	1,265
5	Woorabinda (S)	QLD	-3,007	1,361
6	Flinders Ranges (DC)	SA	-2,670	1,858
7	Coorow (S)	WA	-2,657	1,402
8	Carnarvon (S)	WA	-2,559	8,316
9	Morawa (S)	WA	-2,125	1,178
10	Kellerberrin (S)	WA	-1,831	1,532

Source: PwC's GEM, PHIDU. LGAs with a 2025 population size of less than 1,000 have not been included.



Appendix B

GEM Modelling inputs and assumptions

Overview

This technical appendix provides detail on the methodology and assumptions used in the mapping of supply, demand, gaps and surpluses of hard and soft social infrastructure in Australia in 2014, 2025 and 2040.

The main data source for the demand and supply modelling is PHIDU Social Health Atlas of Australia, Data by Local Government Area, Published August 2016 (<http://phidu.torrens.edu.au/social-health-atlases/data-archive/data-archive-social-health-atlases-of-australia#social-health-atlas-of-australia-data-released-march-may-june-2015-by-local-government-area-based-on-the-asgc-2011-and-asgs-2011>)

All other data sources are referenced as required in the sections below, as well as throughout the report.

Social Health Atlas of Australia Notes on the data, published December 2016 provides detail on the assumptions and approaches used in the PHIDU dataset. The notes are available at www.phidu.torrens.edu.au/current/data/sha-aust/notes/phidu_data_sources_notes.pdf

Population data

2014 (actual) and 2025 (forecast) population data is sourced from PHIDU. Data for 2014 is count of population, 2025 is the projected population. PHIDU data also includes projections to 2020, although these projections were only used to estimate the population to 2040.

To project the population (including by age group) of each LGA to 2040, the average annual population growth count from 2020 to 2025 was taken from the PHIDU projections and assumed to carry forward for an additional 15 years to 2040. This approach assumed the average population change each year remains the same to 2040, rather than holding constant the growth rate of population.

Social Health Atlas of Australia Notes on the data, published December 2016 provides detail on the assumptions and approaches used in the PHIDU dataset. The notes are available at www.phidu.torrens.edu.au/current/data/sha-aust/notes/phidu_data_sources_notes.pdf

Ageing assumptions and approach

Demand for services

Count of people aged 70 and over in each LGA in 2014, and PHIDU estimates of population aged 70 and over in each LGA for 2025 and 2040 were used as proxies for demand for both residential and community aged care services.

The rate of people aged 70 and over per 100,000 population was estimated for 2014 by dividing the count of people aged 70 and over in each LGA, by the total population of the LGA in 2014 and multiplying by 100,000. The same approach was undertaken using PHIDU estimates for total population, and population aged 70 and over in 2014.

Supply of services

Two types of aged care services are considered in this analysis – residential aged care and community aged care.

Residential aged care

Total (high and low level care) Residential aged care data reported in PHIDU was collected in June 2011. This was the most recent LGA level count of residential aged care places available at the time of reporting (November 2016). The rate of residential aged care places per 1,000 population aged 70 and over was estimated for 2014, by dividing the June 2011 count of residential aged care places by the 2014 population aged 70 and over. This approach assumes there is no increase in the count of residential aged care places from June 2011 to 2014. Reporting on the basis of per 1,000 aged 70 and over was to maintain consistency with Commonwealth Government reporting of aged care targets.

To estimate the rate of residential aged care places per 1,000 population aged 70 and over in 2025 and 2040, it was assumed that no more residential aged care places were provided for above the count at June 2011. Therefore, to estimate the 2025 and 2040 ratios, the count of places at June 2011 was divided by the projected population aged 70 and over at 2025 and 2040 respectively.

Community aged care

Total Community aged care places data reported in PHIDU was collected in June 2011. This was the most recent LGA level count of community aged care places available at the time of

reporting (November 2016). The rate of community aged care places per 1,000 population aged 70 and over was estimated for 2014, by dividing the June 2011 count of community aged care places by the 2014 population aged 70 and over. This approach assumes there is no increase in the count of community aged care places from June 2011 to 2014. Reporting on the basis of per 1,000 aged 70 and over was to maintain consistency with Commonwealth Government reporting of aged care targets.

To estimate the rate of community aged care places per 1,000 population aged 70 and over in 2025 and 2040, it was assumed that no more community aged care places were provided for above the count at June 2011. Therefore, to estimate the 2025 and 2040 ratios, the count of places at June 2011 was divided by the projected population aged 70 and over at 2025 and 2040 respectively.

Threshold levels of service provision

The Commonwealth Government has a long term provision ratio target of 125 operational aged care places per 1,000 people aged 70, with the aim to achieve this ratio by 2021-22. This target is made up of 80 residential and 45 community aged care places per 1,000 aged 70 and over. These targets of 80 places for residential and 45 for community aged care per 1,000 aged 70 and over have been adopted in this work as the threshold value for determining if there are gaps and/or surpluses in service provision around Australia. More details on the Commonwealth Government targets can be found at www.aihw.gov.au/aged-care/residential-and-home-care-2013-14/aged-care-spending/

A surplus (oversupply) or gap (undersupply) in the number of residential and community aged care places was estimated based on how much each LGA's count of residential and community aged care places per 1,000 aged 70 and over was above or below the Commonwealth Government targets in 2014.

A negative score indicates in 2014 the LGA had less than the threshold of 80 residential and 45 community aged care places 1,000 aged 70 and over, where the value of the score indicates the gap in places per 1,000 aged 70 and over. A positive score indicates in 2014 the LGA had more than the threshold of 80 residential and 45 community aged care places 1,000 aged 70 and over, where the value of the score indicates the surplus in places per 1,000 aged 70 and over.

To estimate the gaps and surpluses in 2025 and 2040, the projected ratios of residential and community aged care places per 1,000 aged 70 and over were also compared to the Commonwealth Government targets.

To visualize the gaps and surpluses in residential and community aged care places, open source QGIS mapping software was used. Areas with a gap (i.e. are high need) are darker in colour per the map legend, while those that report having a surplus are lighter in colour and the legend indicates that the LGA "Met Demand" for all LGAs that report a surplus.

2014 weighted average household weekly income (sourced from PwC's GEM) for each LGA has also been overlayed on the maps as an indicator for socio-economic status, and areas of high need where households may be less likely to be able to afford private health cover and more reliant on public health services.

Chronic disease assumptions and approach

Demand for services

Count of people with chronic disease was estimated by using the number of people aged two years and over with circulatory system disease as a proxy. Data on count of people with circulatory system disease was collected in 2011-13 and was the most recent circulatory system disease data available at the time of reporting (November 2016).

The rate of people with chronic disease per 100,000 population was estimated for 2014 by dividing the count of people with chronic disease in each LGA (data collected in 2011-13 as noted above), by the total population of the LGA in 2014 and multiplying by 100,000. This approach assumes there is no increase in the count of people with chronic disease from 2011-13 to 2014.

To estimate count of people in 2025 and 2040 with chronic disease, PwC assumed the same compound annual growth rate (CAGR) of chronic disease to 2025 and 2040 that was observed from 2004-05 PHIDU estimates to 2011-13 PHIDU estimates. The CAGR of count of people reporting circulatory system disease (chronic disease) from 2004-05 to 2011-13 was 0.8 per cent per annum. Therefore it was assumed that count of people with chronic disease would continue to grow by 0.8 per cent p.a. from 2014 to 2025 and 2040.

The rate of people with chronic disease per 100,000 population was estimated for 2025 by dividing the estimated count of people with chronic disease in each LGA in 2025 by the estimated total population of the LGA in 2025. The same approach was adopted for 2040.

Supply of services

Full Service Equivalent (FSE) General Practitioners (GPs) is used as a measure of services for individuals with chronic disease. General Medical Practitioner data was collected in 2011. To estimate FSE GPs, PwC reviewed the annual Report on Government Services (RoGS) prepared by the Productivity Commission. Table 10A.8 in attachment 10a of the 2017 release (available at www.pc.gov.au/research/ongoing/report-on-government-services/) was reviewed, which included GPs and FSE GPs each year from 2006-2016. PwC calculated the GP to FSE GP ratio for each year from 2006-2016, and adopted the average ratio of 1.5 GPs = 1 FSE GP. The 2011 PHIDU General Medical Practitioner count for each LGA was then divided by 1.5 to estimate the count of FSE GPs per LGA.

The rate of FSE GPs per 100,000 population was estimated for 2014 by dividing the estimated FSE GPs (data collected in 2011 as noted above), by the total population of the LGA in 2014 and multiplying by 100,000. This approach assumes there is no increase in the count of FSE GPs from 2011 to 2014.

A surplus (oversupply) or gap (undersupply) in the number of FSE GPs was estimated based on the 2014 national average of 71 FSE GPs per 100,000 population, estimated based on PHIDU data.

A negative score indicates the LGA has less than the threshold number of 71 FSE GPs per 100,000 population, where the value of the score indicates the gap in FSE GPs per 100,000 population. A positive score indicates a surplus of FSE GPs per 100,000 population where the value of the score indicates the surplus FSE GPs per 100,000 population.

To estimate the number of FSE GPs in 2025 and 2040, the number of FSE GPs per 100,000 population is assumed to grow at the same average compound annual growth rate (CAGR) FSE GPs grew from 2006-07 to 2015-16. From 2006-07 to 2015-16 the number of FSE GPs in Australia grew from 15,662 to 23,170, reflecting a CAGR of approximately 4.4 per cent over the 9 year period. Therefore, the number of FSE GPs in the future is assumed to grow at 4.4 per cent per annum to 2025 and 2040.

The same approach to estimating gaps and surpluses in FSE GPs was adopted for 2025 and 2040 as for 2014.

Mental Health assumptions and approach

Demand for services

Count of people with a mental health condition is estimated by the number of people aged 18 and over with high or very high psychological distress based on the Kessler 10 Scale (K10). This data was collected in 2011-13 and was the most recent K10 data available at the time of reporting (November 2016).

The rate of people with a mental health condition per 100,000 population was estimated for 2014 by dividing the count of people with a mental health condition in each LGA (data collected in 2011-13 as noted above), by the total population of the LGA in 2014 and multiplying by 100,000. This approach assumes there is no increase in the count of people with a mental health condition from 2011-13 to 2014.

To estimate count of people in 2025 and 2040 with a mental health condition, PwC assumed the proportion of the population (rate per 100,000 population) with high or very high psychological distress remains constant over time. Therefore count of people with high or very high psychological distress in each LGA grows in proportion with the LGA's population growth.

The rate of people with a mental health condition per 100,000 population was estimated for 2025 by dividing the estimated count of people with a mental health condition in each LGA in 2025 by the estimated total population of the LGA in 2025. The same approach was adopted for 2040.

Supply of services

Medicare Benefits Schedule (MBS) Better Access Program (BAP): Preparation of Mental Health Care Plan by General Practitioners (GPs) is used as a measure of services provided for individuals with a mental health condition. This data was collected in 2009/10.

A surplus (oversupply) or gap (undersupply) in the number of GP mental health care plans prepared are estimated based on the 2007 National Survey of Mental Health and Wellbeing. The survey found that 35 per cent of people with a mental health condition seek treatment, and of the 65 per cent that do not seek treatment, 86 per cent reported that they perceived having no need for any mental health care (therefore 14 per cent reported they may need mental health care). A summary of the survey findings can be found at: <http://mhsa.aihw.gov.au/background/>

Therefore, each LGA's threshold (optimal) value of GP mental health care plans is based directly on the number of people in each LGA that

have a mental health condition. Hence the threshold number of GP mental health care plans differs across each LGA, however a consistent formula to determine the threshold is applied such that the threshold number of GP mental health care plans to be provided in each LGA should be equal to 35 per cent + (14 per cent x 65 per cent) = 44.1 per cent i.e. the threshold is that 44.1 per cent of people with a mental health condition in each LGA are provided with a GP mental health care plan under the MBS BAP. This threshold and approach assumes one GP mental health care plan is issued per year per individual with a mental health condition.

A negative score indicates the LGA has less than the threshold number of GP mental health care plans issued per 100,000 population (i.e. less than 44.1 per cent of people with a mental health condition received a GP mental health care plan), where the value of the score indicates the gap in GP mental health care plans issued per 100,000 population. A positive score indicates a surplus of plans issued per 100,000 population (i.e. more than 44.1 per cent of people with a mental health condition received a GP mental health care plan), where the value of the score indicates the surplus GP mental health care plans issued per 100,000 population.

The same approach applies for estimating gaps and surpluses in GP mental health care plans in 2025 and 2040.

As noted, it is assumed that the incidence of mental health conditions grows at the same rate as the population. To estimate the number of GP mental health care plans issued in 2025 and 2040, the number of plans issued is assumed to grow at the same rate as count of FSE GPs is estimated to grow, as highlighted in the Chronic disease section above. Therefore, the number of GP mental health care plans issued in the future is assumed to grow at 4.4 per cent per annum to 2025 and 2040.

Hospital beds

Hospital bed data was obtained from the Australian Institute of Health and Welfare (AIHW) Hospital Resources 2013-14 Australia

hospital statistics publication, which can be found at: www.aihw.gov.au/WorkArea/DownloadAsset.aspx?id=60129551484

The estimate of total number of hospital beds in Australia of 89,487 in 2013-14 was obtained from this publication. To obtain a ratio of hospital beds per population in 2014, PwC divided total hospital beds in 2013-14 by total population in 2014.

To estimate the number of additional beds required in 2025 and 2040, PwC assumed a constant ratio of beds per population in 2025 and 2040. PwC estimated the total number of beds required in 2025 and 2040 based on the 2014 ratio of beds per person, and the 2025 and 2040 populations. PwC

then subtracted the 2014 count of beds to estimate the total number of additional beds required to 2025 and 2040 to retain the same ratio of beds to population.

Data gaps

Throughout the PHIDU data set there are a number of LGAs where no data is reported for our variables of interest. For example, there is no data recorded for the number of people that report as having a high or very high K10 distress score in Bourke Shire Council (NSW) in 2011-13. This is distinctly different from where the value of an indicator is reported as zero for an LGA, for example the Shire of Aurukun (QLD) is reported as having zero GP mental health care plans issued in 2009-10.

To address data gaps where no value is reported, these areas have been treated as “no data” and the LGA is shaded in grey on the map outputs.

In instances where we have one data point (eg we know how many mental health care plans were issued) but we do not have the required complimentary data point to estimate the gap (i.e. we do not know how many people had a distressed or very distressed k10 score) then the model leaves the gap value blank and the LGA is treated as “no data”.

However, as an example, when summarising national statistics (eg national total number of GP mental health care plans issued), this LGA would be included.



Appendix C

PwC's Geospatial Economic Model (GEM) overview and methodology

GEM: What is it?

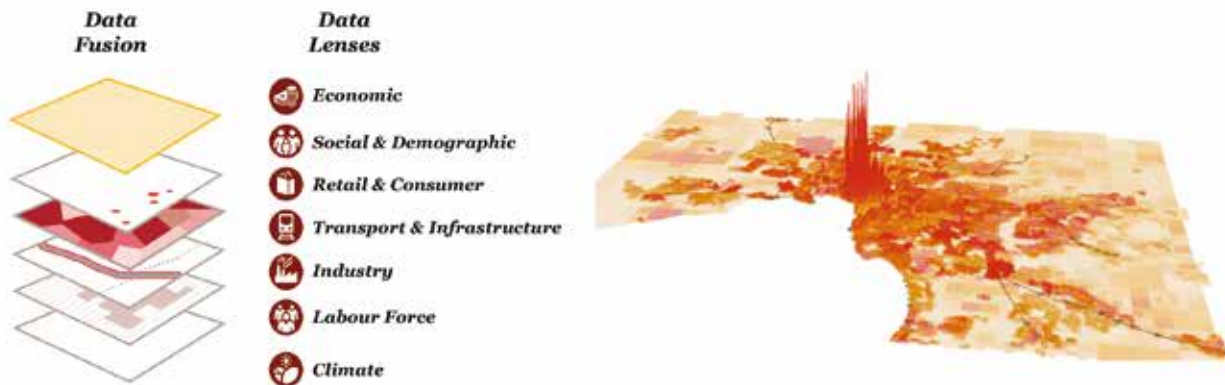
PwC created a big data modelling platform that captures the macroeconomic trends of small area economics that shape Australia. GEM was developed to provide a more granular understanding of Australia's economic geography. By understanding the underlying smaller economies that make up the States and Territories, allows us to understand the differing contributions of various small areas to each State/Territory's economic value by industry and across time. We can see how industry employment and output grow or shrink through time across these small areas, and examine how policies and other shocks play out in different geographies.

Our Small Area Economics work provides economic, social and demographic insights in 2,214 locations across Australia where business and government operate. By adding the “where” dimension to analysis and reporting, we assist clients to take advantage of geospatial insights that are not apparent using traditional, non-spatial methods. ‘Locations’ refer to socially and economically distinct areas (Statistical Areas – level 2 as defined by the ABS) that have, on average, a population of approximately 10,000 people. For the purposes of this report, the areas of interest considered are the 563 Local Government Areas (LGAs) across Australia.

GEM comprises a spatial library containing Australian economic data from 2001 to 2015, which is consistent and reconcilable with ABS data. Forecasts are also available out to 2050 which are consistent and reconcilable with Treasury's intergenerational model. As is the case with all economic data, including the underlying ABS GDP and employment data that are used to build GEM, these are estimates. None of these should be treated as 100 per cent accurate, and GEM is no different. Noting this, the methodology we've developed working closely with the ABS and our own experienced economists gives us great confidence in the model's outputs.

The GEM platform supports the collection, fusion and distribution of spatial as well as non-spatial data originating from a variety of sources (see Figure 29). We use a variety of desktop and server-side GIS, data visualisation and web mapping tools that allow spatial analysis to be published and shared with chosen audiences in a variety of printed and digital formats. The GEM platform consists of a server-side ecosystem and toolbox for near real-time bespoke analysis, and provides the opportunity to support consulting projects with extensive insights across a range of factors that typically drive or affect business performance.

Figure 29: GEM allows for a wide range of datasets to be layered and fused in near-real-time



Analysing data through a spatial lens can help to identify problems that are of local concern even if they are not a high priority at a state, territory or national level – and can therefore assist in advocating for local funding initiatives and the tailoring of services based on specific community or market needs. Similarly, spatial analysis can enable top-down strategies and initiatives to be targeted more effectively in the areas where they are needed most.

Within GEM, we have compiled a range of significant Australian datasets across key subject areas including population and demographics, infrastructure and the economy. These datasets provide important context for the subsequent understanding, analysis and enrichment of data. The GEM platform can easily integrate a wide range of variables and data types, from customer transaction data through to fleet vehicle, network sensor and incident-related data.

How has GEM been used in this project?

PwC's GEM has been the source for most of the non-PHIDU data collected for this work, using datasets built from ABS and other data sources. In addition, PwC's GEM has been used to visualise the supply-demand model outputs using QGIS software to present the granular local government area (LGA) level analysis.



Appendix D

Advisory Group participants



Amy Brown
Infrastructure Partner,
PwC

Profile/background

Amy is an Infrastructure Advisory partner at PwC. Amy is an industry expert in complex infrastructure projects, providing commercial, contractual and strategic advice to ensure optimal outcomes for Government, its customers and the sector. Prior to joining PwC, Amy was Director of the Infrastructure and Structured Finance Unit of NSW Treasury.

Amy has been involved in more than 20 projects in recent years, including driving the successful financial close of the most recent wave of infrastructure projects in NSW – including the Northern Beaches Hospital Project, North West Rail Link Project, Sydney Light Rail Project, NSW Health Helicopter Retrieval Network and the Darling Harbour Live Project. She also led the development of the new suite of NSW government project documents (to be released in conjunction with the revised NSW PPP Guidelines) which have an emphasis on partnership, outcomes, optimal risk allocation and streamlined contractual mechanisms.



Jane Burns
Director at InnoWell and
Professor of Innovation and
Industry, University of Sydney

Profile/background

Jane Burns is a director at InnoWell and Professor of Innovation and Industry at the University of Sydney in the Faculty of Health Science. She was the founder and CEO of the Young and Well Cooperative Research Centre, an organisation that united over 70 partners from the not-for-profit, academic and technology industry around a single research focus – to explore the role of technology in improving the mental health and wellbeing of young people.

In recognition for her achievements in mental health reform and suicide prevention she won the category of Social Enterprise for 2015's Australian Financial Review and Westpac Group 100 Women of Influence, and was a Victorian Finalist in the 2012 Telstra Business Women's Awards.

Jane is a Graduate of the Australian Institute of Company Directors. She is Chair of the National Advisory Council for the Veterans and Veterans Families Counselling Service and Chair of STREAT, offering young people aged 16-25 a supported pathway from the street to a sustainable livelihood. She is a strategic advisor to the government, university and social enterprise sector and has served on numerous government working groups across Health, Communications and Veterans Affairs. Previous Directorships include the Cooperative Research Centres Association.

Jane led the youth and public health agenda for beyondblue in its initial start-up, was a Commonwealth Fund Harkness Fellow at the University of California, San Francisco, and was Director of International Partnerships for Reachout.com at the Inspire Foundation. Jane held both a VicHealth and an NHMRC fellowship and an NHMRC scholarship. She has a PhD in Medicine from the University of Adelaide.



Rosemary Calder

Director, Australian Health
Policy Collaboration

Profile/background

Rosemary Calder AM is a respected health and social policy advisor. She has previously worked as Health Policy Director at the Mitchell Institute and for State and Commonwealth Governments.

Rosemary has experience as a senior public servant for both the Coalition and Labor Governments and was head of the Office for the Status of Women, under the Howard Government and Chief of Staff to a former Victorian Minister for Health.



Amanda Hagan

Australian Unity Chief
Customer Officer and Group
Executive Digital

Profile/background

Ms Hagan joined Australian Unity in May 2006. In November 2017 Ms Hagan took the position of Chief Customer Officer and Group Executive Digital. Previously she was Chief Executive Officer, Healthcare and Chief Executive Officer and director of Australian Unity Health Limited and Grand United Corporate Health Limited, and responsible for all elements of Australian Unity's healthcare operations and strategic development of the business. Ms Hagan has more than 20 years' experience in senior roles consulting on strategic projects for a range of companies including AGL, American Express and Energy Australia. Before joining Australian Unity, Ms Hagan held various executive roles with Perpetual Limited.



Helen Keleher

Director,
Keleher Consulting

Profile/background

Dr Helen Keleher is Director of Keleher Consulting, and was previously Director of Population Health at the Frankston-Mornington Peninsula Medicare Local. She has had a long academic career, and is now Adjunct Professor in Health Science with the School of Public Health and Preventive Medicine, Monash University. Her expertise is in population health data and strategy, primary health care, the social determinants of health and disadvantage, and health promotion.

Her work over many decades has been about understanding how best we can impact the determinants of health and health equity especially through population health. She was a member of the Women and Gender Equity Knowledge Network for the WHO Commission on the Social Determinants of Health 2005-08. She is a life member and Past-President of the Public Health Association of Australia and led the successful bid for the 2017 World Congress on Public Health held in Melbourne in April 2017.

She is co-editor of Understanding Health published by Oxford University Press, and Understanding the Australian Health Care System published by Elsevier. She has published dozens of book chapters and journal articles on primary health care, population health, women's health/gender and health promotion.



Su McCluskey

Board Member,
Australian Unity

Profile/background

Ms McCluskey is a Director of Australian Unity Limited, the Foundation for Young Australians, Chair of Energy Renaissance and a member of the Ministerial Advisory Council on Skilled Migration. Ms McCluskey was CEO of the Regional Australia Institute and a member of the Harper Review of Competition Policy. Ms McCluskey was previously the CEO of the Council of Rural Research and Development Corporations and the Executive Director of the Office of Best Practice Regulation. Ms McCluskey has held senior positions with the Business Council of Australia, the National Farmers' Federation and the Australian Taxation Office. She is also a beef cattle farmer.



Rohan Mead

Group Managing Director &
CEO, Australian Unity

Profile/background

Rohan Mead was appointed Group Managing Director of Australian Unity Limited in 2004. Rohan is also chairman of the Business Council of Australia's Healthy Australia task force and a member of its Indigenous Engagement task force. He is also a director of the Centre for Independent Studies, a director of the Business Council of Co-Operatives and Mutuals Limited (BCCM) and the Australian Brandenburg Orchestra. Prior to joining Australian Unity, Rohan was employed by Perpetual Trustees Australia Limited (1996-2003) in a range of senior roles.



Sharon Naismith

Leonard P Ullman
Chair in Psychology,
School of Psychology,
University of Sydney

Profile/background

Professor Naismith is the Leonard P Ullman Chair in Psychology, based at the Charles Perkins Institute. She is an NHMRC Dementia Leadership Fellow and Clinical Neuropsychologist who Heads the Healthy Brain Ageing Program, with clinics at the Brain & Mind Centre.

Professor Naismith is a Chief Investigator on grants totalling over \$10 million. She holds two NHMRC project grants, and is an investigator on two NHMRC Centre of Research Excellence grants in the areas of sleep and depression. She receives funding from the NHMRC, Michael J Fox Foundation, ARC, as well as from Alzheimer's Australia, ANZ Trustees and Parkinson's NSW.

She has published over 200 papers in peer-reviewed scientific journals, as well as a range of book chapters and consumer resources. Her work spans the areas of biomarkers, interventions and clinical trials and is readily translatable. She speaks regularly to media and consumer audiences on the topics of healthy brain ageing.

Professor Naismith's research examines mediators of cognitive decline in older adults 'at risk' of dementia. She has a strong track record in the areas of cognitive training, depression, cardiovascular disease and sleep-wake disturbance and how these factors relate to impaired cognition and brain degeneration. More recently her work has focussed on the role of oxidative stress in brain health, and how antioxidants can be altered by nutrition and exercise.



Tara Sklar

Co-Director of Ageing Programs & Research
Fellow in Health Law,
University of Melbourne

Profile/background

Tara Sklar is a fellow with the Law and Public Health Group at the University of Melbourne. Prior to this she served as the inaugural Director of Ageing Programs and established the first multidisciplinary online Master of Ageing degree, which bridges eight schools from public health to economics, design, and engineering across the University of Melbourne. She also served as the Director of Access and Community Health for Carondelet Health Network in the southwest United States where she worked on community collaborations with health care providers, social service agencies, and faith based organisations to provide healthy ageing programs and services. She graduated magna cum laude from Tulane University and has a dual degree Juris Doctor/Master of Public Health from the University of Houston and the University of Texas. Her research and teaching interests include Health Law and Policy, Ageing Public Policy and Leadership in Health Care.



Matt Walsh

Australian Unity Chief
Executive Officer – Retail

Profile/background

Mr Walsh was appointed as Chief Executive Office to Australian Unity's the newly created – Retail business in November 2017. The Retail platform brings together private health insurance, banking, and general insurance and broking. Mr Walsh was previously General Manager – Life and Super, where he had commercial responsibility for Australian Unity's investment bond, superannuation and separately managed accounts businesses. Mr Walsh has also worked with PwC both in Australia and the US developing global strategic methodologies. He is Chair of the International Centre for Financial Services at University of Adelaide and Chair of finance industry body, FSA.



Dr. Jonathan Steel

MBChB MRCGP FRCP
Senior Clinical Associate,
PwC UK

In addition, the following individuals were interviewed during the development of this report:

Profile/background

Jonathan has been a GP partner for the past 26 years. He has 10 years' experience at PwC with specific interest in clinical design and leadership of whole system transformation programmes across health and social care. He leads our Clinical Panel with over 60 clinicians from a range of backgrounds.

As the Chairman of the GP committee at the Royal College of Physicians in London he led the joint UK college's "Teams Without Walls" work which laid the foundation for integrating primary and secondary care. He also served as an elected District Councillor and has provided clinical advice for health policy development at Westminster for over 10 years, currently sitting on the NHS national stakeholder forum which advises ministers on all aspects of health and care policy coherence.

Jonathan was one of the authors of the global thought leadership report around better care for the elderly: www.pwc.com/gx/en/healthcare/pdf/pwc-elderly-care-report.pdf

Appendix E

Project team



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