



THE MCKELL INSTITUTE

Keep NSW in a Healthy State

INVESTING *for* A HEALTHY FUTURE

MAY 2018

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EXECUTIVE SUMMARY

Healthcare matters. It matters for us as individuals, for our communities and for governments. Health is a primary determinant of our quality of life and for advancing human development. Good healthcare is consistently rated as a top priority by the Australian people in surveys of voting intentions. Over the past fifty years healthcare has become increasingly important to global economies, including in NSW, where it is now one of the state's biggest industries in terms of spending and employment, and set to grow further.

The growing social and economic importance of health means that financing healthcare also matters. In 2017-18, the NSW Government proposes to spend some \$23.4B on health services and to employ over 121,000 full-time equivalent (FTE) staff, including over 84,000 clinical staff. Over the coming decades, this commitment is set to increase substantially in both absolute and relative terms at least until the middle of the 21st century, with an increasing demand for more services, staff, facilities — and funds. The NSW Government's 2016 Intergenerational Report has projected that if current trends and policies continue, then by 2055-56, NSW government expenditure on healthcare will increase from 3.7% to 5.8% of NSW GSP (Gross State Product) and from 29% to 36% of the total NSW government expenditure on services.

This report reviews the key drivers of the increased need and demand for healthcare expenditure in NSW and identifies the broad dimensions of the investment that current and future NSW governments will need to make to meet those needs.

Healthcare financing is often framed as a demographic challenge. Older people are more intensive users of healthcare, making population ageing a potential contributor to rising costs. If demography were the main driver of health expenditures, we might be concerned. It could suggest that policy settings designed for a younger population are proving unaffordable for an older population. Fortunately, that is not the case. While population ageing will have an impact until mid-century, research consistently shows it is not the primary driver of the growth in health expenditure.

The primary driver of health expenditure, both in Australia and internationally, is economic development. This is unsurprising. Citizens value



health. Health is a 'normal good', in the language of economists. As our incomes rise, so we demand more and better services from our health system, both as individuals and as a society.

Internationally, rising health spending is directly linked to rising GDP per capita and rising life expectancy. Prioritising health spending provides a crucial link between our growing means and the real outcomes we value — longer, healthier lives.

Technological change is also significant in driving health expenditure, with constant advances in both diagnosis and treatment. New interventions offer patients measurable gains, but require funding. Some significantly reduce the unit cost of a service, but generate huge increases in volume, driving total expenditure up. At the same time, the various drivers are not independent of each other, with much technological change targeting chronic conditions typical of more affluent, older societies.

The economics of healthcare is thus twenty-first century economics. Health is at the cutting edge of consumer-driven economies, technology and an emerging jobs boom. Good healthcare depends most fundamentally on the people providing it, and substantially more staff will be needed with a wider range of skills and the time to exercise professional judgement. As with most human services, albeit unlike many sectors in the wider economy, the labour-intensive nature of health and the unique interpersonal quality of care labour makes it more difficult to lower costs without reducing the quality of care. This positions health as a key driver of employment as automation reduces employment elsewhere.

Health employment is a great opportunity for NSW. Unlike other industries, health jobs follow need and are naturally decentralised. Supporting healthcare

provision is a key driver of regional employment and development. This report shows that by 2030 the health sector can directly generate 40,000 new full-time jobs, and indirectly generate many more, all over NSW. For a state dominated by a global metropolis, healthcare presents a unique opportunity to help rebalance the NSW economy and take pressure off Sydney.

The major challenge facing the funding and delivery of healthcare does not come from population ageing, but from a range of political factors, including ideological constraints on government action and institutional challenges to coordination. Healthcare works best when it is universal. Where access to health is incomplete, as in the United States, spending can rise while health outcomes lag. Australians are proud of our universal health system, yet out-of-pocket costs in Australia are amongst the highest in the OECD. Attempts to further shift the cost of health from governments onto patients risk undermining access and threatening health outcomes.

The public sector can ensure equity in funding, necessary workforce planning and retention, and a provider of last resort. In practice, however, the funding and delivery of healthcare is complicated by Commonwealth-State relations and the division of responsibilities.

This creates a challenge for government. Australians value healthcare. A growing economy means investment in health can be afforded. Rising standards of healthcare and rising health outcomes lie at the heart of rising standards of living. Achieving the best healthcare, however, requires commitment from government. If governments do not meet that responsibility, living standards will suffer.

KEY FINDINGS & RECOMMENDATIONS

In this report, trends in health spending and outcomes are examined, focusing on change until 2030, but also noting the likely effects until 2055. Three key scenarios are explored representing an increasing level of commitment to good healthcare. Just to keep pace with current trends NSW needs to commit to an annual health budget of at least \$37.6 billion (2017 prices) by 2030. With further investment NSW can be a world leader.

The good news is action is possible. Taxes in Australia are low by the standard of other rich democracies. *Public* spending on healthcare as a proportion of the GDP in Australia is in the bottom half of the OECD, below Italy, the UK, Canada and even the USA. Overall the system is relatively efficient, producing good outcomes at an affordable cost. Ensuring the system is adequately and appropriately funded promises real returns, not only in terms of jobs, but in the form of longer, healthier lives for all Australians.

In order to most effectively address the challenges and take advantage of the opportunities arising from the increased demand for more and better healthcare services in NSW over the coming decades, there are a number of key threshold decisions that need to be made by current and future NSW and Commonwealth governments. In particular:

- 1** The NSW Government should commit to providing the funding and other resources at least at the levels indicated by its own projections on the basis of current trends and policies. This involves committing to a real increase in expenditure of at least \$14.3B (2017 prices) and an additional 40,000 FTE positions by 2030.
- 2** The NSW Government should also identify where current services can be enhanced such that NSW is able to move towards a healthcare system that is international best practice across the board by 2030.
- 3** The NSW Government should make increased health spending the foundation of a regional employment and development package to support equitable and balanced growth across NSW.
- 4** In developing the basis for funding the future growth of the NSW healthcare system, the NSW and Commonwealth Governments need to
 - (a) ensure that the state's ability to convert the potential tax base into public revenues remains resilient by ensuring revenue measures (both at state and federal levels) are responsive to changes in the economic environment over time; and
 - b) commit to ensure additional funding for healthcare is equitably raised based on people's ability to pay and not through increases in user charges.





PART ONE:

THE STATE OF HEALTHCARE IN NSW TODAY

Australia has a complex system for funding healthcare. Responsibilities remain divided between Commonwealth and State governments, between public and private insurance, and between insurance and out-of-pocket costs to cover co-payments by service users. While Australians are rightly proud of Medicare, our national system of public insurance, Medicare is only one part of a complex picture. In particular, State governments play a central role in healthcare, particularly acute care in public hospitals. This report focuses on the expenditure on healthcare by the NSW Government, and the pressures and opportunities it faces in coming years.¹

The NSW Government estimates that its total expenditure on health in 2017-18 will be \$23.4B. The bulk of this planned expenditure, \$21.65B (93%) is for recurrent spending, with \$1.7B for capital expenditure (see Table 1.1). The expenditure will support a workforce of over 121,000 full-time equivalent (FTE) staff, the operation of 228 hospitals, and a range of services in the community. Most of the spending will be for acute health services which accounts for an estimated recurrent expenditure of \$15.27B (71% of total recurrent expenditure), capital expenditure of \$1.18B (70% of total capital expenditure), and FTE employment of 82,741 (68% of total employment).

A more detailed breakdown of NSW Health expenditure and employment is in Appendix A, which shows expenditure by type of service (Table 1.1), workforce numbers by type of service (Table 1.2), expenditure on employee-related expenses (Table 1.3), capital expenditure (Table 1.4), and workforce by type of staff (Table 1.5).

Health spending and employment are growing

Over the past decade NSW Government recurrent spending on healthcare has grown from \$13.12B in 2007-08 to the planned \$21.65B in 2017-18, an increase of 65.1% (not adjusted for inflation) over the decade. Over the same period, the NSW Health workforce has grown from 94,157 FTE in 2007-08 to the planned 121,054 FTE staff in 2017-18, an increase of 29%. According to the NSW Government, the 2017-18 estimates represent an increase of \$1B and 4500 frontline staff compared to 2016-17.

Health will also be increasingly important to the NSW economy. The NSW Government's 2016 Intergenerational Report has projected that if current trends and policies continue, then by 2055-56, NSW government expenditure on healthcare will have increased from 3.7% to 5.8% of NSW GSP (Gross State Product, the state equivalent of GDP) and from 29% to 36% of the total NSW government expenditure on services.²

The complexity of health funding

The State government funding is only part of the current picture for healthcare in NSW. The Commonwealth has direct responsibility for the costs of medical services funded through Medicare, such as when patients visit a GP, and for subsidising the availability of pharmaceuticals. State government spending is also very dependent on the Commonwealth, through Commonwealth-State health financing agreements. Australia's federation is characterised by significant vertical fiscal imbalance — the technical term for a situation where the Commonwealth controls the majority of tax revenues, but the states are responsible for much of the spending on services such as health and education. The states thus receive substantial financial transfers from the Commonwealth, currently mainly via GST transfers and Special Purpose Payments for health and other services.³ The healthcare services provided by the NSW Government would be unsustainable at their current level and standard without this Commonwealth funding.

This makes cooperation between the two levels of governments especially important.

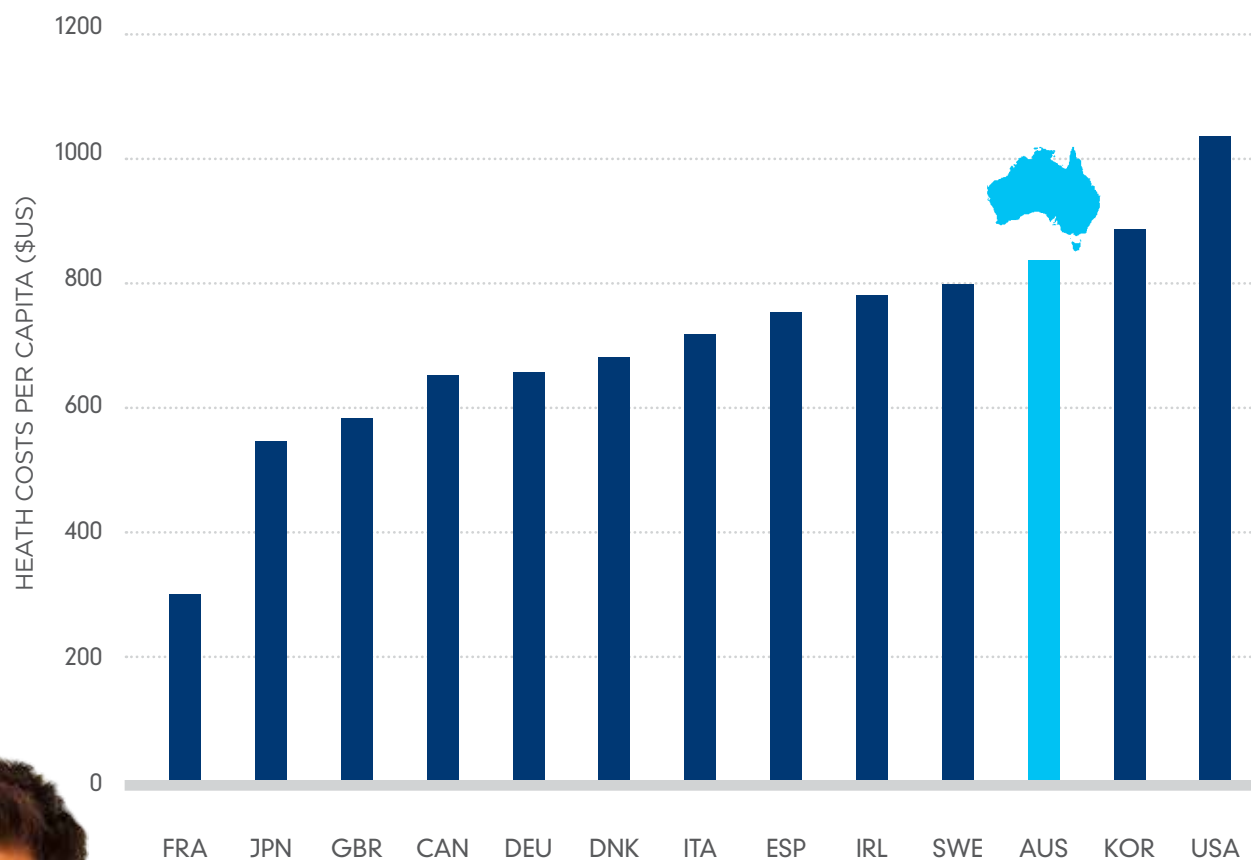
Governments are not the only source of funding for our health system. Australia has an unusually large private health insurance sector overlapping Medicare. Private health insurance is itself dependent on public funding, through the private health insurance rebate, while service users, even those with private insurance, continue to pay substantial out-of-pocket costs, as highlighted by a recent survey by the Consumer Health Forum (2018).

As Figure 1.1 shows, Australians face some of the highest proportionate out-of-pocket costs in the developed world. The complex interaction of private and public financing and the strong reliance we continue to have on individuals paying for their own healthcare makes coordination and cost containment challenging. Moreover, this has important implications for future funding mechanisms in that it would be undesirable to further increase the already relatively high insurance and out-of-pocket contributions now being made by service users.



FIGURE 1.1

Out-of-pocket health costs per capita (\$US) for selected OECD countries, 2014⁴



Source: OECD 2017



PART TWO:

THE DRIVERS OF FUTURE FUNDING FOR HEALTHCARE

This section examines the environment for the future funding of healthcare, in terms of both the significant and growing social and economic importance of healthcare, and the major drivers of the future growth of expenditure on healthcare.

The importance of healthcare and healthcare funding

Healthcare increasingly matters in the modern world, for individuals, for governments, and for the broader society. It is a primary determinant of the quality of life and future personal development. Healthcare is a growing component of the economy, both in terms of spending and employment. It is consistently rated as a top priority by the Australian people in surveys of voting intentions.⁵ This means the *funding* of healthcare also increasingly matters.

The NSW Government will have to dedicate increasing levels of funding to healthcare to meet the public demand and to keep pace with national and international standards. By 2030 NSW public health spending will need to be at least \$37.6B per annum (in real terms, compared to \$23.4B in 2017-18) to begin to meet these expectations.

Importantly, health expenditure has broader implications beyond its role in improving the health of the state and nation, with the health sector becoming more and more important to the wider economy. This is reflected in healthcare spending as an increasing proportion of GDP, as the major driver of increases in government expenditure in Australia, and as the major source of new employment in the NSW and Australian economies.⁶ The Health and Social Assistance Services industry is now the largest employing industry in regional NSW, accounting for one in seven workers.⁷ In turn, the economic importance of healthcare presents significant opportunities for utilising it to support wider economic and employment goals, especially in relation to regional development as discussed later in the report.





The major drivers of increasing healthcare expenditure

A key focus of this report is to examine the dynamics behind rising health spending in NSW. Much of the public debate over health funding has focused on the impacts of demography, particularly the effects of population ageing. The main government reports examining future health spending at both state and national level are titled 'Intergenerational Reports', suggesting that the primary drivers of health spending are related to generational effects. In this report, the difference between demographic and non-demographic factors are explored in terms of how and to what extent they each drive increased health expenditure, particularly between population ageing on the one hand and technology and economic development on the other. This is difficult in practice and, as with all long-term projections, only qualified estimates can be made of the amounts involved.

The demand for funds required from the NSW government for health services will continue to increase substantially over the coming years until at least the middle of the 21st century. The need for increased funding for healthcare in the future is set out in the NSW Government's 2016 *Intergenerational Report*, indicating an understanding and acceptance by the current government of this imperative. At issue, however, is the *extent* to which current and future governments will fund the services required by the citizens of NSW and *how* they will fund the increases.

The increased demand for funds will be a result of demographic and non-demographic factors.

The most important demographic factors will be:

- a) growth in the total population of NSW; and
- b) the ageing of the population.

These developments will require more money to be provided to simply *maintain* the current level (quantity) and standards (quality) of services. Maintenance does not include adopting new treatments or technologies and so is unlikely to

meet community expectations. To keep pace with medical innovation and international standards of care will require additional investment.

Alongside the demographic factors there will be a range of other factors creating pressures to improve the level and standard of services. The major such pressures are expected to come from:

- c) the impact of future economic development; as incomes rise, the demand for healthcare will also rise, leading to increased healthcare spending per person; and
- d) technological improvements to the quantity and quality of inputs to healthcare, especially through innovations that create new approaches to diagnosis and treatment (e.g. in equipment and pharmaceuticals), and through improvements in the skills and working environment of the healthcare workforce.

In the remainder of this section, the four major drivers are closely examined in order to identify (i) the main factors behind each driver (ii) a set of robust assumptions regarding likely future change in these factors, and (iii) the potential for future volatility in regard to these assumptions. The relative significance of the various drivers in influencing the growth of expenditure on healthcare is then examined.

The demographic changes

GROWTH IN THE TOTAL POPULATION

The NSW Intergenerational Report (NSW IG) estimates the NSW population will grow on average by 1% per annum over the next 40 years. The 2016 NSW population of 7.6M is expected to rise to 11.2M by 2056,⁸ an increase of 47%. By 2030, the population is estimated to grow to nearly 9M an increase of 16% since 2016.⁹

The growth in the population will be driven primarily by changes in the birth rate (fertility), life expectancy, and migration (both internal and external). The NSW IG Report estimates are based on projections of these factors as follows:¹⁰

- The fertility rate in NSW is projected to increase from 1.85 in 2015 to 1.95 in 2056. (The replacement rate for the NSW population is currently 2.1). This compares with the fertility rate of 3.5 at the height of the post-war baby boom in the early 1960s, and 2.04 in 1976.
- Life expectancy is projected to increase from 80.8 for men and 85.0 for women for a child born in 2014, to 88.6 for men and 91.4 for women for a child born in 2056. This compares with 55.9 for men and 59.0 for women for a child born in the early twentieth century.
- Migration is the factor that is most volatile and most subject to government policy. The NSW IG projects an increase of 41,000 people pa in NSW up to 2055, based on a gain from net overseas migration (NOM) of 60,000 pa, offset by a loss of 19,000 p.a from net interstate migration (NIM) through people moving to other states. These projections assume that Sydney will remain a significant destination for international migrants, but that there will be substantial internal migration flows from NSW to other states, and from Sydney to regional NSW.

It is also important to note that while a rising population will mean increased costs for government for health and other services, it also generates increased economic activity and tax revenues. For these reasons, the primary focus needs to be on spending *per person*.

AN AGEING POPULATION

The ageing of the population is a well-documented international trend. It is a direct result of economic and social development, medical and technological advances, the varying patterns of fertility and migrations in different periods since WW2, and continuously increasing life expectancy. As incomes have increased and living standards have risen, individuals have also been able to live longer and fertility rates have fallen over the last half-century. Initially population ageing was associated with rising numbers of adults compared to children; more recently, as the baby boomers age, it is associated with rising numbers of older people. The NSW IG expects population ageing to continue until mid-century, especially over the next decade, or so, driven in part by the effect of the large baby boomer cohort.

The extent of the ageing of the population is shown in Table 2.1

FIGURE 2.1

The ageing population — Key measures, NSW Intergenerational Report¹¹

	1976	2016	2056 (est)
Median Age (y.o.)	29	37	41
Proportion over 65 (%)	9.1	15.6	24.2
Proportion over 75 (%)	3.3	7.0	14.0

Source: NSW Intergenerational Report



The ageing of the population is often cited as the key driver of health expenditure (and indeed of total government expenditure) in advanced market economies like Australia. However, research and analysis internationally has consistently identified other drivers as more important. For example, the NSW IG Report estimates that:

"Population ageing drives around 10% of health expense growth ... [and is] expected to increase health expense growth by an average of 0.6 percentage points per annum over the next 40 years." (NSW IG 2016, p.48).

As noted below, this figure somewhat understates the ageing impact, as it is based on nominal funding increases. However, even focusing on the more appropriate measure of the growth in real spending per person, population ageing still only accounts for a minority, around a quarter, of spending growth.¹²

REGIONAL DIFFERENCES IN POPULATION

The growth and ageing of the population will have different effects in different parts of NSW, given differences between areas in the current age structure and projections for the rates of population growth. Ageing is especially pronounced in the regions even though the fertility rate is high in some areas. Importantly, differences exist both between Sydney and non-metropolitan areas as a whole; and between regions. Much of the migration to and between regional centres is by longer-term NSW residents. Hence it is likely that differences in the population levels and growth rates between regions and internal migration within the state will not substantially affect the aggregate funds required. However, it is likely to affect the distribution of the effects of population changes between areas, a fact that presents challenges for planning, but also presents opportunities to promote economic and employment development in the regions.

Health expenditure and per capita income grow together

The evidence from Australia and internationally is that there is a strong positive correlation between per capita income and expenditure on health care. This is a function of the fact that, in economic terms, health is a 'normal' good (i.e. the demand for it rises as income rises). In addition, economic development facilitates research into new treatments and technologies, and allows more people to access increasingly rising standards of healthcare over time. Recent analysis confirms this for Australian health spending.¹³ For example, the Productivity Commission (2013 p 128) cites a study that contains the following example of a 460% increase in real per capita health expenditure over a 40 year period.

"In the United States (almost certainly relevant to Australia), an infant born in 1950 could expect to spend around \$8,000 on medical care over their lifetime (in [constant] 1990 dollars), while the comparable amount in 1990 was a round \$45,000,"

Most developed economies have seen health expenditure grow faster than the economy as a whole, and public spending on healthcare rise as a proportion of all government spending. These trends are set to continue. The NSW IG projects that over the next 40 years, GSP (Gross State Product, the state equivalent of GDP) will increase on average by 2.3% pa, while government services expenditure will increase by 5.3% p.a. and, within that, health expenditure will grow by 6.0% p.a.

The use of technology is increasing

Broadly defined, ‘technology’ is the means by which a good or service is produced, distributed, and consumed, including both human and non-human factors. Under this definition, technology would include the ways in which workers are organised and utilised in producing a service, or even preventative strategies targeting risky health behaviour. However, commonly the term is used (including in much of the literature relevant to this report) to refer to non-human elements of the production and distribution processes. Within this definition, technology in healthcare includes capital facilities, equipment, and pharmaceuticals. That is how it is used in this report.

Continuing advances in medical science and technology are transforming many areas of healthcare. They have enabled healthcare professionals to have access to more and better medical information about their patients; to make earlier, more accurate, and less costly diagnoses; and to provide treatments that are safer, higher quality and more accessible for patients.

The impact of technology on health expenditure is complex. On the one hand, it can substantially reduce the unit cost of diagnosing or treating a condition, but such reductions can generate huge increase in demand for, and usage of, the new technique, leading to overall higher costs. Some new technology reduces the use of labour, while other developments increase the skill level required of staff. At the same time, some new technologies involving complex state-of-the-art equipment are currently very expensive, but are being used extensively and have become the norm because they produce better health outcomes. These various processes are “why we can expect health costs to continue to outpace economic growth” according to the NSW IG Report.

Technology also highlights the interconnections of the various drivers of rising health expenditure. Much of the new technology is directed to interventions for older people and others with chronic conditions, driven by both the rapidly growing aggregate medical needs of these groups and the commercial possibilities of

tapping into a large (and relatively wealthy) consumer group. Moreover, the focus of pharmaceutical companies has been on developing long-term *treatments* of chronic conditions that will require regular purchases of drugs, rather than *preventative* measures that would mean much lower future sales.

HOW LARGE IS THE EFFECT OF NEW TECHNOLOGY ON TOTAL HEALTH EXPENDITURE?

The model used by the NSW IG Report estimates that health technologies add 0.4 percentage points per annum a year to the growth of health expenditure. Other research using a series of scenarios and assumptions, found the “technology effects for Australia ...rang[ed] from 0.15 to 0.56”, noting that this was similar to findings in US studies.¹⁴

The pace and extent of the introduction of new technology is most fundamentally driven by the research, business, and policy environment for invention and innovation. Research has powerfully demonstrated the central role of government-funded and conducted research in the innovation process, including in the critical early development of some of today’s major technology private companies. In recent years, intellectual property arrangements and an increased individualisation of liability have played significant roles in increasing the use and cost of technology in healthcare.

Given that health technology is a global industry, where NSW is a relatively minor player, this report’s focus is on the utilisation of technology rather than its development. Here, rules around intellectual property, and the capacity for governments to access new technologies at reasonable prices remain important.

One aspect of technology that is driving increased health expenditure worldwide is the cost of pharmaceuticals – and underpinning that, the intellectual property arrangements that are now in place. Internationally a system of intellectual property law allows drug companies to charge higher prices by granting limited monopoly rights. This allows companies to recoup the costs of developing new treatments,

but also substantially increases the price of those treatments. Because intellectual property laws deliberately depart from normal market competition, it is difficult to determine if the additional rights granted to companies are 'efficient' in the sense that they result in the lowest cost development and availability of new drugs. Intellectual property law is not static, and is often the subject of negotiations in international trade agreements that seek to extend the rights of corporations. Likewise, these agreements can require changes to public procurement that weaken cost-containment and give corporations substantial rights to sue governments taking measures in the public interest if those measures could reduce the corporation's profits.

Rising health spending also reflects the different structure and cost-pressures in healthcare. Rising spending is partly a function of labour costs, flowing from the inherent limits on increasing productivity in human services given that 'for all practical purposes the labor is itself the end product' (Baumol 1967, p.416). In general, automation drives down costs (and employment) in other sectors, causing service sector employment to proportionally rise. However, cost pressures can also build in those areas of healthcare that are easily automated because utilisation costs do not directly reflect production costs. This is particularly the case in pharmaceuticals, where intellectual property law is an important cost driver, as noted above.

The determinants of health costs compared

Much of the debate over health financing frames this spending as a problem and as potentially unaffordable as our population ages. Indeed, the impact of demography on public spending could potentially be of concern to governments. Older people are more intensive users of healthcare, making population ageing a partial contributor to rising costs. If population ageing was the only or major driver of rising spending it could be argued that policy settings created intergenerational inequalities. Policies initially established to support a relatively young population might prove unaffordable for a relatively older population.

Fortunately, that is not the case. Research consistently shows demography is not the primary driver of health expenditure.





This report challenges the common presumption that the prime driver of rising health costs is population ageing. It also challenges the presumption that the growing demand for healthcare is unaffordable. Instead, it suggests that the increased demand is simply one inevitable outcome of economic growth, and that our biggest challenge is ensuring our health system keeps pace with community needs and expectations, and does so in a fair and efficient manner.

AN AGEING POPULATION IS NOT THE MAJOR DRIVER OF INCREASED DEMAND FOR HEALTHCARE

The ageing of the population will continue until the middle of the century, especially over the next decade, or so, but then at a slower rate of growth.¹⁵ However, the ageing of the population and the other demographic pressures will not be the major driver of greater demand for healthcare in the future. Evidence from Australia and internationally shows that, contrary to the main themes of public and media discussion of future health spending, it is the *non-demographic* factors that have been, and will continue to be, most significant in driving increased expenditure on health. As the national 2015 Intergenerational Report (Australian Treasury 2015, p.61) stated:

Non-demographic factors are expected to be the largest contributor to growth in real per person health spending. Non-demographic factors on their own (in the absence of the effects of an ageing population) account for around 80 per cent of the projected increase in real expenditure per person.

As stated earlier, the NSW IG report has a similar conclusion. These findings of the intergenerational reports are reflected in the broader literature, both in Australia and internationally. You & Okinade (2017 p.85)

conclude from their study of 40 years of Australian data that “much of the growth in health expenditure can be attributed to non-demographic factors.”

A major study of the international literature on age, mortality, morbidity, and health expectations has found that:¹⁶

“Even as the proportion of the elderly population rises, it may not be decisive in determining how health care expenditures change... [and that there are] ... factors potentially more important than age in contributing to future health expenditures”

The report examines the relative influence of different drivers on rising health expenditure, drawing on the NSW IG Report, ABS data, and a range of other sources. This shows that population ageing is a relatively modest contributor to the total rise in public spending, both in nominal terms (not adjusting for inflation) and when the real increase in resources dedicated to health is considered.

A more appropriate measure for this report's purpose is the increase in real health spending per person. Even on this basis, population ageing only contributes about a quarter of the growth in spending.

By itself, the fact that people want more health services is not a sufficient reason for government to pay for them. However, the international evidence clearly points to numerous market failures in healthcare, such that funding health through public spending is often more efficient and more effective in terms of health outcomes and the use of public funds, as well as having a range of equity and other public interest benefits. In particular, research suggests that organising health funding through a single payer system reduces cost pressures, while universal access to health services can ensure health spending translates into better health outcomes.¹⁷





PART THREE: IDENTIFYING THE LEVEL OF FUNDING REQUIRED

Making projections about the future is a fraught exercise. Such estimations suffer from two types of problems. First, projections are generally based on assumptions that extrapolate current trends and policies. If these trends and policies change — as they inevitably will over a number of decades — the compound effect over time can be significant, making projections less likely to reflect the future reality. Second, projections compress time, often identifying large changes that actually evolve over long periods. Presenting those changes can lead to a sense of crisis, even though in reality the change will commonly be experienced as a series of modest and incremental adjustments.

Notwithstanding these limitations, longer-term projections of future needs and costs are an essential element of planning the future delivery of healthcare. They can help us to think about our changing needs and resources and to identify issues and problems that may emerge, and thus help us plan for the future we want.

Determining the amount of funding required by the NSW Government in future years depends on (a) the methodology used to estimate and project future demand and costs, and (b) the goals set by current and future governments for the standard of healthcare within NSW. This section sets out the methodology used in this report; the next section considers the possible goals that governments may set.

The major role of this study is to draw together available evidence about the likely future health expenditure by the NSW government, and to identify the avenues for future research. It has not involved collecting new primary research data, although the report has drawn some new conclusions from the existing data. However, it is important at the outset to identify the major methods by which research on this subject can be conducted, so as to show the basis of the findings of the work on which the report has been based on. Hence, this section contains a brief discussion of the broad lines of the appropriate methodologies, as well as a number of relevant earlier studies.

Broad methodologies

PROJECTING FUTURE DEMAND

The standard approach used by researchers to project future health expenditure is based on

- Firstly, identifying the key demographic and non-demographic factors that drive the demand for health;
- Secondly, establishing a model, based on empirical data and various assumptions, that seeks to explain the nature and extent of the key factors (e.g. future fertility, life expectancy, and migration levels will most likely be the major drivers of population growth and ageing) and the multiple interactions of these key factors; and
- Thirdly, determining quantitative estimates for the various elements of the model, based on past trends and current knowledge of likely future developments.

Figure 3.1 shows the typical form of the models used in such studies. This study has followed this broad approach

FIGURE 3.1

Core model for recurrent expenditure projections

$$E_n = E_o + f [(P, A, OD), (I, T, OF)]$$

WHERE

E_n = Expenditure in Year n (\$B)

E_o = Expenditure in Year 0 (i.e. now) (\$B)

DEMOGRAPHIC FACTORS

P = Growth in total population (% growth p.a.)

A = Ageing effect (% p.a. effect on expenditure)

OD = Other demographic (e.g. regional population changes)

NON-DEMOGRAPHIC FACTORS

I = Income growth per capita (% p.a.)

T = Technology effect HEXP (% p.a. impact on expenditure)

OF = Other factors

Note: Other Factors (OF) is the residual effect unexplained by the five other factors. In practice in many models (including the NSW IG model), T is included within OF because of the difficulty of estimating T separately.

PROJECTING FUTURE SUPPLY NEEDS

A major part of the expenditure on health is for the people who provide and support the services. Research¹⁸ notes that in general, 60-70% of healthcare costs 'are devoted to human resources.' Thus an important part of any study of future health needs and costs revolves around projections of the future numbers and costs of staff. There are a wide range of approaches used to make such projections.

Ansch et al (2018) provide an overview of the major international approaches to estimating the future healthcare workforce. In summary, they identify four alternative *frameworks* that are followed, based on user needs, current utilisation of services, workforce-to-population ratios, or service targets. Within those frameworks, they note that there are five major *analytical methods* that are commonly applied, namely system dynamics, linear programming, data-driven forecasting, micro-simulation and econometrics. In practice, individual research studies tend to use various combinations of these frameworks and analytical methods.¹⁹

This report presents a projection of the future staffing levels required in NSW Health. Given the constraints on this study, the calculations have simply extrapolated the actual annual rate of growth of NSW Health staff in recent years into the future.

PREVIOUS RELEVANT STUDIES

The primary sources for much of the data in this study are government documents, notably NSW Treasury's *NSW Intergenerational Report* (2016), the NSW Health 2016-17 Annual Report, the NSW Government's 2017-18 Budget papers, and ABS publications concerning the Census and population projections.

NSW INTERGENERATIONAL REPORT (2016)

There is relatively little publicly available work that is directly focused on projecting health costs in NSW. The obvious starting point is the NSW Intergenerational Report (2016) which looks out over the next four decades (to 2055-56). That report provides some key data and projections as well as being a valuable indication of the government's current perspective on the issue, and will be drawn on through this document. It follows the broad methodology outlined above in projecting the future demand for NSW Health services and expenditure, and produces some high-level estimates of the trends impacting this expenditure over the coming decades to 2055, on the basis of current policy, a continuation of likely future trends, and current prices (unadjusted for inflation). The full methodology of the NSW IG model is not publicly available, although the Report and a Technical Note (NSW Treasury, 2016b) partly explain the model.

The NSW IG Report concludes that:

- Health expenditure is likely to grow by (a) an average of 6.3% p.a. for the next decade, and (b) by an average of 6.0% p.a. over the 40 years to 2055-56.²⁰
- The growth in health spending will be the major single driver of future increases in the total NSW Government expenditure on services, with the proportion of the health budget rising from 29% of the total cost of these services in 2014-15 to 36% in 2055-56.
- The structural shift in the NSW economy associated with the rise of a service economy, and of healthcare in particular, is likely to see NSW Government expenditure rise as a proportion of NSW Gross State Product (GSP).
- Over the period to 2055-56, the state's own tax base will grow more rapidly than will overall government spending on services (5.4% compared to 5.3%), and that state taxes will become more important to state revenue (rising from 38% to 48% of total revenue).

However, the IG Report also makes assumptions that over the next four decades, the ageing population will reduce revenue and Commonwealth payments will be lower and more volatile, leading to its conclusions that:

- total state revenue will only increase by 4.7% over the period; and
- to ensure that government services are financed adequately in 2055-56, state government revenues would need to increase by 3.4% of GSP above what current policy will produce (i.e. a 'fiscal gap'); and that 2.2% of this 'fiscal gap' results from higher health expenditure.

While the IG Report focuses on the need for tight spending constraints in future years, the more rapid expansion of the tax base than actual tax revenues suggests the key challenge for government is to ensure that its revenue measures effectively adjust to the changing economic environment.

OTHER STUDIES

The federal Intergenerational Reports do not include detailed consideration of state health finances, although those reports do give some insight into the likely drivers and levels of future expenditure through their consideration of Commonwealth-State financing arrangements, and national expenditure trends.

Work by the Grattan Institute (Daley et al 2014) and by You and Okinade (2017) examined recent trends in health financing nationally. We have considered their findings in assessing how robust the projection estimates are in the NSW IG Report.

In addition to the NSW IG Report this report directly examined quantitative and financial data from the Australian Institute of Health and Welfare, the Australian Bureau of Statistics (ABS), and State Government finance documents. These provide detailed breakdowns of current health spending over recent years and short run projections, along with health sector employment over a number of recent

years. We used recent changes in the health workforce as the basis for projecting future changes, an assumption we believe is likely to be conservative given the labour intensity of healthcare is likely to rise relative to the economy as a whole.

The ABS also provides very detailed population projections.²¹ ABS projections and AIWH breakdowns of health spending per person for different age cohorts were used to independently test population ageing effects. The findings were consistent with the proportions estimated from the deconstruction and projection of estimates in the NSW IG Report.

The approach used in this study

The approach has been to largely accept the NSW IG Report assumptions and conclusions as the basis for making estimates of projections for this report. The NSW IG Report follows standard and widely-used methodologies, and reflects access to detailed internal data not publicly available, while the model has also independently tested key assumptions using alternative datasets and drawn similar conclusions.

The starting point for the projections is the proposed expenditure for NSW Health for 2017-18 of \$23.4B, as set out in the Budget Papers. The key assumptions are then drawn upon as contained in the NSW IG Report.

Figure 3.2 shows the major assumptions of that report that are used. These are either taken directly from the NSW IG Report or derived from it.

FIGURE 3.2
Key assumptions and findings

Factor	Assumed % growth p.a.		
	2014/15 - 2024/25	2025/26 - 2055/56	2014/15 - 2055/56
Growth of total population	1.0	1.0	1.0
Ageing of the population	0.7	0.5	0.6
Sub-total demographic factors	1.7	1.5	1.6
GDP per capita	1.3	1.3	1.3
Other Factors (e.g. technology)	0.8	0.6	0.6
Inflation	2.5	2.5	2.5
Sub-total non-demographic factors	4.6	4.4	4.4
TOTAL	6.3	5.9	6.0

Source: Derived from the NSW Intergenerational Report

In line with standard methodology in similar studies, the Other Factors term (which in both the IG Report and here includes technology) is a residual of the unexplained increases in expenditure after taking into account demographic effects and increased GDP per capita.

This model contains some minor actual or possible variations from the approach used in the NSW IG report. These are technical issues and in part derive from the time since the IG Report was written. They have no substantive effect on the import of the results.²²

From Figure 3.2 it can be seen that

a) For 2017-18 to 2024-25, it is assumed that:

- ▶ the demographic factors together lead to a 1.7% p.a. growth in expenditure;
- ▶ the non-demographic factors together lead to a 4.6% p.a. growth in expenditure; and
- ▶ focusing only on the drivers of real increases in spending per person, population ageing accounts for 0.7% p.a. growth in expenditure compared to 2.1% p.a. growth from non-demographic factors.

b) For 2025-26 to 2055-56, it is assumed that:

- ▶ the demographic factors together lead to a 1.5% p.a. growth in expenditure;
- ▶ the non-demographic factors together lead to a 4.4% p.a. growth in expenditure; and
- ▶ focusing only on the drivers of real increases in spending per person, population ageing accounts for 0.5% p.a. growth in expenditure compared to 1.9% p.a. growth from non-demographic factors.

c) For 2017-2055, it is assumed that:

- ▶ the demographic factors together lead to a 1.6% p.a. growth in expenditure;
- ▶ the non-demographic factors together lead to a 4.4% p.a. growth in expenditure; and
- ▶ focusing only on real increases in spending per person, population ageing accounts for 0.6% p.a. growth in expenditure compared to 1.9% p.a. growth from non-demographic factors.

PART FOUR:

THE GOALS OF GOVERNMENT — FUTURE SCENARIOS

Determining the amount of public funding that will be required in NSW in future years depends substantially on the goals of current and future governments.

Broadly, for the purposes of this report, three possible benchmarks that a government can aim at have been identified, namely:

- *Case A:* Simply increasing funding in response to future demographic change, thus maintaining the current range, quality and per capita quantity of services, but with no improvements to services (e.g. from advances in medical technology or treatment) or any more services per person.
- *Case B:* Improving the range, quality and per capita quantity of services in response to new technology and growing community and user expectations and income, in order to ensure that NSW has an adequate level and standard of healthcare services in line with practice elsewhere.
- *Case C:* Improving services such that the NSW health system across the board is comparable to best practice in other Australian states and internationally.

Case B is broadly consistent with how health expenditures have been changing in recent years, and so might be considered the status quo that needs to be at least maintained. Case C represents a further level of aspiration for the healthcare system.

Given the limited goals of this report outlined earlier and the data currently available, the focus here is on Case A and Case B, for which projections for 2030 and 2055 have been developed in both current and constant prices. For Case C, some indicators of NSW's situation are presented, relative to other states and nations, and key considerations for future research on this topic are identified.

As noted earlier, the starting point for the projections is the proposed expenditure for NSW Health for 2017-18 of \$23.4B. The key assumptions contained in the NSW IG report are then applied for the items listed in Figure 3.2.





The results for Case A and Case B are as follows

Case A – Responding to demographic changes

For Case A, the effects of an increase based only on demographic changes — a higher population and the ageing of the population — are considered. It is important to emphasise that this case is of analytical and indicative significance only, rather than showing likely situations, since, as discussed above, a range of other, more powerful, forces will also be in play while these demographic changes are occurring. Nevertheless, they do give a benchmark as to the minimum amount by which healthcare spending would need to rise in future so as to give the same level and standard of care as currently.

In real terms (i.e. constant 2017 prices), this would mean:

- In 2029-30, total expenditure of \$29.0B, a growth of \$5.6B or 24% since 2016-17
- In 2055-56, total expenditure of \$53.6B, a growth of \$30.2B or 130% since 2016-17

In current or nominal terms (i.e. allowing for inflation), this would mean:

- In 2029-30, total expenditure of \$37.8B, a growth of \$14.5B or 62% since 2016-17
- In 2055-56, total expenditure of \$104.4B, a growth of \$81.1B or 347% since 2016-17

Case B – Responding to demographic and non-demographic changes

For Case B, the effects of an increase arising from both demographic and non-demographic factors are considered, adding economic development, rising demand and technological changes, to Case A. This provides a more realistic understanding of the pressures driving health expenditure in the coming years. These projections can be seen as reflecting realistic community and user expectations and changing technology, in line with the expected future drivers of health expenditure. As outlined above, the biggest drivers of

expenditure growth in this scenario are related to economic development from rising incomes, advancing technology and the macroeconomic shift towards a service economy.

In real terms (i.e. constant 2017 prices), this would mean:

- In 2029-30, total expenditure of \$37.6B, a growth of \$14.3B or 61% since 2017
- In 2055-56, total expenditure of \$131.3B, a growth of \$108.0B or 462% since 2017

In current or nominal terms (i.e. allowing for inflation), this would mean:

- In 2029-30, total expenditure of \$47.6B, a growth of \$24.3B or 104% since 2016-17
- In 2055-56, total expenditure of \$210.5B, a growth of \$187.1B or 801% since 2016-17

The scenarios in summary

Figure 4.1 summarises the current situation and the two growth scenarios above for the case of real growth by 2029-30 (2017 constant prices).



FIGURE 4.1
NSW Government health expenditure — 2017-18 (estimates) and 2029-30 (projections)

Case	Basis of Projections	Expenditure (\$B)	
		ADDITIONAL TO 2017-18	TOTAL
Current (2017-18)	NSW Government Budget papers	0	23.4
Case A (for 2030-31)	Responding to demographic changes only	6.4	29.7
Difference between Case A and Case B (for 2030-31)	Further effect from responding to the non-demographic effects	8.0	n/a
Case B (for 2030-31)	Total effect of responding to both demographic and non-demographic factors	14.3	37.6

Note that the above figures are broad projections, intended as indicative to facilitate discussion and as a guide to more precise research. At the same time, given current knowledge, the figures reflect a realistic assessment that is likely to be within the ballpark of future experience, and thus show the dimensions of the issues and challenges facing the NSW government and the health sector more broadly in coming decades.



Case C – Ensuring best practice

This section briefly considers the situation and performance of the public healthcare system in NSW in comparison with other jurisdictions, both within Australian and internationally.

There are a number of different types of indicators that can provide an insight into NSW's performance relative to elsewhere. These include indicators concerning:

- a) Health Expenditure — e.g. per capita; as a share of GSP/GDP; per capita adjusted to take account of differences between the needs and circumstances of jurisdictions (e.g. arising from population size and structure, socio-economic factors, geography, institutions, historical legacies, etc); and per capita expenditure on major key items (e.g. public hospitals, community health).
- b) Inputs to health care — e.g. types of various health professionals per capita; availability of various types of health services.
- c) Health outcomes — e.g. life expectancy; mortality; prevalence of particular conditions.

However, moving from presenting an array of indicators to making an assessment of the overall state of the NSW public health system is a complex task. This becomes even more so in seeking to make comparisons between systems, given the broader differences between the needs and circumstances of states and nations (see above), and the differences in health infrastructure, health conditions, and health needs.

A 'best practice' model (Case C) would seek to consistently achieve a high standard across all indicators relative to systems in other jurisdictions. As discussed below, this would see NSW maintain its performance in some areas and improve its performance in others.

However, making an assessment of NSW's relative standing lies outside the scope

of this report, as does quantifying the additional resources, both fiscal and to ensure a skilled workforce, required to ensure NSW is consistently achieving national and international best practice. Notwithstanding that, some indicators to guide future study of those matters are considered below.

AUSTRALIAN COMPARISONS

In Australia, the Grants Commission in effect makes a comparative assessment of the needs and performance of each state in determining the allocation of GST and other Commonwealth government revenue to the states. While its determinations are relevant to the concerns of this report, those determinations are based on a particular set of variables, most of which are not specifically about health, and also take into account the revenue-raising capacity of each state and territory.

In Australia, there are a number of regular studies that compare state health systems, notably the Annual Review of Government Services by the Productivity Commission (SGRGSP 2018) and studies by the Australian Institute of Health and Welfare (AIHW). These and other reports present a varied picture in relation to NSW. In some respects NSW performs well, in others it clearly lags. For example, NSW has the longest average waiting time for elective surgery (78 days compared to a national average of 54 days), but has a relatively high percentage of people with a treatment plan for a chronic condition.

A JOINT COMPARISON

A recent study of healthcare for people aged 65 and over provides a common basis for comparing NSW with Australia as a whole and with other nations. The Commonwealth Fund International Health Policy Survey of Older Adults (BCI 2018) surveyed 24,000 in Australia and ten other nations. The figures specifically for NSW are available for all questions in the survey.

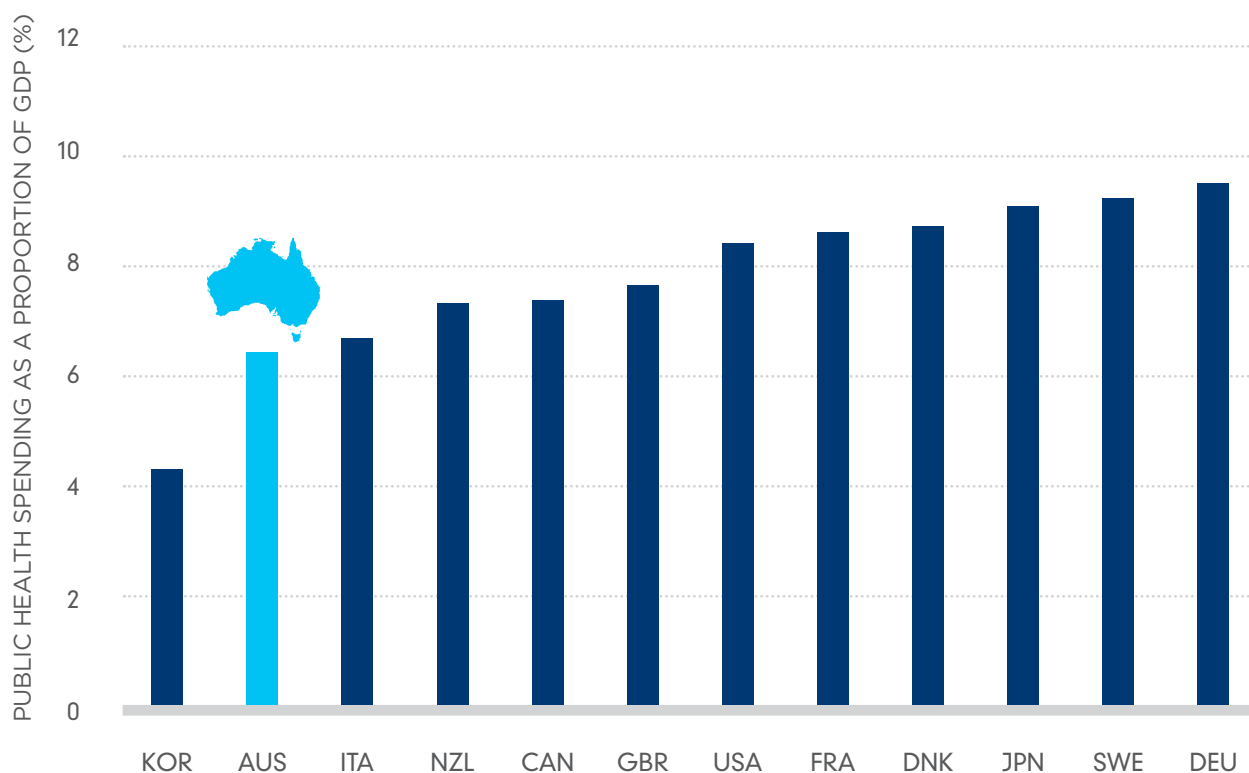
The results for NSW are mixed. Of the 51 aspects surveyed, NSW was the top performer on two measures and outperformed five or more countries on 20 other measures, but was outperformed by five or more countries on 15 questions. There were similarly mixed results in relation to NSW's performance in relation to Australia as a whole.

INTERNATIONAL COMPARISONS

One starting point for international comparisons is the per capita health expenditure and health expenditure as a percentage of GDP. As Figure 4.2 shows, Australian public health spending remains relatively modest by international standards.

FIGURE 4.2

Public health spending as a proportion of GDP (all levels of government), International Comparisons 2016²³



Source: The Commonwealth Fund International Health Policy Survey

As shown by the experience of the USA, however, high expenditure is not necessarily an indicator of good practice and outcomes.

A better approach would be to identify those nations with the best health outcomes and use their expenditure levels and practices as a guide to international best practice. In this respect, overall, Australia has good health outcomes compared to other nations.²⁴ However, while in a number of aspects we have amongst the best outcomes (e.g. life expectancy, mortality), there are other areas where Australia trails other developed nations (e.g. rates of obesity). Future research could compare outcomes in NSW, not just with other Australian states, but with the best international outcomes.





PART FIVE: THE IMPACT OF FUTURE CHANGE ON THE HEALTH WORKFORCE

Notwithstanding the importance of physical capital in health services and the potential for technology to improve the quality, equity and efficiency of services, good health services are only possible if there are sufficient well-trained and experienced professional and other staff to provide these services. The factors outlined above as driving higher expenditure in future years will have a major impact on the workforce, in terms of both numbers and the training and skills required. This presents an important opportunity to create quality jobs and drive economic development across the state.

The size of the healthcare workforce

As is noted at various points elsewhere in this report, the health workforce is already growing significantly and becoming more important to the state's economy, as the sector provides an ever-growing share of total employment and Gross State Product (GSP) in NSW.

In June 2017, the NSW public health system employed 114,597 FTE staff, of whom 84,138 were clinical staff, including 11,705 medical, 47,282 nursing, and 10,240 allied health staff.²⁵

Table 1.5 in the Appendix shows the growth of the NSW Health FTE workforce over the three years from June 2014 to June 2017. In summary, over that period:

- the total grew by 8,200, or 7.7% (from 106,390, including 78,426 clinical staff in 2014);
- there was an average annual increase of 2.51% p.a.; and
- the rate of increase in the total FTE staff over the previous year in each of the three years was progressively higher (i.e. 1.8%, 2.7%, and 3.1% respectively).

The FTE workforce in June 2017 also represents an increase of 23,690 from the 90,907 FTE staff employed in June 2007,²⁶ a total increase of 26.1% over the decade with an average annual growth of 2.34%.

Given the above, a reasonable, perhaps even conservative, assumption,²⁷ is that the NSW Health FTE workforce will grow on average by 2.5% p.a. over the intermediate and longer terms. On this basis, the total in June 2030 would be 158,000 (including 116,000 clinical staff), representing over 40,000 new FTE jobs above current levels (30,000 clinical).

There is citizen and consumer demand for ensuring adequate staffing for health services and for increasing labour inputs in these services, as shown, for example, by widespread concern over waiting times in emergency and for surgery, and by support for campaigns to decrease the ratio of patients to nursing staff in both health and aged care.

There are two broad ways that the demand for more staff can be met — a ‘high road’ whereby workers have good remuneration and working conditions and there is a good working environment, thus stimulating greater recruitment and retention; or a ‘low road’ where people with less training and/or prepared to accept lower pay and conditions are used to fill the gap.²⁸ The high road approach is clearly preferable in underpinning high quality and stable healthcare, both now and over the long-term.

The quality of the healthcare workforce

As with most human services, the quality of healthcare services is substantially a function of the quality of the staff delivering those services, whether the services involve specialists, GPs, nurses, allied health staff, care-workers, or other staff. This arises from the unique interpersonal quality of care labour, where the technical and personal skills of each worker together with his/her personal relationship with the service user means that the “labour itself is essentially the product”.²⁹ In turn there is limited scope to reduce the number or overall skill level of staff directly delivering a service without having significant negative effects on the quality and outcomes of the service.

It can be assumed that the users of health services in the future will want higher quality services than are currently provided. With increasing real income per capita, they will demand not just more services, but *better* services, while it is generally agreed that the ageing baby boomer generation has higher expectations for the quality of healthcare than older people in past years. In turn, this means that higher levels of both technical and personal skills will be required of healthcare staff. This offers the potential for a virtuous circle, where demand for quality services drives skilled employment and rising living standards.

Technological change will have a range of effects on both the quantity and skill level of staff. On the one hand, some forms of new technology will lead to less need for labour and/or lower skill levels of some staff; on the other hand, other forms of new technology will require more and better skilled workers. These effects will vary with the nature of the healthcare services and the specific new technology in each case.





The cost of the healthcare workforce

As with most human services, healthcare is relatively labour-intensive. On the one hand, this means that it is a major employer. However, it also leads to cost pressures, with the cost of labour a relatively high proportion of the total costs of healthcare. In NSW in 2016-17, expenditure on employee-related costs was \$12.45B, some 60% of the total recurrent expenditure by NSW Health.

Increases in labour costs are not only a function of an increase in the numbers of health workers, but also of changes in the unit cost of labour. Future changes in the unit cost will be driven in part by the improvements in the quality of staff noted above, but also by the interaction of aspects of the 'production process' and competitive pressures. Based on the work of Baumol and others,³⁰ it has been long-established in mainstream economic theory (albeit a finding often overlooked by policy-makers and commentators in human services) that in those fields where labour itself is the product, there are significant intrinsic and largely immutable limits to the extent to which productivity can be increased, especially in those sessions where trained and skilled staff have to deliver the services.³¹ While aspects of some healthcare services may be undertaken by lower level staff reducing costs without harming the

quality of the service, in general, reducing the quantity or quality of labour in the direct delivery of services is likely to have negative effects on service quality.

The limits on productivity gains in some sectors have further effects both in and beyond the sector. For workers to be attracted to these sectors in the numbers and skills required, they must be paid wages reflecting the higher wages being paid elsewhere in the economy. The result is that prices in fields such as healthcare rise more quickly than for the economy as a whole. This effect has become increasingly important as developed economies have become more and more service-based.³² As noted above, another aspect of this effect is that attempts to increase the output per unit of labour input are frequently associated with reductions in quality.

Moreover, with major growth sectors such as healthcare requiring more and more labour, competitive pressures will inevitably see upward pressure on wages for healthcare workers, especially if the skill and training levels of the workforce are to be maintained or improved. This emphasises the importance of a good working environment and career paths for health staff to ensure that staff can be both attracted and retained.

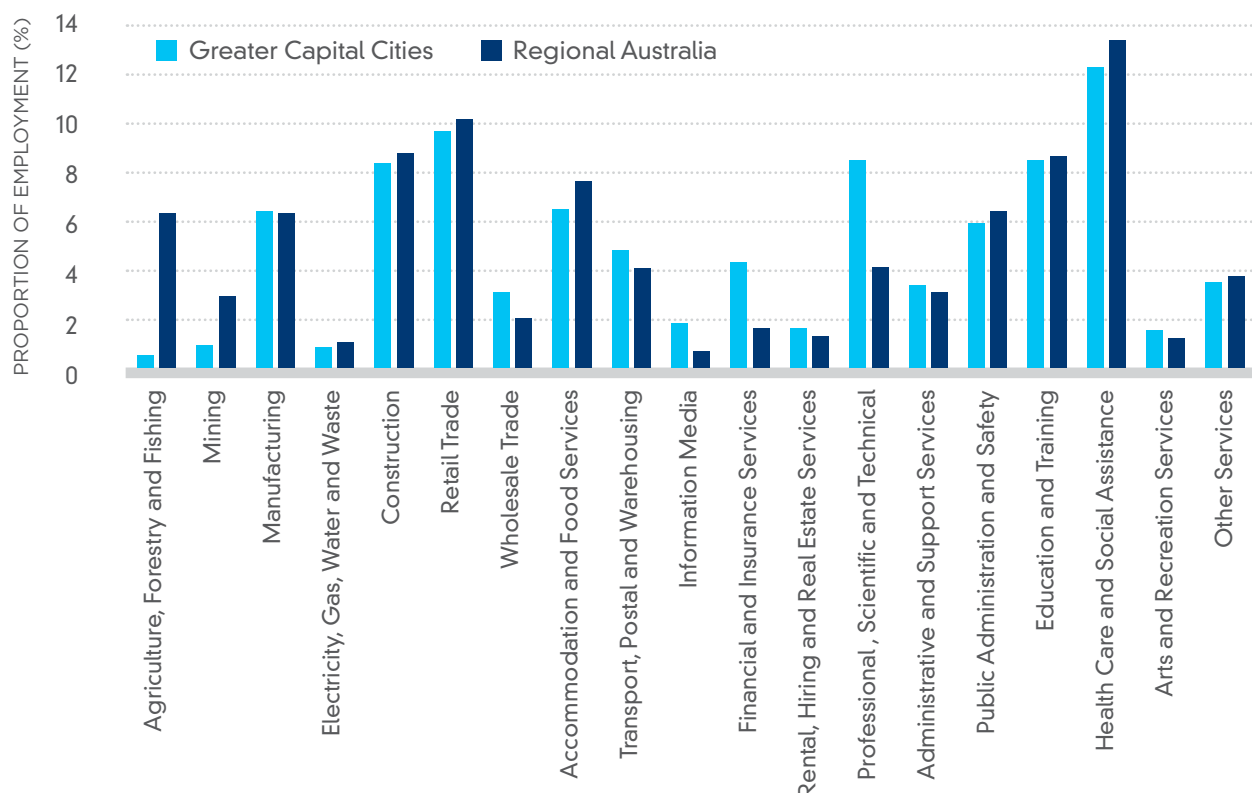
PART SIX:

THE IMPACT OF FUTURE CHANGE ON REGIONAL NSW

A distinctive feature of the health workforce is its geographic location. Unlike other service industries that have grown strongly in recent decades, such as finance or information technology and communications, health jobs do not cluster in the centre of large cities, but follow health needs and tend to be in the same locations as users of the services. As Figure 6.1 shows, not only is Healthcare and Social Assistance now the largest regional employer in Australia, the health workforce is disproportionately based in regional areas. This distribution is especially

significant in the context of ongoing job loss due to automation. The two industries with the largest regional bias in employment — Agriculture, Forestry and Fishing, and Mining — have both become much more capital intensive. Both are also tied to international commodity markets, exposing those regions dependent on these industries to substantial market fluctuations. In contrast, health spending is relatively stable, providing an important macroeconomic buffer for regions.

FIGURE 6.1
Proportion of employment by industry and region, Australia 2011³³



Source: 2011 census



The economic opportunities presented by a growing healthcare sector are increasingly being recognised with the health and social assistance services industry now being the largest employing industry in regional NSW, accounting for one in seven workers.

Moreover, healthcare has the capacity to help regenerate local economies. Health investment in communities with relatively high levels of unemployment and underemployment is likely to have multiplier effects. These multiplier effects could be quite large, depending on the type of spending and the local situation in each region. For example, studies in Australia and elsewhere show a wide range of multiplier effects for health spending. Thus, the 40,000 potential additional direct jobs by 2030 is likely to generate substantial further employment;

for example, a multiplier of only 1.5 would mean at least an additional hundred thousand new FTE jobs in total by 2030. Employment strategies are needed to take advantage of this, by creating clear career pathways to allow less skilled workers to take up opportunities and develop skills within the health sector.

Detailed estimates of the regional employment impacts from increased health spending lie beyond the current research. However, it is clear from existing evidence that increased health expenditure will be of particular benefit for the regions even without explicit regional economic planning, but offers considerable opportunities if governments plan for growth and build health into the centre of economic development.³⁴

PART SEVEN:

FUNDING FUTURE EXPENDITURE — KEY ISSUES

The focus of this report is on establishing the extent of the levels of funding required to meet the health needs of NSW in the future, especially until 2030. Based on similar assumptions to those made by NSW Treasury, the annual state public spending on healthcare will need to have risen by at least \$14.3B in 2017 dollars by 2030. Without at least this commitment, health services will not be able to meet the expectations of citizens or keep pace with new medical techniques and treatments. There is a clear imperative for these funds to be made available. Ensuring a truly world class health system will require a larger commitment.

Investing in health has already brought clear economic and social benefits. There is a clear international and historical relationship between health spending and mortality, suggesting health spending does support us to live longer and healthier lives. Health also supports a growing proportion of jobs, and is increasingly central to regional economies. Treating healthcare purely as a cost is thus problematic, even on relatively narrow economic criteria.

This report is not focused primarily on *how* the additional expenditure is or should be financed, but clearly the funding systems and mechanisms that are used can affect — positively or negatively — the *level* of funds that are ultimately available for healthcare. A major issue is that the funding of healthcare in NSW is complicated by various divisions of responsibilities. However, the current composition of revenue measures and divided responsibilities between levels of government may see actual revenues rise more

slowly. Ensuring revenue measures are adjusted is clearly an important policy priority.

These divisions create two types of problems — difficulties in the coordination of funding and services that can increase unit costs; and restrictions on access to services, especially where private contributions are required. Most health provision is constitutionally the responsibility of the states, but the Commonwealth has increasingly played a role in funding health care, creating the potential for cost-shifting. The Commonwealth provides funds to the states; the Commonwealth directly funds medical services through Medicare and pharmaceuticals through the Pharmaceutical Benefits Scheme (PBS); and the Commonwealth subsidises private health provision through the private health insurance rebate. Health financing is also divided between the public sector, private health funds and individuals.

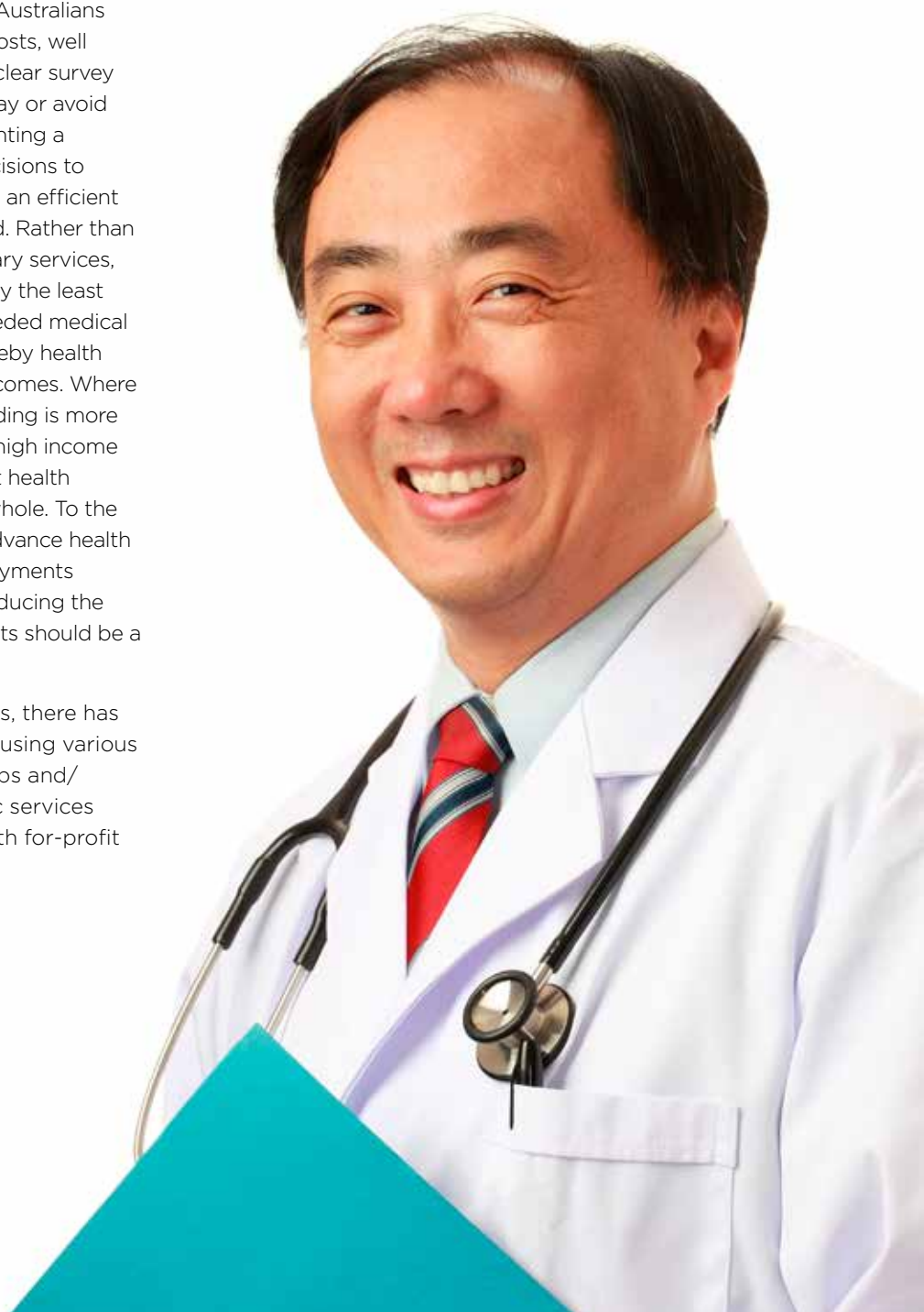
Fragmenting health expenditure reduces the ability of governments to control costs. Healthcare is subject to a number of important market failures, including substantial asymmetries of information. Consumers rarely have all the information they need to make good decisions, and are at a distinct disadvantage compared to health providers.

Whatever mechanisms are used to meet this cost, ultimately it is the people of NSW who must pay as either tax payers or consumers. Australians face relatively high out-of-pocket costs, well above the OECD average. There is clear survey evidence that many Australians delay or avoid treatment because of cost, representing a significant limitation on access. Decisions to avoid treatment due to fees are not an efficient mechanism of constraining demand. Rather than reducing usage of the least necessary services, fees tend to reduce services used by the least able to pay. Reducing access to needed medical care weakens the mechanism whereby health spending translates into health outcomes. Where access is not universal, health spending is more likely to be concentrated amongst high income households, and do little to support health outcomes for the population as a whole. To the extent that governments seek to advance health outcomes for all, increasing user payments risks achieving this goal. Instead, reducing the proportion of financing from patients should be a policy priority.

Over the last three to four decades, there has been a multiplicity of approaches using various forms of public-private partnerships and/or diverting expenditure for public services through private organisations (both for-profit

and not-for-profit). By and large, the linkages with and use of various forms of private funding has not given the best value for money.³⁵

A major effect of these schemes has been to reduce the amount of funding available for services through various leakages via profits and payments for satellite services that are only necessary because of the alternative funding model.





CONCLUSION

This report identifies that healthcare is the biggest industry in NSW by spending and employment and it is set to grow further. The NSW Government estimates that its total expenditure on health in 2017-18 will be \$23.4B, with this expenditure directly employing 121,000 full-time equivalent workers. The report shows rising health spending is driven by a range of factors, including a growing population, an ageing population, rising standards of living, the labour intensive nature of healthcare work and changes in technology. Growth in real per person public expenditure on healthcare, is primarily driven by non-demographic factors, such as rising incomes and technology. These non-demographic factors account for approximately three-quarters of the total rise in real per person spending.

By ensuring that public spending keeps pace with community expectations, there will be a direct result of over 40,000 new fulltime equivalent jobs and this will help to generate over 100,000 additional jobs by 2030.

To achieve these outcomes the NSW Government will need to increase public health spending by at least \$14.3B annually in real terms by 2030.

Additional public investment in healthcare is likely to have significant social and economic benefits, especially in regions with high unemployment where both economic multiplier effects and public health benefits are likely to be largest.

Public health provision offers enormous opportunities for the people of NSW, but these benefits will not flow automatically. In order to most effectively address the challenges and take advantage of the opportunities arising from the increased demand for healthcare services in NSW, the government has to make a strong and firm commitment. As part of this, the NSW Government should make increased health spending the foundation of a regional employment and development package to support equitable and balanced growth across NSW.

Further, the NSW Government should identify where current services can be enhanced such that NSW is able to move towards a healthcare system that is international best practice across the board by 2030.

Rising standards of healthcare and rising health outcomes lie at the heart of rising standards of living. This calls for a strong and sustained effort from the NSW government to ensure an equitable and high performing healthcare system for all residents.

APPENDIX

Current NSW Government healthcare expenditure and workforce

TABLE 1.1

NSW Health Expenditure, by type of service, 2016-17 & 2017-18

	2016-17	2017-18	2017-18	Increase	Increase
	\$M	\$M	% of total	\$M	%
Acute	14,741.00	15,273.50	70.5%	532.5	3.6%
Sub-acute	1,177.30	1,245.90	5.8%	68.6	5.8%
Mental health	1,812.30	1,898.50	8.8%	86.2	4.8%
Small rural and specialist hospitals	605.70	625.90	2.9%	20.2	3.3%
Community health	772.60	792.20	3.7%	19.6	2.5%
Public health	804.40	814.70	3.8%	10.3	1.3%
Research	86.50	82.10	0.4%	-4.4	-5.1%
Ambulance	816.20	892.20	4.1%	76.0	9.3%
Advisory bodies	25.80	26.70	0.1%	0.9	3.5%
Domestic Violence, etc	65.80				
Rounding	0.10	-0.10			
Sub-total (including DV)	20,907.70	21,651.60			
TOTAL (less DV and rounding)	20,841.80	21,651.70	100.0%	809.9	3.9%

Source: Derived from 2017-18 Budget Paper No3 (Health Cluster)

TABLE 1.2
NSW Health Full Time Equivalent Workforce by type of service, 2016-17 & 2017-18

	2016-17	2017-18	2017-18	Increase	Increase
	FTE	FTE	% of total	FTE	%
Acute	80,925	82,741	68.4%	1,816.0	2.2%
Sub-acute	7,464	7,663	6.3%	199.0	2.7%
Mental health	11,843	12,003	9.9%	160.0	1.4%
Small rural and specialist hospitals	4,070	4,206	3.5%	136.0	3.3%
Community health	5,250	5,270	4.4%	20.0	0.4%
Public health	4,115	4,135	3.4%	20.0	0.5%
Research	16	16	0.0%	0.0	0.0%
Ambulance	4,860	4,910	4.1%	50.0	1.0%
Advisory bodies	108	110	0.1%	2.0	1.9%
Domestic Violence, etc					
Rounding					
TOTAL (less DV and rounding)	118,651	121,054	100.0%	2,403.0	2.0%

Source: Derived from 2017-18 Budget Paper No3 (Health Cluster)

Note: The total 2016-17 staff shown in the 2017-18 Budget papers is more than the total staff shown in the 2016-17 Annual Report. This would appear to be explained by the Annual Report numbers being as at 30 June, whereas the Budget papers show the total number employed during the year.

TABLE 1.3 NSW Health Expenditure, Employee-related expenses, 2016-17 & 2017-18

	TOTAL EXPENDITURE		EMPLOYEE RELATED EXPENSES					
	2016-17	2017-18	2016-17	2016-17	2017-18	2017-18	Increase on 2016-17	
	\$M	\$M (Est)	\$M	% of total	\$M (Est)	% of total	\$M (Est)	%
Acute	14,741.00	15,273.50	8,564.65	68.8%	8,958.48	68.9%	393.8	4.6%
Sub-acute	1,177.30	1,245.90	710.96	5.7%	742.57	5.7%	31.6	4.4%
Mental health	1,812.30	1,898.50	1,247.98	10.0%	1,294.43	10.0%	46.5	3.7%
Small rural & specialist hospitals	605.70	625.90	372.70	3.0%	394.55	3.0%	21.8	5.9%
Community health	772.60	792.20	557.12	4.5%	573.93	4.4%	16.8	3.0%
Public health	804.40	814.70	419.07	3.4%	433.31	3.3%	14.2	3.4%
Research	86.50	82.10	2.12	0.0%	2.19	0.0%	0.1	3.3%
Ambulance	816.20	892.20	559.72	4.5%	583.69	4.5%	24.0	4.3%
Advisory bodies	25.80	26.70	14.65	0.1%	15.04	0.1%	0.4	2.7%
Domestic Violence, etc	65.80							
Rounding	0.10	-0.10						
Sub-total (including DV)	20,907.70	21,651.60						
TOTAL (less DV & rounding)	20,841.80	21,651.70	12,448.97	100.0%	12,998.20	100.0%	549.2	4.4%

Employee-Related Expenditure as proportion of Total

59.7%

60.0%

TABLE 1.4 NSW Health Expenditure, Capital Expenditure, 2016-17 & 2017-18

	TOTAL EXPENDITURE		EMPLOYEE RELATED EXPENSES					
	2016-17	2017-18	2016-17	2016-17	2017-18	2017-18	Increase on 2016-17	
	\$M	\$M (Est)	\$M	% of total	\$M (Est)	% of total	\$M (Est)	%
Acute	14,741.00	15,273.50	979.64	73.7%	1,182.31	69.7%	202.7	20.69%
Sub-acute	1,177.30	1,245.90	109.74	8.3%	125.32	7.4%	15.6	14.21%
Mental health	1,812.30	1,898.50	19.66	1.5%	22.49	1.3%	2.8	14.36%
Small rural & specialist hospitals	605.70	625.90	78.25	5.9%	89.29	5.3%	11.0	14.11%
Community health	772.60	792.20	6.11	0.5%	7.05	0.4%	0.9	15.30%
Public health	804.40	814.70	0.27	0.0%	0.31	0.0%	0.0	17.29%
Research	86.50	82.10	27.72	2.1%	10.00	0.6%	-17.7	-63.92%
Ambulance	816.20	892.20	107.15	8.1%	109.43	6.5%	2.3	2.13%
Advisory bodies	25.80	26.70	0.15	0.0%	0.35	0.0%	0.2	133.33%
Domestic Violence, etc	65.80				149.00	8.8%		
Rounding	0.10	-0.10						
Sub-total (including DV)	20,907.70	21,651.60						
TOTAL (less DV & rounding)	20,841.80	21,651.70	1,328.68	100.0%	1,695.55	100.0%	366.9	27.61%

Capital Expenditure as proportion of Total

6.4%

7.8%

Source: Derived from 2017-18 Budget Paper No3 (Health Cluster)

TABLE 1.5 NSW Health - Full-Time Equivalent staff, by type of staff, at June 30, 2014-2017

	JUNE 2014 Number	JUNE 2015 Number	JUNE 2016 Number	JUNE 2017 Number	JUNE 2017 % of total
Medical	10687	10823	11,137	11,705	10.2
Nursing	44,046	44,762	45,796	47,282	41.3
Allied Health	9,410	9,576	9,898	10,240	8.9
Other Prof. and Para Professionals	3,114	3,135	3,055	3,086	2.7
Scientific and Technical Clinical Support	5,996	6,057	6,390	6,607	5.8
Oral Health Practitioners & Therapists	1,259	1,253	1,270	1,272	1.1
Ambulance Officers	3,915	3,997	3,789	3,947	3.4
Rounding	-1	1	1	-1	0.0
SUB-TOTAL CLINICAL STAFF	78,426	79,604	81,336	84,138	73.4
Corporate Services	4,445	4,592	4,961	5,148	4.5
IT Project Implementation	123	161	190	257	0.2
Clinical Support	13,860	14,370	15,138	15,556	13.6
Hotel Services	8,230	8,248	8,278	8,254	7.2
Maintenance and Trades	964	939	925	912	0.8
Other	342	364	350	333	0.3
Rounding	0	0	-1	-1	0.0
SUB-TOTAL OTHER STAFF	27,964	28,674	29,841	30,459	26.6
TOTAL	106,390	108,278	111,177	114,597	100.0
Increase from previous year					
- Clinical		1,178	1,732	2,802	
- Other		710	1,167	618	
- Total		1,888	2,899	3,420	
% Increase from previous year					
- Clinical		1.50	2.18	3.44	
- Other		2.54	4.07	2.07	
- Total		1.77	2.68	3.08	
Increase since 2014					
- Clinical		1,178	2,910	5,712	
- Other		710	1,877	2,495	
- Total		1,888	4,787	8,207	
% Increase since 2014					
- Clinical		1.50	3.71	7.28	
- Other		2.54	6.71	8.92	
- Total		1.77	4.50	7.71	
- Total -Average % increase p.a.		2.508	2.508	2.508	

Source: NSW Health Annual Report, 2016-17

REFERENCES

1. The numerical data in this section has been sourced or directly derived from data in the *NSW Intergenerational Report (2016)*, *NSW Health Annual Reports for 2007-08 and 2016-17*, and the NSW Government 2017-18 Budget documents.
NSW Treasury (2016), *NSW Budget 2016-17, Budget Paper No 5: Intergenerational Report*, www.treasury.nsw.gov.au/intergenerational-report
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NSW Health (2008), *Annual Report, 2006-07*, NSW Department of Health, North Sydney, December 2007.
NSW Health (2017), *Annual Report, 2016-17*, NSW Ministry of Health, North Sydney, October 2017
NSW Government (2017), *Budget Paper No 3, 2017-2018*, Budget Estimates 05: Health Cluster.
2. This implies that the expenditure would increase in nominal terms from \$18.1B in 2014-15 to \$195.5B in 2055-56.
3. See the NSW Intergenerational Report (2017, Section 5) for an outline of the current and proposed arrangements and estimates of the extent of Commonwealth payments to NSW.
4. 2014 is the last year for which Australian data was available.
5. Cameron, S. and I. McAllister (2016), *Trends in Australian Political Opinion: Results from the Australian Election Study 1987-2016*, P 33 ANU, Canberra.
6. See Spies-Butcher (2016), which also has links and references to a range of relevant work on these points.
Spies-Butcher, Ben (2016), 'Re-imagining NSW: how the care economy could help unclog our cities,' *The Conversation*, 1 August.
7. *NSW Intergenerational Report* (2016, p.39).
8. *NSW Intergenerational Report* (2016, p.18).
9. ABS (2013, Table A1), which has slightly lower projections than the 2016 NSW Intergenerational Report, projected the population of NSW to be 7,703,234 by June 2016, and 8,943,812 by June 2030
10. NSW IG Report (p.21, Table 1.1). The table also models alternative 'low' and 'high' figures for the future value of each of the key variables that will determine the future population.
11. Both the NSW and national Intergenerational Reports also use changes in the 'age dependency ratio' (the ratio of those aged 65 and over to 15-64 years olds) as an indicator of the fiscal impact for government of an ageing population. However, reliance on the ratio for this purpose has been widely criticised (Gee 2002; Fine 2014), while the 2010 national IG Report projected that hours of paid work per person measured across the *entire* population would actually be higher in 2050 than the early 1980s (Australian Treasury 2010, p. 164). For these reasons we do not include it here.
12. It is also important to note - as shown in the NSW IG report (p.44) - that the ageing population also has the effect of *reducing* expenditure on some services, in particular education, but also welfare and public order. The IG Report estimates that the net effect of ageing on NSW government expenditure on *all* services will only be 0.2 percent p.a. over the next 40 years.
13. You, Xiaohui, & Okinade, Albert A. (2017), 'Income and Technology as Drivers of Australian Healthcare Expenditures', *Health Economics*, Vol 26: 853-862. You & Okinade found that "The effects on income on HEXP [Health Expenditure] are highly significant with estimated income elasticities in the 0.508-0.968 range ...[and] suggest the robust conclusion that Australia's healthcare is a normal good and a technical necessity"
14. You, Xiaohui, & Okinade, Albert A. (2017), 'Income and Technology as Drivers of Australian Healthcare Expenditures', *Health Economics*, Vol 26: 853-862.
15. The NSW IG report also projects (p.29) that the ageing of the population will increase again in the late 2040s as the 'millennials' (born 1982-2000) begin to enter retirement.
16. Payne, G., Laporte, A., Deber, R., & Coyte, P.C., (2007), 'Counting Backward to Health Care's Future: Using Time-to-Death Modeling to Identify Changes in End-of-Life Morbidity and the Impact of Aging on Health Care Expenditures,' *Milbank Quarterly*, Volume 85, Issue 2, June, pp. 213-257, <http://onlinelibrary.wiley.com/doi/10.1111/j.1468-0009.2007.00485.x/full>
17. For example, see OECD (2017) and Ortiz-Ospina & Rosser (2017). OECD (2017), *Health at a Glance: OECD Indicators*, <https://data.oecd.org/healthres/health-spending.htm>. Ortiz-Ospina, Esteban, & Rosser, Max (2017), 'Financing Healthcare', Our World in Data, <https://ourworldindata.org/financing-healthcare#what-was-the-consequence-of-growing-expenditure-without-insurance-expansion-in-the-us>

18. Ansah, John Pasta; Koh, Victoria; Bayer, Steffen; Harper, Paul; & Matchar, David (2018), 'Healthcare Human Resource Planning', in *Operations Research Applications in Health Care Management*, C.Kahraman & Y.I. Topcu (eds), International Series in Operations Research & Management, Science 262, https://doi.org/10.1007/978-3-319-65455-3_20
19. Ansah et al (2018) contain a number of examples of actual studies to show how these frameworks and analytical methods are applied in practice.
20. These percentage increases include an assumption of 2.5% p.a. inflation.
21. For example, ABS (2013) provides a projection of the number of people of each age within each region for each year up to 2061. Australian Bureau of Statistics (ABS) (2013), *Population Projections 2012-2101*, ABS, Canberra, 3222.0.
22. For example (1) We begin from the actual 23.4B in the 2017-18 budget. However, the base for the IG Report was \$18.1B in 2014-15; from that base and using the assumptions in Table 5.1, the projected expenditure for 2017-18 would be \$21.7B (2) The precise assumptions for Ageing and for Other Factors in the two sub-periods are not stated in the NSW IG Report. The above figures for these drivers have been derived from data in the Report.
23. OECD (2017), *Health at a Glance: OECD Indicators*, <https://data.oecd.org/healthres/health-spending.htm>
24. Dukcett, Stephen (2014), 'Australian health care: where do we stand internationally,' *The Conversation*, 1 September.
25. NSW Health (2017), *Annual Report, 2016-17*, NSW Ministry of Health, North Sydney, October 2017(p.229).
26. NSW Health (2008), *Annual Report, 2006-07*, NSW Department of Health, North Sydney, December 2007. (p.232).
27. This may be a conservative assumption, especially over the next decade, given the NSW IG Report projections of future increase in total health expenditure of 6.3% p.a., with an average of 6% p.a. to 2055-56.
28. Folbre, Nancy (2006), 'Demanding Quality: Worker/ Consumer Coalitions and "High Road" Strategies in the care sector,' *Politics & Society*, Vol 34, pp. 11-31.
29. Baumol, W.J. (1967), 'Macroeconomics of unbalanced growth: The anatomy of urban crisis', *American Economic Review*, Vol. 57 (3), pp.415-426.
30. Scitovsky, Tibor, & Scitovsky, Ann (1959), 'What Price Economic Progress?', *Yale Review*, Autumn, pp.95-110.
31. This does not mean that there is not significant scope for productivity improvements that do not reduce quality, but just that there are intrinsic and hard limits in the extent and sources of those improvements.
32. This is the effect known popularly as "Baumol's cost disease" (although Baumol himself did not use the term).
33. 2016 census data is currently unavailable.
34. Each NSW Health Region prepares a detailed Healthcare Services Plan, incorporating an overall strategy for the region and a detailed clinical services plan. To some extent, these do address the employment and economic implications of healthcare services for the region, but there is further scope for identifying and facilitating the opportunities that are available.
35. McKell Institute (2014), *Risky Business: The pitfalls and missteps of hospital privatisation*, McKell Institute, Sydney, November.



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