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Productivity Commission

SHIFTING THE DIAL



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SUPPORTING PAPER **NO. 5**

INTEGRATED CARE

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The Productivity Commission

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1 What should be the direction of Australia's health care system?

1.1 Introduction

An ideal health system must bring together a range of critical resources and processes geared to keeping people well and addressing their needs and preferences when not. Those needs have changed. Like all other developed countries, chronic illness is now the main focus of Australia's health care system (OECD 2015a).

In part, this is a story of success. Chronic illness is what is left over if a system has solved many of other sources of morbidity and death, such as infection, infant mortality, and premature death after the onset of a disease. While prevalence rates of some chronic illnesses appear to be stable (cancer for example), the reported prevalence rates of affective disorders, like anxiety, are rising. Population ageing and rising public health problems, such as obesity, will also increase the share of Australians with complex and chronic conditions, a trend that is evident across the Organisation for Economic Co-operation and Development (OECD 2015a).

By definition, chronic illnesses are enduring and, therefore, where they have serious effects on a person's life, they require ongoing and often costly management from different parts of the health system. Given their persistent nature, they are also inviting prospects for prevention — or at least, for attempts to delay the onset of more severe and costly harms to their sufferers.

Against that background, health policymakers have embraced the concept of integrating the actions of, and information from, the different parts of the health and community sector to provide care suited to the personal circumstances of the patient — 'integrated patient-centred care'. The objective is fourfold – to improve health outcomes while at the same time delivering a higher quality service to patients, lowering costs and ensuring the wellbeing of the health workforce (Berwick, Nolan and Whittington 2008; Bodenheimer and Sinsky 2014). These provide a balanced measure of the success of a health reform and motivate an integrated patient-centred approach to care.

The boundaries of the terms ‘integrated’ and ‘patient-centred’ are imprecisely defined. This partly reflects that there are no single definitions of these terms¹ and that their positive connotation means that they are used to describe policies that may only entail a few aspects of integration and patient-centredness.

The Australian Government’s Diabetes Care Program (appendix A) had some key elements of integrated care through its funding model, electronic medical records, care plans and multidisciplinary focus. However, the boundaries of integration were largely limited to the areas funded by the Australian Government. Accordingly, hospitals — the responsibility of State and Territory Governments — were not included in managing patients.

Consequently, when someone describes some aspect of a health reform as integrated or patient-centred, it is important to examine what this means in practice. A failure to do so makes it harder to draw the lessons from the multiple applications of these practices in Australia and globally (appendixes A and B). For example, the failure of the Diabetes Care Program to achieve cost-effective gains was not a failure of integrated care, but a reflection of the problems that occur when implementation of the model is incomplete. Health Care Homes — an Australian Government trial due to shortly begin — also involves incomplete recognition of some key parts of health care. (The Commission proposes changes to the trial that would integrate it better into the whole health care system.)

The Commission’s concept is that integrated patient-centred care involves the entire health care system, such that all services — community, primary, secondary, tertiary (and quaternary) — are integrated to achieve good health outcomes and to efficiently deliver a high quality of service to people over their lives. Figures 1.1 and 1.2 describe the key elements of integrated care as we define it, and the roles of the parties in such a care model. Any given person in the current system may try to integrate services — developing care plans, communicating with fellow clinicians and involving allied health professionals, following up on hospital admissions and linking to family members to deliver quality outcomes. But they are swimming against the tide of a *system* that frustrates that model — funding models that discourage this mode of practice, incompatible information systems, poor linkages between the various health professionals, and gaps in the availability of services, among other obstacles. As two Australian health experts commented:

Currently, most interventions remain focused on episodic pharmaceutical treatment and medical procedures. Care coordination is usually limited to referral and information exchange. There is little active team management across specialist medical practitioners, nursing, pharmacy and allied health services. (Swerissen and Duckett 2016, p. 18)

¹ For instance, one researcher found about 175 overlapping definitions of integrated care (Armitage et al. 2009, p. 4).

Figure 1.1 The essential elements of integrated care

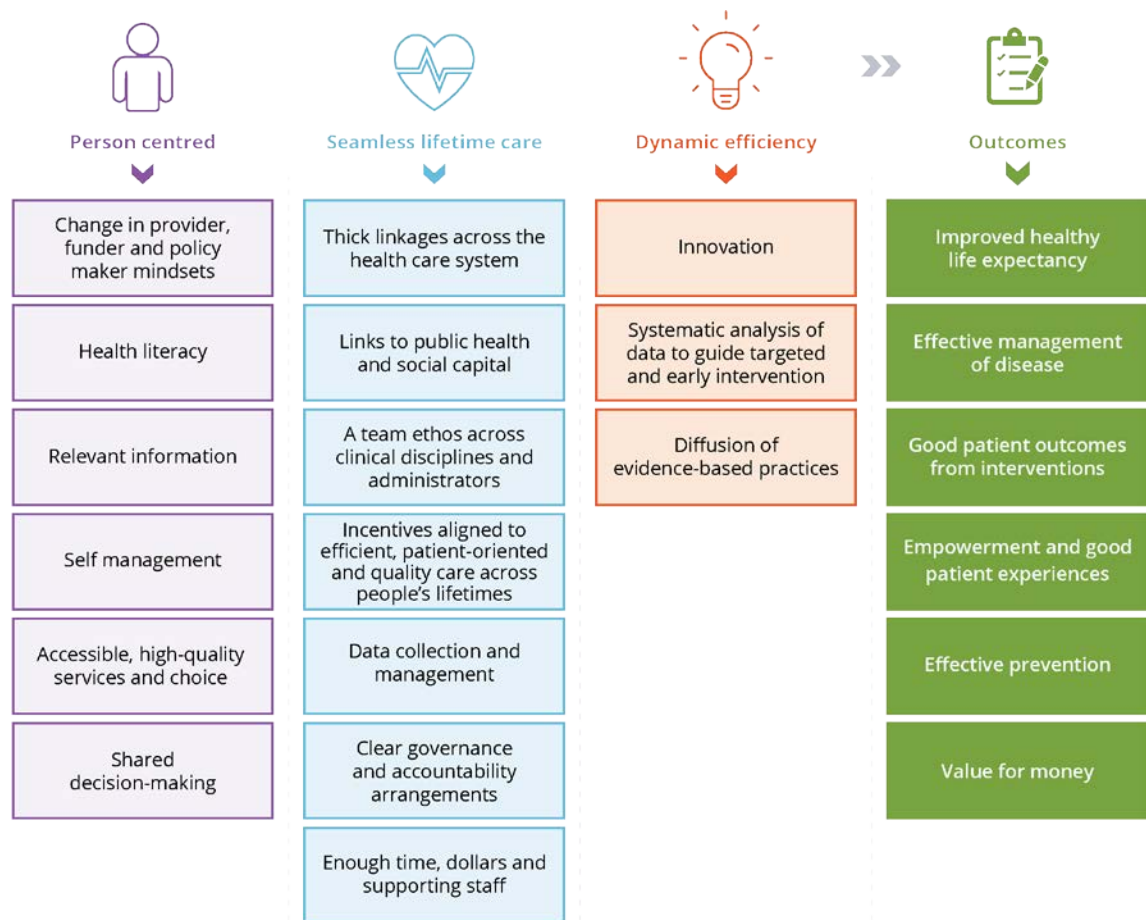


Figure 1.2 How integrated care affects different parties



1.2 Seamless *and* patient-centred care

An integrated system must deliver customised services to people, but its processes must be highly organised to provide consistency and to reduce costs. This is probably best seen in parts of the system, particularly hospital care. One important aspect of integrated care involves the adoption of production and operations planning akin to those in modern

commercial enterprises — sometimes referred to as ‘clinical redesign’ — to manage the patient journey through the system. Under such management processes, all aspects of operations are coordinated to provide quality outcomes at minimum cost to a mix of customers with different preferences and needs.

Sometimes the methods for achieving this are simple, as in Patient Journey Boards — a prominently displayed board in hospital wards that provide members of interdisciplinary teams information to coordinate care and monitor progress of multiple patients through the hospital (NSW MoH 2013).²

Within the hospital part of the system, so-called ‘lean care models’ adapted from Toyota have also been used. In one instance, application of this approach was able to massively increase the capacity utilisation of operating theatres (PC 2013, p. 250). Another illustration is the High Volume Short Stay model of care for suitable planned surgical cases being implemented in New South Wales (NSW). Infrastructure NSW (2014) indicated preliminary forecasts of productivity gains in the order of \$100 million over 10 years based on reduced length of stay. Organ donation in Australia has also taken a similar coordinated approach to better manage the critical stages that maximise the rate of successful donations (appendix A).

It should be emphasised that seamless care does not have to be impersonal. To the contrary, if executed within the framework we propose, it treats the person as the central party around whom resources and processes that improve their wellbeing are methodically assembled.

There is a danger in seeing integrated care just in terms of ‘who does what to who’. This would risk losing sight of some overarching ideas central to a patient-centred model: the person, the process in which they participate, the needs for links outside the system, and the requirement that what is done to people has a proven basis and adapts through innovation.

1.3 There is a consensus that a patient-centred integrated care approach is the right way to go

An integrated system of patient-centred health care has been a policy objective in all Australian jurisdictions at least since a Council of Australian Governments (COAG) agreement in 1995.

The consensus is not isolated to governments. Consumer groups have embraced the concept (GIGH and CHF 2016). The Royal Australasian College of

² In 2017, the original NSW Whole of Hospital Program was transitioned to a Whole of Health Program, though its focus still remains on processes in public hospitals.

Physicians (RACP 2015) advocates patient-centred integrated health care as the right direction for policy. The Queensland Nurses Union advocate funding reform to better ensure providers work together and to contain rising health care costs (sub. 10, p. 19). In its submission to this inquiry, the Australian Chamber of Commerce and Industry (sub. 37, p. 15) state:

Current funding arrangements and financial incentives are structured around providers rather than health outcomes as funding is provided on the basis of activity, rather than on improvements in people's health.

Likewise, the Business Council of Australia identifies patient-centred integrated care as a key microeconomic reform, and like past reforms in other parts of the economy, argues it must be supported by new governance arrangements, consumer power and metrics on performance to ensure progress (BCA 2011). And health experts, in Australia and overseas, have long argued for its adoption. It is rare to have a consensus from such disparate groups.

There have been many experiments in what might loosely be called integrated care (appendix A). However, Australia's progress towards an Australia-wide integrated system of care across primary, hospital and other sectors has been poor, hampered by weak information flows and coordination, inadequate attention to the experiences of patients, and flawed incentives and fragmented governance arrangements (in large part created by the Commonwealth-State divide in funding arrangements).

A simple illustration of the problem is the proportion of a hospital's patients whose GPs are provided with a discharge summary within twenty-four hours of discharge. Currently, Australia's performance is weak. An international survey found that less than 20 per cent of Australian GPs were always told when a patient was seen in an emergency department compared with 68 per cent in the Netherlands, 56 per cent in New Zealand and 49 per cent in the United Kingdom (Osborn et al. 2015).

In addition, while not always conceived this way, an integrated patient-centred system should also give prominence to the quality of service and efficiency.

Quality of services includes not providing low-value care, which by definition is care that either has no effect, causes harm or is not worth its cost. In consumer law, this would be a product that someone would return as unfit for purpose. Similarly, no patient likes to be subject to sentinel events or hospital acquired complications, and their presence is an indicator of poor processes.

Efficiency also matters. NASA is a brilliant integrator of all the processes required to launch a spacecraft, but that is a fabulously extravagant exercise that no health system should seek to emulate. There are finite resources available for health care, and a choice to spend here is a decision not to spend there. A failure to consider efficiency and value for money across the health care system (and public health) is to forgo better value services in exchange for poorer value services. That is not in the interest of people.

To that end, an integrated approach to care should concentrate most on those whose health conditions are critical and for whom the returns will be greatest in terms of better health outcomes and lower health costs. Nonetheless, aspects of an integrated system can be cost-effective for the population more generally, such as a widespread patient record system like My Health Record.

Such a system should also embrace new technologies that lower costs, and increase convenience and quality, though this often seems to have been slow in Australia.³

Finally, an integrated health system extends to preventative activities (appendix D) and to social policies that can have potentially large ancillary health benefits, such as addressing social isolation.

Accordingly, it is clear then the term ‘an integrated and patient-centred health care system’ embraces many dimensions, which in turn requires complex inter-linked policy initiatives to make it function well.

We do not need to wait another 20 years since the first halting steps were taken.

This paper sets out a roadmap ...

This paper explores the importance of the key elements of an integrated patient-centred health care system, the problems Australia faces in realising the ‘ideal’, and what can be done to improve the system, covering:

- the role of patient-centred care, the degree to which Australia’s health care system has embraced the concept, and the policies to shift the current system away from its producer-centric model (chapters 2 and 3)
- the need for a regional focus in health care (chapter 4)
- the debilitating effects of poorly designed incentives (chapter 5)
- new approaches to pooling funding and collaborating at the local level, including the role that might be played by Health Care Homes (chapter 6)
- changes to funding arrangements to address the persistence of low-value care and adverse events (chapter 7)
- the role of patient incentives in an integrated system, but with an emphasis on carrots not sticks (chapter 8)
- data and information as the lubricant for evidence-based policy and coordinated care of patients across a complex system (chapter 9)

³ For example, telehealth is still embryonic, and its diffusion is discouraged by restrictions in payment models. More generally, the adoption of E health has had a protracted and troubled history in Australia that are only now being resolved (Jolly 2011).

-
- a brief consideration of how to make the transition from the current system to a better one (chapter 10).

This paper also includes several appendixes that describe the various Australian attempts at integrated care (appendix A), some of the leading overseas examples of successful integrated models (appendix B), the capacity to shift the current retailing model of pharmacy into one that plays a role in an integrated care system (appendix C) and the important role of preventative care, including, as a case study, the issue of taxes on sugar sweetened beverages (appendix D).

2 Patient-centred care is unfinished business

2.1 Defining the scope of a patient-centred model

‘Patient-centred’ care gives prominence to the preferences, needs and values of consumers. The prominent American cardiologist and geneticist, Eric Topol summed up the change of direction with the title of his book on the matter: *The Patient Will See You Now* (2016).

Patient-centred care has many dimensions.

In some instances, it is about how patients experience their treatment in the health care system (respected, listened to, treated compassionately). In palliative care, the medical outcome is death, regardless of the treatment options. What people want is pain management, proximity to family members and often being at home, rather than being in a hospital.⁴ Effective care largely revolves around meeting these needs. While the health system is still poorly engineered to meet those needs, it is no longer controversial for clinicians to advocate for end-of-life care centred on the preferences of patients and their families rather than a hospital-oriented model (for example, as discussed by the RACP 2016).

In another context, it enables a more individually-based assessment of clinical outcomes. After all, in most cases, ill-health matters to people because it creates distress, inconvenience and functional deficits — whose extent is often best gauged by the person or carer.

In yet another, it is a question of power, which revolves around patient choice and collaboration between the patient and clinicians. Patient choice is a major aspect of a parallel Commission inquiry into human services (PC 2017b).

It is all very well to observe that patient views are important, but acting on them requires behavioural and system changes, and measurement of people’s experiences.

⁴ The Productivity Commission has examined end-of-life care as one of the key areas where choice and patient empowerment — typically achieved through access to high quality palliative care — can play a major role in improving outcomes for people (PC 2017b; Swerissen and Duckett 2014). Many people would prefer to die at home or some other non-acute care setting. Yet access to high quality end-of-life care is inadequate.

In its most simple terms, a key goal of a health system is ‘mechanical’ — to avoid, repair or mitigate the damage that genes, bad luck, lifestyles and ageing have on all people. However, to limit the health system to that goal neglects the importance of how the system deals with people as people. If a health system were only aimed at maximisation of the functioning of the human body, the concept of a ‘good death’ would be nonsensical if it came at the expense of a longer life.

As in social and disability policy, there is an increasing expectation that the publicly funded health care system should involve people in all the important processes that directly affect them. A patient-centred health services system therefore revolves around the patient, giving them agency through choice, shared decision making with medical professionals, and the capacity for self-management where feasible. Just as is the case in disability care, the potential for such agency requires capabilities and changes in mindsets. People need:

- access to relevant information. This involves good communication from medical professionals, the availability of information technology (IT) platforms that let people record and retrieve their own data, and information on the price and quality of services
- a capacity to make sense of information about their health and the factors that impinge on it (health literacy)
- to shift from passive to active engagement with health care professionals, and to acquire a capacity to exercise greater responsibilities for management of their health care needs.

There is also a dynamic aspect to patient-centred care. People’s health care preferences, risks, conditions, and system usage change over time. A system can recognise this in several ways. One is to collect and recognise in advance people’s future preferences for care, such as in Advance Care Directives and organ donor registration. Another is to better meet people’s needs through the more systematic collection and use of information about their long-term engagement with the health system and associated services, like housing, disability services, and community services. This is increasingly based on large linked longitudinal data sets and new custom made collections like the Sax Institute’s 45 and Up database (NSW BHI 2015a; Weber et al. 2017). As the analysis becomes more sophisticated, vulnerable subgroups can be identified for individualised care at critical points in their lifetime before hazardous, debilitating and costly episodes of illness and care.

2.2 Patient-centred care is not the dominant model in Australia

In most of the service sector, the concept that a good consumer experience is a somewhat desirable but peripheral objective would be seen as (undelightfully) antiquated. Yet, there is no consensus by the medical and associated workforce about whether the design, performance measurement, funding and ethos of the health system should give much

prominence to encouraging patients to participate in their own care ('agency') or to give much weight to patients' experiences in the system (GIGH and CHF 2016).

This is not an Antipodean peculiarity. One US physician observed the tensions in the profession:

The larger question is: is health care a service industry? Many physicians do not believe that patient satisfaction is a legitimate pursuit. In this viewpoint, enhancing patient experience offers no value to medical care. ... [Yet] The ideal patient experience merges excellent medical care, high-quality outcomes, compassion, and empathy that address the emotional needs of patients. (Rosen 2017, p. 1)

Some have characterised medical care, especially outside primary care, as too frequently impersonal, treating the patient as a body requiring expert care, but with little interest in the person's agency, experiences or perspectives (Haque and Waytz 2012). It is notable that when doctors become patients, they often recognise the importance of patient experiences and preferences (Murray 2012; Tomlinson 2014).

There is some evidence that Australian clinicians might be less oriented to the concept of patient-centric care than some other countries.

Evidence on patient experiences provides startling incidents of inadequate communication between clinicians and patients. In 2015-16, among those who saw three or more health professionals for the same condition, one in eight reported that there were issues caused by a lack of communication between the health professionals, and this was worst (more than one in six) for those who were least healthy (ABS 2016b).

In Queensland emergency departments, only 46 per cent of people were fully advised about the side effects of new medications, and 80 per cent were not advised about how long they might wait to be examined (QGSO 2016). The same survey found profound differences across regions in all dimensions of the experience of care. For instance, full advice about side effects varied from 61 to 32 per cent across the best and worst performing Queensland hospitals, while the share of people who said that health practitioners talked in front of them as if they were not there varied from 4 per cent to 23 per cent. Greater trust and respect, and better communication between patients and doctors would improve medication adherence — to the benefit of the person and the health care system.

While most Australians can get access to clinicians, about 16 per cent of patients considered that they waited longer times than acceptable to get an appointment with a GP, and this was nearly 25 per cent for specialists.

Even apparently mundane aspects of the health system can have large impacts on people's experiences of the system, can waste resources and have adverse effects of behaviour, for example, through non-attendance (van Baar et al. 2006). In a study of a particular approach to the care of diabetics, one Australian study found:

When patients were referred to different health professionals, the logistics of scheduling and attending various appointments, finding time, transport and support to get there, re-telling the medical history and remembering treatment were burdensome. Information received was found to be conflicting in some cases and often the quantity of information received was deemed too much and overwhelming by some patients. Integrated care appears to be a middle class concept with little applicability to those from disadvantaged backgrounds or those with several chronic conditions. (Maneze et al. 2014, p. 23)

Waiting times in waiting rooms imposes a cost on patients. Most people say that being seen by a GP at the appointed time is very important (Haas and de Abreu Lourenco 2016). While it may seem that the costs of waiting in a waiting room are trivial for any given person, the cumulative effects of waiting times in doctors' offices is likely to impose costs on Australians approaching one *billion dollars* annually — testimony to the millions of physicians visits (box 2.1). By effectively raising the price of access, unnecessary waiting could be expected to sometimes reduce clinically-desirable demand. The use of telehealth for just 10 per cent of consultations would save about \$300 million annually in travel and waiting times. Even when waiting is unavoidable — as it is any customer service industry — waiting rooms could be used as a place for community health initiatives about risks. For example, this might include the simple COPD Assessment Test and the Royal Australian College of General Practitioners' Family history screening questionnaire (RACGP 2016)). The use of rooms for such purposes seems to be rare.

Australian doctors are, by international standards, less receptive to patients' capacity to access their own medical records. One indicator of this is an international survey by Accenture about patient access to their medical records — a prerequisite for patient participation in care, and in any case, an obvious element in any model that gives patients agency. 16 per cent of Australian doctors said that patients should have no access to their own medical record, 65 per cent favoured limited access, and 18 per cent supported full access (table 2.1). They were also less likely to accept that patients be able to amend their record to take account of medical events, such as allergic reactions or medication side effects. Australian doctors were significantly less open to access than were those in the United States.

Table 2.1 Doctors' attitudes to patient right to access and update electronic medical records^a
2013

<i>Patients should...</i>	<i>AUS</i>	<i>ENG</i>	<i>US</i>	<i>SING</i>	<i>CAN</i>	<i>SPAIN</i>	<i>FRA</i>	<i>GER</i>
have no access to EMR	16	6	4	7	14	13	11	34
have limited access	65	60	65	63	57	65	68	54
be able to update family medical history	49	47	67	54	54	43	65	37
not be able to update allergic episodes	26	23	15	20	21	17	10	19
not be able to update medication side effects	28	21	18	18	22	20	16	22

^a AUS is Australia, ENG is England, US is United States, SING is Singapore, CAN is Canada, FRA is France and GER is Germany.

Source: Accenture (2013).

Box 2.1 **Waiting, waiting, waiting ...**

The concept of a ‘waiting room’ is an oddly doctor-centric expression. It accepts as its basic premise that waiting after the allotted appointment time is expected and normal, when in other services, it is not. A more patient-centred system would use modern technology, such as SMS, to alert people of delays before they came to the practice or use available appointment management systems. The Commission estimates that the annual costs for patients of excessive waiting times for attending GP and specialist clinics might amount to about 0.1 per cent reduction in Australia’s annual labour supply and a cost of the order of \$900 million costs for patients — waste that is preventable (Knight et al. 2005; Knight and Lembkie 2013).⁵ This reflects the fact that small costs for each of the roughly 170 million annual physician attendances accumulate to large costs.⁶ There is strong evidence that waiting times affect people’s satisfaction with general practice (Potiriadis et al. 2008).

Similarly, online and phone based consultations could avoid both waiting room and travel costs. Even if only 10 per cent of consultations could be undertaken this way, annual savings to consumers would be about \$300 million.⁷

These experimental estimates relate to something that policymakers might regard as trivial, but that is because the health system concentrates on practitioners, and ignores the invisible burdens falling on patients (and employers). Moreover, such invisible costs are like copayments, and discourage people from physician visits despite illness. For patients, this is an adverse outcome. But for government funders, increases in service provision would have (initial) budgetary impacts (Ray et al. 2015), which may be one reason for the lack of policy prominence given to this issue.

Even if the scope for reducing waiting time was less than suggested above, more value could be obtained from waiting (Cass, Ball and Leveritt 2016; Sherwin et al. 2013). Waiting rooms could be used as a place for community health initiatives about lifestyle risks (for example, using surveys of the kind available on the UK’s NHS Choices website) or to seek or give information relevant to the given patient prior to the formal consultation (for instance, the Patient Health Questionnaire and the COPD Assessment Test). It would also be a place for initiating Advance Care Planning, in which patients with advanced illness or serious injuries can set down their preferences for care if, in the future, they are unable to make their own decisions (using the tools and guidance outlined in <https://www.advancecareplanning.org.au/state-information>).

There are legitimate reasons for doctors to be concerned about access to some records, such as pathology tests unguided by clinical guidance, but that has to be balanced by patients’ right to information often paid by them and about them. Accenture noted:

⁵ In the United States, where it appears lost time is greater, it has been estimated that the lost economic value from physician visits were US\$52 billion, though these estimates related to the total opportunity costs of time and not just the avoidable ones, as in the Commission’s estimates (Ray et al. 2015).

⁶ This includes total non-referred attendances of 141 million (including GPs, enhanced primary care, practice nurses) and specialist attendances of 29 million (DoH 2017a).

⁷ A barrier to such consultations is that they are generally not covered by the Medical Benefits Schedule. There are grounds for relaxing this, but with oversight to reduce the risk of over-servicing and excessive cost blowouts.

You see countries at one end of the continuum like the US where it seems that clinicians' attitudes are that not only should patients have access to much of the record, but they should be able to play an active role as a co-contributor. Australia is towards the other end of the continuum with countries like Germany, where doctors are more reluctant. ... the comparison across countries that points to a more deep-seated cultural issue around perceptions of the patient and the role that the patients play and should play in the management of their own care. I think some of it is a lack of familiarity with models of care where the patient is actively involved and plays a useful role. (McDonald 2013, p. 1)

Not all is bad. Most patients have a reasonably high regard for their doctor's interactions with them. Patient survey evidence indicates that about 75 per cent of patients thought that GPs always listened carefully, while only about one in twelve considered that their GP did this 'sometimes, rarely or never' (ABS 2016b; SCRGSP 2017, table 10A.65). Perceptions of respect were also generally positive (with 80 per cent saying their GP always showed respect). Outcomes were similar for specialists. However, people who had the highest level of socioeconomic disadvantage and the worst health status fared least well on most of these measures, which is a concern because they are the most vulnerable. It is also notable that the share of dentists who only 'sometimes to never' respected, listened or gave enough time to their patients were 40 to 60 per cent lower than GPs and specialists (SCRGSP 2017 table 10A.65).

The Commission's analysis also suggests that some practitioners have already taken a far more patient-centric approach (often with benefits to them as well), for example by improving appointment management processes (Montague Farm Medical Centre 2012) and using waiting rooms for health education and assessment purposes with the aid of electronic media and information technology (AMA 2014). Diffusion of best practice is then the challenge (section 9.3).

3 How can Australia move closer to a patient-centred system

There are many elements in the successful transition to a more patient-centred model of care:

- an ethos by all actors in the system in favour of it
- raising people's health literacy, and associated with that, giving people information that allows them to be participants in their care, including a capacity to self-manage. The rights to patient data would be one element of any such strategy (with the Productivity Commission seeing such rights to data as a broad requirement across many public and private services)
- providing choice to people where it can realistically be exercised, underpinned by readily interpretable measures of health providers' performance, accessibility, waiting times and prices. Extensive parts of the Australian health system already do allow some measure of choice, such as for GPs, pathology services, dentists, and many allied health professional services. There are however, still big gaps for acute and outpatient care. We do not cover the issue of choice to any great extent in this paper or the main report because it is a central concern in a parallel Commission inquiry into human services (PC 2017b)
- measuring the degree to which health providers meet people's needs — particularly through patient-reported outcome and experience measures (PROMs and PREMs), not just clinical judgments or administrative statistics about deaths and hospitalisation rates
- incentives for providers to take into account patient experiences
- identifying those people where the system should devote the greatest attention
- expectations that people would take some responsibility for their own health. Patient passivity reduces the scope for self-management of conditions and reinforces a provider-based system. Nonetheless, the potential for exercising responsibility requires the system to be responsive to it and for adequate health literacy, issues that are considered below.

3.1 Accepting the legitimacy of the concept

There needs to be acceptance by all the actors in the health care sector of a premise that patients are the centre of the system in the same way that disability care has shifted. Many Australian governments have accepted this premise, but patient-centredness requires

structural reforms and attitudinal changes by clinicians *and* patients. Many of these changes are not complete. In considering the receptiveness to measures of patient experience, one health researcher remarked:

Evidence suggests that the extent to which patients' experiences are utilized may be associated with health professionals' attitudes, including their willingness to consider and act upon the patient perspective. (Harrison et al. 2015, p. 17)

Governments and others could take several practical steps.

Health professional education and training needs to reflect the changing model of care. Governments play a role in shaping such education, and can put more emphasis on diffusing a patient-centred approach into the emerging health workforce. While not mature, there is already acceptance of the need for this (Collins 2014). Similarly, the various medical colleges will need to play a role in encouraging acceptance of a patient-centred system among current clinicians — and its implications for their practices. As one participant told us, 'patient-centric' is not 'just about being nice'.

Giving greater weight to patient convenience would represent a major shift in the orientation of the health care system. The change would be underpinned by not just attitude changes, but through the development, dissemination and (if necessary) funding of the technologies that assist this.

Another important change is to give people a greater capacity for making choices between alternative suppliers, buttressed by transparent measures of prices and performance. This is a key message from the Productivity Commission's inquiry into human services (PC 2017b). However, doing this, needs capable consumers, clinicians as willing partners and relevant information (section 3.2).

It should be emphasised that patient-centred care does not equate with giving people what they want if the services are not clinically justified or fail cost-effectiveness criteria for the group to which a patient belongs. While sometimes a patient might say they have had a bad experience because the system did not deliver what they wanted (say antibiotics for a viral infection or a CAT scan after infrequent headaches), few would regard it as desirable or ethical to provide services that harmed people or that used scarce resources better applied elsewhere. As observed in section 7.2, clinicians sometimes feel pressured to provide low-value services by demanding patients. Of course, that there are instances where physicians should not act to improve patient experiences does not invalidate the presumption that in most cases they should.

3.2 Health literacy

There are strong arguments for greater health literacy — 'how people understand information about health and health care, and how they apply that information to their lives, use it to make decisions and act on it' (ACSQHC 2014, p. 2). Several health experts

consulted as part of this inquiry considered it to be a critical feature of patient-centred care and effective choice. The Australian Chamber of Commerce and Industry likewise identify the lack of health literacy as a key impediment to improving health (sub. 37, p. 14). Health literacy is an enabler of prevention, better self-management of chronic conditions, patient collaboration with clinicians, a greater capacity for informed choice and effective advocacy. While the results vary, programs aimed at improving health literacy have been demonstrated as effective in changing health outcomes and in reducing usage of high-cost parts of the health care system (AHRQ 2011).

Yet health literacy is often poor. About 60 per cent of Australians have inadequate health literacy.⁸ This rate is higher, at nearly 75 per cent, for Australians aged 55 years or more, and they are those with the highest likelihood of chronic disease. People with lower education qualifications and income, whose parents have low education, live in regional areas, or have four or more chronic conditions were much more likely to have poor health literacy levels (ABS 2008; Williams et al. 2016b). Remarkably, about 40 per cent of people whose qualification related to health had inadequate health literacy.

While many Australians search for health information online, there is evidence that 99.6 per cent of online health information is beyond the average comprehension level of Australians (Cheng and Dunn 2015). In the United States, the situation is so bad, that the term ‘the health literacy epidemic’ has gained currency (Sørensen et al. 2012).

Health care costs and poor health outcomes are higher for people with low health literacy, for example because they fail to follow medication directions (ACSQHC 2014; Chessier et al. 2016; Levy and Janke 2016; MacLeod et al. 2017). One study suggests that after controlling for health behaviours and status (among other factors), limited health literacy has an impact that is nearly the same as chronic disease (Vollandes and Paasche-Orlow 2007), though meta analyses suggests that this is likely to be an inflated assessment.

There are several strategies for improving health literacy, with roles for all levels of Australian governments.

Populations vary regionally in their health literacy, and in the health issues that might best be the target of efforts to lift literacy. At the regional level, the key local health entities — PHNs, LHNs, community health centres and clinicians — are best able to identify the needs of communities for targeted efforts to measure and improve health literacy. They are also valuable sources of experimentation. As an example, the Northern NSW Local Health District (a LHN) and the North Coast Primary Health Network are currently developing a health literacy initiative in their region, with a particular focus on raising the capabilities of local clinicians (NNSWLHD and NCPHN 2016). It is intended that Health Care Homes — which are to be embedded in the local community — include assessment of people’s health

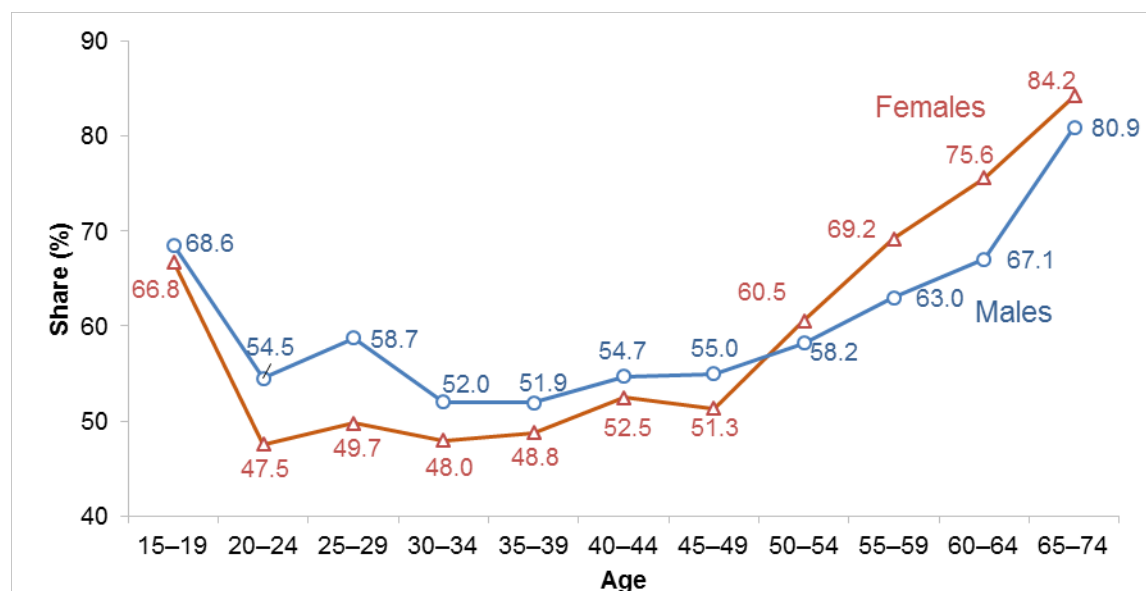
⁸ Defined as having competencies of level one or two on a five level scale (ABS 2008, *Health Literacy Australia, 2006*, Cat. no. 4233.0).

literacy (PHCAG 2016, p. 22). Hospitals and waiting rooms are potentially also attractive places for raising health literacy because people are already in a health setting and usually have time. All such programs are readily amenable to high quality evaluation — of the kind being used in a recent NSW trial for raising health literacy in socially disadvantaged adults (McCaffery et al. 2016).

Schools are the dominant place for raising health literacy as they are mandated to teach health education nationally, and *prima facie* are an ideal platform for raising people's capabilities. Their role in doing so is affirmed by key medical bodies, such as the Australian Medical Association (AMA 2015b).

However, their effectiveness in increasing health literacy is not clear. For instance, in one study it was found that 50 per cent of teachers delivering health education in public lower secondary schools were not qualified or trained in the area, with evidence that this is also a national problem (Barwood et al. 2016; Lynch 2013). Also approximately one third of teachers have inadequate health literacy (ABS 2008). One recent initiative in Ipswich demonstrated the complexities of achieving outcomes (McCuaig et al. 2012). Notably, inadequate health literacy is highest among 15-19 year olds and falls in post-school years, suggesting that health education may not be achieving good results (figure 3.1).

Figure 3.1 Inadequate health literacy^a is highest for the young and the old



^a Defined as having competencies of level one or two on a five level scale.

Sources: ABS 2008, *Health Literacy Australia*, 2006, Cat. no. 4233.0.

A particular challenge for schools is that inadequate health literacy is strongly associated with poor academic achievement, raising the importance of foundational skills as a complement to any efforts (chapter 3 in the main report). The Commission is not aware of

many high-quality evaluations of school-based programs to raise health literacy (Perry et al. 2014 being a rare example in the area of mental health literacy). Evaluation is needed to substantiate the post-school effects of health literacy programs in schools, especially for those students whose general academic achievement and schooling duration is lowest.

Not-for-profit agencies like *headspace* can also play a role both with employers and schools in promoting health literacy — and engagement with such groups are best orchestrated at the local level.

What role could My Health Record play?

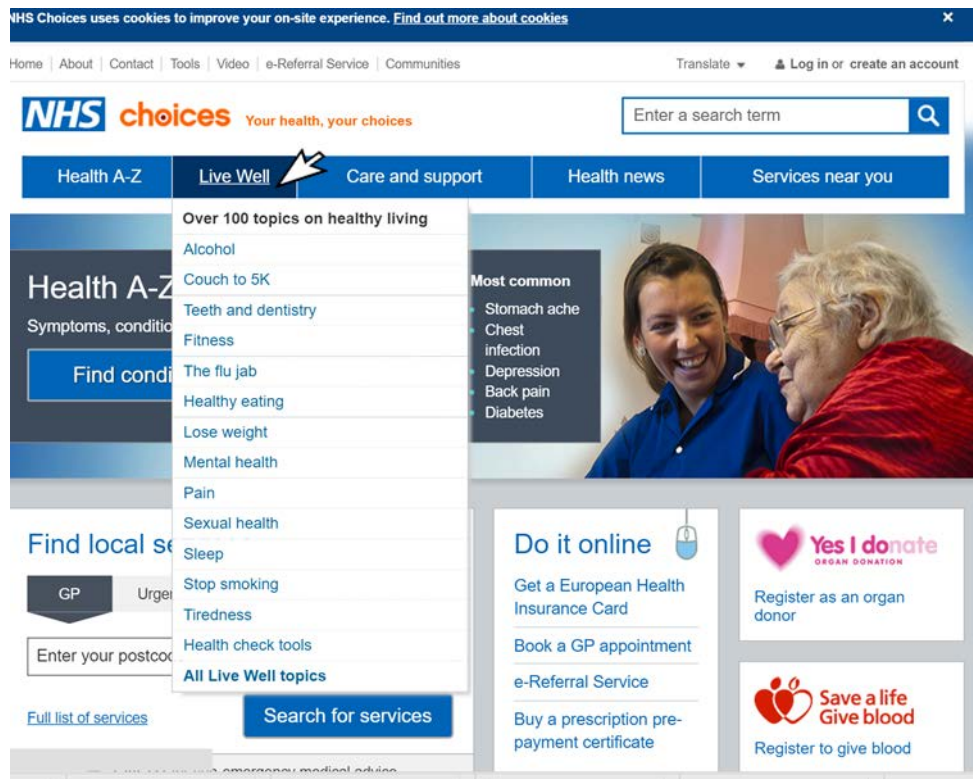
At the national level, My Health Record would be a new way of raising health literacy as it will become a ubiquitous way of engaging with nearly all Australians (following adoption of an opt-out system). First, it should link to information on health issues in a similar way to the UK's NHS Choices website (figure 3.2). It could include access to information about low-value interventions, along the lines of the technically accessible Choosing Wisely Australia guidelines.⁹ The information would have to be contemporary and evidence-based (a role that could be performed by the Australian Commission on Safety and Quality in Health Care), while its form would have to be tested for its comprehensibility. The various medical colleges would have to play a major role as collaborators in the development of content and in educating clinicians about the benefits of informed patients.

Second, My Health Record would be an accessible platform for simple tests of health literacy, such as the Health Literacy Questionnaire or the Newest Vital Sign test, to identify whether a person has a good capacity for assimilating health information — for their benefit and for clinicians (Beauchamp et al. 2015; Weiss et al. 2005). In turn, this would inform clinicians' approaches to advising their patients. The capacity to link data on outcomes would also enable continued refinement of any information provided to consumers. It would be possible to test whether any given approach to improving health literacy had any effects on hospitalisation rates, and indeed using random controlled trials (RCTs) to test what types of information are effective and for whom. The strategy taken for raising the health literacy of the elderly (who are intensive users of the health system), people in remote communities, men, or Indigenous Australians may be quite different from those for others. eHealth has the advantage of providing very low cost RCTs and for using behavioural insights to test the best ways of making information delivery more effective.¹⁰

⁹ See <http://www.choosingwisely.org.au/home#consumers>.

¹⁰ While My Health Record could usefully be an access point for reliable information, it should also be emphasised that people will always seek information from diverse sources even if high quality government-endorsed information is available. A major goal of raising health literacy is therefore to enable people to access information from *diverse* sources and to discriminate between high and low quality advice. Sorting the wheat from the chaff is a key skill.

Figure 3.2 NHS Choices webpage^a



^a Snapshot at 7 June 2017.

Source: <http://www.nhs.uk/pages/home.aspx>.

Third, My Health Record could provide custom-based advice depending on the health status of the person. For example, a person might be reminded of the potential need to have a vaccination or a screening test, such as a check for osteoporosis for post-menopausal women. The Australian College of Nursing supported a role of My Health Record as a source of information for self-care (ACN 2017). The clinician would ultimately be the decision maker (and their decision could be undertaken remotely in many cases). In the United Kingdom, a new artificial intelligence smart phone app has been developed that provides triage services for determining whether a person needs to be directed to a clinician (Burgess 2017). In the United Kingdom, the NHS is trialling this technology alongside its current non-emergency 111 telephone helpline. As it stands, this technology is independent of any personal medical record. A future development could allow a person to link such an app to their health record to improve the precision of any advice.

The high frequency of medication non-adherence and its adverse impact on health care outcomes and costs makes it a clear area for improving health literacy at the individual patient level. Medical non-adherence includes failing to fill a script, stopping medication earlier than advised, changing dosage, or taking other products (such as alcohol or over-the-counter drugs that affect the efficacy of prescribed medicines). The evidence

suggests that about 50 per cent of patients do not take their medications as recommended by their clinician (DoHA 2010b). At the end of two years, non-adherence to taking statins (the key drug class for lowering blood pressure and avoiding heart attacks) is as high as 75 per cent (Brown and Bussell 2011). In the United States alone, it has been estimated that improved medication adherence could save about US\$100 billion annually, and this is a dated estimate (Osterberg and Blaschke 2005). The problem will rise significantly with population ageing and the greater prevalence of chronic conditions.

Forgetfulness plays a role, in which case reminder notices issued through My Health Record by SMS would be a partial remedy. Non-compliance can also reflect lack of awareness of the consequences. For instance, underestimation of the risk of fractures is a major reason for non-compliance in taking medications for osteoporosis (Inderjeeth, Inderjeeth and Raymond 2016). More frequent patient interaction with physicians has proven effective in dealing with this, but is costly. Education and reminders through My Health Record may be a complement to this approach, and its effectiveness could readily be tested. A recent review of eHealth in this area observed:

Greater use of eHealth to improve health literacy at an individual and population level is an obvious priority area for research. There are few, if any, technological barriers and risks are likely to be minimal. (Car et al. 2017, p. 7)

Personalised advice (and interventions) could also be mediated through apps connected to electronic medical records. There are already several apps that link to My Health Record, such as Healthi, HealthEngine and Tyde, although these do not currently provide additional information beyond that already contained in My Health Record. There should also be a capacity to transfer information from wearable health technologies to My Health Record (and subject to a patient's consent, to his or her clinician), and, based on this information, to provide tailored advice to the person. Wearable activity trackers have already shown promise for post-surgery recovery in cardiac patients, pulmonary rehabilitation, and activity counselling in diabetic patients (Chiauzzi, Rodarte and DasMahapatra 2015).

One of the advantages of integrating care along the lines proposed in this paper is that a variety of parties — primary health networks, public hospital networks, clinicians, and insurers — will have aligned interests in maintaining care, developing apps, even subsidising wearable technologies targeted at given groups, and in promoting greater capabilities in health professionals to recognise and address the health literacy of their patients.

There are several barriers to using My Health Record as a tool *for* consumers:

- there are difficulties in engaging older people (and to a lesser extent, males). This was demonstrated by a registration rate of people aged 65 or more years that was less than half that of people aged 20 years or less when My Health Record was an opt-in system (ADHA 2017). Concerns about privacy and people's technical capacity to use the system may have played a role in this outcome (for example, ACN 2017). While an opt-out system will ensure more complete clinical records, it will not guarantee that

older people will use the system for their own purposes. This is problematic because older people use more services and are much more likely to have complex interacting chronic conditions where information given *to* them, not just recorded *about* them, is important.

- There is also evidence of a lack of awareness by people of the potential uses of the Record. For example, only 1071 people (0.002 per cent of registered users) had used My Health Record to lodge an Advance Care Planning Document by mid-June 2017, despite the relevance of such a document to all Australians.

While social marketing might partly address these barriers, advice from health professionals (regardless of where they operate in the system) about its value to people may be the most successful approach to encourage its use.

The presumption in much of the material is that low health literacy is a deficit in the patient, but this ignores that a role of health professionals is to tailor their communication to patients' health literacy level. Nurses, for example, tend to overestimate patients' literacy levels, and professionals fail to recognise that people with poor literacy are reluctant to reveal their lack of understanding of advice (Johnson 2014, p. 43). This is why My Health Record may be a good vehicle for testing literacy in a non-stigmatising way and communicating the results to clinicians. It also suggests that medical education should provide training on the importance of health literacy in obtaining good clinical outcomes and better patient experiences. This has been identified as a 'major gap' (Hill 2016).

To have its full impacts, health literacy needs to be accompanied by information on system performance

Health literacy can contribute to giving consumers more power and choice. But actually achieving these goals needs divulgence of information about the performance of providers. In some cases, that requires new measures of performance (the next section), and in others, transparency of prices and indicators of the quality of services provided by hospitals and clinicians (chapter 7).

CONCLUSION 3.1

Health literacy is one of the key determinants of health outcomes and a capacity for people to participate in their own care and make informed choices between alternative health providers.

Increasing health literacy should be a major objective of an integrated health care system. Achieving this will involve multiple initiatives:

- The funding reforms proposed in Conclusion 6.1 and the cultivation of experimentation and collaboration at the local level is a key way of developing effective health literacy in communities.
- It would be desirable to give more weight in health professionals' training syllabuses to the implications of people's health literacy for effective communication with patients.
- While having good prima facie validity as a mean of raising health literacy, health education in schools appears to suffer from the problems affecting other aspects of teaching, such as teacher capabilities. Few high-quality evaluations of the long-run effects of raising health literacy in schools have been undertaken, which should be remedied.
- My Health Record shows promise in improving health literacy by:
 - being a vehicle for assessing health literacy — with accompanying advice to people on where to acquire more skills if that is required or desired, and, if a person consents, permission for health professionals to access the results
 - lowering the costs of randomised control experiments to assess the most effective ways of communicating with people, based on their characteristics
 - providing tailored information that would allow greater scope for patient self-management and joint participation in health care decision making, potentially supported by the use of apps and wearable technologies.

Many of the benefits of health literacy — and in particular the capacity to exercise choice — require greater divulgence of the performance of clinicians and organisations, including hospitals and practices, and where they apply, prices.

3.3 Asking people about their experiences and outcomes

Some aspects of health care can only be assessed by asking people about their outcomes and experiences. Yet, to the degree that outputs and outcomes are measured in the health care system, they typically relate to clinical assessments, administrative records and notifiable events (death, adverse events, hospital discharges, readmissions and so on).

There are now well-established ways of assessing patients' experiences through Patient Reported Experience and Outcome Measures (PREMs and PROMs). PREMs provide insight into processes that affect patients' experience, for example they ask patients about the time spent waiting and the quality of communication. PROMs focus on patients' health

and their health-related quality of life. These ask patients for their views about post-operative outcomes (say their capacity for doing everyday tasks after a knee replacement), distress, and pain levels among other things. They are less subjective than standard satisfaction measures, though they may also have a role and sometimes overlap.

There is evidence that PREMs and PROMs lead to better decision making and patient experiences (Breckenridge et al. 2015; Chen 2016; Duckett, Cuddihy and Newnham 2016). They are now widely used in the United States, the United Kingdom, Sweden and the Netherlands and for given diseases in a range of other countries (OECD 2017a; Williams et al. 2016a).

Patient experience measures can relate to specific types of events — for instance adverse events in hospitals — where their insights can add new dimensions to routinely-collected data. As noted in a recent large-scale study:

Specifically, patients can provide valuable information regarding problems with continuity of care, medication errors and communication between staff and with patients. The information from patients is critical to identifying incidents and ultimately to reducing patient harm, but they are not routinely asked to provide these data. (Harrison et al. 2015, p. 16)

Some Australian State Governments are piloting PREMs and PROMs (NSW for both measures, and Victoria for PROMs).¹¹ In NSW, the Bureau of Health Information collects various PREMs for hospital admissions across the state with a routine Adult Admitted Patient Survey (figure 3.3). The BHI has also undertaken targeted data collection for Aboriginal people (NSW BHI 2016). Other jurisdictions also undertake patient surveys in hospitals, though their methods and survey frequency vary (ACSQHC 2012). There are also various disease-related registries across Australia that collect PROMs, such as the Victorian Cardiac Outcomes Registry (ACSQHC 2016b).¹²

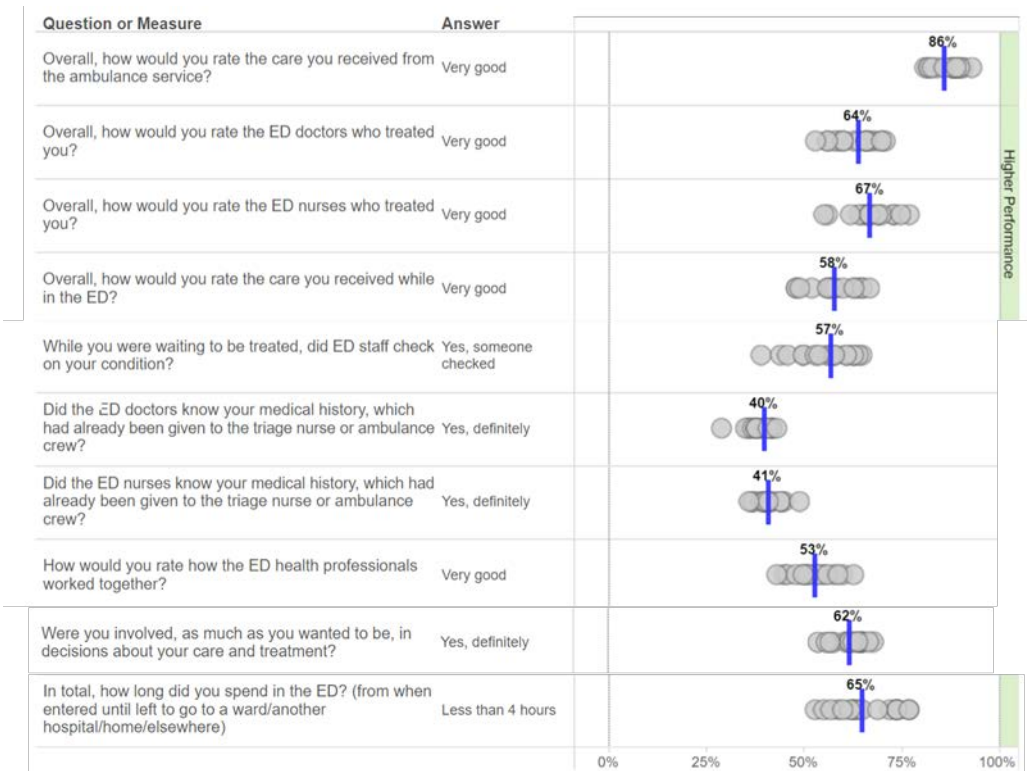
However, there is no coherent Australia-wide collection of patients' assessments of outcomes and experiences across various medical procedures (knee replacements, dialysis, breast cancer treatments and so on), and for different parts of the system (GPs, allied health care, specialists, acute and palliative care). Little is known about patient experiences in the primary health care sector beyond limited ABS survey data, and the instruments for measures in this part of the health system are still under development (ABS 2016b;

¹¹ For instance, the Northern Sydney Local Health District Osteoarthritis Chronic Care Program includes PREMs and PROMs as part of an explicit patient-centred approach (NSW ACI 2016b).

¹² The VCOR is a Victorian Government-funded collaboration between Monash University, the Victorian Cardiac Clinical Network and various Victorian hospitals. It collects data about patients undergoing cardiac treatments, procedures and interventions. It follows up medical outcomes and complications up to 30 days after hospital discharge. This information is used to report the outcomes of interventions and treatments back to hospitals and others to help determine the factors that contribute to and promote better patient outcomes. It also helps to identify the issues that may be impede better outcomes. (<https://vcor.org.au/>).

Gardner et al. 2016). PREMs and PROMs should be common across jurisdictions so that results can be more readily benchmarked and lessons learnt.

Figure 3.3 **A sample of the patient reported experiences for admitted patients in hospital emergency departments in NSW^a**



^a The circles relate to hospitals in various NSW Local Health Districts. Data are typically April 2014 to March 2015.

Source: NSW Bureau of Health Information, Healthcare Observer from <http://www.bhi.nsw.gov.au/>.

A starting point for change would be the general requirement for hard-headed ongoing assessment of patients’ assessments of outcomes and experiences — which would hold governments and health care providers accountable. The International Consortium for Health Outcomes Measurement (ICHOM) — a global collaboration on the development of outcome measures — has already developed standard outcome measures for just under 50 per cent of the global disease burden. It would provide a good starting point for the collection of data for many diseases.

The immediate universal rollout of new data collections that measure patient experiences and outcomes would be risky. Clinicians need to accept the legitimacy and value of the measures, and the compliance costs of data collection would be high unless the instruments, the associated IT and training were geared to reduce these. As users of the health system, Australians will need to know in plain English what PROMs and PREMs mean for them (‘Why am I filling out this questionnaire?’ ‘Why will it help me get better

outcomes?). Such system changes require time and resourcing, and suggests pilots, as in Victoria and New South Wales, building on the experiences of other countries that have already implemented PREMs and PROMs.

The adoption of PREMs and PROMs should be accompanied by the development of guidelines indicating how clinicians, administrators and funders should reflect the outcomes of these measures in health care management. The guidelines should be co-designed by all of the above parties in a collaborative effort, with the ACSQHC being a natural vehicle for progressing this.

CONCLUSION 3.2

The realisation of patient-centred care requires measures of how patients experience the system and their reports of the outcomes.

This requires the development of well-defined measures of people's experience of care and the outcomes they observe (so-called Patient Reported Experience and Outcome Measures — PREMs and PROMs), and integration of these into disease registries.

The Australian Commission on Safety and Quality in Health Care (ACSQHC) would be the orchestrator of these developments, in consultation with State and Territory Governments, consumer groups representing patients, the various medical colleges, and specific clinicians with expertise in the relevant fields.

PREMs and PROMS should not vary across jurisdictions.

State and Territory Governments should commit to the development of PREMs and PROMS for primary and acute care, underpinned by an implementation timetable. The measures should initially be confined to pilots in given specialities and locations.

Jurisdictions should agree on sharing information about pilots and on the evaluation strategies for them. Compliance costs and implementation risks should be an explicit consideration in forming the timetable.

The ACSQHC should develop guidelines indicating how clinicians, administrators and funders should reflect the outcomes of PREMs and PROMs in health care management.

Regardless, PREMs and PROMs should be published at the hospital level in all jurisdictions and potentially at the clinician level. If nothing else, clinicians should be informed about how patient experiences of their care compares with their peers.

Publicly available PROMS and PREMs should be explained in plain English with the goal of being accessible to patients with a reasonable degree of health literacy.

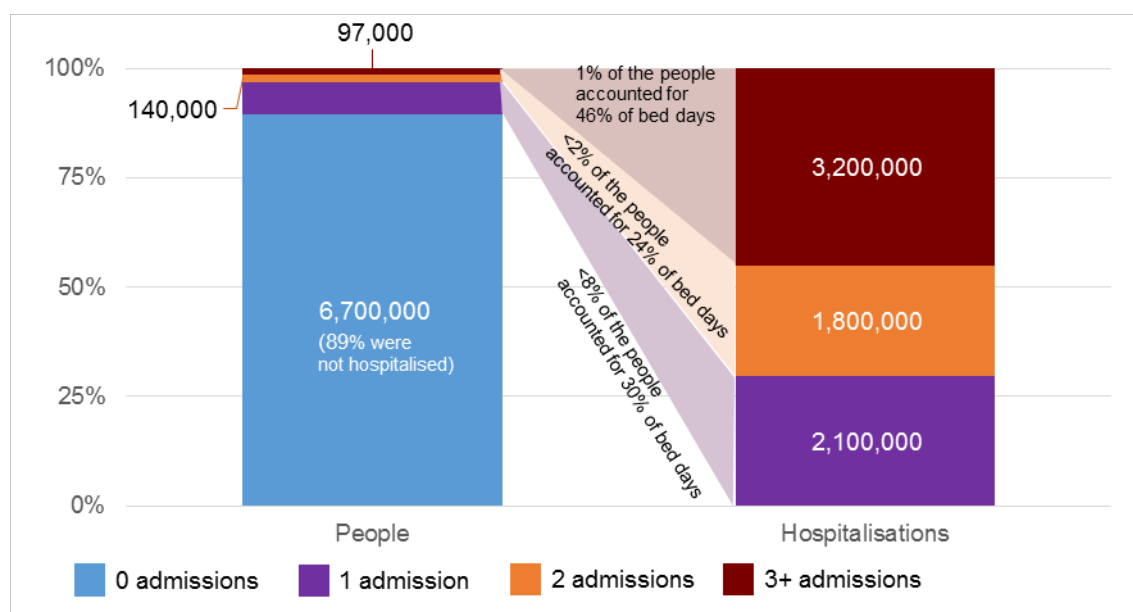
3.4 Targeting patient-centred care

A common feature of health care is that some groups make very intensive use of the health care system. Identifying such people and tailoring services to their needs can have large

social and economic benefits. As indicators of the concentration of problems among some groups:

- In the Diabetes Care Program, 5 per cent of participants accounted for 62 per cent of potentially avoidable hospitalisations (appendix A). That program failed to adequately target such people for additional care and support, but had it succeeded in doing so through more elaborate risk modelling and targeting of the capitation payments, it would have improved the wellbeing of the people concerned and saved costs.
- In 2013-14, one per cent of the NSW population were admitted to hospital three or more times — accounting for 46 per cent of the 7 million bed days (figure 3.4 and NSW BHI 2015a).
- The Ambulance Service of NSW found that between July 2013 to July 2015, 2693 people (0.31 per cent of ambulance users) accounted for 64 434 ambulance uses (calls that resulted in dispatch) or 4.7 per cent of total ambulance uses over that period (CEC 2016). Ten patients accounted for 1360 ambulance uses. Chronic pain, complex psycho-social factors and inadequate engagement with the primary care health system were significant drivers of use by this small group of people (McLaughlin 2014; Wildon 2014).

Figure 3.4 A few people account for a large share of hospital admissions
NSW 2013-14



Source: NSW BHI (2015a, p. 48).

Targeting such groups through patient-centred care models can be very effective. For instance, 88 high-end frequent ambulance user patients in NSW have been case managed by the Frequent Use Management program from its commencement in September 2013,

with the program taking a patient-centred approach. During the period January 2014 to December 2014 there was a 77 per cent reduction in calls from patients being managed by the program (NSW Ambulance 2015).

CONCLUSION 3.3

Relatively small groups of people account for a high usage of services.

While a patient-centred approach should apply to all people in the health system, it is particularly important to discover those who are the most vulnerable and intensive users of the health system and build services around them to manage their chronic conditions better.

Better utilisation of data will be a key to discovering these high-risk groups.

4 A regional approach is needed in collaboration and funding

Integration of care is generally best managed regionally, reflecting local knowledge and relationships, variations in the characteristics of regional populations, an efficient scale for managing health service delivery, and integration with other parties that address local population health (Baker et al. 2008; Ham 2010; Ham and Timmins 2015; Nicholson, Jackson and Marley 2013; Suter et al. 2009).

All jurisdictions have made progress towards a regional approach to care, providing a good foundation for further reform. Local Hospital Networks (LHN) are public sector bodies that manage hospitals and state government health services in a given area.¹³ Primary Health Networks (PHN) are private entities that have been contracted by the Australian Government to improve the efficiency and effectiveness of services and to coordinate patient care in their locality, including by working collaboratively with Local Hospital Networks. For that purpose, the geographical boundaries of Australia's thirty one Primary Health Networks are generally aligned with those of the LHNs in each State and Territory jurisdiction. This regional structure lays the foundation for integrating health care.

Some PHNs and LHNs have been building on this foundation, working together to deliver integrated health — and where they do, for example in Western Sydney, Brisbane North, and the Hunter, they are proving effective for improving the coordination of care (appendix A).

While there has been a greater policy orientation to subsidiarity in health care, the journey is far from complete, nor the arguments for it, completely accepted. Partnerships between PHNs and LHNs are currently rare in Australia, a consequence of relatively weak financial incentives, and underdeveloped governance arrangements for their universal adoption and (based on feedback from stakeholders) the likelihood that there is insufficient funding of PHNs for them to achieve their goals — an issue we examine further in chapter 6.

Moving to a more regional model makes sense from multiple perspectives.

¹³ The role, governance and names of LHNs vary across state and territory jurisdictions. Generally, they are responsible for delivering or procuring hospital services, public dental services, and community and public health primary services. Except in the ACT, they are a separate government agency from the department of health. LHNs are known as Local Health Districts in New South Wales, hospitals or Health Services in Victoria, Hospital and Health Services in Queensland, Health Services in Western Australia, Local Health Networks in South Australia, the Tasmanian Health Service, Health Services in the Northern Territory and the Local Hospital Network in the ACT.

4.1 Relationships matter

Relationships and collaboration at the local level are critical to successfully progressing towards an integrated system of patient care. The evidence shows that effective integration of primary and secondary care services requires joint planning by regional primary and secondary institutions, including formal agreements, multilevel partnerships and joint boards (Nicholson, Jackson and Marley 2013). Likewise, the sharing of clinical priorities, a shared electronic health record and agreement to share relevant data are prerequisites for productive partnerships. Examples of such collaboration between LHNs and PHNs in Australia are rare, but where they exist, they have improved population health, delivered higher quality services, been more cost-effective and increased workforce satisfaction (box 4.1 and appendix A).

There is little in the current health system — outside hospitals — that resembles the teamwork and clarity of relationships that take place in normal ‘production’ processes. A key feature of integrated care is *willing* collaboration between different parts of the medical workforce, administrators, researchers and funders. Collaborators’ satisfaction with multidisciplinary integrated care depend on many factors.

These included communication; workload; clear roles and responsibilities; clear leadership/decision making; facilities/infrastructure; knowledge, training and skills; provider engagement; trust and respect between providers; usefulness of collaboration; impact and benefits; management; access; and flexibility of the integrated model (Stephenson et al. 2015, p. 4).

Participants in the inquiry often emphasised the need for ‘buy-in’ from clinicians in implementing integrated care given many clinicians were time poor and distrustful of new initiatives that involve changes to their practices, funding arrangements and clinical relationships. The Commission was also told how often personal relationship and networks made it possible to develop trust and obtain agreements between disparate parties and to innovate. Finding the right partners in any given health intervention depends on knowledge of their capabilities. The following two (hypothetical) conversations are plausible at the local level:

XX is a very competent and enthusiastic director of the Community Health Care Centre and she’d love a chance for partnering on that idea.

YY just pursues old ways of doing things — choose someone else as a partner for that initiative or you’ll be blocked at every move.

These are not judgments that could be made remotely by a distant bureaucracy.

In discussing integrated care with various participants in this inquiry, the Commission was also told of negative undercurrents that affected the relationships between general practitioners, allied health professionals, nurses (including nurse practitioners), specialists and health administrators. These arose from multiple quarters — such as different perceived levels of prestige and power, the academic difficulty of the disciplines, relative

earnings, concerns about the scope of practice, lack of respect, and loss of autonomy.¹⁴ While any such tensions are not uniform, they must affect the capacity for a multidisciplinary and collegiate approach to patient care, as well as the capacity for innovation and diffusion of best practice.

One qualitative study of attitudes of doctors found:

Indeed, almost all of our participants had something to say about the disrespect that they or their colleagues had experienced from hospital managers or university bureaucrats. Here their concern was not so much about the rights of doctors by virtue of their status, but rather a lack of regard for doctors' perspectives, expertise, and efforts. (Lipworth et al. 2013, p. 9)

The implication is that integrated patient-centred care needs the able fostering of relationships and trust between parties where that has often been weak. Structural reforms will not be enough.

A regional model still requires oversight by the Australian and State and Territory Governments. They have a key role in encouraging local collaboration by setting the same broad priorities for each party and by holding boards accountable for objective measures of performance.

Across all jurisdictions, key performance indicators are already available for some aspects of care, mainly at the hospital level. For example, state government reporting frameworks include, among other factors, patient satisfaction, pain reduction, hospital hygiene, survival rates for cardiac arrest, operational efficiency, and post-discharge follow-up rates (NSW MoH 2016; Vic DHHS 2015).

In contrast, measures of the performance of general practice is sparse. This is largely the result of governance and funding arrangements for primary care. As noted by two policy analysts:

The states manage public hospitals, while the Commonwealth has accepted 'lead responsibility' for primary care. However, the way they perform these roles is quite different: the states have clear responsibility for delivering hospital services, but the Commonwealth confines its responsibility for primary care primarily to funding ... There is no comprehensive framework in Australia for measuring or rewarding quality and performance in primary care. (Duckett and Swerissen 2017, pp. 7, 15)

In part, the scarcity of performance measures also reflects that most general practices are small and with that, have a weaker capacity to manage information compared with hospitals. Nor is the primary care payments system geared to provide clinically-relevant information (as the most common MBS items are consultations with unknown interventions). Electronic health records are changing this. For instance, a patient record

¹⁴ There is a voluminous — largely qualitative literature — on such attitudes across most Western health systems (Clarín 2007; Lipworth et al. 2013; Rogers, Creed and Searle 2012; Schadewaldt et al. 2013; Street and Cossman 2010; Tierney et al. 2016).

can identify how many patients with type 2 diabetes lose their vision, suffer limb amputations, experience renal failure and cardio-vascular disease, become obese, have unplanned admissions to hospital, and have elevated glycated haemoglobin levels. While much of this information would be entered by hospitals (thus reducing any compliance burdens of record-keeping by GPs), the measures would be indicators of the effectiveness of primary care in managing diabetes. While no single instance of any of the above outcomes suggests poor care, when aggregated across time and patients, they will highlight general practices where care is highly effective and others that could improve their management of diabetes. They will also indicate whether collaborative efforts by PHNs and LHNs are delivering the desired outcomes, and if not, where the failings and lessons lie. Accordingly, for accountability and learning, more work has to be undertaken to develop KPIs for primary care, while avoiding excessive data collection, and choosing the best point at which to collect the information (chapter 9).

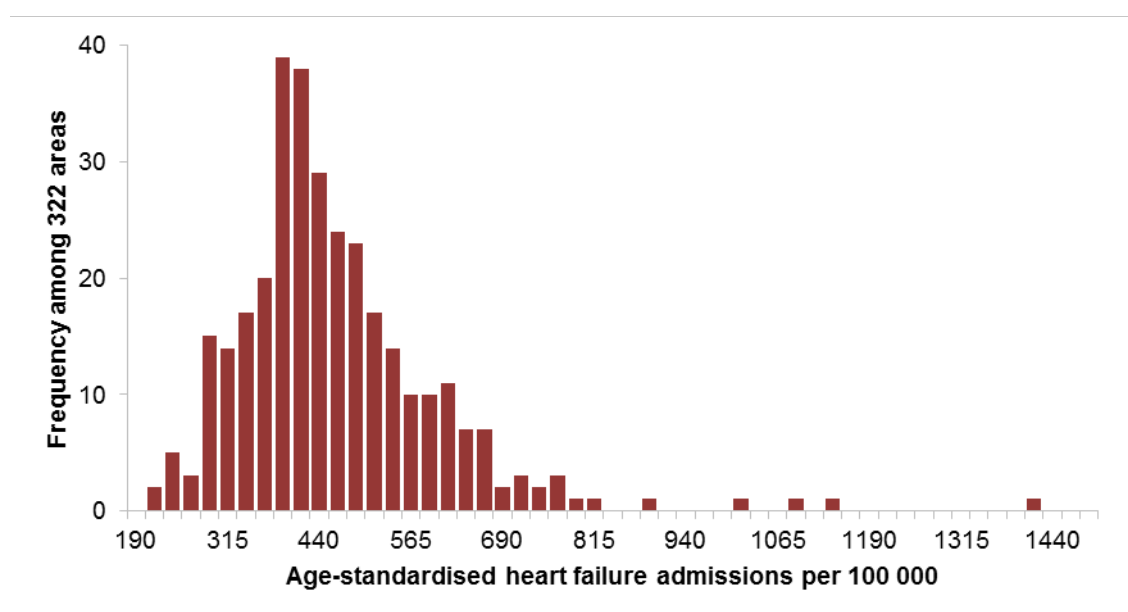
4.2 People and regions vary

Health needs vary across regions, with a need for custom-made variations in the allocation of resources. In an area where there are concentrations of older people, dealing with falls and loneliness — both associated with avoidable hospitalisation and low wellbeing — would be a higher priority for preventative and management strategies undertaken by PHNs, LHNs and community health care centres. In other regions, different issues would predominate. Hospitalisations for regular dialysis is twice as common for people in remote and very remote areas (AIHW 2013). Diabetes rates and associated limb amputations, obesity levels, smoking rates, suicides, and heart failure admissions to hospital demonstrate large variability across regions (figure 4.1; ABS 2016a; AIHW 2016d, 2016e). For instance, in the latter vein, the Australian Commission on Safety and Quality in Health Care has emphasised that effective management of heart failure requires a multidisciplinary integrated approach across the acute, primary and community care sectors, and health promotion strategies like physical exercise and fluid intake, with the latter being obvious target for tailored local initiatives (ACSQHC 2015, p. 321).

Suicide prevention is another illustration of the potential value of regional responses. Cliffs, bridges, tall buildings and other manmade structures in certain locations are often suicide hotspots, where changes in the local environment to reduce access or provide help (for example gates and fences, signs with helpline numbers, and CCTV monitoring) have been shown to reduce overall local suicide rates (CHPPE 2012). Preventative measures on such a localised level need the involvement of local agencies, including local government. Regional decision makers have detailed local knowledge and the capacity to determine the amount of funding they should devote to this area of public health compared with others. That would not eliminate the role of State, Territory or the Australian Government in this area. They could still provide national prevalence statistics by area, and develop general national protocols for addressing local suicide risk that regional decision makers could draw on in making their local decisions. Ideally, funding hypothecated to specific public

health concerns by governments would be better pooled and given to regional decision makers so they can allocate it to the highest value areas of concern among their local competing health priorities. If governments still provide funding centrally, as is proposed for a recent Australian Government initiative to address suicide hotspots around Australia (DoH 2017b, p. 17), local decision makers would best be left to decide how it is to be spent on suicide mitigation.

Figure 4.1 Heart failure variations by area, 2012-13^a
Heart failure hospital admissions per 100 000 people aged 40+ years



^a Age standardised by Australian Bureau of Statistics' Statistical Area Level 3.

Source: Australian Commission on Safety and Quality in Health Care and National Health Performance (ACSQHC), 2015, *Australian Atlas of Healthcare Variation*, chapter 6 data.

4.3 Experimentation thrives among diverse thinkers and diverse environments

Regional flexibility gives permission for experimentation. The international evidence shows there is no single best model of integrated care, and that therefore central governments should step away from prescriptive rules about how it is delivered. Devolution to the regional level can also partly address the perpetual contest between Australian, State and Territory Governments about their competing roles in orchestrating the system using tops-down approaches. In the view of the Australian Chamber of Commerce and Industry (sub. 37, p. 15), for example:

The fragmented and complex web of government roles in different parts of the health system also makes enduring or meaningful structural change difficult to achieve.

Devolution to the regional level can help to circumvent barriers to improvement associated with negotiating agreement at multiple levels of government.

Some PHNs are already demonstrating local innovation, encompassing activities as diverse as: implementation of health pathways; use of allied health professionals for preventative health; models of care for general practice to adopt for patient weight management; capability building of physicians through professional development; and the development of telehealth initiatives.

Even within the current restrictive funding framework, some PHNs have formed alliances with other health care entities in their region to deliver integrated care for particular chronic conditions (box 4.1). In Queensland, the government established an Integrated Care Innovation Fund that requires Local Hospital Networks to partner with Primary Health Networks in order to receive funding. It may also be desirable for governments to strengthen local innovation by making LHN and PHN board appointments independent of the respective health Minister, as recommended for Victoria's LHNs by Ham and Timmins (2015).

That does not preclude initiatives at a higher level of government that are then implemented at the regional level. Bonuses can be effective for achieving behavioural change and facilitating the diffusion of best practice. Under activity-based funding, this can be achieved with payment loadings on given activities, such as establishing a stroke unit where that is a cost-effective option (Queensland Department of Health 2016a). This loading assisted hospitals to make changes to their stroke management, with known benefits for mortality.

In New South Wales, the Agency for Clinical Innovation (ACI) undertook a major initiative to improve stroke management in hospitals, after compelling evidence from the NSW Bureau of Health Information of inexplicably large variations in mortality outcomes across hospitals. The ACI recognised that some of the variations would reflect factors outside the control of hospitals and that local features mattered:

By providing reliable service data and reaching out face-to-face across NSW, the SCAP [Stroke Clinical Audit Process] has increased the profile of unwarranted clinical variation in general and demonstrated that unwarranted clinical variation is a local issue with local solutions. (NSW ACI 2017, p. 3)

Box 4.1 Hunter Diabetes Alliance: better diabetes management

The alliance involved collaboration between the four prominent health care providers in the region — Hunter New England Local Health District, Calvary Mater, Hunter New England and Central Coast Primary Health Network, and Hunter Primary Care.

The Hunter area has a higher than average prevalence of type 2 diabetes mellitus (T2DM) and the complications associated with it, and there was significant variation in care — which made T2DM a priority for intervention.

The alliance created integrated clinics in GP rooms involving a multidisciplinary team (the patient's GP, a practice nurse, an endocrinologist and a diabetes educator), the patient and their carer. The aim of the model was to improve diabetes control, patient experience and self-management; to support clinically-justified prescribing and monitoring; increase GP team diabetes knowledge and skills; address barriers to implementation of best practice diabetes management; and reduce the time taken by clinicians to initiate or intensify treatment. The model of care drew heavily on collecting patient data to monitor progress and respond (including benchmarking against other practices).

Over 14 months, 456 patients with T2DM were seen. At the start of the intervention, 29% of T2DM patients with a BMI>35 had not seen a dietician (noting a BMI>30 is regarded as obese), 12.5% had not had their glycated haemoglobin levels (HbA1c) checked in the last year (despite this being a key measure of future adverse outcomes like coronary heart disease), and 33% had no record of testing for urine microalbuminuria (an indicator of kidney damage).

After the case conference, 92% of patients had medication changes recommended. Thirty-six per cent were referred to a dietician. After a 6 month follow up for a sample of patients, there was a significant improvement in HbA1c levels, 51% of patients had lost weight; and the share of people exercising for 30 or more minutes per day increased from 30% to 75%. A significant share of patients reported improved knowledge, confidence and skills in self-management. Overall clinician costs of care fell by about 20%. The 'did not attend rate' fell from 25% to 2%. And it cost less. The evaluation found a range of qualitative improvements (as shown below).

(continued)

Box 4.1 (continued)

<i>Orthodox Model</i>	<i>Alliance model</i>
Consultations at hospital	Consultations close to people at GP clinics
Recommendation made to GPs, which may not be implemented by GPs	During the case-conference, the GP takes ownership of recommendations and implements them
Little skill development of primary care team (letters sent only)	High levels of upskilling for primary care practitioners, including live demonstrations in case conferences
Specialists obtained limited information and consultations were slowed down to gather data	Comprehensive information available with GP database (also saving time)
Multiple routine follow-ups with specialists	No routine follow-up from specialists. All follow-ups were at the GP practice from the primary care team. Liaison with specialist if needed.
Limited development of partnerships	Based on a partnership model
By definition, no new learnings to be diffused	Potential to improve entire practice cohort

^a There were some differences in the data reported by the two sources below (likely to reflect updated information used by Lynch et al. 2016). The biggest discrepancy related to the share of patients reporting improved knowledge and confidence in diabetes management, but both measures were still material.

Sources: Lynch et al. (2016) and Hawker et al. (2016).

The ACI's approach helped redress unusually high mortality from stroke in certain hospitals (section 9.3 of chapter 9). But it also indicated the value of data (the basis for discovering the problem), local engagement, behavioural change and measurement of impacts — all requiring trusted networks and local buy-in.

At the Australian Government level, the prospective Health Care Home program has many positive elements. However, capitation payment rates are fixed across the various locations, and it does not include provisions for LHNs and PHNs to change the funding model or develop innovative contracting and incentive approaches with the Health Care Homes. That suggests that there are benefits in retaining Health Care Homes as a Commonwealth-initiated initiative, but with permission for, and indeed encouragement of, local adaptation.

Moreover, as discussed earlier, the success of financial and non-financial rewards to motivate lifestyle behavioural changes or to increase compliance with care plans, medication and attendance at health care facilities depend on the context. Local area bodies are likely to be best able to experiment, learn and transfer their experiences to others. As PHNs and LHNs are close to their community, real time assessment and qualitative judgments can more quickly establish whether an experiment should be modified or abandoned. Central organisations would remain relevant as supporting (rather than directing) institutions, assisting in contributing ideas, providing advice on evaluation, consolidating and analysing data, and diffusing knowledge about what works (and what doesn't).

Moreover, under the blended funding arrangements envisaged by the Commission, LHNs and PHNs have strong incentives to discover the interventions that save them money (such as through lower hospitalisation rates).

Of course, experimentation should not be arbitrary. There are common features to effective models of integrated care (illustrated in figure 2.1 in chapter 2 of the main report). In particular these require a patient-directed approach, breaking down of the boundaries between the medical disciplines, highly-developed supplier links underpinned by aligned incentives for cooperation (relating primarily to community health, general practice and hospitals), and data sharing. In short, there should be a coherent system for addressing all of a patient's needs.

4.4 There should be links to regional community services and public health initiatives

Public health is sometimes seen as the poor cousin of the integrated care family because of the weight given to joining up conventional health care services. The public health role of integrated care is often largely isolated to vaccination, maternal and infant health monitoring, and advice from clinicians and allied health professionals about lifestyle risks, such as smoking, physical activity and obesity (though currently physicians rarely provide such advice). These are all very important, but there is more to public health.

There is a strong *prima facie* rationale for a greater emphasis on public health and prevention in an integrated system, and in particular, an extension to community engagement and purchasing services that may have public health benefits and advocacy. For example, this can encompass:

- engagement of the community, paid community workers and the not-for-profit sector to assist vulnerable people. Social housing, drug rehabilitation and harm minimisation services, outreach to homeless people and sex workers, and engagement with families at risk are examples of areas where public health and community services intersect with primary health (for example, as described in VicHealth 2009). Provision of meals on wheels is another illustration, with evidence (albeit incomplete) of social and health benefits (Campbell et al. 2015). There are, more broadly, grounds for interventions to relieve people's loneliness because of its effects on people's wellbeing (Ong, Uchino and Wethington 2016; UKLGA 2016; Willett 2015). There is (as yet incomplete) evidence that loneliness and low social participation rates are associated with higher re-hospitalisation rates, longer hospital stays, greater visits to physicians, higher participation in behaviours with health risks, and greater mortality.¹⁵ For instance, poor

¹⁵ For instance, Gerst-Emerson and Jayawardhana (2015); Newall et al. (2015); Ong et al. (2016); and Taube et al. (2015).

social relationships are associated with a 29 per cent increase in risk of incident coronary heart disease and a 32 per cent increase in risk of stroke (Valtorta et al. 2016)

- partnerships with commercial parties that may voluntarily change their practices. (The Commission was told of a local hospital network that successfully engaged with local supermarkets about promoting healthy eating)
- social marketing about lifestyle risks (where that works)
- engagement with, and learning from, private health insurers and bodies that regulate workforce, health and safety
- engagement with state bodies responsible for interregional infrastructure decisions, which can have implications for health, for example through their impact on road safety (Australasian College of Road Safety sub. 34, pp. 4-6) and/or air quality (Clearways sub. 44, pp. 26-27)
- cooperation with local governments about the services they provide, and the built environment, such as access to recreational facilities. Sometimes information provided by a local government agency to a health service can trigger other needed services (box 4.2).

There are limits to the *direct* role of the health system in some areas that affect health risks. Some public health measures require coercive action through taxes and regulation — tools that have proven effective in reducing the risks from tobacco use and vehicle accidents (appendix D). Other measures relating to the management of people with drug and mental problems involve the criminal law and the justice system. The use of these measures involve considerations outside health care, such as regulatory burden, community norms and the acceptable boundaries on the powers of the state, which mean that the decisions should be directly politically accountable. Nevertheless, there are grounds for more systematic involvement of the parties responsible for health policy and purchasing with those making regulatory and tax policy decisions, including through data sharing that would allow more effective assessment of the health impacts of such policies.

Box 4.2 Two brothers — a journey to better health

The Latrobe City Council and the Latrobe Community Health Service have been working together for several years to improve service coordination. In one case, two brothers were referred to the city council for meals on wheels. Assessment indicated the need for provision of other services by the Council and the Health Service that went well beyond meals on wheels, but included multiple coordinated interventions.

- ‘Fred’ and his brother were poor at meal preparation, and purchased many takeaways (creating financial pressures). A dietician assisted them in shifting away from this pattern of eating.
- Fred found it difficult to swallow and was referred to a speech pathologist.
- Fred found it hard to undertake personal care as a result of dizziness and fatigue — and was assisted by an occupational therapist.
- Fred was often in severe pain, was depressed and talked of suicide. A mental health caseworker provided assistance.
- The brothers had difficulty controlling spending on poker machines, increasing their financial burdens. A financial counsellor provided support and planning.

The practitioners involved in Fred's care used a common electronic support plan and given access to an e-care planning system so they could follow progress and know about others' interventions. Outcomes for Fred and his brother improved significantly from this joint approach.

Source: Victorian Government, Department of Health and Human Services (2016e).

4.5 Horses for courses — not everything should be devolved

While devolution and links between primary care and hospitals are probably the most important directions for the Australian health system, some functions require coordination and cooperation across regional boundaries, or exhibit significant economies of scale — which means they are best left at the national level. There are myriad Australian State and Territory Government agencies and committees whose existence is justified on these grounds. Almost all research activities fall into this category, although that should not limit the capacity and desirability of strong links between researchers and regional decision makers.

CONCLUSION 4.1

There are compelling grounds for greater devolution of decision making about primary health initiatives to local health institutions, involving alliances between primary health networks, community health centres, local hospital networks, and local governments.

The goals of such alliances should be:

- effective preventative health
- better management of chronic conditions
- reduced need for the (high-cost) hospital system.

Subject to achieving the above goals, collaborative arrangements should extend to non-government parties — such as not-for-profit enterprises and private health insurers.

Changes to funding (conclusion 6.1) and attitudes by parties not accustomed to collaborative arrangements are needed to support any alliances.

Formal mechanisms, such as memoranda of understanding, joint board memberships, compatible electronic health records, data-sharing agreements, localised health pathways and broader involvement of diverse parties on decision-making boards, will be required.

Governments should hold the boards of PHNs and LHNs accountable for their impacts on patient experiences, efficiency and outcomes across primary care, and not just the hospital system. This requires refinement of KPIs that measure the effects of primary care.

At the Australian Government level, the leading examples of functions best undertaken centrally include the estimation of hospital costs that underpin activity-based funding (undertaken by the Independent Hospital Pricing Authority), the centralised purchasing of pharmaceuticals (the Pharmaceutical Benefits Scheme and the associated Pharmaceutical Benefits Advisory Committee), the assessment of the safety of new technologies and drugs (the Therapeutic Goods Administration), the systematic evaluation of quality across the entire Australian health system (the Australian Commission on Safety and Quality in Health Care) and a centralised repository for health statistics (the Australian Institute of Health and Welfare). Similarly, committees like the Medical Services Advisory Committee provides advice to the Australian Government on new medical services proposed for public funding.

State and Territory Governments sometimes also have expert bodies whose work could not cost-effectively be replicated at the regional level.¹⁶

¹⁶ Examples include the various behavioural insight units, the NSW Bureau of Health Information, the NSW Agency for Clinical Innovation, and specialist functions in all of the jurisdictions' departments that have responsibility for health care.

In addition, while there are strong grounds for experimentation at the PHN/LHN level, there are compelling grounds for interoperability in information technology for managing medical records (which require cooperation), and for links to My Health Record. Moreover, as discussed in chapter 9, there is an imperative for data sharing and an established vehicle for diffusing successful initiatives across regions and jurisdictions. Not all Australian States and Territories quickly adopted NSW's Ambulance Frequent Use Management Program.

There *may* be some scope for pruning the many bodies by substituting some at the state and territory level and replacing them with cross-jurisdictional entities funded jointly by the Australian, State and Territory Governments. For instance, the Australian Commission on Safety and Quality in Health Care is jointly funded by all governments to lead and coordinate national improvements in safety and quality in health care. Yet, NSW still has a Clinical Excellence Commission, which is the lead agency for quality and safety improvement in NSW. Other jurisdictions include clinical excellence functions in their health departments (which has the virtue of sharing some common costs and allowing a greater degree of flexibility in shifting resources between the multiple tasks such departments must undertake).

The Productivity Commission has not examined whether the apparent duplication is a genuine problem because it is easy to advocate neatness and not always prudent to follow through. There are differences in regulatory requirements in health between jurisdictions that would need to be addressed before any re-structuring. Change itself creates costs — and those costs are upfront and might not cover the long-run benefits. There might also be alternative hybrid arrangements whereby state and territory bodies agree to share some common aspects in their functions, while leaving other functions alone.¹⁷ That said, it is easy for bodies and functions to proliferate over time, and unlike the various Commissions of Audit at the jurisdictional level, there is no periodic re-consideration of whether there is scope for economies across all jurisdictions. It is time to look.

Many public health initiatives — regulations, school-based education and information campaigns — are often best progressed by Australian, State and Territory Governments. Given section 90 of the Constitution, taxes, such as those levied on alcohol and tobacco, are the province of the Australian Government. Chapter 2 of the main report discusses alcohol and sugar taxes.

¹⁷ For example, the New South Wales Agency for Clinical Innovation and WA Health have been working as part of a broader partnership between the two states to improve the treatment of musculoskeletal conditions like arthritis and osteoporosis (Briggs 2017).

CONCLUSION 4.2

The functional value of the tasks performed by the multiple State, Territory and Australian Government entities that provide statistics, monitor quality and safety and provide advice on clinical best practice is not questioned, but there may be economies from amalgamating some of them or creating more structured networks that reduce duplicated fixed costs or incompatible data items.

The Australian and State and Territory Governments must be active participants in devolution

Devolution cannot come autonomously, but requires buy-in from the Australian and State and Territory Governments, changes to their hospital and MBS funding arrangements, the development of performance metrics to hold PHNs and LHNs accountable, and clarity about what happens if regional organisations do not meet performance requirements. The treatment of coordinated care in the 2016 Heads of Agreement between the Commonwealth and the States and Territories on Public Hospital Funding is imprecise about the roles of, and interaction between LHNs, PHNs and HCHs, leaving the form and degree of cooperation as discretionary. There is accordingly a need to re-configure Commonwealth-State agreements in this area, clearly specifying the roles, funding and accountability of the regional bodies — as specified throughout this supporting paper (a view also put by the Grattan Institute in its proposals for similar reforms of primary health care, Duckett and Swerissen 2017, p. 25).

5 Insufficient incentives for a system-wide approach

A drawback of Australia's current health system is that there are a series of budget silos. Key providers (particularly hospitals and GPs) make decisions that determine the level of expenditure under other budgets (such as the PBS and diagnostics), but without any financial implications for their own budget. Therefore, the key decision makers in our system have no direct financial incentive to be efficient in their use of other parts of the system. Indeed, there is some evidence that providers waste resources by trying to push costs onto other parts of the system (Ernst & Young 2017). This budget silo approach is blocking progress towards an integrated health system.

In a well-integrated system, suppliers should have incentives to direct people to the most suitable and cost effective services, and where possible, prevent the onset of chronic conditions.

Achieving that outcome is not straightforward, but there are some reasonably obvious 'do not dos' in health care payments and funding, including payments that encourage excessive use of services or that discourage shifts in services away from costlier parts to less expensive parts of the system (PC 2015, p. 30ff).

5.1 Activity-based funding of hospitals has improved 'seamless production', but only within hospitals

Australia has advanced its hospital funding arrangements a long way in a relatively short time, with most of the effort concentrated on improving efficiency. While each jurisdiction has different variations, major Australian hospitals are funded for the bulk of their services through activity based funding (ABF), under which hospitals receive revenues based on the efficient costs of delivering specified services to their mix of patients.¹⁸ Following the introduction of ABF, national growth in the average cost of providing hospital services has slowed significantly, including through the adoption of the kind of production processes discussed above.

¹⁸ Block funding continues to be used for some hospital services, such as some of those in remote and regional settings where ABF is not practicable. While teaching, training and research are currently block funded, the IHPA is looking to introduce ABF after the development of a robust methodology (IHPA 2017).

Nevertheless, ABF creates risks.

One concern is that where inadequate care requires a hospital to provide additional services, ABF will pay for these (that is, there is implicit ‘pay for poor performance’). Nevertheless, the current form of ABF is not entirely bereft of a capacity to improve quality outcomes *within* hospitals. While not a feature of the funding model, ABF can support quality care because it provides data that allow hospital administrators and clinicians to identify conditions that patients acquire while receiving treatment, which is a basis for voluntary changes in clinical practices. To a lesser extent, cost minimisation is sometimes associated with quality improvement (for example, better patient management will result in shorter stays in hospital). Moreover, policy is moving in the right direction to discourage low quality care. Queensland, for example, will not pay a hospital for six ‘never events’ (events that should not under any circumstances arise). COAG has agreed to new funding formulas commencing in 2017 that financially penalise hospitals for a certain group of hospital-acquired conditions. Financial incentives may later be extended to unplanned readmissions — but caution in this area is justified. More sophisticated data analysis and divulgence can also assist best practice.

Another flaw is that a hospital that has lower costs relative to the benchmark will find it profitable to increase those activities even if these are not clinically optimal.¹⁹ This may partly explain the considerable variations in clinical practices across hospitals, but its contribution to such variations is uncertain.

The most fundamental concern with ABF within an integrated care framework is that its incentives only relate to hospital care (including hospital in the home programs). Hospitals generally benefit from illness not from its prevention or its management in lower cost settings. Ideally, purchasers of hospital services would have incentives to discover, fund, coordinate and encourage out-of-hospital initiatives that reduce activities within hospitals. Mechanisms that shift the system towards that end is one of the Commission’s key focuses.

As an illustration of the important role that LHNs could play in producing better outcomes, the Western Sydney Local Health District (a LHN) created a team of specialists to work with GPs to improve the management of patients with chronic diabetes. Early indications are that patient outcomes are improving in terms of desirable reductions in blood sugar levels, weight and blood pressure (Western Sydney Local Health District and PHN Western Sydney 2016b). However, the LHN’s expenditure on the program was not considered an ‘activity’ that attracts funding under its activity based hospital budget. Rather, to maintain the program, the LHN had to rely on the temporary injection of funds under the New South Wales Government’s integrated care demonstration scheme. Further, the LHN anticipates that rolling out the scheme — and expanding it to include health

¹⁹ Ettelt, Thomson, Nolte and Mays (2006) find that the introduction of ABF in Australia led to a decline in unit costs, but an increase in activity. A rise in hospital admissions has also tended to follow the introduction of ABF in other countries (Street et al. 2011). Of course, it cannot be assumed that an increase in activities is always bad, as one of the goals of ABF was to improve waiting times.

literacy education in local communities, will lower the rates of hospitalisation for diabetes, resulting in a reduction in its activity based funding. While the Western Sydney LHN expressed a commitment to improving patient outcomes despite the risk of reduced activity based funding, this is not financially sustainable under the current funding system. Rather, the ABF system, as currently designed, deters such investments and undermines the financial capacity of LHNs to invest in improving integration with primary care or to undertake innovative activities in preventative health.

5.2 Fee-for-service does not encourage fully-integrated care

With a few exceptions, GPs and specialists are paid on a fee-for-service basis for items on the government-determined Medicare Benefits Schedule (MBS).

Both the structure of the MBS and the fee-for-service reimbursement model mean that, as in funding of hospitals, clinicians do not face strong *financial* incentives to:

- (i) avoid high-cost activities (such as tests, referrals to specialists and, above all, hospital admissions)
- (ii) use lower-cost delivery methods, such as employing nurse practitioners or phone-based consultations.
- (iii) direct patients to services not covered by the MBS, such as physiotherapists
- (iv) limit future consultations
- (v) prevent illness in the first place, such as through advice on lifestyle risks and other preventative strategies. The old witticism that ‘a doctor is the only person who can suffer from good health’ reflects the consequences of any payment system that does not reward clinicians for maintenance of health. This should not be taken to mean that GPs are uninterested in preventative health — merely that the funding model inhibits their full capacity to do so
- (vi) support team-based care.

Moreover, fee-for-service introduces considerable rigidity into the management of care. Once medical professionals are paid on a fee-for-service basis, a funder must tell them what they can be paid for, especially when the patient does not bear the full costs and is often ill-informed about the value of the service. Hence, Australia has the MBS — a long list of closely defined compensable activities accompanied by centrally-determined prices that are generally fixed across the country. Even very long lists of this kind will fail to cover all the activities that a health professional might reasonably undertake in a genuinely integrated system, and can be slow to adapt to technological developments. For example, it

was only after mid-2011 that MBS payments for telehealth were widened beyond tele-psychiatry and tele-radiology. Telehealth MBS items still remain highly restricted (chapter 2 in the main report), so that compensation through the MBS requires the consultation to be via video and be only used in regional areas, even when it is easy to foresee circumstances in which telehealth consultations in a city could be beneficial. (Some have advocated this - Bupa 2017.)²⁰ Regardless of whether such an extension might be justified, the point is that the MBS is slow to adapt to new developments, and its design must give considerable weight to risk management across the entire country and population of physicians.

While the clinician-funding model provides some similar incentives as ABF of hospitals, there are some important differences:

- The financial disincentives associated with (iii) to (v) are partly mitigated by *individual* doctors' ethical convictions²¹ and the fact that in some areas, growing demand or physician shortages means that there is an excess demand for consultations, and therefore no financial penalty from limiting future consultations through effective disease management. Some MBS items are also directly aimed at prevention and condition management, for example, the 'Healthy Kids Check' for children aged three or five years old and care planning for people with chronic illnesses. Changes to MBS items have also sometimes encouraged referrals to lower-cost professionals — for example, a shift to psychologists rather than psychiatrists for treatment of anxiety and depression (Britt and Miller 2009, pp. 7–8). Practice incentive payments lie outside the fee-for-service model and also provide incentives for general practices to detect and manage chronic conditions. (That said, the uptake of Medicare incentive payments has been low (accounting for about 10% of GP's remuneration according to NSW ACI 2015, p. 12)). The Practice Incentive program is discussed further in chapter 6.
- People have choice of GP, which is consistent with a patient-centric model. (On the other hand, the capacity to exercise choice is limited by poor information about the attributes and performance of different practices).
- The Australian Government covers the cost of the MBS-scheduled fee, but there is no particular link between that fee and efficient costs, with GPs allowed to set their own prices to recover any additional costs from patients. Accordingly, efficiency is largely driven by competition between GPs, as it is for many other goods and services. It is hard to determine the degree to which competition has driven costs to efficient levels. Notably bulk-billing rates — an indicator of price competition — are geographically variable, and depend on proximity of nearby GP practices, suggesting that competitive forces vary (Gravelle et al. 2016).

²⁰ An obvious practical concern is the risk of over-servicing and fraud.

²¹ While ethical convictions also apply to individual clinicians in hospitals, they are less free to act on them autonomously under a system where the hospital as a whole is the funded entity.

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- A fully integrated system should deliver treatments that have demonstrated efficacy — that is a reasonable consumer mantra is ‘Don’t do things to people that are not needed or harmful’. There is less timely and detailed assessment of the evidence base for physicians’ practices than in hospitals. The payment method in hospitals means that there is good evidence concerning unwarranted clinical variations — which at least provides a basis for limiting these through provision of information to clinicians. In contrast, overwhelmingly, the most common MBS items for GPs are consultations of varying lengths (most commonly a single MBS item — number 23), rather than provision of specific services. Accordingly, much of what goes on in general practice is a black box, with the outcome that no tools exist to *systematically* understand the extent of variation in quality of care in general practice, or the consequences of those variations (EY 2015a, p. 16). The data that do exist on what happens in the black box relate to only a sample of GPs and the survey has now been discontinued (Britt et al. 2016). Nevertheless, there is some evidence. For example, the rates of amoxycillin dispensing were 20.5 times more in the geographic area with the highest rate compared with the area with the lowest rate, and 2.7 times when the highest and lowest rates were excluded — which will primarily reflect variations in prescribing patterns in general practice (ACSQHC 2015). There seems also to be variations in the clinical practices of physicians depending on their age and gender (Charles, Britt and Valenti 2004).

It has long been recognised that the dominant fee-for-service model in general practice does not encourage coordinated care of people or disease management, nor strong incentives to adopt processes like eHealth or the employment of allied health professionals. When looked through the lens of normal business practices, the fact that government has to co-fund general practices to introduce new technologies and change their occupational mix to provide good quality services is symptomatic of something very awry. This has motivated the various incentive payments (like the PIP) and the special MBS items described above, which represent attempts by the Australian Government to combat the perverse incentives posed by the fee-for-service model. Moreover, it has driven governments to trial completely new models of care that do not reward activities — which the Commission sees as the most promising direction for policy change in primary care (chapter 6).

5.3 Private health insurers face frustrating incentives

Private health insurance is highly regulated — with many of the most significant rules stemming from the overarching principle of community rating, which, unlike orthodox insurance products, sets premiums that are unrelated to the patterns of claims of the class to which a person belongs. Accordingly, a person aged 70 years (who has higher than average claims) will pay the same premium as a person aged 20 years (who has low average claims).

Risk equalisation underpins community rating by requiring that insurers with healthier members (most commonly younger people) bear some of the costs of insurers with greater representation of less healthy people. However, the risk-equalisation scheme (at May 2017) also reduces the drive for efficiency and preventative care because any gains made by one insurer are shared with other insurers, weakening incentives for investment by any insurer in cost minimisation. The implicit tax rate imposed by risk equalisation can readily be as high as 50 per cent (box 5.1). That does not preclude the adoption of some preventative measures, and indeed some insurers have been innovative in using their data to target preventative care to avoid subsequent large claims (for example Australian Unity and Medibank). Nevertheless, as for all investment, a lower rate of return must reduce the scale of investment.

There are other barriers to preventative care by insurers:

- while often desirable, the regulatory requirement for portability of membership across insurers means that an investment in preventative care by one insurer (upfront costs for the insurer and long-run reduction in claims) can be lost if the participating members move to another insurer before the returns from the investments have been sufficiently realised
- there are restrictions on the parties that private insurers can use for provision of preventative care services. While some of these restrictions may be justified, some prominent insurers have argued that they limit innovation in prevention (HRSCH 2016, pp. 58–60; PHA 2017).

Notwithstanding these barriers, some insurers have introduced new services aimed at reducing use of hospitals (box 5.1). Unlike ABF for public hospital services, private health insurers do retain *some* incentives to shift resources out of the high cost part of the system.

This suggests that local hospital networks (who run public hospitals) would also have incentives to provide similar services if doing so was not inimical to their financial position, and would likely do so even if they shared the gains with other parties (such as primary health networks and governments).

The complex nexus between Medicare and private health insurance may also affect the scope for full health care integration.

At times, public hospital funding arrangements have provided incentives for public hospitals to encourage people admitted as public patients (primarily through emergency departments) to subsequently convert to private patients if they have private insurance cover (King 2013, p. 14). The number of admissions in public hospitals funded by private health insurance increased by 110 per cent from 2007-08 to 2015-16 compared with growth of only about 25 per cent for publicly-funded patients over the same period. Reliance on private health insurance funding was particularly high in NSW and Tasmania (figure 5.1). Public hospitals have recruited specific staff to encourage patients to opt for

private insurance status on admission (EY 2017, pp. 27–28) and have sometimes guaranteed no gaps for such people.

Notwithstanding recent changes to Commonwealth funding formula that would remove these incentives, state-level variations in the implementation of ABF has meant that incentives for attracting private patients continue in NSW, Queensland, Western Australia, and Tasmania, while there are now either no or weaker incentives in other jurisdictions (EY 2017).

Box 5.1 Notwithstanding adverse incentives, some private health insurers are offering preventative care programs

After 2007, private insurers were permitted to offer cover for clinically justified alternatives to hospital services ('Hospital Substitute' treatments) such as wound care at home rather than in hospital, and chronic illness management ('Chronic Disease Management Programs' — CDMPs), for example management of diabetes (HRSCH 2016, p. 57). Some insurers offer phone-based health coaching, goal setting and monitoring. Insurers are not obliged to offer such cover.

As an illustration, HCF offered a CDMP — My Health Guardian²² — which included individualised support via telephonic nurse outreach and online tools for self-management, behaviour change and wellbeing. Longitudinal data over a four year period found significant reductions in hospital admissions by the covered group (-11.4%), readmissions (-36.7%) and bed days (-17.2%). Effects increased over time (Hamar et al. 2015). Under the risk equalisation arrangements of the time, HCF retained about 54 per cent of the savings, with the other savings shared among all other insurers despite the fact that they had committed no resources to HCF's program. Of course, HCF itself would have benefited from any successful programs implemented by other insurers. Regardless, risk-equalisation effectively taxed the investment returns by more than 50 per cent, with obvious effects on investment incentives.

Australian Unity offers 'Mindstep', a six-week phone-based program using cognitive-behavioural therapy that helps manage depression and anxiety for people who have been admitted to a hospital for these conditions in the past. Claim costs fell \$7800 per person per year for those enrolled in the program, and average days in hospitals fell, as did readmissions. The insurer saved \$4 million in the first year of the program (Potter 2017).

Medibank Private also offers a sophisticated integrated care package for people with chronic conditions — CareComplete — which includes three elements (CareFirst, CarePoint and CareTransition).²³ CareComplete is distinctive among other private insurer packages in that it is funded in partnership with several state governments and is also available for other private insurers, with free access by patients enrolled in the system. It is discussed further in appendix A.

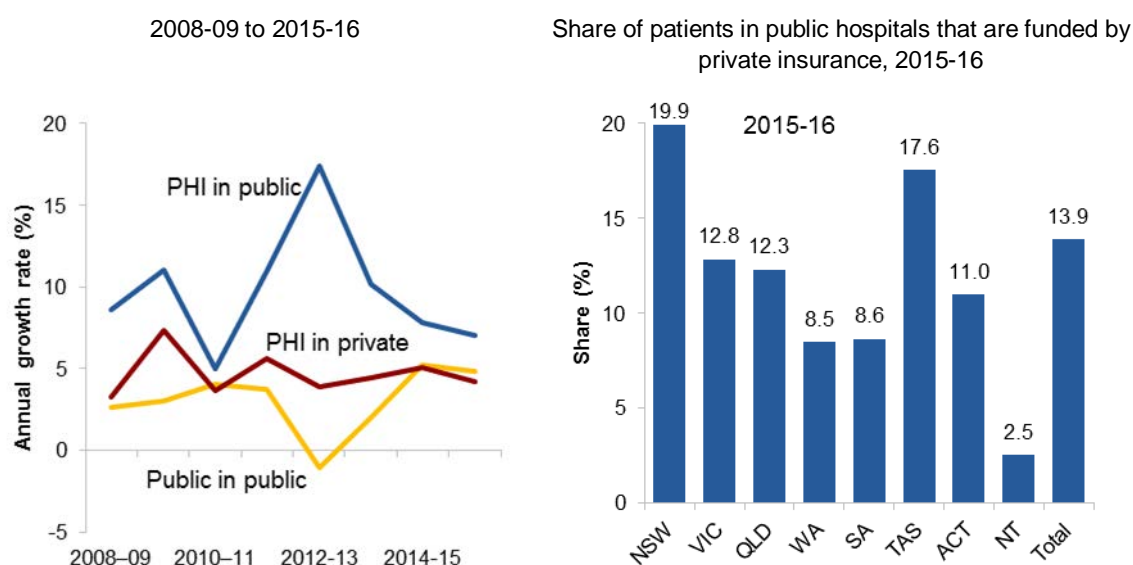
²² The program involved approximately a \$100 million dollar investment and provided phone-based support to about 40 000 members (HRSCH 2016, p. 61).

²³ See <http://carecomplete.com.au/>.

In those jurisdictions where these incentives still exist, the capacity to cross-subsidise public hospitals through private health insurance has several consequences beyond its immediate effects on private health insurance premiums.

For example, it has been claimed that public hospitals have invested in more single room accommodation to motivate patients to switch to private insurance funding of their stay. Certainly, some public hospitals provide single rooms to privately-insured patients as a matter of course (subject to availability), with this not being the norm for publicly-insured patients. As one of the attractions of private health insurance is a capacity to gain access to a single room, increasing access to these for private patients in public hospitals is not per se bad. Nonetheless, it appears that the particular implementation of ABF in some public hospitals means that the returns from building rooms in public hospitals are greater than for private hospitals, which would distort investment decisions (King 2013). There might, for example, be better *social* returns from other capital expenditure in public hospitals.

Figure 5.1 Private insurance is increasingly funding public hospitals^a



^a PHI is a hospital admission funded by private health insurance.

Sources: AIHW 2017, Admitted patient care 2015-16: Australian hospital statistics, Health services series no. 75, Cat. no. HSE 185, Canberra; AIHW 2013, Australian hospital statistics 2011-12, Health services series no. 50, Cat. no. HSE 134, Canberra.

Some argue that single rooms produce better clinical outcomes (such as lower infection rates), which would justify the investments. However, those clinical benefits have been disputed in several evidence reviews. Even if, on balance, these benefits were accepted,

this would not justify privileged access to privately-insured patients.²⁴ The key point is that a genuinely integrated public system allocates resources to the parts that generate the best health outcomes. Some have certainly called for a more collaborative approach between the public and private sectors for health care infrastructure investment (Infrastructure NSW 2014), though achieving that would require aligned incentives.

If the growth rate of private health insurance funding of public hospitals continues at its current rate, then it will place significant pressures on premiums. The demand effects that this induces may act as a threat to the longer-run sustainability of private health insurance. By diverting demand to the public system, this would require either rationing in the public system or additional taxpayer revenue to fund it. The desirability of that outcome depends on debates about the role of private insurance as a limb to a universal system and the degree to which private health insurance efficiently relieves the public health care system of costs (noting that the Australian Government commits large amounts of funding to support private health insurance). These are subjects beyond the scope of this inquiry, and in any case, involve some value-based issues that are inherently political in nature.

As most patients who elect private insurance cover for their hospital stay do so after an unplanned admission through the emergency department (AIHW 2017a, p. 69), it is unlikely that they receive clinical treatment that is different from people without insurance status, though they may get a private room. This does not apply to elective surgery, where waiting times are less for people who are privately insured than publicly-funded patients (AIHW 2017a, p. 202). It has been claimed that in NSW, public hospitals have placed pressure on doctors to admit private patients ‘promising them immediate access to the hospital in preference to public patients’ (King 2013, p. 3). On face value, this appears at odds with an integrated system, which would ideally admit people into the public system using clinical and cost-effectiveness criteria as the basis for queuing.

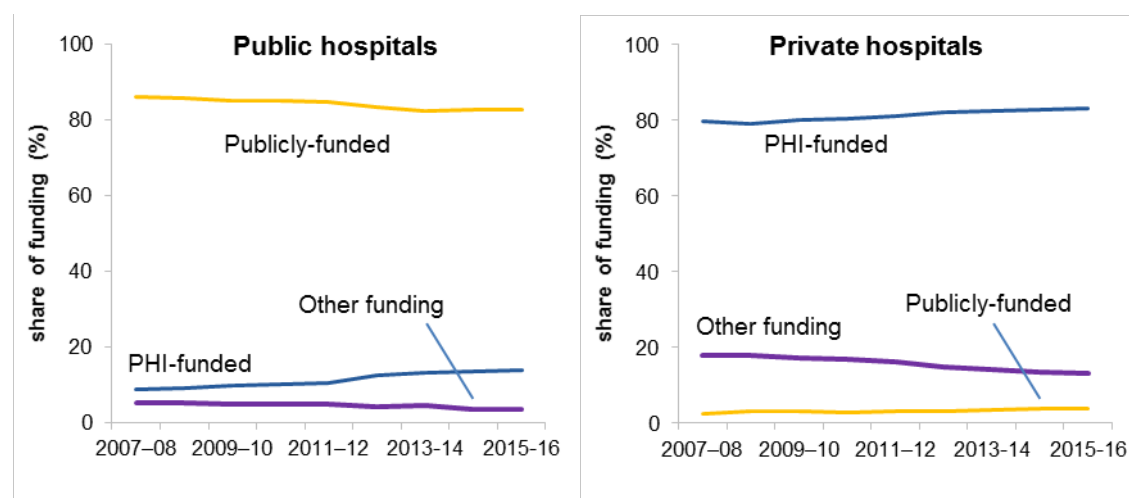
However, the issue is less clear-cut than this. Most elective surgery for privately insured patients is undertaken in private hospitals — and that too confers an advantage in reduced waiting times. Removing the scope to ‘jump the queue’ in public hospitals would most likely divert private patients to an expanded private hospital system. Absent new injections of public funding into public hospitals to replace the lost private funding, public hospitals may not be able to reduce waiting times by as much as might be thought, especially if the bottleneck is the availability of specialists. The intrinsic problem is that the ideal of ‘treatment according to clinical need’ is in tension with the requirement by members that private health insurance offer something in excess of that supplied at no cost by the public system.

²⁴ Some have argued strongly in favour of the clinical and social advantages of single rooms (Fairhill et al. 2017; Pennington and Isles 2013; Stall 2012; Ulrich 2007). On the other hand, the UK NHS National Institute for Health Research found patients generally preferred single rooms, but that they cost more and did not appear to produce clinical benefits (NHSNIHR 2015). A review by Healthcare Improvement Scotland found it was not possible to reach firm conclusions about their clinical benefits (HCIS 2016). Others suggest negative effects (Young, Edwards and Singh 2017).

Arguably, the biggest problems associated with the existing model of private health insurance and Medicare is that it brings additional complexity to the already messy system that arises from the mixture of responsibilities and funding of state and territory governments and the Australian Government. Changes to government funding and governance arrangements to provide more incentives for integrated care will need to avoid a circumstance in which this mess gets worse. If nothing else, private insurers have demonstrated a capacity to provide novel preventative care and integrated services. Governments should collaborate with insurers or where sensible, fund them to provide services to public patients. The integrated care pilot (*CarePoint*) involving Medibank Private and the Victorian Department of Health and Human Services is an example (appendix A).

Moreover, there are opportunities to break the current nexus between ownership of hospitals and the funding source for patients. Currently, non-public hospitals primarily supply services to privately insured patients, while public hospitals largely serve publicly-insured patients (figure 5.2). That nexus is arbitrary and can forgo opportunities for maximising spare capacity across the supply system and gains from specialisation. A recent study of NSW hospitals found that greater commissioning of public in-patient rehabilitation bed days in private hospitals would significantly relieve elective surgery waiting times for public patients (Saunders and Carter 2016). Even if it cannot ignore different funding streams, integrated care can ignore ownership. That is already evident with GP services, which are largely privately-provided, though largely publicly-funded. In making this observation, we are not saying that private provision is preferred. The key message is not to put the cart before the horse, whether that cart be ownership, funding source, technology, primary or acute care, and so on. Rather, *always concentrate on the best outcomes for people*, subject to any budget constraints.

Figure 5.2 Funding source and ownership of services are closely related^a



^a 'PHI-funded' is a hospital admission funded by private health insurance.

Sources: AIHW 2017, *Admitted patient care 2015-16: Australian hospital statistics*, Health services series

Figure 5.2 **Funding source and ownership of services are closely related^a**

no. 75, Cat. no. HSE 185, Canberra; AIHW 2013, *Australian hospital statistics 2011-12*, Health services series no. 50, Cat. no. HSE 134, Canberra.

Absent a coherent funding system aligned with integrated care in Australia, it is hard to envision anything other than partial and fragmented attempts to improve patient care and generate efficiencies — though these have merit. While not possible to implement quickly, there are several linked initiatives that will create much better incentives for integrated care. Chapters 4 and 6 set out these linked initiatives, whose basic thrust is:

- subsidiarity — regions are the best organisers of hospitals and primary care (chapter 4)
- hospital funding should shift so that local hospital networks can fund activities that prevent hospitalisation (chapter 6)
- there should be hard-headed experimentation of targeted rewards for patients to change behaviours that generate costs for the health care system and themselves (chapter 8).

CONCLUSION 5.1

While Australia's health system has many positive attributes, there are significant limitations in its funding models and service structures, including

- the lack of incentives for parties to cooperate and efficiently provide integrated services:
 - across community health care centres (funded and managed by State and Territory Governments), general practice (funded and regulated by the Australian Government) and hospitals (managed by State and Territory Governments, and jointly funded by both levels of government)
 - between private insurers and public funders
- the disincentives posed by risk equalisation for private insurers to prevent or manage costly conditions
- the limits on using private hospitals as suppliers of services to publicly-funded patients.

6 Show me the money — where from, to whom, and how allocated?

6.1 Changes to hospital funding

Given the weaknesses identified in chapter 5, hospital funding needs to create incentives to cost-effectively avoid hospitalisations through investments in public health and in community and primary care.

There are several options for reform, all involving some common issues. It is therefore useful to start with the least complex because it exposes all the main issues. However, we would like to make one point emphatically: *Do not become mired in the specifics. If there are better ways of changing activity-based funding to give LHNs the incentives to avoid hospitalisations and hospital durations, then implement those.*

A basic approach

The intention is that LHNs be able to make investments outside a hospital setting to reduce costly hospitalisations, with the overall outcome that hospital costs currently funded through ABF would fall, but with LHNs obtaining a share of the savings to motivate their initial investments.²⁵

The concept that ABF could cover interventions outside a hospital setting is already well-understood. Currently ABF provides funding to some non-admitted services, including services that:

... intended to substitute directly for an inpatient admission or Emergency Department attendance; or expected to improve the health or better manage the symptoms of persons with physical or mental health conditions who have a history of frequent hospital attendance or admission. (IHPA 2017, p. 12)

²⁵ There have been other proposals along these lines. For example, Ham and Timmins (2015) review of the Victorian health system supported experimenting with adaptations of ABF to reward LHNs for preventing hospital admissions. They raised the idea of a bundled care approach in which LHNs could be paid an annual amount (a ‘year of care’) to oversee the care of patients with multiple chronic conditions — effectively a capitation payment that could pool the funds from all the various health budgets for the integrated care of patients in greatest need of care.

However, there are several constraints on the funding of non-admitted services under the current ABF model:

- the ‘interpretative guidelines’ for funding of such non-admitted services would rule out many innovative approaches to preventative health care
- given existing funding streams and methods, such services exclude general counselling and primary health care. From the perspective of an integrated care model, it would not be desirable to forego these levers for reducing acute care demands.

As noted earlier, some state and territory jurisdictions have given LHNs temporary funding outside ABF for initiatives to better manage health in their regions with a key goal being savings in the acute care system. These have been useful for indicating the proof of concept, but their temporary nature makes it difficult for LHNs to implement long-run strategic approaches and to involve PHNs in enduring alliances. Accordingly, there needs to be a greater long-run commitment. Second, as a contributory funder to hospitals, the Commonwealth also has an incentive to reduce use of the acute care system, and so should also be a party to funding arrangements that achieve that.

The Commission does not propose a prescriptive model because all options will involve information and implementation issues that cannot be determined yet. One way of formalising a new approach would be to establish a Prevention and Chronic Condition Management Fund (PCCMF) in each local health district. The LHN in each district would decide how and where to spend funds from the PCCMF (though often they would do so collaboratively with other local partners). There should be few restrictions on the types of investments made by LHNs. For instance, if low-cost community initiatives to reduce loneliness among older people reduced hospitalisations, then this would be an attractive intervention. Equally, so too might an alliance with PHNs that led to more effective management of people with incipient obesity, and thereby, at some later time, reduced rates of type 2 diabetes, and lower hospitalisation rates.

Australian and State and Territory Governments would provide annual funding injections for each LHN’s PCCMF over a span of years (say five years). This would be accompanied by a performance contract that outlined minimum expected savings from reduced acute care activities over the relevant period, but with no expectation that the gains be immediate. The returns from reduced activities would need to provide sufficient returns to recover governments’ investments, thus lowering overall future ABF.

The PCCMF would then be renewed in subsequent periods, based on performance. The Commonwealth and the relevant State or Territory Governments would be the ultimate shareholders in this venture. Any gains over the minimum returns in the performance agreement would be kept by the LHN for future investments.

From the perspective of current ABF, the model is new, but not revolutionary. It would simply create a new compensable non-admitted hospital activity — preventative care and chronic condition management, accompanied by limits on allowable expenditures,

expectations about outcomes, and significant freedom by LHNs about how to manage the PCCMF.

There are other variants of such a PCCMF — some of which were suggested to the Commission in its consultations — but they all involve the creation of incentives for LHNs to cut avoidable activities.

Any method must also take into account that many PCCMF investments would yield savings in hospitalisation only after several years (hence the suggested five year contract period above).

Governance and accountability

The most likely avenue for successful initiatives would be collaborative ventures between LHNs, PHNs and other regional parties that can generate and implement good ideas for effective health management at the regional level. LHNs could also cooperate with each other — as they saw fit — to undertake initiatives that spanned several regions.

Once the concept of subsidiarity is accepted (chapter 4), then LHN's boards should be ultimately accountable for the outcomes of their investment choices, including against the KPIs specified in their service agreements. In some instances, there could be scope for LHNs to form joint ventures or alliances with various other parties for some projects. However, that should still preserve ultimate accountability of LHNs for their performance across the full portfolio of their initiatives to their relevant State and Territory Governments.

How big should the PCCMF be?

It is difficult to determine the desirable size of each PCCMF but, given regional variability, a rule of thumb would be that the annual funding amounts would reflect the overall anticipated ABF in each region in each year, taking into account the factors that drive hospital use, such as population growth and ageing.

What should be the desirable floor?

If an LHN is unable to identify a sufficient portfolio of profitable investments, then it could simply decline to enter any agreement with funders (although a failure to do so might suggest some problem in the capabilities of the LHN's leadership). On the other hand, a requirement to have a minimum PCCMF pool would provide an incentive for an LHN to search for profitable investments up to that pool size — 'necessity is the mother of invention' — albeit with risks for funders, the CEO and board if it failed.

Overall, the Commission is uncertain about the desirability of a requirement for a minimum PCCMF pool size. This question should be investigated as part of any implementation plan for changes to hospital funding, but if sufficient uncertainties remain, then governments should err on the side of simplicity — which would entail no floor.

What would be the desirable ceiling?

Were the PCCMF to comprise a significant share of the activity-based funding payments pool, and LHN-funded initiatives did not yield lower hospitalisation rates, State and Territory Governments would most likely be obliged to intervene to supplement hospital funding. Clear accountability by LHN boards could never eliminate such risks. Any such required interventions would have immediate adverse financial and political ramifications for governments, but could also imperil the implementation of long-run innovations in health care funding and management. In government, there often can be a temptation to centralise control following local mistakes, but Australia's health system is already too complex for a centralised system to be effective (Ham and Timmins 2015).

Given this, it would be prudent to commence with relatively modest PCCMFs — say equivalent to two to three per cent of projected ABF. This may sound small, but to put it in perspective, the activity-based funding payment pools are often large. For example, the payments pool for the Western Sydney Local Health District is likely to be more than \$1.1 billion for 2016-17, so that a 3 per cent allocation would be about \$35 million in that year.²⁶

Over time, the ceilings could be amended based on the performance of LHNs. An LHN whose demonstrated capacity for innovative investment is constrained by its contracted limit on its PCCMF should have that limit raised by its funders.

6.2 Primary care

Adopt blended payments

While fee-for-service has its weakness by rewarding throughput instead of value of care (chapter 5), a pure bundled payment (as currently proposed for the Australian Governments' Health Care Homes initiative — appendix A) also has limitations. A bundled payment introduces an incentive to under-service, particularly when other parts of the health care system bear the cost of reduced outcomes. Further, GPs have a financial disincentive to enrol patients with particularly complex or high-cost conditions who are

²⁶ PC projections are based on year-to-date expenditure published in January 2017 by Administrator of the National Health Funding Pool (2017).

likely to generate losses for the practice. (This is often labelled pejoratively as ‘cream skimming’, but its presence may simply reflect the need for practices to remain financially viable.) The Australian Medical Association opposes capitation funding methods on this basis, noting the concern that clinicians may avoid high-risk patients (AMA 2015a).

CONCLUSION 6.1

The Australian and State and Territory Governments should change the funding of hospitals as follows:

- They should create a Prevention and Chronic Condition Management Fund (PCCMF) in each local health district.
- They should provide annual funding injections for each LHN's PCCMF over a span of years, accompanied by a performance contract that outlined minimum expected savings from reduced acute care activities over the relevant period, but with no expectation that the gains be immediate.
- The gains in reduced hospital costs from PCCMF investments in better health management should be shared between each LHN and the Australian and the respective State or Territory Government.
- The annual funding contributions should be equivalent to a small share of expected ABF in each district (say two to three per cent).
- Local Hospital Networks (LHNs) would be responsible for the management of their district's PCCMF, using the funds as they deemed fit to improve population health and to reduce hospitalisations and durations, in collaboration with other regional parties.
- The effects of PCCMF investments on acute care activity would need to be reasonably validated.
- The lessons from the assessments of PCCMF investments should be disseminated among all LHNs (conclusion 9.2).
- The annual limit on the scale of the PCCMF for each LHN should be adjusted over time to reflect the LHN's success in reducing hospital activity levels.
- The Administrator of the National Health Funding Pool and the National Health Funding Body would manage any formal arrangements for funding pools.

There is some empirical evidence of cream skimming. For example, medical homes in Canada paid through (non-casemix) capitation payments had a lower likelihood of enrolling people with mental illnesses (Steele et al. 2013). However, a meta-study of GP behaviour under different payment systems found that capitation did not inexorably lead to cream skimming (Peckham and Gousia 2014), while a Cochrane Review found no reliable results, in part attributing this to the low quality of the studies it examined (Scott et al. 2011). The financial disincentives to enrol high-risk patients may be countered by other factors, such as professional ethics. Of course, all these results depend on particular fee levels. It would be surprising if clinicians were immune to the effects of financial carrots and sticks were these large enough.

So where does this leave policymakers who must make some choice about payment methods? One US economist reached the acerbic judgment that *all* the simple payment methods are bad:

There are many mechanisms for paying physicians; some are good and some are bad. The three worst are fee-for-service, capitation, and salary. Fee-for-service rewards the provision of inappropriate services, the fraudulent upcoding of visits and procedures, and the churning of “ping-pong” referrals among specialists. Capitation rewards the denial of appropriate services, the dumping of the chronically ill, and a narrow scope of practice that refers out every time-consuming patient. Salary undermines productivity, condones on-the-job leisure, and fosters a bureaucratic mentality in which every procedure is someone else’s problem. (Robinson 2001, p. 149)

While the evidence suggests that Robinson’s assessment is too bleak, his proposal to implement mixed payment systems has merit. One such model would maintain fee-for-service as a major portion of GP revenue, combined with capitation payments. This would strengthen the incentive GPs have to provide necessary services via multidisciplinary teams, including a greater role in preventative health and management of chronic conditions. Finding an effective mix may require some experimentation, which is the advantage of running trials, and suggests leaving open the scope for regional health entities to develop funding variants.

Listen and engage with general practitioners

In its consultations, the Commission has been advised that the efforts of Primary Health Networks and Local Hospital Networks to achieve a more integrated system depend on the sometimes challenging task of engaging effectively with GPs. This can best be addressed in several ways.

Cultivating relationships with GPs is critical — especially ones who are receptive to new models, who can then act as trusted agents for change within their professional community. The task of engagement is probably best undertaken by PHNs, whose prime responsibility is to seek best practice in primary care.

GPs are often overstretched, reflecting large patient caseloads, paperwork, training of new medical staff, and professional development. It is hard to know whether these obligations are excessive, but regardless, long hours and stress are commonplace among GPs (Evans 2015). Consequently, any proponents of new models of care must credibly demonstrate clinical gains, while not adding to GP workloads. The Hunter Diabetes Alliance found that all physicians found the experience positive (box 4.1). Expanded initiatives would need to sustain that outcome.

Give Local Hospital Networks an opportunity to engage with and fund primary care

LHNs should be given the legal capacity to fund GP practices to undertake specific tasks (which they are currently not able to do), including for GPs to work with hospitals to better manage the care of patients with complex and chronic conditions. Section 19 of the *Health Insurance Act 1973* (Cth) currently prevents payment of Medicare benefits where the service is ‘by, or on behalf of, or under an arrangement with’ a state, including a state agency such as an LHN. This effectively precludes LHNs from funding or commissioning GPs given that practically all GP work is at least partially funded under Medicare (or of allied professionals to the extent their work is funded under Medicare).

Funding might also be directed at allied professionals, who have a smaller scope of practice than GPs, can have lower caseloads and can therefore be trained more quickly. PHNs and LHNs should generally take a collaborative approach, underpinned by MOUs and joint governance arrangements to any commissioning by LHNs of primary care services. Otherwise, there would be a risk that there would be multiple coordinators of care, working against each other. The introduction of KPIs by their respective funding sources will be required to ensure that PHNs and LHNs work in partnership, with, as noted earlier, particular need for the development of indicators for primary health care (such as avoidable hospital admission rates).

Under a regionally-based integrated care model, MBS funding would continue, but its role would diminish as PHNs and LHNs sought other ways to remunerate GPs for clinical outcomes, or for processes that have a strong link to good outcomes. There are two broad caches of Australian Government funding that would need to fit into any genuinely integrated system: MBS payments aimed at preventative health and chronic disease management (including the Practice Incentives Program) and funding of the impending Health Care Homes program.

Fitting MBS incentives for chronic disease prevention and management into a new system

The MBS includes many specific payments for chronic disease prevention and management — with Wentworth Healthcare (2017) identifying over 40 separate MBS items devoted to this role (in areas as diverse as screening for cervical cancer, asthma and diabetes management, care planning, case conferences, medication reviews, and preventative health assessments).²⁷

²⁷ Short and long consultations (the dominant MBS items used by general practice) are also being used for prevention and management of disease, but the invisible nature of these consultations means that nothing is known about their relative significance.

Of these, some play a large role. There were 8.7 million claims for MBS items 721-721 & 10 997 in 2015-16 — which entail GP Management Plans for Chronic Disease Management, often involving multidisciplinary teams). Others where greater use might have been expected in an integrated system are little used.²⁸ There were less than 70 000 services involving case conferences, though these have been demonstrated as effective (box 4.1; table A.4 in appendix A).

Some of the 40 plus MBS items are part of the Practice Incentives Program (PIP), which, among other objectives, was intended to encourage general practices to adopt eHealth, review medications, manage two chronic conditions (asthma, diabetes) and avoid the onset of cervical cancer (box 6.1).

Box 6.1 The Practice Incentives Payment

The PIP provides blended payments for a variety of functions performed at the practice level. Apart from diabetes, asthma and cervical cancer screening, the payment covers a range of other activities, such as take up of eHealth, provision of after-hours service, teaching medical students, and quality prescribing, among others.

For any given function, the PIP includes a payment for the entire practice, subject to it providing certain care services. The payment amount is based on the Standardised Whole Patient Equivalent (SWPE) value of a practice, which is the sum of the fractions of care provided to practice patients, weighted for the age and of each patient. The average practice has 1000 SPWE each year.

Within a PIP registered practice, the relevant physicians who provides services will also receive payments (so-called Service Incentive Payments or SIPs). SIPs are paid in addition to the normal Medicare benefit for the particular items and require specific trigger Medical Benefit Schedule item numbers to be billed.

Accordingly, PIPs included a capitation based payment and a fee-for-service. To provide an illustration, under the PIP diabetes incentive a registered practice receives a sign on payment of \$1 per SWPE, with the practice obliged to use a patient register and recall and reminder system for their patients with diabetes mellitus. The practice also receives a \$20 per diabetic SWPE per year subject to there being at least 2% of practice patients diagnosed with diabetes mellitus and completion of a diabetes cycle of care for at least 50% of these patients. The SIP is \$40 per completed cycle of diabetes care per year.

A practice can participate in any or all of the functions covered by the PIP. For the two chronic conditions, the PIP provides capitation payments to practices that commit to an annual cycle of care for a sufficient number of their patients, topped up by a fee-for-service for the actual services provided to patients. The capitation payment allows the practice to invest in capacity for addressing the condition. The PIP is accompanied by various other incentive programs, such as the Practice Nurse Incentive Program (PNIP), which co-funds employment of practice nurses and a wide range of allied health professionals (such as

²⁸ The data are from the online Medicare Statistics database managed by the Department of Human Services.

dieticians, diabetes educators and podiatrists). The PNIP moves practices towards more efficient use of scarce professional skills, while under a standard fee-for-service model, GPs risk facing financial losses if they substitute from a more highly remunerated service to a lower cost substitute service.

When first introduced, the Practice Incentives Program was associated with a spike in standards of care, but GP uptake fell, in large part because of its administrative complexity (Kecmanovic and Hall 2015; Swerissen and Duckett 2016). A major concern too was that the number of people with the relevant chronic conditions who were engaged in the PIP was a fraction of those needing help.

The PIP is changing in a positive way (as discussed below), but the fact that it ever took the form that it did is revealing of the capricious character of incentives for health care in Australia, as is the miscellany of MBS payments and other incentives devoted to prevention and chronic condition management. Why for example, did the PIP focus on asthma, diabetes and cervical cancer? Accidental falls, melanoma, affective disorders, dementia, malnutrition amongst the elderly, and many other preventable or manageable disorders could have been justifiably included.

Following a consultation paper in late 2016 (DoH 2016c), the Australian Government is making changes to the program that will reduce complexity and be more oriented to quality outcomes (underpinned by mandatory data collection that substantiate that these have occurred). Following its commencement in May 2018, the Government intends that the new program — the PIP Quality Improvement (QI) Incentive (PIPQII) — will combine current incentives relating to Asthma, Quality Prescribing, Cervical Screening, Diabetes, and General Practitioner Aged Care Access into a single QI incentive that leaves GPs with more flexibility to choose aspects of care that are important to them and to target the high-risk sub-groups specific to their local area.²⁹

The details have not yet been fully specified, but the PIPQII is heading towards the funding model favoured by the Commission. However, it will be still surrounded by a sea of fee-for-service MBS payments directed at many of the same chronic conditions that are the focus of that program and the capitation model underpinning Health Care Homes.

Given this, there are several directions for creating a more coherent system for funding and governing integrated care.

(A) Pooled funding

Under a pooled funding model, the Australian Government would allocate the expected funding of the PNIP, the PIPQII and all MBS items directly related to prevention and

²⁹ The new program will retain payments that fund eHealth, provision of after-hours services, a rural loading, a teaching payment, Indigenous health, and the Procedural General Practitioner Payment.

management of chronic conditions to PHNs (or at least choose some from this suite of payments). The allocation would be based on the usage of these items at the regional level in the year of commencement.

In its consultation paper concerning reform of the PIP, the Australian Government floated the option that the funds could be allocated to PHNs — which was supported by the Consumers Health Forum (CHF 2016). The Forum noted that this:

... fits with the desirability of promoting both quality general practice generally, but also practice readiness for any wider, national rollout of health care home models of care where it will be critical for practices to have good profiles of their practice populations, greater data literacy and analytics capability in order to take a more sophisticated approach to practice development, redesign, improvement etc as well as monitor patient outcomes. (p. 3)

There is also a recent precedent for pooling program funds and shifting them from centralised allocation to delivery at the regional level. In mid-2016, the Australian Government commenced the three-year transition from centralised delivery and funding of mental health to a devolved model in which PHNs could draw from the ‘Primary Mental Health Care flexible funding pool’ to commission services at the local level (DoH 2016f, 2017b, p. 63). This is not a small change. It will provide PHNs with approximately \$1 billion over three years commencing in 2016-17.

The Australian Government’s reasoning for mental health pooling is that:

To successfully deliver a stepped care model it must be recognised there are individual needs and challenges that are specific to communities that do not always fit the one-size-fits-all model of service delivery run from Canberra. What works in Brisbane may not work in Broken Hill. Service providers operating in Adelaide may not consider it viable to operate in Albury. ... Service delivery [will shift] from Canberra to local communities through the 31 Primary Health Networks across the country. PHNs will be put in charge of commissioning the mental health services they consider necessary and appropriate to the needs of their local communities ... For example, decisions about the youth mental health services required in a local community will now be made by that local community, not Canberra. ... The funding will be made up of: ATAPS; Early Psychosis Prevention & Intervention Centres (EPPIC); Headspace service delivery (national office to remain); Mental Health Nurse Incentive Programme; Mental Health Services in Rural and Remote Areas; and various fragmented Suicide Prevention programmes. (Ley 2015)

This reasoning applies with equal force to primary health services generally.

In further support of that reasoning, because PHNs are on the ground, they are well placed to promote government policy in their locality. For example, the Australian Atlas of Healthcare Variation may indicate a comparatively high rate of treatments in the PHN’s region, but the PHN is positioned to explore the extent to which that rate is warranted, including through its contacts with individual clinicians.

In combination with the PCCMFs discussed earlier, shifting to a pooled funding approach for prevention and management of chronic conditions would allow PHNs and LHNs to

commission services through flexible localised funding models, avoiding the rigidities of the current system. They could specify different prices, incentives and bundles of services compared with those determined centrally by the Australian Government under the MBS/PIQII/PNIP and Health Care Homes programs. They could also broker (and potentially co-fund) cooperative health initiatives with third parties that also want better health outcomes, including local government, various allied health professionals, schools, employers, private health insurers and social entrepreneurs. In the latter instance, PHNs and LHNs could be equity partners in social bonds. Subject to changes in ABF (as discussed earlier), LHNs would have incentives to identify and fund initiatives that would reduce hospitalisation rates (and stay durations).

The PHN funding model could extend beyond that envisaged above to more closely parallel the funding model for LHNs, though this would require more policy analysis before implementation. The skeletal features of this model would be:

- The Australian Government would develop and publish key performance indicators of PHN's impacts on hospitalisation rates, and the degree to which they have disseminated best practice in general practice, the use of diagnostics and prescription of pharmaceuticals. This might extend to indicators of key regional health outcomes, after adjusting for changes in socioeconomic and other demographic factors. A complexity here is separating these effects from those initiated by LHNs, though this might be more tractable in alliance models in which both entities are contributing ideas and funding. Regardless of any linkage to funding, it makes sense to still develop the indicators because these will assist PHNs in targeting their efforts and provide the Australian Government with evidence of their effectiveness.
- Just as in the funding approach described above for LHNs, a PHN that achieved its key performance indicators could be provided with access to additional funds. This would allow it to reinvest a portion of the dividends that its investments have helped generate.

(B) Build new health packages through clever combinations by cooperating parties of existing discrete payments

A second option would leave the MBS, PIQII and PNIP as they are, but (somewhat³⁰) augment the funding of PHNs so that they can more effectively partner with LHNs and primary care.

Under this approach, by carefully assembling the discrete elements of all of the payment streams, it would still be possible to craft innovative primary care initiatives without pooling funding through PHNs:

³⁰ It could only be 'somewhat' because, unlike the pooled funding model, there would be few (immediate) savings on MBS expenditure, so that funding would need to be mindful of the Australian Government's fiscal position.

-
- (a) the MBS sets compensation rates for a wide range of MBS items relating to the prevention and management of chronic conditions by GPs. The revenue from any relevant MBS-compensable activities would pay for (or at least co-fund) the role of GPs in any initiative
 - (b) the PNIP and the new PIPQII would support eligible activities and capabilities in general practices. The general practice (not the individual GP) would be the source of these funds
 - (c) LHNs would fund activities or capabilities that reduced hospitalisation rates and length of stay (potentially including augmentation of MBS payments where these were insufficient to motivate physicians to undertake effective actions)
 - (d) As in the pooled funding approach above, LHNs and PHNs could still broker (albeit with less scope to co-fund) cooperative health initiatives with third parties.

There is some evidence that health providers are willing to develop projects along this line. For instance, the Hunter Diabetes Alliance took advantage of MBS item 743 (‘organise and coordinate a case conference of at least 40 minutes’) in developing its multidisciplinary approach. The prospective changes to the PIP and additional funding from LHNs would make more ambitious possibilities feasible. Nevertheless, as is any approach with hypothecated payments and centrally regulated prices, option B is still less flexible than the pooled funding approach in option A. For that reason, the Commission favours the pooled funding model.

Carving out a role for Health Care Homes in a new funding system

The prospective Health Care Homes Program would also need adaptation following implementation of either option A or B. The payments for the HCHs are substitutes for those from MBS and other Medicare sources, so these should not be added as additional funding sources for HCHs.

The 2016 COAG agreement on public hospital funding left open — albeit ambiguously — a role for State and Territory Governments in participating in Health Care Homes. State and Territory Governments are partners in Health Care Homes in that they have agreed to form bilateral agreements with the Australian Government about how Health Care Homes will work in the relevant regions in their jurisdictions. However, the content of such agreements lack specificity or clear commitments. They *may* include *elements* involving coordinated planning, blending funding and collaboration between LHNs and PHNs *where feasible*, with the possibility that after the trials have been completed that there *may* be ‘collaborative, joint or pooled funding arrangements’ (COAG 2016b, p. 9).

In our view it is critical for the effectiveness of HCHs that they collaborate with PHNs *and* LHNs to improve population health and reduce hospitalisations. The present model relies predominantly on PHNs, but given the current funding model, they have a weak capacity

to improve the health outcomes for people with complex and chronic conditions or to reduce hospitalisation rates. This is notwithstanding that one of the four national headline indicators in the Performance Framework for PHNs relates to reductions in potentially preventable hospitalisations (DoH 2016g). The performance framework needs to be coupled with the flexibility and capacity for PHNs to invest in improving outcomes. The augmented funding of PHNs, as described above, will overcome the funding obstacles. LHNs, which have the highest stake in reducing hospitalisations, should also play a role in HCHs. They should do this through alliances with PHNs, including by making additional financial or in-kind contributions to HCHs. LHNs should also share the patient data needed to stratify patients according to their need and to otherwise support patient management by health care homes. If necessary, the performance indicators of LHNs should require that such data sharing takes place.

Moreover, given that most HCHs will not be in place for some time, it might be possible to move away from the prescriptive nature of the current pricing regime for HCHs to the pooled funding model above (or to allow a certain share of the proposed HCHs to move in that direction). The 2016 COAG agreement on public hospital funding left open — albeit vaguely — a role for State and Territory Governments in participating in HCHs.

Relationships of LHNs with HCHs should extend beyond funding. The goal would be that all the main entities involving regional health care — PHNs, community health centres, LHNs and local governments could collaborate in any activity that had promising outcomes for people.

The focus on people with existing chronic and complex conditions in Health Care Homes is too narrow

Capitation payments in HCHs relate only to patients already with chronic and complex conditions. The rationale for this is that these are the highest-cost patients in the health care system, and that better management can improve their lives and potentially reduce costs. However, many people at serious risk have not yet developed chronic illnesses, and they would be good targets for preventative action. People who smoke or are obese are at high risk of developing chronic conditions, and yet the current model of general practice often does not result in even conversations about these issues with patients (chapter 3). Addressing these issues may not require capitation payments, but it suggests funding and collaborative models that diverge from fee-for-service.

One approach would be to allow PHNs and LHNs to co-design the form of the integrated health model for their communities, and leave it to them to decide the scope of patient types enrolled into the health care homes (and the funding arrangements that underpin this). Of course, any such collaboration must involve clinicians — and given their key role as gatekeepers — general practitioners in particular.

6.3 In essence, reform needs to be underpinned by ‘win-win’ alliances

Globally, health care systems that have successfully integrated care around patients have resolved the budget silos discussed in chapter 5. Canterbury in New Zealand relies on an alliance budgeting approach where all providers win or all lose. In the Kinzigtal integrated health system of Germany, stakeholders all share in budget savings across the entire system — or all miss out. Under the system preferred by the Commission, there is the opportunity to deal with the silo budget effect by creating incentives for Local Hospital Networks to invest in health care outside of the hospital, and at the same time giving Primary Health Networks the resources to invest in measures that reduce hospitalisation rates and low-value care. Any savings from the region’s entire health budget costs would be shared between the two key funders (the Australian Government and the respective State or Territory Government) and LHNs, with the possibility that, as outlined above, of extending this to PHNs if this proves feasible.

CONCLUSION 6.2

The Australian Government should:

- allow Local Hospital Networks to commission the services of GPs by amending section 19 of the *Health Insurance Act 1973* (Cth), with the proviso that the Local Hospital Networks are operating in formal agreement with their region’s Primary Health Network
- remove any administrative constraints on Primary Health Networks allying with Local Hospital Networks to commission GP or other services related to prevention or management of chronic conditions
- allocate expected funding from the Practice Incentives Program and other MBS items to Primary Health Networks in each region where they are *directly* related to prevention and management of chronic conditions.

6.4 Cooperation might be the best option for private health insurers

As noted earlier, like all the other actors in the system, private health insurers face mixed incentives to encourage preventative care.

There are several options for addressing the current deficit in risk equalisation, including a prospective system (as used in the Netherlands) in which transfers between the funds reflect the differences in *expected* claim costs, rather than ex post claims. Another option might be the rigorous independent assessment of the net benefits of private insurers’ Chronic Disease Management Programs (box 5.1) with these benefits being largely

quarantined from risk equalisation. A further option, which would require a less significant or no overhaul of risk equalisation, is a cooperative approach by insurers to manage chronic illness. This would reduce free riding. But there are other technical approaches that would also reduce unwarranted free riding (Reid et al. 2017). Risk equalisation arrangements are under review by the Private Health Ministerial Advisory Committee.

CONCLUSION 6.3

The pending Health Care Home trial is a significant development in integrated care in Australia, but its design warrants adaptation.

- Funding arrangements should include a mix of capitation and fee-for-service, with scope for local hospital networks and primary health networks, in alliance with each other, to provide additional funding or supports to the homes.
- A key goal should be to avoid hospitalisations, which will require leadership from Local Hospital Networks, and otherwise strong links between hospitals and Health Care Homes.
- Health care homes should also target people with high risks of developing chronic illnesses, such as those who are obese or smoke.

Giving effect to these features and those in Conclusion 6.2 will require different governance arrangements. There should be collaborative arrangements at the regional level between service providers funded by State and Territory Governments (local hospital networks and community health care centres), the Australian Government (primary health networks) and local government.

Different regional collaborations could adopt variants of health care homes that suit their regions.

Any local collaboration would have to engage with general practitioners and other clinicians, as their 'buy-in' will be critical to success.

CONCLUSION 6.4

If risk equalisation arrangements are not changed to provide greater rewards for preventative health by private health insurers, then the Australian Government should consider:

- quarantining the net benefits of private insurers' Chronic Disease Management Programs from the risk equalisation pool (subject to the capacity to rigorously assess those net benefits)
- encouraging a cooperative arrangement between insurers for preventative health from which all would benefit.

6.5 Why not implement managed competition?

There are alternative funding models that might also encourage integrated care. An oft-cited option — ‘managed competition’ — involves pooling of the current disparate sources of funds (hospital, primary care, medical and pharmaceutical benefits, and so on) and their allocation to competing budget-holding intermediaries (regardless of their location). These then purchase health services for their clients (PC 2002). This would mean that the funding arrangements spelt out above for primary and hospital care would not be relevant — the funds would comprise a part of a bigger funding pool.

Under this approach, government manages competition through a variety of rules and rights to ensure access and stem strategic behaviour by budget-holders and others. As different intermediaries have customers with different health risk profiles, funding is shifted between insurers to equalise risks (‘risk equalisation’).³¹ This approach — similar to that currently used in the Netherlands — has been championed in Australia by several health economists, committees and other groups (CEDA 2013; NHHRC 2009; Scotton 1995; Stoelwinder 2014; Stoelwinder and Paolucci 2009). Achieving it would create better incentives for coordinated care, chronic illness management and disease prevention.

Nevertheless, it would be a radical step, requiring the complete dismantling of current Federal arrangements for health care funding and management, and the development of a new set of regulatory oversights. The Dutch health system — while widely regarded as good — costs more as a share of gross domestic product than Australia’s, does not appear to produce superior health outcomes (Duckett 2014), and has encountered a range of other problems (Hall 2010).³² If nothing else, the transition to a Dutch model would be complex and risky, and those costs might not be worth the gains.

In that vein, a less radical approach based on reconfiguring the relationships and roles of regional care providers — as recommended in this report — has the potential to deliver many of the gains, without these costs and risks. (It also draws on some of the insights of the managed competition model.) Given the risks to quality of care, access to services and governments’ budgets, incrementalism is generally a judicious approach to policy change in health care, especially as the Australian system produces reasonably good health outcomes by global standards. However, the system changes we recommend could be a step along a pathway to managed competition if evidence mounted in favour of this more radical overhaul.

³¹ Such equalisation is also used in Australia to underpin community rating of *private* health insurance.

³² Though there is some evidence that waiting times for elective surgery is less, which while involving expenditure, might still be beneficial (Stoelwinder 2014).

7 Funding of quality care in an integrated system

The above policy changes would help to finance initiatives that reduce hospitalisations. However, safety and quality in health care are sometimes tenuously linked to funding. Financial incentives are probably not the principal avenue for improving quality or safety, but they should not be overlooked as useful complements for other policies.

7.1 Preventable events are now on the policy agenda

Preventable events that lead to the need to provide additional services in hospitals can still be remunerated. Sentinel events (so-called ‘never’ events like leaving instruments in a patient after surgery, discharging an infant to the wrong family or operating on the wrong patient) are at the extreme end of the spectrum. Funding arrangements are changing from July 2017 so that hospitals will not be funded for episodes of care that involve such events (Hunt 2017a, 2017b). This funding change is justified for most sentinel events. However, it will do little to improve the overall quality of care because sentinel events are very rare (roughly 100 a year). Moreover, it is likely that public divulgence and the desire for clinicians and hospitals to be seen as competent and to avoid litigation are themselves powerful motivators of the avoidance of such events, and would encourage them to adhere to advice on how to avoid them.

A bigger issue is the large group of hospital-acquired complications (HACs) and avoidable hospital readmissions where establishing responsibility is more difficult than ‘never’ events.

Unplanned readmissions have shown little downward trend in recent years, despite increasing awareness of the issue (figure 7.1). In New South Wales, where published aggregate rates across outcomes from all admissions are available, unplanned readmission rates have been rising, and were 7 per cent in 2014-15 (Bolevich and Smith 2015).³³ There are even greater variations in unplanned readmission rates between hospitals, and these are largely not explained by complexity or other factors that can confuse the interpretation of these rates. For example, in New South Wales, even after adjusting for factors outside the control of hospitals, there was a more than nine-fold difference in the unplanned

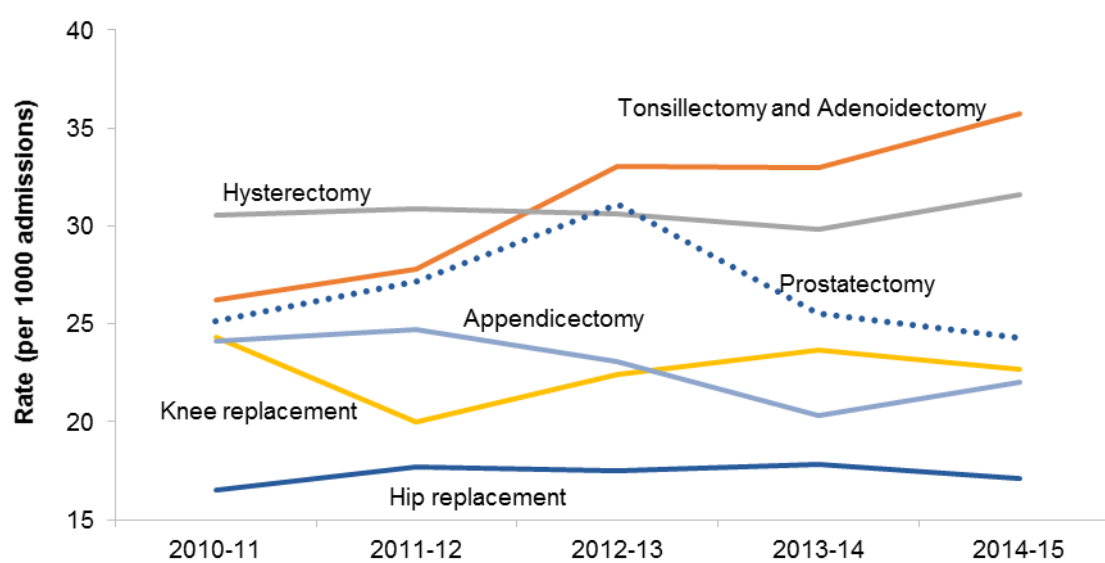
³³ This excludes readmissions for some purposes, such as mental health assistance and chemotherapy.

readmission rates for treatment of pneumonia between the lowest and the highest performing hospitals (NSW BHI 2015b, p. 25).³⁴ That suggests inadequate diffusion of best practice for addressing unplanned readmissions.

HACs and avoidable hospital readmissions are less amenable to litigation or shaming, though disclosure of outcomes at the surgeon level would still be a powerful factor in revealing clinicians that are linked to HACs persistently outside the normal range. While not identifying the surgeons, the Royal Australasian College of Surgeons and Medibank Private have recently collated data at the surgeon level on HACs, admissions to intensive care units and readmission rates for a range of common orthopaedic procedures (RACS 2016b). They comment that ‘such information would enable surgeons to gain a better understanding of variations, and consider how their practice could be improved for the benefit of patients’.

From July 2018, the IHPA will only provide partial (public) funding for episodes of care that lead to an agreed set of HACs, and has developed a framework for doing so (IHPA 2017).

Figure 7.1 **Unplanned readmissions for 6 surgical procedures**
Australia, 2010-11 to 2014-15



^a An unplanned readmission occurs where a patient is admitted for an unplanned care or service in a hospital within 28 days of an earlier discharge. Not all unplanned readmissions are necessarily avoidable, but they are recognised as a valid indicator of safety and quality in State and Territory Government Service Performance Agreements with LHNs. The data are limited to public hospitals. Only the first readmission following surgery was included. A readmission was not included if there was an intervening unrelated separation.

Source: SCRGSP (2017 table 12A.50).

³⁴ The difference was more than eight fold if a simple unadjusted measure was used — so the adjustments here did not alter the results much here in any case.

7.2 Progress to limit low or no-value services is less rapid

Many medical interventions are fully remunerated by taxpayers even if the context in which they are used is not justified.

It is important to distinguish between two types of questionable treatments. One are treatments that lack clinical evidence in favour of their use *altogether* — or for which more cost effective treatments of better or equal efficacy have been discovered. This concern is not isolated to hospital care, but also to primary care, medical appliances and pharmaceuticals. Where ambiguity is not present, clinical standards and payment systems can be readily adapted to eliminate them.

A second, more problematic type of treatments are those that are clinically justified in some instances, but not in others. Sometimes, it is possible to determine authoritatively the circumstances in which a treatment is not clinically indicated. For example, there is no evidence in favour of chlamydia serology as a *screening* test, though it may be useful in other specific cases (Choosing Wisely Australia 2017). Similarly, computed tomography (CT) scans for head injuries are only warranted for high-risk presentations. Antibiotics are rarely justified for upper respiratory infections (which are overwhelmingly viral in nature). In Australia, about 75 per cent of acute bronchitis is treated with antibiotics. The evidence suggests that the rate should be close to zero (Hansen et al. 2015).

Arthroscopic knee surgery for degenerative knee disease provides a good case study of the complex issues at play. It is a very common orthopaedic procedure, performed millions of times per year internationally, despite evidence against it in many instances (Bohensky et al. 2012; Siemieniuk et al. 2017; Thorlund et al. 2015). The Australian Commission on Safety and Quality in Health Care (ACSQHC) has recently issued some guidelines that make clear that certain procedures have no evidence behind them, including arthroscopy for knee osteoarthritis (ACSQHC 2017a, 2017b). The ACSQHC is unequivocal about the right standard for this invasive procedure:

One effect of the new standard is to *discourage* [our emphasis] the use of arthroscopy for patients with knee osteoarthritis. Knee arthroscopy – a procedure that involves doctors inserting a camera and surgical instruments inside a patient’s knee joint to clear out debris – is costly, may cause harm, and has repeatedly been shown to bring minimal benefit to patients with osteoarthritis, and yet it remains a common form of treatment. (ACSQHC 2017a, p. 1)

The standard is advisory — a surgeon could still elect to undertake the procedure for knee osteoarthritis.

Given the high prevalence of this procedure in Australia, the estimated annual costs of unjustified knee arthroscopies could readily be of the order of \$200 million.³⁵

It is also notable that in the United States, the Centers for Medicare and Medicaid (CMS 2004) and the UK's National Institute for Health and Care Excellence (NICE) has been recommending against this procedure for many years (NICE 2008, 2014b). These decisions are only made after thorough clinical advice. The clinical awareness of its inefficacy should have been apparent to all specialists more than a decade ago.

A group of clinicians at Liverpool, St George and Sutherland hospitals in Sydney have stopped performing arthroscopies on patients aged over 50 years because they do not feel they can clinically justify doing them (Aubusson 2014).

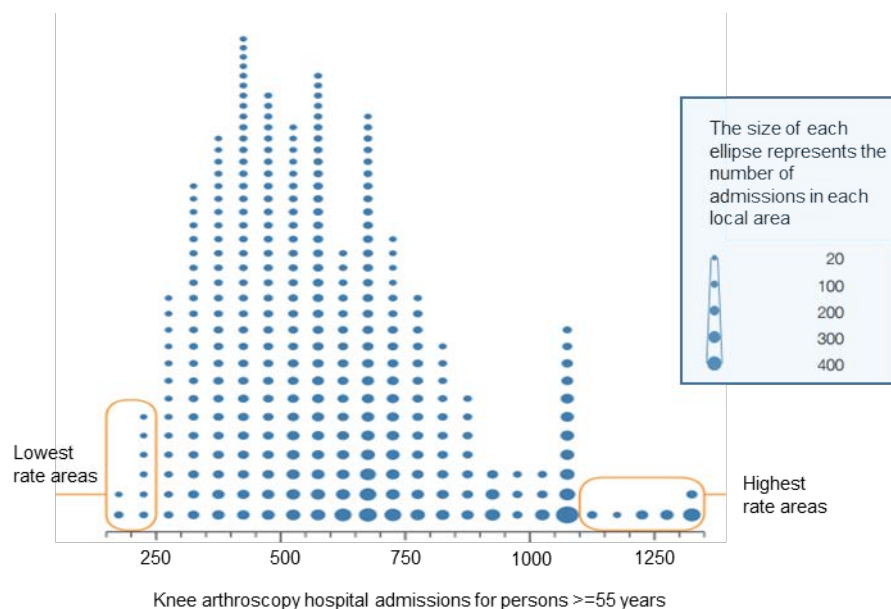
While most knee arthroscopies in Australia (and globally) are undertaken for degenerative knees, where they have no more effect than a placebo, there *are* some circumstances where knee arthroscopies are justified (Australian Knee Society 2016). This means that at the *surgeon level*, it is hard without sufficiently granular data describing the exact context in which a procedure is undertaken to know whether that surgeon has undertaken a low-value operation. However, there are often large regional variations in the use of particular clinical procedures that cannot be explained by differences in the characteristics of the underlying served populations (figure 7.2 shows this for knee arthroscopies and table 7.1 for some common operations on women). The best explanation for these variations are differences in clinicians' norms.

Variations across hospitals are greater than those across areas. For instance, one study found that an average of 3.3 per cent of patients with osteoarthritis of the knee received arthroscopic lavage and debridement of the knee (a do-not-do treatment), but four hospitals had rates of over 20 per cent (Duckett, Breadon and Romanes 2015).

The apparent widespread continued use of procedures without strong clinical evidence of benefits suggests problems in patient awareness and the dissemination of evidence-based medicine across clinicians.

³⁵ In Australia, there were about 33 000 knee arthroscopies for people aged 55 years and over in 2012-13 in all surgical settings, a group for whom degenerative knee disease is most common (ACSQHC 2015, p. 110). In 2010-11, there were 71 000 knee arthroscopies for all ages, many of which would still not be clinically justified (ACSQHC & AIHW 2014, p. 27). From 2010-11 to 2015-16, MBS data, which ignores public patients in public hospitals, show a decline in arthroscopies of 18 per cent (based on DSS online Medicare data). That suggests that a rough estimate of total arthroscopies in 2015-16 might be 58 000. If 30 per cent of these were clinically justified, and the cost per arthroscopy was about \$5000 (based on HCF data), then the waste from unneeded arthroscopies would be of the order of \$200 million annually.

Figure 7.2 Rate of knee arthroscopy hospital admissions
Per 100 000 people aged 55 years or more, age standardised, local areas, 2012-13^a



^a The local area refers to the ABS Statistical Area Level 3 classification of geographic regions.

Source: ACSQHC 2015, *Australian Atlas of Healthcare Variation*, chapter 3.1 (p. 107).

Table 7.1 Variations in procedures relating to women's health and maternity

Across 309 areas (Statistical Area Level 3), 2014-15

Procedure	Range across areas ^a	Times difference	Trimmed divergence ^b	Number over year
Hysterectomy ^c	115-763	6.6	2.1	27 586
Endometrial ablation ^c	19-390	20.5	4.2	28 606
Cervical loop excision cervical laser ablation	23-408	17.7	2.1	43 920
Caesarean section ^d	147-438	3.0	1.5	75 018
Third- and fourth-degree perineal tears ^e	6-71	11.8	2.9	18 463

^a Number of procedures per 100 000. ^b Difference between the 90th and 10th percentile rates. ^c Women aged 15 years and over. ^d For women aged 20-34 years. ^e For all vaginal births.

Source: ACSQHC 2017, *The Second Australian Atlas of Healthcare Variation*, June.

In some respects, the apparent proliferation of low and no value care is perplexing. As observed by one Australian clinician:

To deliver a do-not-do procedure a medical practitioner must first be credentialed, have a defined scope of practice and operate within their clinical team alongside support services and the governance structures of an organisation. Start counting how many people are involved. Therefore, the question we should be asking is: how is it possible for inappropriate care to occur? And what systems-level agreements perpetuate this situation? (Ibrahim 2015, p. 162)

Several factors are likely to be at work.

One is that many practices in any profession becomes customary, even as evidence slowly undermines their legitimacy. A leading Australian orthopaedic surgeon is sceptical of a range of commonly performed orthopaedic procedures, including knee arthroscopies. He observed:

I am not suggesting that surgeons are recommending operations *knowing* that the potential risks outweigh the potential benefits. Largely, surgeons believe that they are doing the right thing, but often they are not aware of the strength (or weakness) of the supporting evidence or, what is more often the case, there is simply no substantial or convincing scientific evidence available. Without good scientific evidence, surgeons perceive the procedures they recommend to be effective – otherwise their colleagues wouldn't be doing them, right? Put simply, a lack of evidence allows surgeons to do procedures that have always been done, those that their mentors taught them to do, to do what they think works, and to simply do what everyone else is doing. (Harris 2016b, pp. 1–2)

Cognitive biases appear to reinforce the status quo (Scott et al. 2017).

Another is patient expectations. Survey data from the United States suggest that more than 50 per cent of physicians acquiesce to patient requests for unnecessary medical practices (Kaul et al. 2015). It would be surprising if this were a US peculiarity. A surgeon commented about his own past practices:

I have operated on people that didn't have anything wrong with them in the first place. This happens because if a patient complains enough to a surgeon, one of the easiest ways of satisfying them is to operate. (Harris 2016b)

Overall, there appears little national progress to limit the use of low (or no or negative) value interventions. The Australian Commission on Safety and Quality in Health Care pointed out:

In some high-cost, high-burden clinical areas, where notable variation exists, there is little or no nationally agreed guidance. In these areas, there is a need for information on what constitutes best practice and effective care to produce care pathways, indicators for monitoring and resources for clinicians and consumers. (ACSQHC 2017c)

The ACSQHC, the Department of Health and the National Health and Medical Research Council are developing a framework to promote the efficient production of trustworthy clinical practice guidelines, but that will take some time.

Government-subsidised private health insurance also fund dubious treatments

As with the public system, private health insurers also fund some doubtful hospital procedures. Indeed, about 80 per cent of arthroscopies are undertaken in the private system (ACSQHC 2015, p. 106). Given spiralling costs, insurers have incentives to inform consumers about low-value care and to exclude cover. However, consumers are not well informed and may continue to demand cover for low-value procedures. Indeed, if the Australian Government ceases to fund activities that have little clinical value there may be a risk that patients will seek these procedures through the private system, funded by health insurance. The Australian Government bears some of the costs of funding low-value care through private health insurance because it provides substantial transfers to this part of the health system.³⁶ The justification for such transfers is weak for services that would (or should) not be supplied by the public system. It may be that this issue will vanish if clinicians adhere more stringently to medical guidelines issued by their professional bodies and the ACSQHC. If not, it suggests that certain surgical services funded by insurers should be ineligible for the tax rebate.

Subsidies to ancillaries involve similar concerns. Taxpayers effectively underwrite private health insurance for ancillaries through the tax rebate, yet some of these services have no evidential support, such as homeopathy. An Australian Government review into various natural remedies found weak or no evidence about the efficacy of many treatments (Baggoley 2015).

7.3 Avoidance and management of chronic disease

As noted by the Australian Medical Association, ‘general practice is the cornerstone of successful primary health care, which underpins population health outcomes’ (AMA 2017). The Australasian College of General Practice has emphasised SNAP — smoking, nutrition, alcohol and physical activity — as key targets for preventative care (RACGP 2016).

Yet most people in the SNAP categories have not had discussions with their GPs about preventative health, including those who are in a high-risk category, such as obesity (table 7.2).

³⁶ This is more than is reported in the portfolio budget papers, which amounted to \$5.95 billion of direct subsidies in 2015-16 (DoH 2016b, p. 88). The exemption from the Medicare Levy Surcharge for those who hold insurance also represents an implicit transfer — estimated to be approximately \$2.5 billion (Doggett and McAuley 2015). (There is also notionally revenue forgone of \$1.69 billion because the rebate is not counted as income for the beneficiary. However, non-taxation of a subsidy does not represent a genuine loss to taxpayers because were there to be no subsidy, there would be no income to tax.)

Table 7.2 GPs often do not discuss health issues with people with high health risks
2014^a

<i>Risk groups having discussion with GP about risk</i>	<i>Share of risk group</i>
	%
Smoker — reducing or quitting smoking	39.6
Overweight person — a healthy weight	13
Obese person — a healthy weight	34.6
Obese person — eating healthy food or improving diet	20.1
Obese person — increasing physical activity	18.2
Person exceeding alcohol consumption guidelines — moderating use	12.4
People with no/low exercise — increasing physical activity	12.5
People with inadequate fruit or vegetable consumption — eating healthy food or improving diet	13.3

^a The shares relate to those who had a at least one consultation with a GP in the 12 months preceding the survey.

Source: ABS 2017, *National Health Survey: Health Service Usage and Health Related Actions, Australia, 2014-15*, Cat. no. 4364.0, table 5.1.

Similar results were found in a South Australian survey of patients. Only about one third of patients with hypertension were advised to reduce their salt intake (Booth and Nowson 2010).

Moreover, there are many people with incipient chronic disease. Notably, for every 100 adults already with type 2 diabetes, there are an additional 20 who have just developed the condition, and another 100 who are at high risk (ABS 2015).

7.4 What are the solutions?

The development of standards is already underway, and is the first step in reducing low-value care. Such standards will need to be adaptable as new clinical evidence arises. These can further disrupt older standards, as better or more cost-effective interventions are apparent. ‘Do-not-do’ lists can play a key role, an initiative used in other countries and previously proposed by the Productivity Commission (PC 2013, 2015). The UK’s NICE has already developed a comprehensive evidence-based ‘do-not-do’ list, while the Netherlands has also developed guidelines that identify low-value services (Wammes et al. 2016). The major deficit in the Australian approach seems to be its slowness. It is understandable that local clinician ‘buy-in’ is important, but there is greater scope for faster adoption of evidence-based assessments made in other countries by reputable agencies, like NICE and the Centers for Medicare and Medicaid Services. Chapter 6 in the main report discusses the importance of faster learning by Australian agencies across many policy arenas.

Education of patients is a second step. There is evidence that consumers are often unaware of the true effectiveness of interventions. For example, in a US study of patients with incurable cancer, nearly 70 per cent of those with lung cancer and about 80 per cent of those with colorectal cancer did not understand that chemotherapy was not at all likely to cure their cancer (OECD 2017b, p. 63). Another study found close to 90 per cent of patients who had committed to have surgery for coronary artery stents (for heart disease) believed that it would reduce their risk of heart attack, while 63 per cent of cardiologists considered that the benefits were limited to symptom relief (*ibid*). Making the advice of the ACSQHC and Choose Wisely Australia accessible in plain English through My Health Record may assist people to make more informed choices, as would raising health literacy generally (chapter 3).

Better dissemination of best practice among clinicians and funders is also a justified response, ideally led by the various medical Colleges and the ACSQHC. Clinicians receive periodic professional development. Focusing on the most commonly used low-value interventions would offer the best immediate returns. There is evidence of this happening autonomously. For example, the Royal Australasian College of Physicians and its associated Specialty Societies in Australia formed EVOLVE, which is a physician-led initiative to ensure the highest quality patient care through the identification and reduction of low-value practices and interventions.

In its consultations for this inquiry, the Productivity Commission was told that just by making information available to clinicians about the use of low-value treatments (and, where meaningful, HACs) by their peers was a useful mechanism for change as most clinicians wanted to be regarded as highly proficient in their discipline. Such information should also be made available to the public. How messages are transmitted to clinicians can make a difference too. Prompts for clinicians to enter free-text reasons for prescribing antibiotics into patients' electronic health records reduced unwarranted prescribing (Scott et al. 2017).

Finally, where it is possible to distinguish the circumstance in which an intervention is a low-value one from one where it is clinically justifiable, governments should remove funding. Notably, arthroscopy for knee osteoarthritis has not been covered by public insurance in the United States since 2004, in recognition of its lack of clinical and economic justification. The Pharmaceutical Benefits Advisory Committee has long taken this approach in respect of listing of pharmaceuticals for public funding through the PBS — basing its decision to list or de-list a drug on the basis of clinical effectiveness, safety and cost-effectiveness ('value for money') compared with other treatments. An added advantage of a capacity to de-list pharmaceuticals on cost-effectiveness grounds is that it provides pressure on pharmaceutical business to lower prices to maintain listing on the PBS (a prerequisite to successful sales in Australia).

Following the 2009-10 budget, the Australian Government developed a new framework for managing the MBS — the MBS Quality Framework — which has similar goals as those relating to reviews of the PBS (with a focus on using contemporary evidence to assess

clinical efficacy and cost-effectiveness of new and existing services). This developed subsequently into the Comprehensive Management Framework for the MBS.

The Medical Services Advisory Committee (MSAC) is the principal agent for assessing existing and proposed MBS services, with its role being to:

... advise the Australian Minister for Health on evidence relating to the safety, effectiveness and cost-effectiveness of new medical technologies and procedures. This advice informs Australian Government decisions about public funding for new, and in *some cases* [our emphasis] existing, medical procedures. (DoH 2016a)

However, most of MSAC's efforts have related to new services, with limited reappraisal of existing items. This led to a backlog of items that needed to be reappraised, prompting review processes overseen by the Australian Government Department of Health rather than MSAC. Until recently, very few services covered by the MBS have undergone any formal evidence-based review. In the latter respect, the Australian Government's Medicare Benefits Schedule Review Taskforce (the Robinson Review) is currently assessing the alignment of MBS items with contemporary clinical evidence (Robinson 2016). The result is that some items will be removed and therefore be no longer compensable by taxpayers.

In the future, some new services that are more cost-effective than existing ones will emerge, and new evidence will reveal that some MBS items have low value — suggesting de-listing. Reversion to the appraisal practices that existed prior to the Robinson review is likely to result in a new backlog of items that will need to be reappraised – and in the costs associated with the taxpayer funding of low value or sub-optimal treatments. The process for MBS reviews that existed prior to the Robinson taskforce appears on face value to be thorough, but convoluted (with four committees successively making decisions as part of the review process, prior to ultimate consideration by the Australian Government). After the Robinson Review, it would be desirable to reconsider review arrangements so that they are more nimble, and can keep up with the evidence on what works best.

There is already a recognition that any review process should examine MBS items that are growing rapidly in significance or already account for a large share of total MBS expenditure, which takes account of the finite resources available for review processes. In addition, there should be more rapid assessments of efficacy when NICE or some other comparable entity issues a guideline against the routine use of a treatment. The presumption in that case should be 'show us why we should not de-list?' Because reviews are, in their own right, investments, there should also be a deliberate process of learning about the rate of return of reviews and how the processes and targets of reviews should be configured to maximise those returns.

The above changes should not preclude clinicians from offering interventions on a user-pays basis so long as they are not harmful and so long as the consumer is not being subject to misleading claims about the efficiency of the intervention.

If many medical interventions have their impacts because of placebo effects, then it suggests analysis of the origin of such placebo effects, rather than the continuation of costly therapies (Bystad, Bystad and Wynn 2015; Kaptchuk and Miller 2015).

What about private health insurance?

The issues confronted by private health insurance discussed earlier suggest similar policy responses. In the case of surgical procedures, it is possible that better information provision to consumers and mounting clinical agreement about ‘do not do’ lists will preclude any significant problem. If that is not so, the Australian Government may need to recoup the subsidies it contributes to privately insured low-value surgery.

The logic underpinning reform of the MBS and encouragement of evidence-based interventions should also apply to ancillaries. It is questionable whether items that have no proven efficacy should receive any effective support by taxpayers. Removing the taxpayer subsidy for ancillaries would resolve the problem — and is justified for other reasons anyway (Ancillaries are not insurance products in any genuine sense because there is very little risk pooling across population groups. They more resemble savings plans.) The Australian Government has reviewed private health insurance arrangements, but the outcomes of that review were unknown at the time of this report’s completion.

Increasing the capacity for preventative care

Evidence suggests that general practitioners are often overburdened — they must deal with the acute care needs of the patient that motivated the consultation in the first place, and do not always have the time, funding or sometimes the skills to succeed in altering hard-to-change lifestyle behaviours (Mazza et al. 2011; Volker et al. 2017).

The Health Care Home model is better suited to prevention than the standard model *if* it is adapted to link better with hospitals and community health, and is adequately funded, and coordinated at the local level. The changes to the MBS, and the roles of PHNs and LHNs, is the prime vehicle for achieving better preventative care in the primary care setting. As emphasised earlier, preventative care should also occur outside primary care. Moreover, in some instances, public health initiatives that address the environmental factors that lead to disease are a key aspect (appendix D).

CONCLUSION 7.1

There is compelling evidence that, despite their intrusiveness and cost, many medical interventions lack convincing evidence for them compared with placebos. Australian governments should:

- more quickly respond to authoritative international assessments identifying low-value interventions
- produce more comprehensive guidelines for clinically-justified interventions, including the creation of advisory 'do not do' lists for low-value treatments as identified by the Australian Commission on Safety and Quality in Health Care
- disseminate best practice to health professionals, typically through the Australian Commission on Safety and Quality in Health Care, state bodies like the NSW Bureau of Health Information, and the various medical colleges
- collect and divulge data at the hospital and clinician level for episodes of care that lead to hospital acquired complications and for interventions that have ambiguous clinical impacts (such as knee arthroscopies)
- provide patients with plain English explanations of treatments that often lack efficacy and improve health literacy using the approaches described in Conclusion 3.1
- ensure that the ongoing processes for reviewing existing MBS items is more rapid and comprehensive than occurred under the arrangements prior to the Robinson Review
- de-fund interventions that fail cost-effectiveness tests, with priority for doing so based on medical interventions with the greatest budgetary effects and where it is easiest to identify the context where they should not be used. This should extend beyond sentinel events and procedures associated with hospital-acquired complications.

8 The role of *patient* incentives in an integrated system

8.1 Patient charges

In principle, patient charges (typically in the form of copayments) could encourage patients to select the lowest-cost part of an integrated system (for example, primary care rather than hospitalisation) and to avoid low-value interventions. In theory, they could also increase competition between suppliers if patients have to bear some of the costs of the price differences between competing suppliers/products. Such incentives could reinforce the effects of supply-side funding changes in an integrated system that intend to achieve the same outcomes.

Nevertheless, it is well-recognised that patient charges have some potentially undesirable effects — depending on their design, level and incidence across the health care sector (OECD 2017b, p. 99; SCARC 2014).

A major concern is that charges may impose hardship on lower income households or reduce their access to health care. For example, the ABS' Patient Experiences survey found that 8 per cent of Australians do not fill a medical script when needed due to cost, and that proportion is highest for those in the most disadvantaged socioeconomic quintile (10 per cent) and lowest for those in the most advantaged socioeconomic quintile (5 per cent) (ABS 2016b). A similar socioeconomic disparity is apparent for services provided by medical specialists, dental professionals and GPs.³⁷ Means-testing of subsidies to alleviate these problems can lower incentives to work or encourage people to restructure their financial affairs. For instance, many people attempt to structure their financial affairs to obtain a part age pension because this provides an entitlement to a Pension Concession Card, which entitles the holder to lower copayments.

Also, charges may perversely lead to people being shifted to higher cost services (such as hospitalisation following failure to comply with full medication use or script-filling). There is evidence that those in fair or poor health or those with long-term medical conditions are more likely to delay or not fill a script, see a doctor, or obtain recommended care because of cost than those in good health, which increases the likelihood of higher cost health

³⁷ Other data from the Commonwealth Fund's 2016 International Health Policy Survey found that 14 per cent of Australians said that they had not filled a prescription, did not see a doctor or did not otherwise get recommended care because of cost (Mossialos et al. 2017).

interventions (ABS 2016b). For example, 14 per cent of people in fair or poor health did not get prescribed medication when needed due to cost, compared with 6 per cent of those in good to excellent health.

There is relatively little Australian evidence on the effects of patient charges on consumer choices across different health services and disease categories, especially in light of the difficulties for consumers in discerning quality of care and efficacy (as evidenced by the burgeoning sales of unsubsidised products that have few clinical benefits). Copayments currently vary in type and level across different parts of the health care system. Some health care services are free and some involve much higher costs. Such variations in charging rates are likely to elicit different demand responses in these segments, and sometimes substitution. For example, a non-concessional patient with chronic health conditions could readily pay more than \$1500 annually for PBS drugs.³⁸ Similarly, people face a copayment attending a non-bulk billing GP, but not when visiting a hospital emergency department, which may increase pressures on hospitals.

While a patient-centred system will encourage health literacy, it would be naïve to assume that this would provide sufficient clinical knowledge that patients would be able to always make the right tradeoffs between the prices of services and their impacts on their wellbeing. An open question is the degree to which information disclosure of the kind proposed in this and the Commission's Human Service inquiry (PC 2017b) could address some of the difficulties consumers face in making informed decisions. There are similarly important issues concerning the form of pricing. For instance, private insurance products often have benefit limits, excesses, and copayments, which have varying effects on the costs of services facing patients. The complexity of the products and the associated uncertainty about the ultimate cost of a service could be expected to affect patterns of consumer demand, but the evidence about this is scant.

This does not mean that copayments should be absent from an integrated care system, merely that their design and scope require very careful assessment. For example, given their ancillary role in an essentially universal health care system, front-end deductibles in private health insurance may help contain overuse of what are often discretionary services and help to relieve pressures on premiums.

Given there must be some limits on the scope of this inquiry, this paper has not examined consumer charges in any detail, but the issue is still an important one that should not be neglected.

³⁸ The annual expenditure threshold in early 2017 for a Safety Net Concession Card was \$1494.90 for 'general patients', with subsequent scripts costing \$6.30 (DoH 2017d). There were just over 91 000 cards issued in 2015 (Table 17(b) of DoH 2016e).

CONCLUSION 8.1

The present Australian health system employs consumer charges in an incoherent fashion, and little is known about their impacts. Further research is needed to understand the impact of current copayment arrangements on health costs and outcomes, and the implications of this for policy.

8.2 Rewards for people are an overlooked part of the picture

Social, monetary or in-kind rewards might also sometimes be used to create incentives for people to use the lowest-cost part of the system, to adopt preventative health measures, and to improve the health system in other ways.

The need for such rewards sounds counterintuitive when people already have incentives to avoid chronic ill-health. However, the onset of chronic conditions is insidious, their timing and effects are uncertain, and inertia favours any ingrained unhealthy lifestyles. A (if not *the*) major challenge for preventative health is challenging habits that people have acquired as unwanted parts of their lifestyles. (For instance, most people do not want to be obese and do want to control their food intakes, but their efforts to do so usually fail.)

Rewards have been used, quite often effectively, in preventative health (like smoking cessation).³⁹ Recently, there has been innovative use of ‘gamification’ — the use of game-design elements in non-game settings, usually using the internet — to provide non-pecuniary rewards for positive behaviours (Lewis, Swartz and Lyons 2016). Even the existence of a publication called the *Games for Health Journal* is revealing. There is also increasing use of pre-commitment approaches to preventative health (as noted below).

The size and form of rewards appear to matter. In school settings and for low-income people, the rewards can be lower and still be effective. For example, a school-based intervention aimed at reducing obesity in socially-disadvantaged youth used small rewards, amongst other strategies, to motivate reduced body mass (for example, a recognition bulletin board was used as a social reward and T-shirts and wrist bands for in-kind rewards). Effects on body mass were significant, though the role of rewards compared with

³⁹ Rewards have been applied in areas as diverse as rehabilitation for cocaine dependency; motivation of weight loss and physical exercise; smoking reduction; treatment of tuberculosis; postpartum appointment keeping for low-income pregnant teenagers; preventative dentistry; eating fruit and vegetables; adherence to long-term antipsychotic injectable drugs; and substance abuse problems in veterans. For a small sample of a diverse literature, see Cahill, Hartmann-Boyce and Perera (2015); Gardiner and Bryan (2017); Giuffrida and Torgerson (1997); Higgins et al. (2017); Mattke et al. (2013); Petry et al. (2014); and Priebe et al. (2016).

other factors was not isolated.⁴⁰ In contrast, financial rewards, among other measures, were used to encourage better diet and more exercise for a small group of Australian truck drivers, but the rewards were too small on their own to be an effective strategy (Gilson et al. 2017). A recent ‘meta’-study of the impact of incentives to improve physical activity found short-run positive impacts that vanished over the longer-run (Molema et al. 2016). However, this analysis was based on only three interventions, all involving low-value in-kind benefits, which could be expected to have minimal effects.⁴¹ A large-scale study of smoking cessation involving a good experimental design and large financial incentives found material and statistically significant impacts associated with incentives (Volpp et al. 2009). There is a prospective study of the effect of much larger financial incentives for diabetes prevention in a US Medicaid population (Desai et al. 2017).

That incentives seem to work better for low-income vulnerable populations may reflect that any given payment represents a higher share of their income. The greater effectiveness for such households is also promising because they score consistently worse on nearly all measures of health outcomes and are overly represented in groups where preventative health appears to offer the greatest payback. For instance, 20 per cent of people in the lowest socioeconomic groups smoke daily compared with 6.7 per cent of those in the highest socioeconomic group. Rates among Indigenous populations are about 40 per cent. Smoking is the leading risk factor contributing to death and disease in Australia (AIHW 2016b, p. 171,176,184).

One of the fertile areas for further development is the use of ‘nudges’, which can use rewards to motivate behavioural change or apply so-called pre-commitment strategies. Also sometimes referred to as Ulysses contracts, the latter recognise that people would like to cease some activity and, anticipating that they will be unable to control their future impulses, want to bind themselves to their initial commitment. The Productivity Commission has examined pre-commitment for harm minimisation in electronic gaming machines (PC 2010). The approach has been used in a variety of other contexts. For instance, smokers who paid a weekly amount into a bank account, which they risked losing after a set period, were more likely to cease smoking than a control group (Cahill, Hartmann-Boyce and Perera 2015).

Various governments in Australia have established behavioural insight groups to develop nudges to promote healthier lifestyles. As illustrations:

- the NSW Government’s Behavioural Insights Unit experimented with the best form of content for SMSs reminding people of an outpatient appointment (many thousands of which are missed every year). The most effective message was “You have an

⁴⁰ Of all adolescents at the healthy weight at baseline, 2 per cent of the intervention group became overweight after five years, while 13 per cent of the comparison group increased to overweight or obese ($p=0.02$) after four years (Lazorick et al. 2014). Follow-up research showed persisting benefits (Lazorick, Fang and Crawford 2016).

⁴¹ A broader review cited more positive results and also proposed some guides for the future use of incentives, drawing on behavioural economics (Shuval et al. 2017).

appointment with Dr [XXXX] in [clinic XXXX] on [date] at [time]. By attending, the hospital will not lose the \$125 that we lose when a patient does not turn up. This money will be used to treat other patients.” During the first trial there was a 19 per cent reduction in the number of the people missing their appointments, saving St Vincent’s Hospital more than \$68 000 (NSW BIU 2017)

- the Victorian Government’s behavioural insights unit examined the effect of ‘nudges’ to encourage reduced sales of high-sugar beverages at the Alfred Hospital. The trial significantly reduced the sales of less healthy drinks, without reducing overall sales of drinks for participating businesses, thus making it a commercially-viable strategy (Alfred Health Victoria 2017; VicHealth 2016).

These measures often involve partnerships with businesses or regional parties.

Rewards and ‘nudges’ have some advantages over pricing, especially in their capacity for tailoring to specific regional populations. Pricing cannot usually target low-income users because of its obvious effects on income distribution, while rewards and nudges have no adverse financial consequences on such groups, nor any adverse effects on employment incentives.

Innovation and flexibility is also easier. It would be hard to implement geographically-varying PBS copayments or mandated GP copayments (even if it was thought they had some merit). In contrast, PHNs, LHNs, community health centres and others can run reward-based experiments at the local level that take account of the capabilities of their communities and the specific health issues (and their drivers) that predominate in their area (section 4.3).

While there have been many interventions using rewards for preventative health, there appear to be fewer instances where they have been applied to encourage those already with a chronic health condition to use the lowest-cost part of the health system. However, there are grounds for LHNs and PHNs to also consider these as tools for lowering their costs. For example, rewards might assist compliance with care plans for patients most susceptible to non-compliance. Small incentives have been shown to be effective for compliance with treatments for hypertension (Giuffrida and Torgerson 1997).

CONCLUSION 8.2

Internationally, financial and non-pecuniary incentives have proven successful in preventative health and in encouraging efficient use of the health system, but are not used extensively in Australia. They are particularly useful when used for lower-income groups.

Regional alliances, with advice from businesses and central agencies (such as the various government ‘nudge’ units) would be a natural starting point for experiments.

9 Information collection and management — a focus on what works and what people need to know

The role of data collection in health makes a difference to practice and policy. As early as 1911, the Commonwealth Statistician justified the population census for, among many other things, the insights it provided into causality and good health policy:

...excessive mortality or morbidity rates furnish evidence of the need and necessary direction of prophylaxis [preventative measures]. And it may be here remarked that statistical results of such a nature have disclosed the fact that popular impressions are often wholly erroneous. (Knibbs 1917, p. 8)

Information is increasingly playing a pivotal role in Australia's health care system. It has always been important, but when it was in paper form, it often lacked value. As one party described it:

.. the vast majority of this data was trapped in file folders and banker's boxes. This static data resource often obscured by illegible handwriting, missing papers, and mistakenly misplaced records. (Bresnick 2016, p. 2)

Digitalisation of data, information systems, new ways of transmitting information to clinicians and patients (the rise of the smart phone for example) and more efficient approaches that convert data into knowledge and practice have all developed since the era of paper records.

However, just as diffusion of technologies for treating patients has often been gradual, the same applies to the processes for collecting and using data. Part of this is the familiar story of the barriers posed by customary practices, the poor capabilities in administrators, clinicians and patients to use this new resource, and legitimate concerns about the investment costs associated with new technologies. But part also reflect regulatory barriers (such as ethical clearance, privacy requirements for data use, and rules about sharing) and administrative practices (like incompatible data definitions). These only mattered peripherally when movement of information was predominantly frustrated by its physical form. Nowadays, information systems and digitalised data have permitted the speedy and low-cost transport of data, and the costs of failing to exploit that means that many opportunities for better health care have been forgone. Strong regulation remains important, but its form must be suitable and take into account the consequences of too regimented arrangements.

This chapter explores some of the dimensions of this problem and their solutions in the health care sector. It does not consider all of the solutions in depth as the Commission has recently concluded an inquiry into *Data Availability and Use* (PC 2017a), which provides a generic framework for government policy for data in all sectors. Further, the Commission is also considering how to improve the collection and dissemination of information on hospitals and specialists to better support self-improvement by service providers and patient choice in an inquiry into human services (PC 2017b).

9.1 Poor information flows and coordination for users of the health system

Recognition of the importance of data in health care is not new. The clinical medical record dates back to antiquity, but the systematic use by clinicians of patient health histories (in paper form) commenced only in the early 20th century — and provided many benefits to patients (Gillum 2013). New technologies, the sophistication of modern medicine, greater levels of specialisation, and improved tools for using information have markedly increased the value and necessity of using information well.

The provision of information about patients, quality, clinical guidelines, and costs that moves ‘seamlessly’ between the parts of the system has been a longstanding worthy aspiration of the Australian health system. Any integrated model needs to keep track of where the patient goes and what happens to them. However, seamless information sharing has so far failed to fully materialise. The OECD has characterised Australia as relatively poor in its capacity to collect and link health data (OECD 2015b).

Poor information flows raise the risks of conflicting treatments, duplication of effort, suboptimal outcomes, inconvenience for patients, and excessive costs. Associated with this, there is no clear system for coordinating the care of a person as they enter the health system’s various fragmented bits.

For instance, there is widespread dissatisfaction by GPs about divulgence of key aspects of a patient’s experience in hospitals. More than 40 per cent of GPs were unsatisfied with information about the patient’s functional status on discharge (Mahfouz et al. 2017). Many do not know that a patient has been to hospital at all. Similarly, hospital emergency departments do not always receive the right information.

One hospital clinician remarked:

... harm may similarly be imposed on ambulance-transported patients who have a critical illness and face delayed admission to ED, or even diversion from their usual hospital to one that is unfamiliar or ill-equipped to deal with complex, high acuity and specialised care. Without electronic records, these patients’ medical notes are frequently hard to access. Ambulance load sharing doesn’t make sense if it leads to the patient being brought to the wrong hospital or some ending up far from their “home hospitals”. For example, a patient who was

dying and in palliative care was diverted by ambulance to my hospital after being discharged the same day from his distant home hospital, where he had previously spent several weeks and was close to his family. (Ting 2017, p. 2)

Data cannot be readily transferred between different sectors in Australia's health system or even between providers in the same sector because of a lack of interoperability in existing data systems. For instance, the South Australian Government's system for providing an integrated health record for every patient admitted to a South Australian public hospital or health service (the Enterprise Patient Administration System — EPAS) claims as its goal: '1 Patient. 1 Record. Better Care'. However, the system will not be available to the private sector (that is, most GPs and all private hospitals), and the intention is that only some information will be linked to the national My Health Record (SA DoHA 2017). On the implementation front, EPAS has also been criticised by the South Australian Auditor-General as overly ambitious in time frames, costs and efforts needed to implement — another Achilles heel in large IT system developments (SA AG 2016).

Electronic coordination of dispensing of controlled drugs provides a good illustration of incomplete adoption of an already available system. Electronic recording and reporting of controlled drugs dispensed by pharmacies is used to address problematic access, such as drug overdoses, but its implementation is not yet complete across all jurisdictions (PC 2017a, p. 513). More generally, the absence of a system for reconciling prescriptions issued by clinicians with the purchase of drugs from dispensers means that it is difficult to target people who are not filling their scripts, with the dangers that this poses for their health. It also means that the system for issuing PBS Safety Net cards for people whose annual expenditure has exceeded a threshold (which entitles them to lower priced drugs) is unwieldy and incomplete.

Nor do current information systems provide consistent quality assurance at the site and clinical level. In a wide-ranging (largely positive) review of the Victorian health care system, it was noted:

When the work for this study was being undertaken, Victoria had not had – at least to anyone's knowledge – what might be dubbed a major hospital scandal: the equivalent of the paediatric cardiac deaths in Bristol or a Mid Staffordshire in England's NHS, or the equivalent of the Bundaberg, or Campbell and Camden events in Queensland and New South Wales. But, as one senior official in the department put it, 'How would we know?' (Ham and Timmins 2015, p. 44)

Victoria is not alone. Not only are there large clinical variations across Australia, and a significant number of adverse events, but in many cases, the evidential basis for clinical practice is deficient or dated. There are changes afoot — such as the Australian Atlas of Clinical Variations (chapter 7) and initiatives like the ACI's Stroke Clinical Audit Process (SCAP) (discussed in chapter 4 and further below in section 9.3). The latter is an exemplar of what data collection, analysis and learning at the site level can do. The SCAP was able to identify exactly what happened to patients when they were admitted to different hospitals with strokes, thereby isolating practices that should change (such as having a

swallow test or providing an antithrombotic on discharge — table 9.1). Ideally, patient-level data like this would be routinely collected at the hospital level for high-risk admissions, and would provide continuous feedback to hospitals so they can improve practices (decision-support systems).

Various disease registries are being used to inform best practice. For example, the Australia and New Zealand Hip Fracture Registry was established in 2011 to develop guidelines and quality standards, collect a dataset and monitor hip fracture treatment outcomes over time, and create a website to disseminate good practice (Taylor 2015). As for stroke, the process included a facility level audit of the processes and outcomes following the presentation of a patient for a hip fracture. One clinician estimated that the use of the audit (and action based on it) had saved 1000 lives (Harris 2016a).

Even where data systems are available, that does not necessarily guarantee their use. Clinicians may have access to systems that guide their clinical judgments or help them interpret a patient's record, but they do not always use them or have the incentives to do so (Fountain and Bennett 2016).

General practice has engaged far more with information technology than others in the health care system. In June 2017, about 6100 general practices were registered for My Health Record, representing 85 per cent of practices.⁴² While 96 per cent of general practitioners used computers for clinical purposes, prevalence rates for specialists (37 per cent) and surgeons (22 per cent) suggest that they cannot efficiently transfer information — a critical feature of integrated health (PC 2017a, p. 517). As one clinician remarked:

I use a fax machine almost daily, as well as other arcane technologies, such as the pager that has to be carried around at all times. These rather quaint examples make for fun anecdotes to regale non-medical friends with, but they speak to something more profound: the generally abject quality of the communication tools employed by health care practitioners. This is especially clear in our handling of medical records. It's ironic, given that our profession takes so much pride in the ability to tell the story in a succinct and a systematic way, that we are so tolerant of platforms that obscure rather than illuminate the important points in a patient's history. Even within a single hospital network, the archive can be dense, chaotic and generally migraine-inducing. It's not uncommon to find a crucial operation report hidden among a dozen computer-generated data logs or lost at the end of a digital cul-de-sac. (Dando 2017, p. 1)

⁴² Based on practice numbers reported in Scott (2017) and GP registrations recorded by the ADHA (2017).

Table 9.1 Data identify the potential for practice improvements

What 6 hospitals did for an admitted stroke patient

<i>Clinical measure</i>	<i>Unit</i>	<i>H1</i>	<i>H2</i>	<i>H3</i>	<i>H4</i>	<i>H5</i>	<i>H6</i>
30 day mortality rate	%	20.7	8.2	9.2	19.1	30.6	9.6
Stroke Unit Bed or High Dependency Unit	%	100	100	63	0	0	100
24 hour neurological observations	%	100	95	63	55	9	100
Used stroke clinical pathway	%	0	45	85	80	0	75
Swallow test <4 hours	%	25	70	20	10	0	40
Discharged on antithrombotic	%	78	84	93	71	80	100
Aspirin within 24 hours	%	44	58	60	47	20	72
Palliative care	%	0	3	2	0	3	0
Discharged on Statin	%	28	63	60	43	20	67

^a The higher the share for any measure, the more a hospital is adhering to best practice.

Source: NSW Agency for Clinical Innovation (2017, p. 12).

What can be done?

In one of the world's leading health systems in Canterbury, New Zealand, an electronic system of scripts, referrals and medical records is well utilised by GPs under the Health Pathways system, and is part of the data exchanged with hospitals for the purpose of providing the best care to patients.

Under the funding recommendations of this report, PHNs would have the capacity and the incentive to coordinate local shifts to an electronic system such as that of Canterbury in New Zealand, and to otherwise coordinate data sharing with Local Hospital Networks. Sufficiently granular data should be remitted to GPs, hospitals and other health providers in a form that assists them to assess their own performance. More aggregated data could also be remitted to the AIHW for broader dissemination.

There are other steps that can assist:⁴³

- a coordinated approach to standardise definitions and terminology including within the primary health sector. This is a role that the Accrediting Release Authority recommended in the Commission's data inquiry could play or could at least commission (PC 2017a)
- data at the right level of granularity needs to be collected, subject to the costs of digging deeper. Information is already collected on referrals, diagnostics, numbers of consultations and their durations, scripts issued and filled, and hospitalisations. At a minimum, linking these together is feasible and useful (but is currently prevented by

⁴³ Many of these are described in the PC's inquiry into *Data Availability and Use* and the burgeoning analysis of the obstacles and solutions to the use of data in the health system (Kruse et al. 2016).

the inefficient implementation of Commonwealth privacy legislation). However, several stakeholders told the Commission that little is known about what happens during the short and long GP consultations that constitute the dominant MBS items. The practicality and value of discovering the content of that black box will depend on technology, software design, compliance costs and its usefulness in learning. As an illustration, suppose that a patient presented with anxiety about work and has difficulty sleeping. The GP provides advice that this is quite common and often resolves itself, and that simple approaches such as exercise, establishing a routine for sleeping, avoiding excessive alcohol, and relaxation techniques would assist. She also counsels the person to discuss workloads with the employer, and to seek more support from friends. While some record is needed in case a condition persists, it is an open question about the degree of detail required when a GP must deal with a full waiting room. For example, is it necessary to record the GP's assessment of the level of anxiety? And were it recorded, would data inconsistencies across GPs and the difficulty of establishing outcomes (did the anxiety dissipate, by how much and through what mechanism) make it useful? Peering inside the black box for all consultations may not be cost-effective when these involve so many nuanced interventions. Nevertheless, surveys may help to understand more about what happens, while specific trials of interventions for given presentations seems a more promising avenue to clinical improvements

- changes to the procurement processes in the health sector by all jurisdictions to ensure that future interoperability is not blocked by contract terms or software design
- co-design of data systems by those who use them
- training of the medical workforce (and administrators)
- demonstration of the benefits to clinicians and patients — in effect, data have to be translated into information that can change behaviour or give people control, with the lowest compliance burdens. While based on data from the United States, an observational study of four specialties found nearly half of the clinicians' time was spent on compliance with clerical and electronic health records (Sinsky et al. 2016). One of the key challenges in implementing information management systems will be to highlight its clinical value to physicians — telehealth, elimination of duplicated data collection, automatic billing, and better clinical advice and better patient outcomes.
- quality control to ensure data are as accurate as possible
- software and hardware design that minimises the cost of accessing and inputting information
- not constraining the sharing of data for analytical purposes unless there are concerns about cybersecurity and privacy. For example, while the data were collected at the patient level for ACI's stroke audit, the focus was on improving clinical practices. Similarly, if clinicians receive information on their clinical performance compared with peers, the patient-level data are required, but the creation of benchmarks is the goal. Where the interest is ensuring that patient-specific information is used to provide

coordinated patient-centred care, some other issues can emerge, such as correction of records by patients and a capacity for patients to withhold information in some instances. Patients might not want all the clinicians and allied professionals with whom they may have some future involvement to know about stigmatised conditions — like eating disorders, affective disorders, sexual addiction or anger management. A requirement for disclosure can prevent people from seeking help in the first place.

The dividends from better coordination of data for people's care appear to be large

Overall, the dividends from good data management for patients appear to be high. Electronic medical records can reduce the risk to patient health of incomplete or inaccurate patient information — which results in up to 18 per cent of medical errors in Australia (Jolly 2011). Accurate information also reduces the risk of duplicating tests or of conflicting medical treatments. In the United States, nine per cent of pathology tests are duplicates and therefore add to costs without adding value (CBO 2008). Similarly in Australia, survey data indicate that medical tests are duplicated for over ten per cent of adults with chronic conditions (Schoen et al. 2009).

Well-designed information systems are not enough

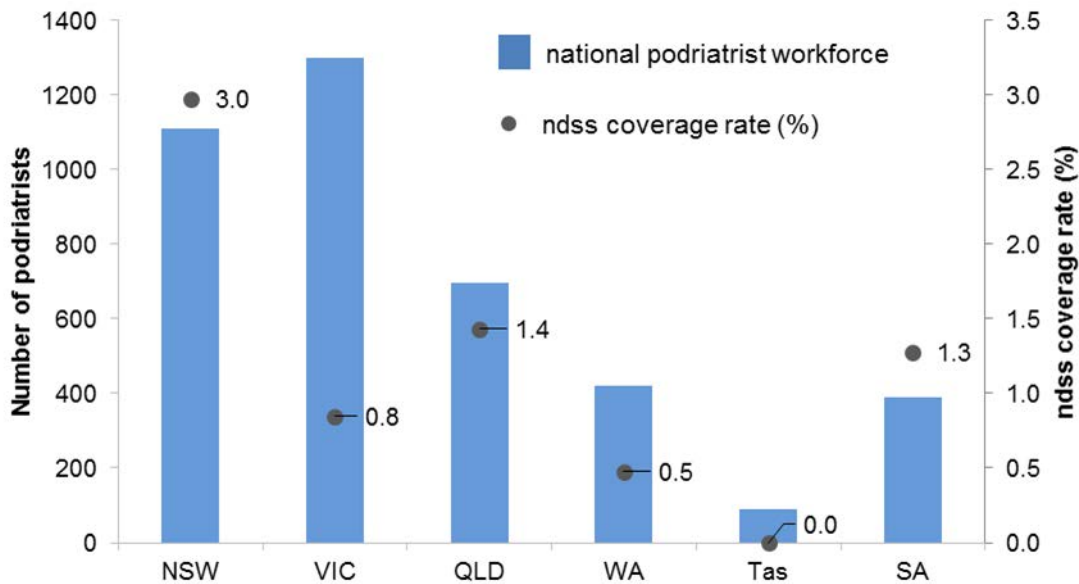
The most exquisitely designed information sharing and management system will not deliver its full benefits if clinicians and others do not enter reliable data or use it for managing the treatment of patients. That cannot be assumed.

The evidence indicates that the provision of reliable health data leads to improved health outcomes, including by assisting individual providers to self-evaluate their performance against other providers (ACSQHC 2016a; Henderson and Henderson 2015; Shaw, Taylor and Dix 2015). However, it is critical that the data are of high quality, the setting in which the data have been collected is divulged, the risks of unintended negative outcomes from misinterpretation or mismeasurement is assessed and remedied, and the measurement of performance is regularly refined.

The Australian Government's Diabetes Care Project showed that provision of a sophisticated information management system for GPs (including the capacity to provide linked electronic patient records, information on GPs' performance relative to peers, automatic generation of care plans, and fund management, among other functions) was little utilised by GPs and had no benefit for patients unless accompanied by other aspects of integrated care, such as financial incentives (DoH 2015b). There are grounds for linking access to government funding for some services to the uptake of electronic medical records. We envisage that in many of their collaborative ventures for better integrating care, PHN/LHN alliances would require health professionals to participate in a shared information system in order to be eligible for additional funding.

Even rudimentary approaches to help people with chronic conditions navigate the health system can be incomplete or out-of-date. For example, the National Diabetes Services Scheme (*ndss*) provides a national online services directory that provides patients with lists of the local professionals that can assist them in managing diabetes (for example, podiatrists, psychologists, dieticians, and endocrinologists). There are large gaps in coverage, as exemplified by negligible coverage of podiatrists in the database (figure 9.1), a coverage rate that is similarly poor in other specialties. For example, the database lists only seven medical practitioners in all of New South Wales with a role in diabetes management.

Figure 9.1 Podiatrists lost and found
National workforce compared with the *ndss* online database^a



^a The National Diabetes Services Scheme (*ndss*) online data indicate the number of podiatrists by locality. The AIHW undertakes regular surveys to estimate the national medical workforce. The ratio of the former to the latter is the coverage rate. A comprehensive online database would have a 100% coverage rate. Podiatrists are key professionals for addressing the common limb problems experienced by diabetics. The *ndss* is an initiative of the Australian Government that commenced in 1987 and is administered with the assistance of Diabetes Australia.

Sources: Data extraction from the *ndss* online database (<http://osd.ndss.com.au/search/default.aspx>) on 15 May 2017, and AIHW *National Health Workforce Data Set* (NHWDS) 2014.

The deficiencies of databases of this kind reflect that maintenance is costly, other tasks have higher immediate priority and health professionals have little interest in providing details because of time poverty. Further, providers and consumers have little incentive to look at a database that has limited functionality. There are also other competing databases — creating a source of confusion. Arguably, something as simple as providing patients with some guidance on using Internet search engines for accessing services might have a higher payoff if there is a risk that any newly advocated online resource is insufficiently maintained or incomplete. Regardless, the lesson from this small case study is that aspects

of an integrated care system (‘access to information’) may seem to be present, but vanish when probed more deeply.

9.2 Using data for evidence-based policy and practice

It is now well understood that alcohol and drug abuse are major contributors to illness and mortality in Australia (AIHW 2016a; Manning, Smith and Mazerolle 2013; NHMRC 2009). It is less well recalled that this understanding stemmed from the seminal work of researchers in Western Australia who linked 6.5 million records of births, deaths, hospital separation and other health data to quantify the impact of drug and alcohol abuse on mortality (Holman et al. 1990). This approach set the benchmark for researchers around the world (for example, Sjögren et al. 2001) and helped to precipitate Australia’s campaign to reduce drug and alcohol abuse.

Integrated care provides an opportunity for integrated data for evidence-based policymaking and clinical practices. With the right information technology infrastructure and capabilities, it is possible to collect information on the inputs, outputs and outcomes associated with each of the myriad interactions people have with the different parts of the health system. This goes beyond single episodes of care to lifetime datasets that provide a better understanding of the long-run effects of any intervention.

Data collection is one dimension of building an evidence base, but equally important, the data has to be useful, linked and made available to providers and researchers. As part of its *Data Access and Release Policy*, the Australian Government has committed to releasing medical information ‘in an appropriately de-identified and confidentialised form’ unless there is a good reason not to (DoH 2015a). Consistent with that policy, the Department agreed to allow the AIHW to store a five year dataset of MBS and PBS claims, which will facilitate more efficient access to linked data for medical research (AIHW 2015). The Department also released a sample of MBS and PBS de-identified data to the public in August 2016. However, this was subsequently removed when some of the data were re-identified.

It is possible to resolve these issues by:

- concentrating on access for trusted users who are most likely to add value to the data
- using proven mechanisms. For research purposes, an effective mechanism is the Secure Unified Research Environment, which was established with Australian Government funding as part of the Population Health Research Network (PHRN).⁴⁴ When adequately resourced and well managed, clinical quality registries such as Victoria’s trauma registry (VSTR) and the Australian and New Zealand dialysis and transplant

⁴⁴ SURE was established to facilitate large-scale research projects to address major health and social issues confronting Australia.

registry (ANZDATA) have proven effective for encouraging clinicians to engage in self-improvement (ACSQHC 2016a)

- focusing on the release of data that are most likely to benefit the public. For example, there is evidence that public reporting of health outcomes for service providers leads to improved outcomes because providers use the data to self-improve (and not so much because consumers use the data to choose providers) (Henderson and Henderson 2015; Shaw, Taylor and Dix 2015). Therefore, health outcome data need to be readily understood by service providers in order for its release to be valuable for improving health outcomes. Examples of how targets, measurement and reporting have led to significant improvements include reductions in patient waiting times in England, lower risk-adjusted mortality rates for cardiac surgery in New York, Great Britain and Ireland, improvements in prostate cancer outcomes in Germany and improvements in hip replacement performance in Sweden (Shaw, Taylor and Dix 2015).

The issues about managing and distributing data in an integrated health system are largely addressed in the Commission's inquiry report into *Data Availability and Use* and are being further explored in the Commission's inquiry into the reform of human services (PC 2017a, 2017b). Under the recommendations of this current report, there is also a role for PHNs and LHNs to engage with individual clinicians and other providers using performance data that assist the individual providers to assess their contribution to the health of the region's population.

It's difficult to find data

A solicitor of even reasonably aggregated health information about population risks (for instance obesity rates or healthy diets) finds life far from easy when seeking to navigate the maze of websites and agencies reporting health information across the various jurisdictions. All jurisdictions conduct regular surveys on population health risks and report regional results in their jurisdictions. State Government bodies also undertake patient experience surveys, typically using different instruments and covering different periods.

There is no single place where the data are consolidated, systematically compared or available for trusted researchers using a common protocol. The AIHW's list of data sources for monitoring health conditions only relates to national surveys (AIHW 2016c). The Australian Government's open data portal (data.gov.au) includes a hotch-potch of 'data' sets relating to health, many of which are lists of facilities by location (to name a few: ice skating centres in Victoria; playgrounds in the City of Greater Geelong, and the location of European wasps in the ACT). Many key health data collections known to exist were absent and the ones present were jumbled up with ones with very different purposes.

The difficulty of accessing information forgoes opportunities for richer analysis, including of causal analysis of the factors that affect population health, benchmarks for performance at the regional level, and a greater capacity for testing the efficacy of some health

promotion initiatives. For instance, if one jurisdiction runs a campaign on smoking cessation, it might be possible to use smoking rates in the regions of other jurisdictions as a control.

The Productivity Commission's inquiry into *Data Availability and Use* made several recommendations that would improve matters, including for all Australian governments to create 'comprehensive, easy to access registers of data, including metadata and linked data they fund or hold' with data available or signposted on data.gov.au. We also recommended the accreditation of data release authorities (such as the AIHW) that, subject to risk management protocols, could release Australian Government unit record data, with opt-in arrangements for State and Territory governments (recs. 6.4, 6.6 and 6.7 PC 2017a). These should be progressed.

CONCLUSION 9.1

There is a maze of websites and agencies reporting health information across the various jurisdictions, making it difficult to obtain a reliable Australia-wide perspective on patient experiences of health care, and the incidence and prevalence of chronic conditions. Neither the Australian Institute for Health and Welfare nor data.gov.au are currently serving as comprehensive data holders.

The implementation of the Commission's recommendations in its inquiry into Data Availability and Use (specifically, recommendations 6.4, 6.6 and 6.7) and in its inquiry into human services (specifically, draft recommendations 10.1 and 10.2) would resolve these problems.

9.3 Disseminating best-practice

Inertia is a characteristic of many parts of life — in business, government, in ordinary people's lives (including their lifestyle choices), health care providers and clinicians. One of the biggest brakes on productivity in an economy — or any part of it — is that learning is slow. In the early 1980s, beta blockers were shown to reduce mortality rates by up to 25 per cent after a heart attack, yet by the early 2000s in the United States, median state-level use was still below 70 per cent (Skinner and Staiger 2015). More recently, a study of nearly three million victims of heart attacks over the period from 1986 to 2004 found that there was a three percentage point difference in the one year survival rates between hospitals that had rapidly taken up three best practice techniques for clinical responses to heart attacks and those whose take up was poorest. This was one third of the total improvement in survival rates for heart attacks over the 18-year period concerned (*ibid*).

In Australia, there are major differences in mortality rates following strokes. A minority of NSW hospitals organise stroke care. Yet where stroke units have been implemented, there was a 30 per cent reduction in mortality (Worthington 2016).

Skinner and Staiger observed the power of patients in getting better outcomes if they are informed about best practice:

If patients both knew about the benefits of aspirin, beta blockers, and reperfusion, and were sensitive to published and reliable information about hospital quality, physicians would be forced to respond rapidly to new innovations or face the loss of patients. But when quality measures are limited, patients are not well informed, and markets are distorted, remarkably large inefficiencies can persist across hospitals and over time (*ibid*, p. 18)

The fact that new technologies are not always rapidly adopted is not, per se, undesirable. Many new technologies are costly, and the evidence base for their long-term effectiveness is often unknown. The issue only relates to ‘new’ technologies where efficacy has been reasonably established, and where their usage passes a cost-effectiveness standard. In the case above, the innovations apparently passed this test.

Diffusion does not just relate to new technologies, but to the elimination of interventions that do not have strong evidence in favour of them. The large variations in procedures between areas revealed in the Australian Atlas of Healthcare Variations is as likely to reflect the same slow rejection of unjustified practices as much as the slow adoption of new ones. The story of arthroscopy for knee degeneration (chapter 7) is a good illustration.

Addressing inertia in health care is demonstrably difficult, else the persistence of low-value clinical practices could not be explained. There are many pre-conditions for diffusion of innovations, many well-articulated in the literature (Cain and Mittman 2002). In Australia, one such barrier is the ‘Koala’ syndrome, which characterises Australia as sufficiently special that innovative devices approved overseas must often be re-investigated. CSIRO has voiced frustration about this for a bowel testing kit developed in Australia and licensed in the United States, but not approved for Australian use in the same timeframe (Woodley 2017).

From the perspective of an Australian medical manufacturing firm:

Synchronisation with offshore health regulators and administrators would increase the speed to market for Australian manufacturers, allowing patients access to innovative therapies far more rapidly than is currently the case. (Anatomics, sub. 3, p. 3)

This paper has already considered some of the measures that could assist diffusion, such as greater patient health literacy, transparency in the performance of health care providers and clinicians, and the use of My Health Record as an ‘intelligent’ advisor for patients.

General practice could also receive online reminders. Currently, 56 per cent of Australian GPs say they routinely receive computerised reminders for guideline-based intervention or screening tests — though how often they act on these is not known (Osborn et al. 2015).

There are already institutions well-equipped to provide advice to clinicians — such as the ACSQHC and Choosing Wisely, and research agencies that develop tools for better health care, such as the Centre for Health Informatics. De-funding of interventions lacking

efficacy or cost effectiveness would certainly end these practices in the public system because they would no longer be remunerated.

However, there is no formal established vehicle for diffusion of innovations in commissioning health care. One of the values of a regional focus is a greater scope for experimentation in achieving better outcomes. For instance, what multidisciplinary teams work best together? Do team members need to be co-located? What types of blended payment models work best? What types of patient rewards are effective? Where does telehealth pay off? There are already some informal mechanisms for disseminating best practice in these areas through meetings between various regional PHNs and LHNs, but there are grounds to consider a more systematic approach. Yet another new agency in health care is not justified. If anything, there are too many already. Given that, many of the above questions relate ultimately to improved quality and safety of care, the best available agency would probably be the ACSQHC. That body need not undertake evaluations, but would be a clearinghouse for their dissemination. Moreover, just as it assesses deviations in clinical practices by area throughout Australia, it could examine how quickly established good ideas for organising health care spread among health districts or jurisdictions (an exemplar being management of high-usage ambulance users — chapter 3). The ACSQHC should work collaboratively with other agencies with a similar role — most notably the NSW Agency for Clinical Innovation (ACI). The value of the ACI approach is apparent in their successful implementation of improved stroke management across NSW hospitals (as described earlier). It involved identification of clinical variations, engagement with the chief executives of LHNs and hospital clinicians, the development of an audit tool, its application in sites, feedback and finally re-auditing and evaluation (NSW ACI 2017; Worthington 2014). A hub and spoke model involving collaboration across jurisdictions may work as well as, or better than, a single agency.

There is a developing suite of policy approaches to effective dissemination and implementation of health innovations, which will help provide guidance on the best mechanisms (Inkelas et al. 2015; Rapport et al. 2017). One of the elements of this are ‘champions’ — people who have led innovative ideas and who can transfer them well to others because they have hands on experience and know the practical obstacles and how these can be overcome. The concept is well known in business, and increasingly so in health care (McNeil 2014; Shaw et al. 2012), but needs to extend beyond clinical champions.

That is a role less likely to suit the ACSQHC, which is a more technically-oriented body. One possibility is that PHNs and LHNs (and possibly State and Territory Governments) agree to create a national ‘champion’ program, where champions of an innovative idea assist other PHNs and LHNs to more speedily adopt new ideas. Regardless of whether that is the best vehicle, there is a need to recognise that changed practices often require persuasive and trusted advocates.

CONCLUSION 9.2

A key goal of a regional approach to health care is that it is an ideal vehicle for experimentation. The Australian Commission on Safety and Quality in Health Care, potentially in collaboration with other government agencies, should be a clearinghouse for the results of evaluations of these experiments, and report on the diffusion of any well-established best practices across Australian health districts and jurisdictions.

This initiative needs to be accompanied by the capacity for people with hands-on experience with innovations to assist others to copy them. One approach may be a cooperative 'Champions Program' co-funded by Primary Health Networks and Local Hospital Networks. Complementary models, such as the use of the approaches applied by the NSW Agency for Clinical Innovation, are also likely to be desirable.

10 Transitioning to a new system

While the shift to integrated care has been slow and disjointed, Australia's health system is now much more coordinated than in the past. As discussed above, all Australian governments have implemented — if sometimes only on a trial basis — various forms of integrated care. Moreover, there is increasing support from clinicians about the desirability of adopting integrated care as *the* Australian approach. A recent discussion paper issued by the Royal College of Australasian Physicians laid out a blueprint for integrated care that captures all of the essential steps needed (RACP 2015).

Moreover, while not fully joined up yet, some of the key ingredients essential to an Australia-wide integrated care system are in place or in train, including:

- community health care centres throughout Australia (appendix A)
- bodies that play a role in coordinating or managing services at the regional level (PHNs and LHNs)
- greater use of telehealth, particularly in Western Australia, Queensland and the Northern Territory for servicing remote locations (ATS 2017)
- more sophisticated national approaches to funding all public hospitals through activity-based funding
- the emerging (if still very incomplete) development of PREMs and PROMs
- national institutions that aim to ensure safety and quality in health care services (avoiding unjustified variations)
- an awareness of the power of data, and the growing development of systems that allow its exploitation
- a nationwide approach to organ donations
- the rollout of My Health Record (with all Australians on the record by 2018 unless they have opted out).

In this, Australia is not alone. The United States, the United Kingdom, New Zealand, Germany and Sweden all have examples of patient-centred care within their borders, but they have not yet been successful in rolling out patient-centred care across the entire nation despite demonstrated health dividends. In response to this global dilemma, scholars have investigated how to make a successful transition to an integrated and patient-centred system of health care (Baker et al. 2008; Ham 2010; Nicholson, Jackson and Marley 2013; Suter et al. 2009). Two of the most recent systematic reviews of the literature consider the implications for Australia (Janamian et al. 2014; Nicholson, Jackson and Marley 2013).

Janamian et al. (2014) considers how to overcome the obstacles to patient-centred care specifically within Australia's primary care setting. Nicholson et al. (2013) investigates the elements of a successful transition to an integrated health system. These are the basis for the suite of desirable changes to Australia's health system summed up in table 10.1 below and in chapter 2 of the main report.

Overcoming barriers to change in the primary care sector

A patient-centred system of primary care that is part of a broader effective health system is critical for achieving much better health outcomes (for example, Gawande 2017; Macinko, Starfield and Shi 2003; Swerissen and Duckett 2016). Slow progress towards an integrated, patient-centred approach in primary care therefore undermines the entire health system (and is not unique to Australia). The international evidence identifies various challenges and possible solution (Janamian et al. 2014; Nicholson, Jackson and Marley 2013), with implications for Australia.

1. It is difficult for primary care practices to change their approach to patient care. Bringing about the necessary behavioural change relies not only on the qualities of each GP practice, but also requires external coaching on top of external payment reform that facilitates a patient-centred approach to care. PHNs are best placed to coordinate the coaching and incentive payments needed in a locality, but will need to be adequately resourced for that purpose.
2. It is challenging for primary care practices to put in place a patient-centred, user-friendly, integrated shared electronic medical record system. In the United States, the required investment in IT infrastructure and training for primary care practices often exceeded expectations. Further, there are economies of scale in taking a broader approach. In Australia, the investment in IT infrastructure is best resourced through the LHN. This takes advantage of economies of scale, it will better ensure the necessary interoperability between hospitals and GP practices, and it reflects the general situation that hospitals — unlike most GPs — are mostly still using archaic data record systems and are in greater need of an upgrade.
3. Funding models based on reimbursement do not support a patient-centred approach to care (as noted in section 9.2) and must be one of the early focuses of reform. The Productivity Commission has set out simple changes that could be incrementally implemented, with capacity to expand their scope after learning.
4. Economies of scale matter in the transformation phase. Smaller primary care practices face a greater administrative burden to transition to patient-centred care than larger institutions. It may also be that smaller practices face a larger administrative burden in keeping up with best practice and in providing multiple specialisations within the practice. While the consolidation of practices both horizontally and vertically will be market driven, government initiatives should

facilitate that integration and not hinder it. Consolidation need not involve larger practices but can also occur through a federation of smaller practices that agree to share administrative and other resources and that cooperatively serve patients according to the comparative advantage of GPs. Such a federation model is on the increase in the United Kingdom. In regional and remote locations, where consolidation is not feasible or may undermine competition, additional support may be justified, for example in the form of temporary in-kind administrative support. In urban locations, the GP sector is highly competitive, and so increasing consolidation will not undermine competition, particularly if there is increasing oversight by PHNs and LHNs, together with the publication of GP performance indicators.

5. A transition to an integrated, patient-centred system of care is constrained by standards, measures, targets for performance, and accreditation that do not reflect a patient-centred approach. There is therefore a need for a review of accreditation frameworks so they align with the key aspects of patient-centred care. Such a review was canvassed in 2014 by the Royal Australian College of General Practitioners and the Australian Commission on Quality and Safety in Health Care. Further, there is a need for governments to refrain from prescribing how to transition to an integrated, patient-centred system beyond what is supported by the evidence (as summarised in this section — table 10.1). Micro-management constrains the innovation and flexibility that is needed to successfully find the best path to an integrated, patient-centred system of care. As pithily encapsulated by a recent study of effective health care:

Micromanagement carries well-known risks. It all too easily disempowers local leaders, creating a culture of compliance and risk aversion that can lead to gaming and misreporting of performance data, with the net result that it stifles innovation. (Ham and Timmins 2015, p. 42)

CONCLUSION 10.1: A SUMMARY OF THE CRITICAL INITIATIVES

The things that work	What it means for Australia
Informed and engaged consumers	<ul style="list-style-type: none"> • Improve health literacy • Involve consumers as partners in care • Adopt arrangements that allow informed consumer choice • Use My Health Record as a mediator for information provision to consumers, including on medical interventions that have no proven efficacy • Change passive attitudes of consumers • Publish plain-English indicators of quality, safety and outcomes • Target high-risk groups for particular care and innovation in health care delivery suited to the person
A regional approach to health care	<ul style="list-style-type: none"> • Regional approach to the management and provision of health care through collaboration between LHNs, PHNs, CHCs, local governments, health insurers and other regional partners • Freedom to vary funding and collaboration models region by region (but with accountability) • MOUs between LHNs and PHNs to facilitate joint planning, and identify shared clinical priority areas based on local need and on national priorities • Keep some bodies at the national level, if there are economies of scale and learning
Effective change management: manage change locally, strategies specified, executive and clinical leadership, commitment at all levels	<ul style="list-style-type: none"> • Skills needed in leadership of LHNs and PHNs. Select leaders for LHNs and PHNs who have proven change management skills and who clinicians trust • Early engagement with key clinicians is critical, as is reducing the compliance costs of shifting to new models of care • Information technology must work • Use champions for change
Incentives aligned to promote: integration, innovation and reducing costs of hospitalisation	<ul style="list-style-type: none"> • Create Prevention and Chronic Condition Management Funds that LHNs can use to collaborate with local entities to improve population health and to reduce hospitalisation • Remove legislative restriction on LHNs, PHNs and jurisdictions providing additional funds for MBS-funded activities of GPs • Ultimately reallocate funding of regional and general practice initiatives to PHNs • LHNs and PHNs would be the key decision makers at the local level, but would have to have governance structures that made them accountable • Adapt Health Care Homes Program so it allows new payment models and permits greater regional flexibility • De-fund health interventions that fail efficacy or cost-effectiveness criteria, moving from volume to value

(continued next page)

CONCLUSION 10.1 (continued)

The things that work	What it means for Australia
Seamless care	<ul style="list-style-type: none">• Public funding of health care should be based on quality, safety and value — and not differentiate decisions about sourcing care between private and publicly owned entities
Integrated ICT: shared electronic health record, linked clinical and financial measures	<ul style="list-style-type: none">• Invest in information technology and software for information flows throughout the system• Use My Health Record as the key patient record
Collect and use data for coordinated care, transparent measures of performance and for research into what works best	<ul style="list-style-type: none">• Measure outcomes as people see them. Develop and adopt PREMs and PROMs, drawing on existing instruments and evidence from abroad• Follow recommendations of the Productivity Commission's inquiry into <i>Data Availability and Use</i>• Systematic diffusion of best clinical and organisational practice
Professional development to support patient-centred integrated approach	<ul style="list-style-type: none">• Increase emphasis on health professional training and professional development concerning patient-centred and integrated care• Included in these requirements should be cross-sectoral and interdisciplinary training.

A Integrated care in Australia

A.1 The evolution of integrated care policy

While technological change has been spectacular in health care in all developed countries, the organisational models that deploy such technologies have not kept pace, even when new models of funding and structuring health services appear to offer better outcomes. Australian health policy has slowly evolved in response to the evidence in favour of an integrated, patient-centred approach to care (box A.1), and arguably Australia lags many other countries.

Policy measures to integrate Australia's health care system were initially concentrated in the primary care sector. The coordinated care of chronically ill patients by primary practice was trialled in the late 1990s and early 2000s. Despite the lessons learnt from the trials, the coordinator role of primary care ceased to be a policy priority for almost a decade – until the current proposal to again trial the coordination of primary care, this time through the health care homes initiative. The Australian Government otherwise sought to integrate GP services with that of other providers by co-locating GPs with specialists and other providers in the GP Super Clinics program of 2007–2011.

More broadly, the Australian and state governments have agreed to take a regional approach to the management of health services through Local Hospital Networks and Primary Health Networks (formerly known as Medicare Locals).⁴⁵ This regional approach has extended to the pooling of hospital funding (through Activity Based Funding), but not yet to the pooling of general practice funding. Some progress has also been made towards an electronic patient medical record system, which would facilitate patient transition between providers and between sectors.

A number of options for realising integrated care in Australia have been proposed. In 2009, the National Health and Hospitals Reform Commission recommended the introduction of health care plans that would purchase all the health needs of an individual, with the Australian Government funding these through risk adjusted capitation payments. It recommended that such plans be provided by Commonwealth and State governments and by other providers, including for-profit providers, with each individual free to switch between plans.

⁴⁵ There are thirty-one Primary Health Networks with boundaries that are generally aligned with the one hundred and thirty-five regionally defined Local Hospital Networks.

Box A.1 **Key developments in Australia's integrated care policy**

1970s – Community health centres — an Australian Government initiative subsequently adopted by states and territories. They revolve around place-based access to allied health professionals

1992 – The Australian Government's national health strategy included integrating GP services and the broader health system including through funding reform and information technology

April 1995 — COAG identified the need to coordinate health care

June 1996 — COAG agreed to explore options for better coordinating care

1997–99 — First round of National Coordinated Care Trials

2002–05 — Second round of National Coordinated Care Trials

February 2006 — COAG endorsed a national action plan that included incentive funds to improve the integration of services, case conferencing to improve the care of cancer patients, and development of a national electronic patient medical record system

July 2006 — COAG agreed to the National Action Plan on Mental Health, which emphasised coordination and collaboration between all providers in order to deliver a seamless system of care. COAG also agreed to health workforce reforms, including allowing practice nurses to provide ongoing support for patients with chronic disease on behalf of general practitioners

2007–11 — The Australian Government rolled out GP Super Clinics to provide multidisciplinary and integrated care by co locating GPs, specialists and other providers

July 2008 — COAG endorsed a national approach to integrating Australia's organ and tissue donation system

2009 — The National Health and Hospitals Reform Commission recommended integrating health care services particularly for those with complex and chronic health conditions

2010 — In the National Primary Health Care Strategy, all jurisdictions committed to integrating health care, including through regional based integration, e health, chronic disease management and prevention. COAG otherwise endorsed the first annual National Healthcare Agreement that affirms the centrality of patients and their families in the health system and aims for an integrated approach to health care, including prevention.

August 2011 — Under the National Health Reform Agreement, COAG agreed to funding reforms that can facilitate the provision of integrated care, including localising control of health systems (through Local Hospital Networks and Medicare Locals) and the pooling of Australian and state government funding of hospitals at the local level (through Activity Based Funding)

2011–2014 — The Australian Government and various partners trialled the Diabetes Care Project. This was the precursor to the subsequent development of Health Care Homes, but limited to diabetes management.

2014 — The National Commission of Audit advocated a coordinated approach to health care

2015 — The Primary Health Care Advisory Group recommended a 'health care home' model of integrated care for people with chronic and complex health conditions, block funding of Primary Health Networks and the pooling of Australian and state government funds in primary care

April 2016 — COAG's public hospital funding agreement emphasised the coordination of patient care, including through a bilateral approach that facilitates flexibility, the development of funding options to incentivise higher quality hospital care, integrating services at a regional level through PHNs, the piloting of health care homes and progressing My Health Record.

Sources: (COAG 1995, 1996, 2005, 2006a, 2006b, 2006c, 2007, 2008a, 2008b, 2011, 2016a; Consan Consulting 2012; DoH 2016d; DoHA 2001, 2007, 2010a; National Health Strategy (Australia) 1992; NCOA 2014; NHHRC 2008; PHCAG 2016).

In 2014, the National Commission of Audit advocated greater reliance on private health insurers to coordinate health care. The distinguishing features of its proposals included giving private health insurers the capacity to cover primary care spending and ultimately to move to a lifetime model of insurance funded largely through mandatory premiums (effectively a new hypothecated tax).

Most recently, the Primary Health Care Advisory Group made a number of recommendations building on Australia's current health system, including health care homes and the block funding of Primary Health Networks. To improve integration and to remove the costs and complexity associated with funding silos, the Advisory Group also recommended exploring options for pooling the health care funding of Australian and State and Territory Governments, including of primary care. Other recommendations of the advisory group with implications for coordinated care covered:

- the investment in digital health devices, targeted online health literacy information for patients, an electronic patient record system and software compatibility between providers to facilitate data sharing
- reform of the current approach to risk equalisation of private health insurance. Risk equalisation is currently only based on age. The advisory group recommended also taking into account the presence of complex and chronic health conditions. The group otherwise recommended expanding the types of health services that can be risk equalised beyond hospital services, for example, to include community nursing and community pharmacy.

The variety of options proposed for realising integrated care is testimony to uncertainty about its best form, but also to the range of normative views about how a health system should be structured. While inevitably, views about the nature of an ideal system will change, it will be critical to achieve some agreement about the key elements of integrated care. A well-functioning system requires investments by various groups, changes in cultures, and agreements between funders and providers — all of which hinges on the commitment by successive governments to the basic nature of the new system. To this end, the Commission advocates an approach to reform that builds on what has gone before, while also recognising and addressing key dichotomies in policy directions.

A.2 Australian evidence on integrated and patient-centred care

Because of the limitations highlighted in previous chapter, there is incomplete evidence in Australia about how to integrate health care around the needs of the patient, and about the benefits of such an approach. The Australian examples of integrated care tend to be either confined to the GP-dominated primary sector (national initiatives) or fail to fully engage with GPs (state-led initiatives). Private health insurers have also been investing in integrated care for members with complex and chronic conditions. There are some recent

initiatives that seek to integrate care across all sectors, but these are at an early stage. Few initiatives have progressed beyond a trial stage and trials have often had an inadequate timeframe to support an effective evaluation.

The nature and impacts of the multiplicity of trials are summarised in table A.6 at the end of this appendix.

The single most important message is that where there is a higher degree of integration across the primary care and hospital sectors there are larger impacts on the utilisation of health services and on the health of clients; and these larger impacts are achieved at less cost.

A.3 The evidence from national initiatives

Community health programs across the nation are a form of integrated care

Integrated health care can arise without being referred to explicitly as part of an ‘integrated health care program’. Integration can emerge organically, reflect past programs or result from payment systems that encourage their developments (such as some of the incentive payments under the MBS).

Community health centres (CHCs) have long been a feature of the Australian health care system. They were a legacy of a 1970s Australian Government program that State and Territory Governments then preserved and funded (Baum et al. 2017; Montalto and Dunt 1992).⁴⁶ The implication of this is that programs at one jurisdictional level can be adopted by others even when the initial program dies.

As their names suggests, CHCs are regionally focused and aim to provide a host of connected services drawing on multidisciplinary teams. These could include nurses, dieticians, counsellors, physiotherapists, speech therapists and health educators. CHCs often focus on people with the poorest health (those with chronic health conditions particularly) or those who face significant social and economic disadvantage.

Community health centres are now widespread throughout Australia. As an illustration, the Victorian Department of Health provides Community Health Program funding to approximately 100 CHCs in Victoria operating from approximately 350 sites. Each year, Victorian CHCs provide about one million hours of allied health, counselling and nursing

⁴⁶ Notwithstanding their origin nearly 50 years ago, Australia was a relatively latecomer to the concept. CHCs have been in Canada since the 1920s (Wong et al. 2015).

services (VicDHHS 2017). In Victoria, government funding in 2013-14 was about \$140 million (approximately 60 per cent of the revenue of CHCs).⁴⁷

While CHCs are widely available, there is no national strategy for community health services and there is considerable variation in the services across the various levels of government (SCRGSP 2017, p. 10.3). A common model involves cooperation with private GPs.⁴⁸ There also large differences in the goals and processes used by CHCs within states, as demonstrated by a series of case studies published by the Victorian Government (further discussed below).⁴⁹ CHCs are also vehicles for delivering various health initiatives in varying regions — such as measures that improve child and maternal health, reduce obesity levels, and support youth. CHCs can be part of broader systems that aim to coordinate care between the primary and hospital systems — as exemplified in Hospital Admission Risk Program (HARP) in Victoria (section A.4). This adds to the variations in CHCs within, and across different, jurisdictions.

There is not, as far as we are aware, any studies that indicate the overall impacts and cost-effectiveness of CHCs in Australia, and the several that related to Victoria were limited in scope and dated (McDonald et al. 2006, pp. 23–24). This is not surprising given the challenges. Their universality means that it is not possible to compare their outcomes to control groups. Moreover, it would be difficult to measure objectively the sometimes subtle and changing variations between the approaches of different CHCs and of the programs delivered through them. The AIHW notes that there is no national data about community health activity (AIHW 2016b, p. 265). The myriad of factors outside the control of the centres, such as the socio-demographic characteristics of their clients, adds further difficulties. Any evaluation would need not only to have the above data, but also good information on the outcomes for clients. EHealth records might ultimately capture those data, but their coverage is currently incomplete. Evaluation is best suited to circumstances where a reasonably clear-cut intervention has been trialled in multiple places or with large populations, and can be compared with the outcomes from other places. A possible approach is to examine differences in outcomes that relate to observable traits of different CHCs (such as degree of remoteness, whether they employ in-house GPs, the types of allied health professionals they employ, availability of e-records, use of telehealth, and funding levels) and assess whether, after controlling for population characteristics, there seem to be any marked differences in outcomes. This is, at best, a

⁴⁷ In NSW, funding was about \$900 million for ‘Primary and Community Based Services’, but this includes a broader range of services (NSW Budget 2016-17, Health Cluster). One of the complications of assessing coordinated care arrangements across Australia that fit broadly under the rubric of community health is that their scope varies.

⁴⁸ While the evidence is dated, about 40 per cent of Victorian CHCs offered GP services — (VicDHHS 2009). Use of GPs in CHCs in other jurisdictions can be much lower, and sometimes CHCs aim to address primary health care needs in areas where GPs are in short supply.

⁴⁹ <https://www2.health.vic.gov.au/primary-and-community-health/community-health/community-health-program/chronic-care-guide> (accessed on 17 May 2017).

project for the future, and might be superseded by new types of coordinated care arrangements.

The evidence that is available is therefore largely qualitative, supplemented by some partial quantitative assessments:

- The Dianella Community Health (Victoria) aimed to improve communication and integration of diabetes care by using common tools, an agreed preferred standard of general practice referral documentation and agreements about minimum services for diabetics, depending on the severity of the condition. There was no evidence of any clinical improvements (though these may have occurred), but service waiting times were reduced (VicDHHS 2016c).
- Other case studies in various Victorian community health services showed that innovations in various aspects of their operation resulted in improved processes and where measured, better outcomes — for instance, reduced travel times to access cardiac rehabilitation services for remote populations by using telehealth (VicDHHS 2016f); better outcomes in care for chronic conditions (VicDHHS 2016b); re-direction of referrals to lower cost alternatives, improved blood sugar levels, lower levels of diabetes distress, and higher satisfaction with services (VicDHHS 2016a); and higher take up of care plans for people with chronic and complex conditions (VicDHHS 2016d).
- An evaluation of Aboriginal health workers (AHWs) on delivery of diabetes care in remote Northern Territory community health centres resulted in improvements in regular testing and monitoring, but had no effects on glycated haemoglobin levels or blood pressure among treated patients. However, where a CHC had a visiting GP, clinical outcomes did improve (Si et al. 2006).

There is international evidence about the impacts of CHCs, though its relevance to Australia is only partial because CHCs take different forms in different countries and the health system in which they are embedded can be quite different. In the United States, CHCs serve as the dominant model for provision of federally-funded primary health care. They include general practitioners, some are affiliated with hospitals, a few would more aptly be referred to as patient-centred medical care homes, and the populations they assist are often not insured (Doty et al. 2010). At least, the international evidence is generally positive. CHCs in the United States appear to have achieved the same or better health outcomes at lower costs than occurring in private physicians' offices and outpatient clinics. For instance, in California, adult patients in federally qualified community health (FQCH) centres had 18 per cent lower emergency department visits, about 5 per cent lower 30 day readmission rates and 64 per cent lower rates of multi-day hospital admissions compared with non-FQHC adult patients. The total cost of care was 19 per cent lower after

controlling for patient characteristics (CPCA 2013). There are a range of similarly positive outcomes from other studies.⁵⁰

It is hard to conceive that CHCs would not act as a major node in any form of fully-developed integrated care in Australia, even if their scope and relationships to other parts of the health system changes. This reflects their multidisciplinary nature, their connection to the local community, and their links to non-health services — like meals on wheels (box 4.2). If nothing else, experience with CHCs throughout Australia indicates that they are the ‘vessels’ for trialling new initiatives in preventative health and in accessing hard-to-reach and disadvantaged populations.

CONCLUSION A.1

While there have been limited evaluations of community health care centres, they are widely accessible throughout Australia, and their multidisciplinary approach and links to the local community make them a natural partner in any integrated care health care system.

National coordinated care trials

In the late 1990s and the early 2000s, the Australian Government, with the support of State and Territory Governments, undertook two consecutive series of coordinated care trials. These trials tested alternative approaches to coordinating the primary care provided by GPs and the care provided by community health services. Secondary and other government-provided services were not heavily engaged in the trials, other than by making nurses available to assist GPs to manage the care of patients.

Much of the value of these trials lies in identifying pitfalls and process issues. Almost all encountered process difficulties that otherwise undermined their capacity to contribute to the evidence base for better coordination of primary care.

In the first round of trials, the duration of the actual intervention period was between twelve and eighteen months, taking into account the set-up and wind-down times. This was subsequently assessed to be too short to feasibly support measureable impacts (DoHA 2001). The first series of trials was not well targeted to people who would benefit most from coordinated care, diluting the value of the short-term intervention. Recruitment of GPs also proved difficult, including because of inadequate funding options.

Lessons learnt in the first round of trials informed the design of the second round of trials (DoHA 2007). The second round of trials sought to provide for:

⁵⁰ Such as Evans et al. (2015); Mukamel et al. (2016); Sharma et al. (2014); and Laiteerapong et al. (2014).

-
- greater consumer empowerment
 - better targeting of those with complex and chronic conditions
 - a more generic approach to pooling funds through the development and use of a risk-based capitation model (developed by PricewaterhouseCoopers)
 - the introduction of new MBS items payable to GPs for conducting health assessments, care planning and care conferencing
 - further opportunity to experiment with different approaches to integration and funding.

The second round of trials comprised five diverse approaches to primary care coordination, three of which specifically targeted indigenous populations.

The key objective of the Indigenous trials was to increase the rate of access to primary health services from a low base. The Sunrise Health Services Aboriginal Corporation trial, centred on developing community-owned indigenous health services, was particularly successful in this regard. Of the participants with complex chronic conditions reached by this trial, 57 per cent had not accessed health care services in the six months prior to entering the program. While the trial data could not indicate the implications for hospital usage, the evidence supports the expectation that ensuring better primary care of chronically-ill patients would reduce the future need for acute hospital care.

The two mainstream population trials — Brisbane North and North Melbourne — were run as randomised control trials. Both indicated higher utilisation of primary care services by intervention groups relative to control groups.

The North Melbourne trial was otherwise undermined by workforce management issues, poor recruitment of GPs and a lack of understanding among participants about the role of nurses as care coordinators. It therefore contributed little to the evidence base about the impact of a coordinated approach to primary care. Nevertheless, the contrast with the Brisbane North trial illustrates the importance of good relationships for the provision of a successful health service.

Participants in the Brisbane North trial experienced improvements in general health, mental health and health-related quality of life indicators relative to the control group (table A.1).

Table A.1 Indicators of the change in health outcomes flowing from the Brisbane North coordinated care trial

Mean scores over twelve months

	<i>General health</i>	<i>Depression</i>	<i>Quality of life (health related)</i>
Indicator	Self-rated general health (lower number indicates better health)	Kessler 10 (higher number indicates higher risk of depression)	EuroQol 5D ^a (ranging from 1.0 for perfect health to 0.0 for death)
Participants	3.23 to 3.20 (a 0.03 improvement)	17.22 to 16.31 (a 0.91 improvement)	0.74 to 0.74 (no change)
Control group	3.31 to 3.35 (a 0.04 deterioration)	17.69 to 17.57 (a 0.12 improvement)	0.73 to 0.69 (a 0.04 deterioration)
Impact	0.07 better off	0.79 better off	0.04 better off

^a EuroQol 5D measures health in terms of mobility, self-care, usual activities, pain/discomfort and anxiety/depression.

Source: Australian Government Department of Health and Ageing (DoHA 2007).

The evaluation also reported financial impacts. Including the cost of care coordination (about \$151 each quarter for each participant), the difference in cost for the intervention group relative to the control group was higher throughout the trial, but the difference declined over the first nine months (table A.2). The length of the trial (and the number of participants) was insufficient to indicate whether the cost differential would have favoured the intervention group in the longer term. The size of the trial was too small to provide statistically significant evidence of an impact on costs.

Table A.2 Total health costs (including cost of care coordination)

\$ for the average participant

	<i>Pre-commencement</i>		<i>Trial periods</i>					
	<i>3-6 months</i>	<i>0-3 months</i>	<i>0-3 months</i>	<i>3-6 months</i>	<i>6-9 months</i>	<i>9-12 months</i>	<i>12-15 months</i>	<i>15-18 months</i>
Mean control	1 265	1 313	1 491	1 455	1 563	1 764	1 748	1 688
Mean intervention	1 517	1 385	1 987	1 837	1 853	1 843	1 886	1 787
Net cost	252 ^a	72 ^a	496	381	290 ^a	80 ^a	118 ^a	99 ^a

^a Not statistically significant at the 90 per cent level.

Source: The Australian Government Department of Health and Ageing (DoHA 2007, p. 471).

Building on the experience of the coordinated care trials, Brisbane North Primary Health Network and Metro North Hospital and Health Services (and their predecessors) have continued to seek opportunities to partner in the delivery of patient-centred care (see Redcliffe trial below).

GP Super Clinics

The Australian Government funded the establishment of over 30 GP super clinics between 2007 and 2011. These clinics were intended to bring together a variety of health services including GPs, nursing, allied health, health education, specialists and other services in a single location. The objective was to deliver a more integrated health service for the convenience of patients.

An evaluation of seven operational super clinics over the period 2007 and 2008 reported that 41 per cent of clinicians were GPs, 21 per cent were nurses and the remaining 37 per cent were from a range of disciplines including psychologists, dieticians, physiotherapists and some specialists (Consan Consulting 2012). Of the patients who were surveyed, 83 per cent indicated that they attended the super clinics because of the ready access to a variety of health professionals. Two thirds of patients indicated that all aspects of their care were coordinated by the super clinics. Similarly, two thirds of patients also reported that their clinician discussed their lifestyle, including by providing advice about how to better manage their health. This compares favourably with findings in another Australian survey related to the GP sector more broadly, in which only 13 per cent of patients reported receiving lifestyle advice from their GP in the previous twelve months (Booth and Nowson 2010). However, it may be that the more favourable result for those GPs participating in the GP super clinics program reflects that they knew that they would be accountable under the program, including for providing lifestyle advice. The evaluation of the clinics did not discriminate between the experiences of patients with and without complex chronic conditions, which meant it was unable to assess the impacts of clinics on people who most need coordinated care.

The Diabetes Care Project (DCP) 2011-2014

The DCP was a pilot of a new coordinated care approach to the management of people who already had diabetes. It was, at the time, the largest randomised controlled trial conducted in Australia (DoH 2015b, p. 1). The DCP originated from recommendations for improved care of people with chronic health conditions by the National Health and Hospital Reform Commission (NHHRC) in 2009. It reflected the relatively poor management of diabetes under the conventional approaches used by GPs. For example, the relevant clinical guidelines were not followed in nearly 40 per cent of diabetes-related encounters with clinicians (DoH 2015b, p. 8).

The DCP included several new features for management of diabetes:

- (i) use of an IT platform (cdmNet) for information sharing between GPs, allied professionals and patients, and for provision of regular updates to general practices on their performance compared with their peers. This was accompanied by regular meetings between the primary care organisations and the participating general practices about ways to improve performance

(ii) changes to funding arrangements. This involved three different streams of money. First, there was a move away from fee-for-service to a capitation payment available to participating general practices, taking into account variations in the expected costs of care across patients with different health care needs. Second, general practices were given incentive payments for better outcomes for patients, including patient experience, patient adherence to the care plan, care plan completeness, accurate and timely data entry, and glycosylated haemoglobin levels (which measures average blood sugar levels over a period of weeks or months). Third, practices were given funding for the costs of dedicated Care Facilitators (DoH 2015b).

The randomised trial involved three general practice groups: one where only (i) was implemented (group 1), one where interventions (i) and (ii) occurred (group 2), and a control where all of the interventions were absent (group 3). The design of the program, the commissioning process for its participants and its independent evaluation followed best practice.

However, the outcomes were relatively poor despite the strong conceptual basis for the program.

Beyond greater take up of care planning (a process measure), there was no improvement in patient outcomes for group 1 compared with the control. Accordingly, sharing data and feedback without funding reform, did not have beneficial outcomes (in this instance at least).

There were some beneficial effects for group 2 compared with the control (and group 1) across a range of measures, including lower glycated haemoglobin levels — especially for those with particularly high initial levels. This indicates that changes to funding was needed, together with better information systems, in order to facilitate effective coordination of patient care. There were several other clinically-positive outcomes, such as reduced waist circumference and depression rates. For example, the share of people with moderate to severe depression rates fell by 2 percentage points compared with the control (DoH 2015b, p. 40). On the other hand, while statistically significant, the average waist circumference reduction was trivial, underlining the importance of concentrating on effect sizes rather than statistical significance. One other outcome was a reduction of hospitalisations and hospital stay durations, which indicates that some positive acute care outcomes can occur even in the absence of direct engagement with hospitals. Nevertheless, the reduction was modest, and the savings from reduced use of hospitals was offset by increased costs in prescribing, care facilitation, and GP use.

Notwithstanding that one of the key goals of the trial was to encourage GPs to allocate more funding to people with more complex needs and high health risks (the basis for the capitation method used in the pilot), there was little or no relationship between resource allocation and patient health risks. This is surprising because hospital costs are particularly skewed, with just 5 per cent of participants accounting for 62 per cent of potentially avoidable hospitalisations.

The evaluation concluded that:

Overall, there is no evidence to suggest that the Group 2 model of care would be cost-effective if adopted for longer, with large uncertainties regarding both the net cost and benefits of the intervention. ... the best estimate of cost per QALY would be around \$250,000. This is not considered cost-effective. (DoH 2015b, p. 53)

Another commentary on the Diabetes Care Program emphasises a key theme:

In future programs, improved information sharing between primary and secondary care may help identify those most at risk of repeated hospitalisations and allow better targeting of resources to keep people well and reduce avoidable hospitalisations. (Fountaine and Bennett 2016, p. 391)

CONCLUSION A.2

The major Australian Government trials of integrated care have demonstrated some benefits, but none resulted in tangible cost savings or produced large benefits for patients. However, they provided valuable lessons, including the need for links to the state-run health care system and for targeting patients at high risk of hospitalisation or other costly interventions.

Health Care Homes — an experiment that needs some tinkering

Ten years after the publication of the evaluation of the coordinated care trials, the Australian Government is to trial Health Care Homes (HCHs) in ten Primary Health Network regions. Trials involving 20 general practices and Aboriginal Community Controlled Health Services are due to commence in October 2017, followed by another 180 practices from 1 December 2017 (Ref to DoH 2017 9 May).⁵¹

The HCH model for coordinating the care of people with chronic and complex health conditions was proposed for Australia by the National Health and Hospitals Reform Commission and more recently by the Primary Health Care Advisory Group. The ‘home’ in HCHs is not intended to suggest a residential care setting, but rather is typically a general practice chosen by a person that provides or coordinates a suite of medical services, including ones that are outside the practice — a health care home for each person. The concept originates from so-called ‘patient-centred medical homes’ that are now widely prevalent in the United States, and whose genesis can be dated back to the late 1960s in a paediatric context — again an indicator of the slow diffusion of good ideas (Asarnow et al. 2017).

⁵¹ The rollout of Health care homes trial was delayed from its original start date following advice from the clinician-led implementation advisory group.

As currently proposed, the HCH trials focus on the coordination of primary care rather than integrating primary care with hospital services. Its scope in terms of integrating across the different health care sectors is therefore comparable to that of the national coordinated care trials of the late 1990s and early 2000s.

HCHs rely on Primary Health Networks, whose resources will be augmented by two full-time equivalent staff members for each network. In return, Primary Health Networks have additional reporting requirements and will need to redirect their existing budget to meet any funding requirements of the HCH initiative. The success of HCHs will therefore depend crucially on the resourcing of PHNs and their capacity to engage with GPs, hospitals and other state government services. Despite its limited resourcing, the HCH project has an ambitious target. It aims to service up to 65 000 patients across ten PHN regions of Australia (implying an average of 650 patients in a PHN region). To put that in perspective, an average of 650 patients is five to ten times more than the existing integrated care programs in Western Sydney and Redcliffe (discussed below), but without any significant additional resourcing.

An innovative aspect to the HCH initiative is the trial of a bundled approach to funding. Remuneration of GPs is to involve a standard consultation fee for the initial assessment of a patient's eligibility for enrolment with a HCH and a subsequent upfront payment to develop a patient care plan. The Australian Government will then make quarterly bundled payments to each HCH to manage the patient's care plan, including to deliver the GP services required by the patient and to coordinate the patient's access to allied health professionals and other services. The provision of quarterly bundled funding would replace traditional fees for service, so that remuneration would no longer be linked to the number or type of GP consultations. This increases the incentive for GPs to minimise the cost of a patient's care. At the same time, the GP bears the risk of any cost overrun caused by external factors, including the patient's own noncompliance.

Health Care Homes is only a trial, and any investment by GPs (or others) in a new system runs the risk of the program not being extended. Helping to address that risk, the Australian Government is providing a \$10 000 grant to each practice that participates in the trial. A strong commitment to rolling out an integrated, patient-centred approach to care would also indicate to GPs that investment in change is worthwhile.

There are several weaknesses in the current Health Care Homes initiative, with scope to address these before the major rollout in late 2017. These, and their solutions, are discussed in chapter 6 (and summarised in conclusion 6.3).

Coordinating a value-chain — organ donations in Australia

Integration has largely been conceptualised as what happens at a local level in the relationships between clinicians and patients. However, there are other aspects of integration that involve coordination between geographically-dispersed parts of the system.

A good exemplar is the supply chain for organ donations, which involves recruitment of donors, consent by a family for a donation to occur, organ removal and transport, organ matching to a recipient beyond geographic boundaries, protocols for requesting donations, and available specialists for transplanting. While not ‘patient-centred’ in a narrow sense, the experience of successful donor programs depend on engaging with individuals.⁵² Problems in any part of the supply chain can reduce the effective donation rate. The ageing of Australia’s population is also expected to place increasing pressure on the existing system.

In 2009, all jurisdictions agreed to a cooperative approach to organ donation, coordinated by a newly established body, the Australian Organ and Tissue Authority (AOTA). Prior to its establishment, deceased organ donation rates (donations where organs were retrieved and transplanted) were falling. After commencement of the national reform program, Australia significantly improved its deceased donation rate to 20.8 per million persons in 2016, about 80 per cent higher than the donation rate at the start of the national reform program in 2009 (OTA 2017). Compared with a counterfactual of no improvement in rates, rough estimates suggest that the policy initiatives may have saved about 2500 people’s lives from 2009-2016.

Despite some concerns about AOTA’s governance arrangements and the accountability of states and hospitals (EY 2015b), this national coordination model appears to have been very successful. One jurisdiction has been particularly successful in pursuing the strategy. South Australia significantly improved effective donation rates to 23.4 per million persons in 2016, 13 per cent higher than the average Australian rate. (Some of the smaller jurisdictions have sometimes recorded higher rates, but this reflects the impact of just a few additional deceased donors and could not be expected to be sustained.) If all jurisdictions were at the South Australian rate in 2016, this would save about 220 lives yearly.

Notwithstanding AOTA’s successes, the effective coordination of an efficient supply chain for organ donation is unfinished business. There is likely scope for even higher rates through further policy changes, as many other countries have higher deceased donorship rates (with Spain being highest at 39.7 per million in 2015).

There remain various generally agreed hospital-centred approaches to increase rates, such as a greater focus on donation after brain death; better education and training of clinical staff; new methods for organ donation after circulatory death, more effective conversations with family members’ about organ donation; and better organ matching. Easier processes for registering consent and greater efforts to persuade people to be donors are other measures outside the hospital setting. All of these would be best progressed on a national

⁵² This involves motivating people to consider donation, encouraging would be donors to discuss their preferences with family members, and engagement in hospitals with the families of willing potential donors.

basis. AOTA (2016) is pursuing some of these measures and its governance arrangements have been changed to improve its strategic focus.

There are some controversial suggestions to improve rates, such as presumed (or opt-out) consent; removal of a capacity for family members to veto a donor's prior wishes; financial incentives to donate, and preference for organ transplants for recipients who had previously registered as willing donors (Isdale and Savulescu 2015). While having some face validity, the evidence in favour of presumed consent is equivocal, while the other proposals involve several ethical concerns. Most of these proposals are not currently on the policy agenda, and would require strong favourable evidence to get there.

If, through nationally coordinated action, Australia achieved transplant rates equivalent to Spain, then a rough estimate is that this would equate to more than 1000 additional lives saved annually in Australia.⁵³ There would also be gains through lower disability rates (for instance through the preservation of people's sight by corneal transplants, which is a highly successful procedure).

There is some evidence that improved transplantation rates might reduce health care costs because while the initial clinical investment is costly, it avoids years of costly hospital treatment (most notably, ongoing dialysis for people experiencing kidney failure). However, as in so many other evaluations of health care policies, the variation in the estimated costs and benefits of higher transplantation rates is high.⁵⁴ The broader lesson for policymakers is to avoid optimism bias. Fortunately, all transplantation cost-benefit analyses support the same policy direction, which is not true of many evaluations of health care initiatives (as is apparent for some of the integrated care initiatives discussed above).

While it might be difficult to quickly progress a best-practice integrated approach across all jurisdictions, the international evidence suggests that higher donation rates are a feasible target in Australia. This sounds like a narrow area for health care reform, but the potential to save thousands of lives annually is a rare opportunity.

⁵³ This assumes that the incidence of accident and emergency outcomes that lead to brain death are sufficient to support this rate, that transplant success rates remain fixed, and that there remains an excess demand for transplants.

⁵⁴ A European Union paper suggests that the annual savings from renal transplants in Spain were of the order of €21 000, though this seems well outside the range of any other estimates (Van der Spiegel 2013). In the United Kingdom, it was estimated that annual dialysis costs for a person with renal failure were just over £23 000, compared with a kidney transplant cost of £42 000 followed by annual maintenance costs of £6500 (ODT 2008, p. 51). A more contemporary cost assessment by the UK National Institute for Health and Clinical Excellence also substantiated net accumulated savings from kidney transplants, though these were not large (NICE 2011). An Australian study found likely cumulative health care savings of between \$14-56 million in present value terms over the period from 2009-2020 from a 50 per cent increase in kidney transplants (Cass et al. 2010). It would save an estimated 3000 incremental life years. In contrast, a US study found net costs from kidney transplants other than for young people without comorbidities, but the dollars spent per life year saved were relatively small, and superior to many other health interventions (Wong et al. 2012).

CONCLUSION A.3

Changes to Australia's organ donation arrangements — largely a reflection of better coordination throughout all the stages needed to obtain a successful transplant — have substantially increased successful organ donations, and may have saved about 2500 people's lives from 2009–2016.

There are prospects for further improvements in organ donation processes, with large benefits in reduced disability and premature deaths and with potential cost savings from reduced rates of dialysis and other ongoing hospitalisations of people with major organ damage.

A.4 Victorian initiatives

Hospital Admission Risk Program

Victoria had the earliest effective experience in integrating health care services through its Hospital Admission Risk Program (HARP), now a component of the Health Independence Program. Victoria's HARP program was developed in the late 1990s, drawing on the US Kaiser Permanente Chronic Care Framework and the Wagner Chronic Care model. It aims to reduce demand for hospital services through care coordination, self-management support and specialist care of those with complex and chronic needs and who either frequently use hospitals or who are at risk of hospitalisation. However, the Commonwealth-State divide in health funding has limited HARP's linkages with GP-provided care, despite the essential role of GPs in early intervention and prevention of avoidable hospitalisation.

An evaluation over 2004-05 reported that the eighty HARP pilot projects resulted in 35 per cent fewer emergency department attendances, 52 per cent fewer emergency admissions and 41 per cent fewer days in hospital (Vic DHS 2006). With the support of Commonwealth funding, HARP was subsequently extended to the care of older people. An interim evaluation completed by the Victorian Department of Health and Human Services was also positive. The interim results were summarily reported in a final evaluation. Compared with the situation of participants before they entered the program, there was a 64 per cent reduction in hospital separations, a 55 per cent reduction in emergency department presentations and a 39 per cent reduction in clients presenting to emergency after being discharged (VicDHHS 2011).

The 2006 evaluation reports the HARP program cost \$150 million over the initial four years, in order to serve 20 000 patients across 87 pilot projects. This implies a cost per patient of \$1875 in 2005-06 prices (or \$2423 in 2016 prices). Neither evaluation reports the cost of averted hospitalisation, and so it is not clear that the program was cost-effective.

Victoria commenced a roll out of HARP from the mid to late 2000s. The ongoing political commitment to this roll out is unclear and its broader impact — and cost effectiveness — has not been the subject of any publicly available evaluations. There is evidence that compared with other states, Victoria was treating a higher proportion of public hospital admissions in home in 2006-07 and this would reflect the impact of HARP (table A.3). HARP's impact is otherwise not immediately evident in the state's hospital statistics. For example, after taking into account socioeconomic status and remoteness, there is no discernible difference in the incidence of preventable hospital admissions in Victoria from that of other large states (figure A.1). Given that all jurisdictions run programs to reduce unwarranted hospitalisation, this is perhaps not surprising. Therefore, to adequately evaluate the impact of HARP in Victoria, more careful analysis is required.

Table A.3 Public hospital admissions treated in the home
2006-07

	<i>Admissions</i>	<i>Share of admissions</i>
	Number	%
New South Wales	12 000	0.8
Victoria	40 866	3.11
Queensland	1 125	0.14
Western Australia	4 102	0.91
South Australia	6 580	1.68
Tasmania	Not reported	Not reported
ACT	9 222	1.22
Northern Territory	599	0.70
Australia ^a	66 194	1.42

^a Commission estimate.

Sources: Audit Office of NSW (2008), Australian Department of Health and Ageing (DoHA 2008).

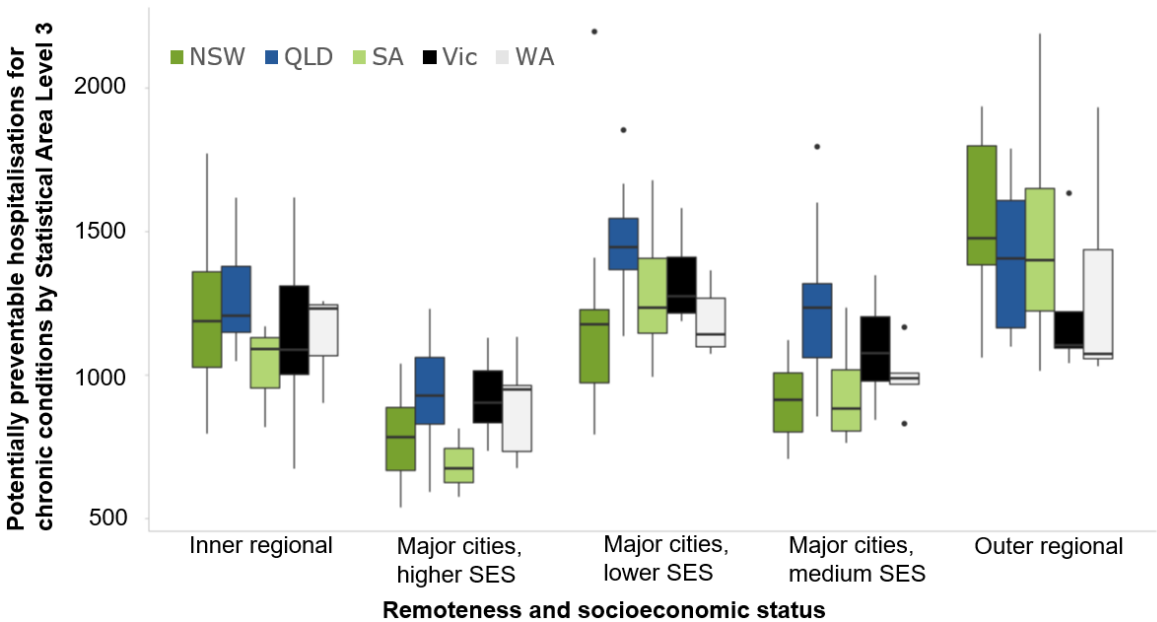
Medibank's CarePoint and CareComplete

There have been several recent trials of integrated care by private insurers, including Medibank's CarePoint program in collaboration with the Victorian government (box 4.1). CarePoint provides holistic care to patients with complex, chronic conditions who do not require specialist oversight. Among other things, CarePoint includes a GP-supervised care plan, an initial home visit to assess a patient's home environment, and follow up phone calls and home visits as required to assist the patient to manage their health. The care plan includes measures to improve the safety of the patient's home environment and to ensure the patient has adequate social support. A two-year trial of CarePoint in Victoria concludes in June 2017, but the Commission has been advised that it is unlikely to be extended given the possibility for conflict with the recent Commonwealth Health Care Homes initiative. A

trial of CarePoint is now also underway in partnership with the Western Australian Government.

More broadly, CarePoint is one of three in a series of targeted initiatives in Medibank’s CareComplete program. CareFirst is an early intervention program that assists Medibank members to manage their health better. CarePoint targets those who require a GP to coordinate their care to reduce the risk of acute illness. CareTransition provides a specialist coordinated service to members who are discharged from hospital to assist them to avoid readmission — who are the same target group as Victoria’s HARP. Medibank is operating CareComplete in all states other than the Northern Territory.

Figure A.1 **Potentially avoidable hospitalisations in selected states**
2013-14^a



^a This figure portrays the variation in potentially preventable hospitalisations between hospitals in selected states. The horizontal line in each coloured box is the median. The top and bottom of the box are the 25th and 75th percentiles. Remaining hospitals lie along the vertical lines except for outliers, which, where they exist, are depicted by black dots.

Source: MyHealthyCommunities.

A.5 New South Wales initiatives

HealthOne

From 2006-07, New South Wales has been funding the development of integrated HealthOne services for people with complex and chronic care needs. HealthOne began in

Mount Druitt as a hub-and-spoke model of care operating around a Community Health Centre and coordinating the provision of a patient's access to GP, hospital and other health services. General practice liaison nurses coordinate the health care services of the patient, and a case manager (usually a clinician and separate from the general practice liaison nurse) oversees the care of the patient.

An evaluation of the Mt Druitt program by the Menzies Centre for Health Policy compared hospital utilisation in the twelve months before the program with the twelve months after for 125 people enrolled in the complex, aged and chronic care arm of the program. The evaluation found significant improvements. It found a 26 per cent reduction in the number of emergency visits per patient (from 3.1 to 2.3), a 52 per cent reduction in the hours spent in emergency (from 12.5 to 6.6) and a 41 per cent reduction in the hours spent in hospital (from 6.3 to 3.7) (McNab and Gillespie 2015).

The evaluation reports capital development costs and the number and classification of personnel funded by the program, implying an annualised cost for Mt Druitt of about \$1.3 million. This includes the initial cost of extending and fitting out the 'hub' facilities located at the Mt Druitt Community Health Centre and a lease for the 'spoke' located at Wilmot. Given the program served 302 people enrolled in two separate arms, the program cost up to \$1515 per person in 2012-13 prices (\$1616 in 2016 prices). The evaluation does not report the cost of avoided hospitalisation and so does not directly support an evaluation of the program's cost effectiveness.

HealthOne has now been operationalised through Local Hospital Networks at twenty-five locations around New South Wales. The model of integration in the roll out of HealthOne includes the hub-and-spoke approach of Mt Druitt, and also includes a co-location of services model and a virtual integration model in which separately located providers are linked by communication technologies. The impact of HealthOne outside of Mt Druitt has not yet been evaluated.

Chronic Care for Aboriginal People

The Chronic Care for Aboriginal People aims to improve the care of Aboriginal people with chronic and complex health conditions. The model of care was developed in 2008, drawing on previous initiatives and through extensive consultation. The model is informed by best practice in chronic disease management, coupled with greater cultural awareness, including the need for trust. A key aspect of the program has been the follow up of patients discharged from hospital within 48 hours. Preliminary evaluation indicated that follow up within 48 hours resulted in a 4 per cent reduction in readmission (NSW ACI 2013). A more extensive evaluation by the University of Newcastle was to be delivered in mid-2016, but the results of this evaluation are not yet publicly available (NSW ACI 2016a).

Hospital in the home programs

The New South Wales Auditor General considered the impact of three out of hospital acute care programs being implemented in New South Wales in 2008 (AONSW 2008). The three programs were the Community Acute/Post Acute Care program (for patients at risk of needing acute care), ComPacks (mainly targeting patients at risk of needing chronic care) and the Rehabilitation for Chronic Disease program (for patients with chronic conditions). Although constrained by a lack of reliable data, the Auditor General estimated that the programs could be saving up to \$55 million a year and freeing up 2 per cent of hospital beds. While there was evidence that access to emergency services had improved, there was insufficient evidence to attribute this to the out of hospital programs.

NSW Health Chronic Disease Management program

The Chronic Disease Management Program was implemented across all Local Hospital Networks (called Local Health Districts in New South Wales) between 2009 and 2015. The aim was to coordinate the care of patients with chronic and complex health conditions in order to provide them with better support and reduce their need for hospitalisation.

An independent evaluation of the program up until May 2014 found that care coordinators did little to liaise with GPs and that the program's engagement with GPs otherwise remained low (GIGH et al. 2014). The evaluation considered health service utilisation of the participants in the program with a control group. Utilisation for both groups dropped sharply upon the commencement of the program, raising questions about the impact of other factors. Generally, utilisation rates of program participants remained higher than that of control participants throughout the period of analysis.

Integrated care demonstrators

The New South Wales Government is funding three integrated care demonstration projects in Western Sydney, Central Coast and Western New South Wales. The Government is otherwise funding seventeen smaller scale integrated care initiatives between 2014-15 and 2016-17 and is developing a statewide model for the local delivery of integrated care to people with complex, chronic health conditions.

It is too early to evaluate the impacts of these projects, as most only just reached a stage of implementation in 2016. However, the Western Sydney Integrated Care Program builds on a pre-existing initiative by the Western Sydney Local Health District and the Western Sydney Primary Health Network (WentWest) and has therefore been the subject of some preliminary evaluations.

The Western Sydney Integrated Care Program focuses on caring for patients at a higher risk of four complex, chronic conditions: congestive cardiac failure, coronary artery

disease, chronic obstructive pulmonary disease, and diabetes. The Western Sydney model of patient-centred care integrates acute care services with primary care services, including through the exchange of data under a single Linked Electronic Health Record system; agreed localised Health Pathways⁵⁵ and a specialist helpline for GPs. The diabetes program builds on earlier initiatives by the Local Health District and Primary Health Network, which included the provision of specialist case conferencing services to GPs and an inpatient diabetes management team at the Westmead Hospital.

Preliminary evaluation of the Western Sydney diabetes initiative indicates that the average length of stay of diabetes surgical patients has fallen from being 3.5 days above the national benchmark in 2012 to 0.7 days below the benchmark in 2016 (WSLHD and PHNWS 2016b). An audit of case conferencing services recorded significant improvements in patient outcomes (in blood sugar levels, weight and in systolic blood pressure) (table A.4). It also found that 97 per cent of GPs reported greater confidence in managing diabetes. An initial evaluation reports that other aspects of the program may also be effective – cardiology patients referred to the newly formed rapid access cardiology clinic experience an average length of stay that is 1.2 days shorter than those not referred to the clinic (WSLHD and PHNWS 2016a). Data provided to the Commission indicate the diabetes integrated care program initially cost about \$1100 per patient (in 2016 prices), and that the cost of avoided hospitalisation is about ten times the cost of the program, or \$11 400 per patient (in 2016 prices). Given that the reduction in hospital utilisation exceeded 10 per cent (we estimate it to be about 45 per cent), the data indicate that the program is cost effective. A comparison with other diabetes integrated care projects indicates that the high degree of integration of GPs and hospital services in the Western Sydney Diabetes initiative is a necessary contributing factor to its cost-effectiveness in improving patient health (table A.4).

⁵⁵ Health Pathways originated in Canterbury, New Zealand, but have been adapted to Western Sydney's circumstances. They are also widely used in some other Australian regions. Health Pathways are agreements between GPs and hospital physicians based on the medical evidence that guide the treatment of particular conditions including the interaction of primary, specialist and other hospital services.

Table A.4 The degree of integration of GPs and hospital services in diabetes care in Australia

	<i>Low integration</i>	←	→	<i>High integration</i>
	<i>GP coordinating care</i>	<i>Hospitals and GPs exchange information</i>	<i>Hospital specialists support GPs eg. case conferencing and health pathways</i>	<i>Hospital specialists, GPs, allied health in a single team</i>
	The Diabetes Care Project, 2011-14	Redcliffe Integrated Chronic Disease Model of Care, 2014-15	Western Sydney Diabetes Initiative, 2012–16 ^c	Inala Chronic Disease Management Service, 2007-08
Details of program subject to impact analysis	Information sharing within primary sector Replaced fee-for-service with blended payment comprised of capitation fee, performance fee plus cost of care facilitator	Information sharing between hospital and GPs	Inpatient diabetes management service (including follow up post-discharge) Case conferencing of hospital specialist team with GPs	Community-based, multidisciplinary clinic, including a hospital endocrinologist, GPs with post graduate training in complex diabetes care & allied health. Manage complex cases in partnership with patient's GP
Impacts ^a	Hospitalisation (potentially preventable) reduced by a median of one day. Blood sugar level reduced by 0.2 to 0.6 ^b per cent (HbA1c)	Hospital admissions of diabetes patients not significantly affected. The lack of impact was attributed to the unintended focus on patients with gestational diabetes rather than on patients with lifestyle diabetes.	<i>Inpatient service impacts:</i> Hospitalisation: average length of stay of surgical patients reduced from 3.5 days above national benchmark to 0.7 days below national benchmark <i>Case conferencing impacts:</i> Blood sugar level reduced by 0.9 per cent (HbA1c) Average weight reduction of 1.9kg Systolic blood pressure reduction of 6.45mmHg 97 per cent GPs reported increased confidence in managing diabetes	Hospitalisation rate for diabetes 46 per cent lower (hospitalisation rate of 0.19 for intervention group as opposed to 0.35 for control group) Hospital cost: average cost per patient of diabetes related hospitalisation was 44% lower for intervention group (\$1425 as opposed to \$2527 for control group)

^a Statistically significant impacts. ^b Reductions in blood sugar level were greater for people with a higher starting level. It was 0.2% on average, but up to 0.6% for those with initial HbA1c levels greater than or equal to 10.0%. ^c The Western Sydney Diabetes Initiative also involves prevention, screening, education and a greater role for the diabetes outpatients clinic in complex case management.

Sources: DoH (2015b); Duke (2015); Hollingworth et al. (2017); Western Sydney Local Health District and PHN Western Sydney (2016a); Zhang et al. (2015).

A.6 Queensland initiatives

Inala Chronic Disease Management Service

The Inala Chronic Disease Management Service is a trial of integrated care in Brisbane South. Patients with complex type 2 diabetes are referred by their GP to the Inala Chronic

Disease Management Service, a community-based clinic, including an endocrinologist, GPs with post graduate training in complex diabetes care, diabetes nurse educators, a dietician, podiatrist and psychologist (Askew et al. 2010). The clinic is an alternative to the hospital-based outpatient's endocrinology clinic located in the state run Community Health Centre and operating in cooperation with the Princess Alexandra Hospital. This is an unusually high degree of integration of GP and state based services in Australia's experience of integrated care (table A.4).

The multidisciplinary clinic assesses a patient, devises the patient's management plan and manages the patient's care with the aim of stabilising the patient's condition as soon as possible and returning the patient to their own GP to continue managing their care. Where relevant, the clinic encourages patients to participate in weight loss or other self-management programs, which are managed at the Community Health Centre where the clinic is located.

A study found that two years after the trial had commenced, participants in the service were half as likely to be hospitalised for a potentially preventable diabetes-related diagnosis (table A.4) (Hollingworth et al. 2017; Zhang et al. 2015). Based on that finding, Hollingworth et al. (2017) estimate that achieving a similar impact across the whole nation could deliver a dividend of up to \$132.5 million a year. However, the study does not take into account the cost of the intervention – but only compares the hospitalisation costs of those in the treatment group with those in the control group.

Redcliffe Integrated Chronic Disease Model of Care

Building on the national coordinated care trials in Brisbane North in the late 1990s and early 2000s, the hospitals (now managed by Metro North Hospital and Health Services) and primary health coordinator (now Brisbane North Primary Health Network) have continued to pursue opportunities for integrating care across sectors. The Redcliffe Integrated Chronic Disease Model of Care is a recent trial, with the aim of developing an effective system that could be rolled out across the Metro North region (Duke 2015). Over the twelve-month period to February 2015, the trial enrolled about 140 patients with complex and chronic conditions. The essence of the program has been to facilitate communication between private and public hospitals and GPs, including through joint case management and clinical handover upon hospital discharge. For example, the Redcliffe Hospital routinely provides GPs with a comprehensive record of their patient's hospitalisation within 24 hours of discharge.

A preliminary, internal evaluation of the program over the period February 2014 to February 2015 reported an overall improvement in quality of life for 83 per cent of participants and found that all participants were satisfied with the program (Duke 2015). There was also evidence of reduced hospital utilisation, although the evaluation lacked a careful delineation of a control group. With this proviso in mind, the average length of stay in hospital of COPD patients was 32 per cent lower for participants than for all other

patients on average and the average number of admissions of COPD patients was reduced by 27 per cent for participants, compared with a reduction of 2 per cent for all COPD patients. On the other hand, the average length of stay and readmission rates for patients with heart failure were above average for participants in the program – complicated by the deliberate selection of patients who were most at risk in the program. The diabetes component of the program achieved little change in hospital utilisation rates, attributed by the evaluation to its unintended focus on patients with gestational diabetes rather than on patients with lifestyle diabetes.

Gold Coast coordinated care trial

The Gold Coast Hospital and Health Service, the principal provider of government health services in the Gold Coast region, commenced a two-year trial of coordinated care in April 2016 (Connor, Cooper and McMurray 2016). Judging by Australia's earlier experience, a two-year trial is likely to be too short a period to support an effective evaluation. Like the coordinated care programs of Redcliffe and Western Sydney, the Gold Coast trial seeks to integrate patient care across all health sectors, including through the sharing of interoperable data between the hospitals and GPs.

Integrated Care Innovation Fund

Another recent initiative is Queensland Health's Integrated Care Innovation Fund, established in 2016 to invest in integration care initiatives (Queensland Department of Health 2016b). Hospital and Health Services (Queensland's Local Hospital Networks) have been asked to partner with their local Primary Health Networks and other community health providers to develop proposals for funding. Queensland's requirement of a joint approach is an innovative advance on past approaches to governance. It internalises an integrated approach between hospital networks and Primary Health Networks in the governance of the trial rather than leaving that important relationship to be negotiated externally. This is an important first step toward a better governance model that fully integrates primary care with other services.

A.7 Initiatives in other Australian jurisdictions

In 2011, South Australia established GP Plus clinics to provide a wide range of services in one location, including the capacity for GPs to operate from the clinic. GP Plus services are an extension of the Australian Government's GP Super Clinics program and are managed by the Local Hospital Networks (called Local Health Networks in South Australia), creating the opportunity for an integrated approach to health service delivery.

In 2015, South Australia proposed taking a coordinated approach to managing chronic pain (as opposed to chronic, complex conditions). This initiative is under development.

In Western Australia, elements of a coordinated care approach were recommended in 2004 in the Report of the Health Reform Committee, including a system wide patient record system, evidence-based clinical guidelines developed by collaborations of GPs and specialists with input from consumers, close coordination of GP and hospital care of patients, and funding reform. In 2011, Western Australia released a Primary Health Care Strategy with the ultimate aim of providing a seamless interface among primary care, hospital services and other health care services (WA DoH 2011). Despite little initial progress towards implementing the primary care strategy, the recently created Western Australian Primary Health Alliance, which oversees Western Australia's three Primary Health Networks, is now exploring options for implementing an evidence-based patient-centred medical home model that is integrated within a broader patient-centred health system (WA DoH 2016; WA PHA 2016).

A.8 What does the Australian evidence show?

While Australia's experience in integrated care is not extensive, it is sufficient to affirm the international evidence that integrating the provision of GP and hospital services delivers better patient outcomes and at a lower cost (table A.5). In particular, the Australian experience indicates that both hospitals and GPs need to be part of an integrated health system for it to be cost-effective.

Australia's experience indicates that hospitals need to be part of an integrated approach to care in order to achieve significant reductions in hospital utilisation. The evaluation of the Diabetes Care Project concluded that the project was not effective at identifying patients at a high risk of hospitalisation (DoH 2015b, p. 53). Subsequent commentators recommended that close cooperation with the secondary care sector, aka hospitals, is required to allow better targeting of resources at people at greatest risk of hospitalisation (Fountaine and Bennett 2016, p. 391). In support of that recommendation, hospitals were at the core of each of the other projects reported in table A.5 and the impact on hospital utilisation is consistently more than double that of the Diabetes Care Project.

Australia's experience also indicates that integration across GPs and the hospital sector is necessary to be cost-effective. Despite achieving a 41 per cent reduction in hospital utilisation, available data suggest that the cost of the HARP project is about twice the cost of other projects (table A.5). Thus, despite the significant reduction in hospital costs, the available data indicate that the HARP project may not be cost effective (the estimated dividend is negative in table A.5). Were the HARP project to have the capacity to integrate with GPs, the evidence from the other projects indicates that the project costs would be lowered and without compromising the project's impact on hospital utilisation.

Table A.5 The net impact of Australian integrated care projects, 2016 prices

	<i>Unit</i>	<i>The Diabetes Care Project, 2011–2014</i>	<i>HARP, 2004–05</i>	<i>Mt Druitt HealthOne, 2006–2012</i>	<i>Western Sydney Diabetes Initiative, 2012–2016 ^a</i>	<i>Inala Chronic Disease Management Service, 2007–2008</i>
Degree of integration and cohort of patients targeted		GP and allied health Patients with diabetes, particularly those with complex diabetes	Hospital and community care Patients at high risk of hospitalisation	All sectors Patients in need of complex, chronic and aged care	All sectors Patients admitted to hospital for diabetes related surgery	All sectors Patients with chronic and complex diabetes in need of acute care
Recurrent hospital dividend ^{b c}	\$ per client	-118	-658	160	4 007	2 496
Key factors						
Cost of project ^d	\$ per client	845	2 423	1 616	1 101	1 358
Cost of hospitalisation ^e	\$ per client	4 303	4 303	4 303	11 432	8 432
Impact on hospitalisation ^f	%	-17	-41	-41	-45	-46

^a The estimated cost of the program is based on the cost of the current integrated diabetes care program, which is an expansion of the program in place in 2012–2013. Likewise, the estimated impact on capital outlay and workforce are based on data for the current program. ^b Recurrent hospital dividend = (the cost per patient of hospitalisation * impact of project on hospitalisation) – (the cost per patient of project). ^c There are significant savings in other sectors in some programs that are not included here. For example, the Inala program replaced GP care until the patient's condition had been stabilised. However, these savings in GP costs are excluded to simplify the comparison across projects. ^d The cost of the Inala project is assumed equal to the average cost of the two most similar projects – Western Sydney Diabetes Initiative and Mt Druitt HealthOne. Project costs are implied in all other studies. ^e The costs of hospitalisation of clients in the HARP and Mt Druitt programs are assumed equal to that estimated in The Diabetes Care Project. All other studies estimate the cost of hospitalisation for their patient cohort. ^f The impact on hospitalisation is reported for the HARP project.

Sources: Commission estimates based on DoH (2015b); Duke (2015); Hollingworth et al. (2017); McNab and Gillespie (2015); Victorian Department of Health and Human Services (2011); Victorian Department of Human Services (2006); Western Sydney Local Health District and PHN Western Sydney (2016a); Zhang et al. (2015).

CONCLUSION A.4

Australia's experience in integrated care indicates that where there is a higher degree of integration across the primary care and hospital sectors, there are larger impacts on the utilisation of health services and on the health of clients, and/or there is a reduction in health costs.

Table A.6 An overview of some current Australian integrated care projects

	<i>Health Care Homes</i>	<i>HARP</i>	<i>CarePoint, Victoria</i>	<i>Western Sydney Integrated Care Demonstrator</i>	<i>Redcliffe Integrated Chronic Disease Model of Care</i>	<i>Gold Coast Integrated Care Model</i>
Run by	Australian Department of Health through Primary Health Networks	Victoria's Health Department (VicHealth)	Medibank and VicHealth	Western Sydney Local Health District (WSLHD) & Western Sydney PHN	Metro North Hospital and Health Services (HHS) and Brisbane North PHN	Gold Coast Hospital and Health Services (GCHHS)
Funded by	Australian Department of Health	VicHealth	Medibank (50%) and VicHealth (50%)	NSW Health, WSLHD, Western Sydney PHN	Queensland Department of Health	Qld Health, GCHHS, Gold Coast PHN
Objective	Coordinate care of individuals with complex and chronic conditions	Reduce hospitalisation of high risk patients	Avoid hospitalisation of those with complex health conditions	Integrated approach to care, in order to maintain good health and prevent acute or chronic deterioration of the patient's condition	Reduce hospitalisation costs through better chronic disease management	Coordinate primary, secondary and acute care to reduce emergency presentations and admissions
Timeline	Under development. Implement from 1 October 2017	Developed in late 1990s. Piloted in two stages, in 2001-02 to 2004-05 and for older people in 2006-07 to 2009-10. Was then to be rolled out.	Implemented 30 June 2015 to 30 June 2017	Developed from 2012 and implemented from 2013. Under ongoing development and expansion in implementation.	Piloted in February 2014, implemented from March 2014. Evaluation period from February 2014 to February 2015.	Under development. Implement from 1 July 2017
Patient participation	Aiming for 65 000 patients	Over 100 000 in first pilot stage	1500 patients, half of whom are Medibank members	836 enrolled by November 2016	144 recruited during 12 month period of evaluation	Target population who utilise enrolled GP services and consent to sharing of information
Location	Ten PHNs	Across Victoria	Mornington Peninsula, Frankston & Eastern Metropolitan Melbourne	Western Sydney	Proximate to Redcliffe Hospital	Gold Coast

Continued next page

Table A.6 (continued)

	<i>Health Care Homes</i>	<i>HARP</i>	<i>CarePoint, Victoria</i>	<i>Western Sydney Integrated Care Demonstrator</i>	<i>Redcliffe Integrated Chronic Disease Model of Care</i>	<i>Gold Coast Integrated Care Model</i>
Target population	Patients with multiple complex and chronic conditions (about 20% of population)	Patients who frequently require hospital services or who are otherwise at high risk of hospitalisation	Patients with complex conditions who do not require specialist care	Patients with greater risk of congestive cardiac failure, coronary artery disease, chronic obstructive pulmonary disease and diabetes	Patients with multiple, complex chronic disease (admitted for COPD, heart failure, diabetes or asthma)	Patients at risk of high service utilisation or of poor outcomes that may be improved through better coordination
GP participation	Aiming for 200 practices	Evaluation reported difficult to engage local GPs	Over 500 GPs at 235 clinics, with the largest having between 10 and 20 participating patients	204 GPs (and 60 practices) enrolled by Nov 2016 (about 50% of local GPs)	88 GPs from 50 local GP practices	All 164 local GPs invited. 14 agreed to participate
Approach	A bundled fee for GP services (in place of fee-for-service), together with one-off grant of \$10 000. Eligibility for allied health services triggered by Health Care Home enrolment, but access to allied health care, specialists, diagnostic and imaging services funded through the MBS.	Care coordination, self-management support and specialist care within the hospital and state government services sectors and involving GPs.	Home visit to assess condition and develop plan for integrated care in consultation with person. Monthly check-ups to ensure patient well informed and looked after holistically. Overseen by a GP. Facilities provided in the home to improve patient safety and independence. Other primary care services provided as needed.	Patient-Centred Medical Home: Integrated Care Team comprised of care facilitator (registered nurse), primary care team, specialists, community based health care providers. Hospital rapid access (RASS) clinics provide acute specialist services and bypass emergency. Initial and ongoing capacity development of medical team. GP phone line to hospital specialists. GP and specialist case conferencing.	Focuses on facilitating communication between service providers (particularly GPs and hospitals) including through improved joint case management and clinical handover. Patients are stratified by a designated hospital nurse.	A Coordination Centre is run by GCHHS offsite from hospital. It provides rapid access to team of primary and specialist clinicians, including home care. ICT system shares patient data with all clinicians. Non clinical 'Service Navigators' provide liaison services. Care plans and decisions made with patients and family. Direct admission when needed, bypassing emergency. A series of protocols guide patient management.

Sources: Australian Government Department of Health (2016d); R Bell and B Perry (Medibank Private, Melbourne, pers. comm., 29 November 2016); Connor, Cooper and McMurray (2016); Duke (2015); Victorian Department of Health and Human Services (2011); Victorian Department of Human Services (2006); Western Sydney Local Health District and PHN Western Sydney (2016a).

B What does the international evidence show?

Despite the gains from integrating care around the patient and the priority given to integrated, patient-centred care by leading reformers such as the United Kingdom and the United States, no entire country has yet negotiated the transition. Nevertheless, several sub-national organisations have successfully integrated their health system around the patient, including Kaiser Permanente, Intermountain and Veterans' Affairs in the United States; Canterbury in New Zealand; Kinzigtal in Germany; and Jonkoping County Council in Sweden.

These international models illustrate the various options for designing such systems and provide more comprehensive evidence about impacts than can be obtained from the more limited Australian experiences. Such integrated systems of care have led to strong gains in health outcomes for patients, reductions in costs and improvements in the patient's experience of care. What has emerged from these efforts is a relatively recent body of research into the key elements of a successful transition pathway to an integrated, patient-centred health system, with immediate application to Australia.

Because of the cultural and institutional similarities with Australia, the experience of Canterbury in New Zealand is of particular relevance to Australia. However, a more complete picture of integrated care is provided by also considering experiences in other nations.

B.1 Canterbury, New Zealand

Background

The Canterbury system in New Zealand is one of the world's leading examples of how to transition from fragmented care to coordinated care (Timmins and Ham 2013). From 2006, Canterbury has been on a path of continuous innovation to achieve better outcomes for patients, including less waiting time, within a hard budget constraint. A key component has been the engagement of the entire health workforce in the process of identifying how to improve. Its innovations have included:

- HealthPathways that set out for GPs the localised, best practice approach. They are developed and maintained by GPs and hospital specialists in collaboration and are the

default expectation for referrals, diagnostics and prescriptions. HealthPathways are also translated into simple terms for patients.

- an electronic request and referral system used by GPs that is based on agreed HealthPathways
- a data portal for sharing patient records between hospitals and GPs
- a specialist phone line for GPs to support them to manage more complex cases
- alliance contracting in place of fee-for-service for the commissioning of services by the District Health Board (estimated by the Board to have delivered several million dollars of savings since its introduction)
- teams of hospital specialists and staff to manage patients with specific chronic conditions, taking the pressure of the emergency department and extending care to patients outside of the hospital, both in their home and through the support of their GPs
- the local GP association built a 24-hour surgery and care facility, staffed mainly by GPs. The capacity of the clinic is supported by HealthPathways and by telephone access to hospital specialists.

Given the similarities in institutional and cultural structures, the Canterbury example is also one of the most pertinent for Australia. In New Zealand, District Health Boards manage hospital and other government services in their region, similar in function to Local Hospital Networks in Australia. District Health Boards in New Zealand are on average responsible for a population of about 500 000, also comparable with the average size of the population served by Australia's individual Local Hospital Networks. However, unlike Local Hospital Networks in Australia, District Health Boards also manage aged care and disability care.

As in Australia, private GPs in New Zealand provide the bulk of primary care, funded on a fee-for-service basis by the government, although New Zealanders make a larger co-contribution for GP services than Australians. About 30 per cent of New Zealanders are covered by private health insurance, which is less than in Australia, but private health insurance in New Zealand can be comprehensive, covering primary and all other health services.

Evidence

The Canterbury experience was not implemented as a randomised control trial or with the intent of demonstrating its success. Its effectiveness must therefore be assessed by using a range of data sources. The evidence is:

- the Canterbury District Health Board was in deficit in the early 2000s and was anticipating a serious deterioration in financial capacity. At that point, the Canterbury Board decided to change direction and launched its process of reform, focused on valuing the patient's time. Ten years later, the Canterbury Board was highly rated by

the Auditor General for its financial performance in 2011-12 — its financial systems were rated as ‘good’, it was one of two health boards with a ‘very good’ control environment and was one of the top 4 per cent of public entities with a ‘very good’ service performance (New Zealand Controller and Auditor General 2013).

- Because it aims to value patient time, the Canterbury Board measures saved patient days of waiting. Over the three years to 2013, the Canterbury Board estimates that HealthPathways and other measures have saved patients 1.5 million days of waiting.
- Prior to reform, Christchurch Hospital in Canterbury regularly reached maximum capacity and could not take more patients. Following the transition to coordination of primary and hospital care, the hospital rarely reaches full capacity. For example, the daily occupancy rate in Christchurch Hospital in 2012 usually ranged between 75 and 95 per cent, rarely reaching 100 per cent.
- The acute, age-standardised hospital admission rate was about 20 per cent below the New Zealand average in 2006-07, reflecting earlier progress in the quality of primary care (table 1.1). Since then, coinciding with the ongoing transition to an integrated system of care around the patient, the rate has fallen further to be 30 per cent below the New Zealand average. In contrast, that of all other major district health boards (which have not transitioned to a system of patient-centred care) have remained relatively unchanged and have continued to exceed the national average.

Table B.1 Age-standardised acute medical admissions per annum
Canterbury District Health Board and New Zealand

	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Canterbury	4 798	4 555	4 757	4 770	5 017	4 920	4 947	5 209
NZ	5 813	5 829	6 796	6 865	6 917	7 197	7 308	7 426
Ratio ^a	0.83	0.78	0.70	0.69	0.73	0.68	0.68	0.70

^a The ratio of acute medical admissions in Canterbury relative to New Zealand.

Source: Gullery and Hamilton (2015).

- Canterbury is also a high performer relative to the 20 health boards of New Zealand in terms of acute medical length of stay and acute readmission rates. Canterbury’s performance has improved for this combination of indicators compared with the rest of New Zealand, indicating its programs have been successful at valuing patient time (Timmins and Ham 2013).
- A comparison of Canterbury’s District Health Board with the rest of New Zealand suggests that Canterbury’s acute care resources are more efficiently utilised. The level of access to arranged surgery has risen in Canterbury compared with the rest of New Zealand, while the relative level of hospital based resources devoted to acute medical conditions has declined (Love 2013). Difference-in-difference regression analysis supports the conclusion that Canterbury is performing fewer acute medical admissions,

and for those it does perform they are of a higher level of acuity than the national average.

- By 2013, the 24-hour GP surgery and care facility was seeing almost as many patients as the hospital's emergency department, freeing up the hospital to focus on more complex procedures (Timmins and Ham 2013, pp. 6, 28).
- While no formal attempt has been made to quantify the economic impacts, some estimates help to indicate some of the savings. For example, Canterbury's reversal of its budget position from a deficit of 1 to 3 per cent to an underlying surplus of about 1 per cent could be worth up to 2 per cent of its annual turnover, or approximately \$20 million in 2011-12. From another perspective, Canterbury's health board budget allocation (a capitation based payment from the government) has grown at about 7 per cent a year while its expenditure has varied in real terms from 3 to 6 per cent a year (Timmins and Ham 2013, pp. 30-31).

B.2 Kinzigtal, Germany

Background

Gesundes Kinzigtal Integrated Care (GKIC) is a for-profit joint venture between a network of local physicians (two-thirds owner) and a German health care management company (one third owner). In 2006, GKIC initiated long-term contracts with two non-profit health funds to provide integrated health services to health fund members in the Kinzigtal region of south-west Germany.

Germany's health funds receive risk reinsurance equalisation payments from a national health fund based on the risk characteristics of those they insure, including for example morbidity, age and gender (Hildebrandt et al. 2010). Unlike Australian risk equalisation for private health insurance, these payments are ex-ante so that the health fund retains what it does not spend (or runs a deficit if it overspends). Under their arrangement with GKIC, the two Kinzigtal health funds pay fifty per cent of any unspent funds to GKIC. The health funds reserve the right to terminate the contract if the activities of GKIC lower the quality of its health care, cause membership to drop or cause the health funds to spend more than they are allocated by the central fund. Furthermore, patients retain their legal right to choose providers, whether or not they are party to the GKIC venture (Hildebrandt, Schulte and Stunder 2012, p. 211). There is, therefore, no gate-keeper element to the arrangement. Patients retain freedom of choice of provider.

GKIC have invested in the coordinated care of patients, particularly those with common chronic diseases that have a large effect on the health of patients and for which there are effective interventions available. Their program includes care plans agreed to with the patients, coordination of patient care, system-wide electronic health records, patient telemonitoring, health literacy training and targeted exercise programs (Busse and

Stahl 2014). GKIC also achieved short-term budget gains by preferring generic drugs and buying pharmaceuticals in bulk to obtain discounts.

Evidence

The GKIC approach to health care has improved health outcomes, improved the efficiency of health care and people's experience of care (Alderwick, Ham and Buck 2015; Busse and Stahl 2014). Mortality rates for those participating in the program are lower than non-participants (Busse and Stahl 2014; Hildebrandt, Schulte and Stunder 2012). For example, the mortality rate of those enrolled in the program was reduced by half after two and a half years in the program compared with those not enrolled (Busse and Stahl 2014).⁵⁶ The rate of hospitalisation was 12 per cent lower for participating than non-participating physicians, and health outcomes were better. Patients with osteoporosis experienced a 1.9 per cent lower rate of fracture than comparable patients of nonparticipating physicians (Hildebrandt, Schulte and Stunder 2012). This was despite the fact that the program attracted sicker patients, indicated by a 0.25 per cent higher comorbidity Charlson score. Based on a survey of health care members in 2014, it was found that those who agreed on shared treatment goals achieved superior health outcomes to those that did not (Struckmann, Boerma and van Ginneken 2015).

There is evidence that the GKIC program also improves patient care. For example, the proportion of patients with heart failure who were given the recommended prescription drugs was 6.8 per cent higher under participating physicians than under non-participating physicians (Hildebrandt, Schulte and Stunder 2012). A broader, controlled study from 2005 to 2011, found improved clinical practices across four of five domains under the GKIC system (in the Kinzigtal region) compared with the rest of the state (Schubert et al. 2016). For example, patients with vascular dementia who were prescribed non-recommended drugs declined by 7 per cent in Kinzigtal, but only by 1.1 per cent in the control population. In one domain, clinical practice improved in both populations, but by slightly more in the control population.⁵⁷

Further, evidence indicates patient and provider satisfaction with the program. For example, almost all patients and 80 per cent of providers would enrol in GKIC again (Busse and Stahl 2014). Similarly, in 2013 and 2015 patient surveys, over 90 per cent of patients responded that they would recommend enrolment in the GKIC program to others, indicating a high level of members' overall satisfaction (Siegel and Stobel 2017). Survey analysis suggests that the largest factor behind the high willingness to recommend the GKIC program was the patient perception of the quality of health care provided in the program.

⁵⁶ After controlling for the effects of differences in the traits of the participants and non-participants.

⁵⁷ In two of the five domains, the improvements may have arisen due to chance alone, and this was also true for the single instance where the control group outperformed the GKIC system.

The approach also reduced costs. GKIC generated a saving of 16.9 per cent between 2006 and 2010 compared with a similar population in another region (Hildebrandt, Schulte and Stunder 2012). Much of this saving was achieved by lowering emergency hospital admissions. Emergency hospital admissions rose by 10.2 per cent between 2005 and 2010 for patients in Kinzigtal, but rose by 33.1 per cent in the comparable population. Similarly, a comparison of health costs in the Kinzigtal region under participating physicians with non-participating physicians, found that health costs rose by less in the group of participating physicians (by 7 per cent) than in the group not participating (by 19.3 per cent) (Hildebrandt, Schulte and Stunder 2012). Again, this was largely because of lower utilisation of hospital services.

B.3 Intermountain Healthcare, United States of America

Background

Intermountain Healthcare is a not-for-profit vertically-integrated health insurer and health provider that provides primary, secondary and tertiary health services to approximately two million people living in Utah, Idaho and surrounding states. Intermountain directly employs 1350 physicians. It has an agreement with a further 1200 other independent physicians with whom it shares any savings generated by a reduction in total costs providing patient satisfaction rises and quality measures improve.

Intermountain began as a system of fifteen hospitals in 1975, branching out into primary care delivery from 1982. Intermountain was established to serve its members by investing in new and better ways of delivering care. However, as a vertically-integrated provider, it was not keeping the returns from its investments because insurers would cut their payments (based on fee-for-service). Intermountain was bearing the cost of the investment and the insurer was keeping the returns. Intermountain therefore changed its model of service to include a health insurance arm from 1983, allowing it to invest in the health of its members and share in the returns.

From 1986, Intermountain restructured its hospital care around regions — testimony to the benefits of a regional approach (which has relevance to Australia).⁵⁸ In 1993, general practice physicians were given greater influence through the creation of a general practice organisation, the Intermountain Medical Group, which contributed to Intermountain HealthCare's management team. Again, as in other approaches to integrated care, its model suggests the importance of promoting 'buy-in' from general practice.

⁵⁸ Additional testimony to the benefits of a regional approach is that the United States Veteran Affairs has found a regional approach to be the best approach to integrated care, notwithstanding that VA is a federal body (Curry and Ham 2010).

Evidence

Intermountain has been recognised as one of the leading health care providers in the United States (Baker et al 2008). For example, Intermountain has been consistently ranked as the leading integrated health system in a survey of regional, non-speciality health care systems in the United States. Its Latter-Day Saints hospital has been recognised as one of America's best hospitals in respiratory disorders, pulmonary medicine, endocrinology and diabetes care. It was also the first hospital in Utah to be given Magnet status, which is an international designation of nursing excellence and an indicator of staff morale.

Intermountain standardised care procedures for the prescription of medicines for cardiac patients at discharge, raising the proportion of accurately treated patients from 57 per cent to over 98 per cent (James and Poulsen 2016). Flowing from this, mortality declined by over 450 deaths a year and hospitalisations declined by almost 900 cases a year.

Intermountain also standardised the process for inducing women waiting to deliver, resulting in a reduction in induction rates from 29 per cent to 5 per cent between 2001 and 2003 (Baker et al 2006). This in turn significantly lowered the rates of unplanned Caesarean sections and otherwise reduced the costs by \$400 per birth or by \$10 million per year.

Intermountain's American Fork Hospital developed a non-invasive method for supporting the lungs of premature babies that involved blowing pressurised air through the newborn's nose instead of placing a breathing tube down their throat. This not only avoided the risk of significant complications, but also reduced the hospital's operating costs for premature babies by \$544 000 a year (James and Poulsen 2016). Extending this new method across Intermountain's hospitals reduced hospital operating costs by well over \$5 million a year.

In 2003, clinicians introduced tighter glucose control of patients in intensive care units, reducing patient mortality rates in intensive care (Baker et al 2006). This and other initiatives have been systematically rolled out across Intermountain's providers with similar rates of success.

B.4 Kaiser Permanente, United States of America

Background

Like Intermountain, Kaiser Permanente is a not-for-profit vertically-integrated health insurer and health provider. It began in the 1930s, providing prepaid health care services to construction workers in California and now services 9.5 million members in eight regions of the United States (Alderwick, Ham and Buck 2015). Care is integrated inside and outside hospitals within each region, with specialists and general practitioners working together in multispecialty medical clinics (Curry and Ham 2010). A medical group in each

region is paid a capitation payment to provide care for all Kaiser Permanente members in its region and has responsibility for the management, design and delivery of care in the region. Some of Kaiser Permanente's medical groups directly provide medical services; others contract out the delivery of services (Curry and Ham 2010).

Integration of care at Kaiser Permanente is based on population risk stratification, investment in prevention, reliance on self-management, the use of care pathways to guide the management of common conditions, case management of those with complex conditions, sophisticated data technology and the pursuit of a target of zero unplanned hospital admissions.

Evidence

Kaiser Permanente has had considerable success in all areas of health. In the case of prevention, for example, Kaiser Permanente's investment helped to lower the prevalence of smoking among its members by 25 per cent compared with a reduction of 7.5 per cent across California more generally (Alderwick, Ham and Buck 2015). Contributing to this achievement, a survey of adults in 2007 indicates that Kaiser Permanente provides easier access and a significantly stronger emphasis on case management and prevention than Californian practices more broadly (McCarthy, Mueller and Wrenn 2009). This and other investments in lifestyle improvements have resulted in significant health gains. For example, the relative risk of death within 90 days of a cardiac event was reduced by 89 per cent for patients enrolled in Kaiser Permanente's cardiac rehabilitation program (McCarthy, Mueller and Wrenn 2009). This program included six months of intensive case management and the highest rates of screening in the United States in 2007.

Comparisons of Kaiser Permanente with other health care organisations is evidence of its high performance (Alderwick, Ham and Buck 2015). Kaiser Permanente has consistently been one of the highest performers in the United States' Healthcare Effectiveness Data and Information Set (HEDIS) measures. Kaiser Permanente also performs well in international comparisons. For example, the number of bed days for those aged 65 or more years in Kaiser Permanente is less than a third of the UK's NHS, a reflection of more effective management of patients' health (Curry and Ham 2010; Ham et al. 2003).

B.5 Jonkoping County Council, Sweden

Background

Jonkoping County Council is an elected health authority in the Jonkoping region of southern Sweden. For over twenty years, it has sought to develop and provide an integrated system of quality care to the region's population of about 350 000. It encourages a culture of innovation and patient-centred care among its staff and clinicians. It has achieved

significant reductions in hospital admissions, in days spent in hospital and in waiting times for specialists (Alderwick, Ham and Buck 2015; Baker et al. 2008).

Evidence

A comparison of counties across Sweden's select range of cost, outcome and patient experience indicators shows that Jonkoping substantially outperforms all other counties. Where a lower number indicates higher performance, Jonkoping's score was below 50 and all other counties scored between 90 and 200, with 100 being the national average (Baker et al. 2008). While improving health outcomes, staff morale and patient satisfaction, Jonkoping County Council reported it had lowered its net costs by two per cent. As an example of its success, Jonkoping brought together all providers to map and help improve processes for children with asthma. The number of children admitted to hospital with asthma subsequently dropped from 22 per 10 000 to 7 per 10 000. Jonkoping has also invested in preventative care. For example, over a four-year program it raised the region's rate of influenza vaccination by 30 per cent.

The Institute for Healthcare Improvements rated Jonkoping County Council as the leading global performer in terms of clinical and financial outcomes compared with a range of other health systems, including several in the United States (Baker et al. 2008).

C Technology and the changing role of professions in integrated care: a case study of pharmacists

The potential to use technology in new ways to provide government services is a cross cutting theme in this inquiry. In health care, technology has always played a major role in providing new treatments and ways of providing care, but it has not diminished the overall demand for health care professionals.⁵⁹

In part, this reflects that technologies are often used by clinicians rather than replacing them. Another factor has been that the large growth in the demand for health services has still enabled job growth even though technologies have reduced the needs for health professionals in some areas. Nevertheless, digital disruption and automation appears likely to result in job losses for some health professionals, notwithstanding growth in the health care sector. This will occur wherever the technologies produce higher quality services for patients and/or are less costly — two beneficial outcomes for people.

This driver of change is accompanied by:

- recognition of the importance of multidisciplinary teams in integrated care
- the potential to widen the scope of practice of health professions that have hitherto been restricted from playing a more prominent role, especially where technologies can reduce any risks from widening their role (such as through technology-assisted decision making)
- cost and demand pressures in the health sector that encourage substitution from high to lower-cost professions. Australia's ageing population and the growing prevalence of chronic conditions will, under the existing professional supply model, produce substantial cost pressures. It risks that some people, particularly in regional Australia, will be less able to access health care.

The biggest stumbling block for realising beneficial changes from restructuring the role of health occupations are habit and regulation, both of which governments need to address.

⁵⁹ Other than dental practitioners (whose numbers still grew), the numbers of people employed as health professionals grew well above the growth in employment overall (based on ABS 2016, *Labour Force, Australia, Detailed, Quarterly, Nov*, Cat. no. 6291.0.55.003 at the ANZSCO 4 digit level).

A starting point for reform is the pharmacy profession, which has always played an idiosyncratic role in Australia's health care system, and where the scope for transformation is now greatest. The oddity of pharmacy is that much of its services are currently provided in a retail setting (often referred to as 'community' pharmacy). As one party put it to the Commission in this inquiry, the availability of unproven (and sometimes harmful) medical products and confectionary at the front of the pharmacy is not reconcilable with an evidence based clinical function at the back.⁶⁰

The consumer advocacy group, CHOICE, commissioned a mystery shopping survey to assess the accuracy and quality of advice in 240 pharmacies across Australia (Bray 2017). Each shopper approached the prescription dispensing counter and asked for advice from a pharmacist, stating, 'I've been feeling really stressed lately, is there something you can recommend?' In many cases, the advice was wrong or unsupported by any scientific evidence (though frequently, pharmacists inaccurately claimed that there was scientific evidence of therapeutic benefits).

No other clinician in the health system operates in a retail setting. GPs' attitudes to pharmacy reflects this:

GPs indicated that sources of distrust arose from questionable motivations of pharmacists or pharmacists from "chain" pharmacies. Similarly, professional respect between providers was important, with one study indicating that GPs were not interested in collaborating with pharmacists when the GPs were not confident in the pharmacists' abilities. (Lipworth et al. 2013, p. 20)

Moreover, technology has crept up on the dispensing function of pharmacists. Few pharmacists now physically combine or process pharmacologically-active ingredients ('compounding'). In the retail setting, pharmacists typically physically select a pre-packaged drug from a store in the pharmacy and label it — a manual task requiring no professional skills.

A more recent development is machine dispensing of drugs — a proven technology, which challenges even the manual tasks performed by pharmacists (DoH 2017c, p. 167). Robotic dispensing involves fewer medication errors and is more productive, and has for a long time been in common use in hospitals around the world (for example, Beard and Smith 2013).⁶¹ It is already in use in some Australian pharmacies because of their capacity to improve the speed of dispensing and increase face-to-face contact with consumers (Philpott 2016).

⁶⁰ An Australian Government review into various natural remedies — widely available in pharmacies — suggested that most had no strong evidence in favour of them (Baggoley 2015).

⁶¹ A minor issue for automatic dispensing outside a hospital setting is that they are not suited to uncommon and high cost medicines (such as the newly listed hepatitis C drugs, which cost tens of thousands of dollars). E-scripts and e-dispensing could solve this. A script could go to an internet pharmacist who dispatches the medicine to the patient by courier.

In addition, e-prescriptions enable a clinician to provide a prescription to a pharmacy without the need for a paper script. Such e-scripts could be sent to a robotic pharmacy instead of a pharmacist, so all aspects of the existing pharmacy become redundant. Information systems are better suited to patient-centred advice on medications — especially if they link to data on a person's My Health Record.

In a world where the physical aspects of dispensing are managed by machines, scripts are transferred to them electronically, and accurate advice is provided based on customer traits and medical evidence, the *traditional* role of community pharmacy appears to be at risk. To the extent that a person needs to be involved to supervise this process and interact with the customer, trustworthiness, personability and empathy are the key skills, not years of clinical training.

Against that background, while the role of retail pharmacy in the health system has long been problematic, given recent developments, maintenance of the current model, is, or at least should be tenuous:

To date, most applications of this technology have been at the local level, such as hospital pharmacies or single-site community pharmacies. However, widespread implementation of a more centralized automated dispensing model, such as the 'hub and spoke' model currently being debated in the United Kingdom, could cause a 'technology shock,' delivering industry-wide efficiencies, improving medication accessibility and lowering costs to consumers and funding agencies. Some of pharmacists' historical roles may be made redundant, and new roles may be created, decoupling pharmacists to a certain extent from the dispensing and supply process. (Spinks et al. 2017, p. 394)

As has been observed in the United Kingdom, this suggests a revolutionary change in the role of community pharmacy:

If there is to be widespread reform by 2020, community pharmacy requires a revolution rather than evolution. Any revolution in community pharmacy is likely to be precipitated by a massive divestment in prescription dispensing in order to release money to help fund growth of NHS integrated care organisations. ... With the use of new technologies, dispensing in the community could soon replicate the dispensing systems used in hospitals. Indeed, policymakers are pushing for the replication of hospital dispensing arrangements in the community and have been quietly preparing for factory-type dispensing pharmacy outlets. (Baines 2015, p. 2)

In light of these factors, there are compelling grounds for policy change that goes well beyond those raised in the recent Australian Government review of pharmacy (DoH 2017c). There are several desirable directions for pharmacy:

- i) accept that the retail setting is not suitable for a clinical role, and provides pharmacists with negligible capacity to apply their long-acquired skills
- ii) give wider scope for pharmacists to play a role in multidisciplinary care for those people whose medication needs are complex
- iii) accept that the manual dispensing function of pharmacists is no longer sensibly performed by highly-skilled professions, and move to automation and, where

needed, supervision by people whose prime skills are social in nature. In regional areas, this would improve access to pharmaceuticals, as no highly-trained pharmacist would be required (either locally or through telehealth)

- iv) recognise that, like nurse practitioners, there may be scope for pharmacists to perform roles outside their current scope of practice.

Currently there is little government awareness of the unsuitability of the retail model for provision of clinical services, and the capacity to bypass pharmacists for manual dispensing ((i) and (iv)). Indeed, the Australian Government is spending more (some \$210 million over the forward estimates) given a lower than anticipated number of scripts filled by pharmacists. This funding would not be required under a different technological solution to dispensing because the efficient cost would be considerably lower than current margins require.⁶²

Functions (ii) and (iv) *have* been recognised as legitimate principles in the Australian Government's 2017-18 Budget, which has expanded the role of pharmacists in medication management in the community, including a clinical role in Health Care Homes. The Government has committed \$600 million over three years for this initiative. The recent Australian Government pharmacy review has also recognised the desirability of a changing role:

It is known that, with the rise of chronic conditions such as obesity, asthma, hypertension and diabetes, there will be a need for a greater focus on integrated, rather than episodic, care. It is also known that, while the Australian Government has a role to play, the pharmacy sector must take a shared responsibility for its own future if the system is to remain sustainable. (DoH 2017c, p. 3)

However, it is not clear that many pharmacists will be required to serve such a clinical function, and accordingly whether expenditure of this magnitude could be justified. Currently, there are about 20 000 pharmacists performing some kind of clinical function (largely in a retail setting). In a multidisciplinary model of care, it is hard to foresee the need for even one pharmacist per general practice (and there are only approximately 6 100 general practices). This is because the number of people who have chronic and complex chronic conditions where medication advice is critical is, in own right, unlikely to be great. Pharmacists are currently often not recognised as important participants in multidisciplinary teams. Given developments in eHealth and artificial intelligence, their role in that context is likely to diminish further. Even where medication advice is required, such advice will typically only be needed sporadically.

There may be justification for pharmacists in a peripatetic role — visiting nursing homes and people in their own homes where medication management is crucial. But even here, given the support that information systems can increasingly provide, it is not clear that this

⁶² That is also true of even the current arrangements in pharmacy — as observed by the interim report of the current review into pharmacy (DoH 2017c).

function could not be provided by lower-cost allied health professionals, such as nurses (who already do this). In a model that did not give them preferment, the role of pharmacists in a clinical activities would therefore be a niche one.

It is improbable that much can be done in the short term, recognising that the Sixth Community Pharmacy Agreement will run until 30 June 2020, while the Australian Government has committed funding to new roles for pharmacists over the next three years as part of the 2017-18 budget. However, some work can begin now:

- the impacts and cost-effectiveness of the role of pharmacists in multidisciplinary teams can be assessed as part of the evaluation of Health Care Homes, as well as the likely total number of pharmacists required were the Health Care Home model (in the adapted version that we recommend) to become the de facto model for primary care
- adaptation of training content for pharmacists to ensure it is compatible with their new role and, similarly development of a VET qualification that would be needed for those people who would oversee robotic dispensing
- signalling to the relevant departments of pharmacy in Australian universities that the likely demand for pharmacists will dramatically fall. As the industry structure is a creature of government, it has a responsibility not to train a group of people whose long-term economic and professional prospects in that occupation will be poor. This problem is all the more severe because so many pharmacists are relatively young, so that the natural process of attrition through the retirement of older pharmacists will not quickly reduce supply by much. Even if governments do not envision changes to the pharmacy model over the medium term (which would represent a lost opportunity), failure to stem supply now, would still doom thousands of pharmacists to job vulnerability when aged 45-55 years — ages that do not sit well with easy transitions to other occupations
- trials in regional areas with machine dispensing supervised by non-pharmacists would be a starting point given the high level of needs in those areas.

There is another trajectory for pharmacy that would leave its current retail form largely intact, with the addition of some clinical functions. If the Australian Government maintains the retail model, it is very hard to argue for the preservation of the current antiquated anticompetitive regulations that pervade the industry, such as ownership restrictions (appendix B). But there is an opportunity to move away from a pharmacy model in which competition reform is the imperative.

D Preventative Health

D.1 Introduction

Preventative health encompasses most of the concerns of an integrated care system itself. This is because it is often characterised broadly into five groups:

- primal prevention, whose focus is on the information and support given to parents for the period from foetus to the first year of life of a baby, which is now widely seen as critical to a healthy adult life. Awareness of the impacts of alcohol and tobacco use on an unborn child is an illustration. But so too is awareness of the psycho-social needs of babies. Conceptually, the difference between this and primary prevention is somewhat semantic, but its origin reflects an increasing scientific understanding of the impacts of parental behaviour on subsequent outcomes
- primary prevention — the avoidance of a disease or disorder. For example, interventions that increase healthy eating and physical activity can avoid obesity, and in turn, reduce the diseases and disabilities associated with it — diabetes, cardiovascular disease, immobility and depression
- secondary prevention, which reverses, prevents or delays the progress of an already existing disease or disorder, or its impact on a person's life. For instance, changes in diet for a person with diabetes can avoid the need for insulin treatment. Another example is early identification of cancer to improve the likelihood of successful treatment. Adaptation of a workplace to accommodate a person with an acquired disability so they can still work is also classified in this category
- tertiary prevention, which concerns interventions that seek to manage the impact of an ongoing illness and to increase a person's quality of life and longevity. For example, this could include stroke rehabilitation programs
- quaternary prevention, which relates to the avoidance of unnecessary medical interventions of the kind discussed in chapter 7.

Much of this supporting paper examines secondary, tertiary and quaternary prevention. This appendix mainly focuses on primary prevention.

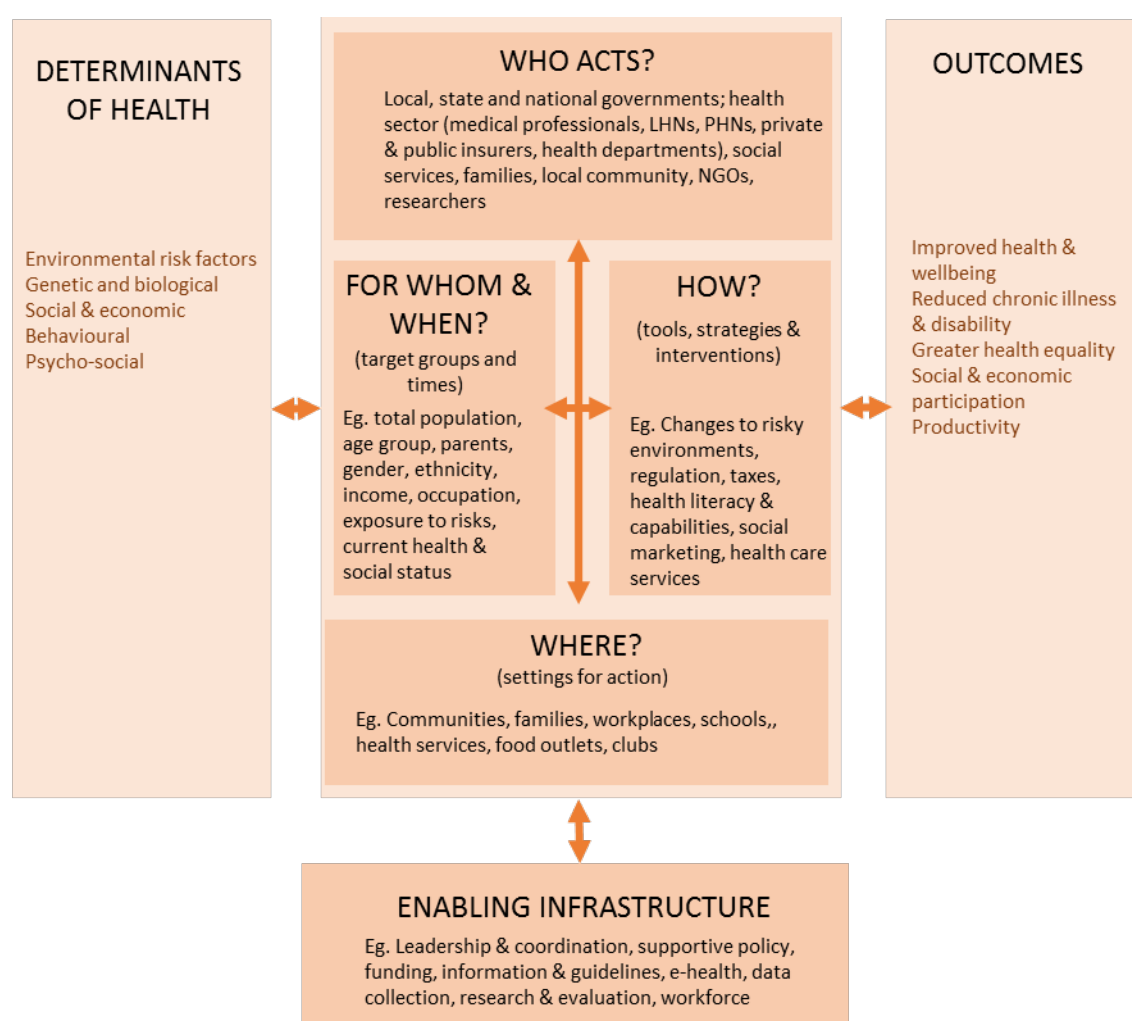
The framework for preventative care is well-established (figure D.1), and it is not the intent of this short appendix to re-visit the issues in any great detail. However, in light of increasing concerns about chronic conditions — especially those related to environmental risk factors and people's choices — the goal of this appendix is to provide a succinct guide to the considerations that should inform policymakers' preventative health decisions,

especially as these relate to the use of economic tools. Its discussion mainly centres on the modifiable risk factors that are a key target of preventative health measures.

The key message from this appendix is simple, if often ignored:

Policy should not be based simply on those risk factors with the worst health outcomes, but must also consider the direct long-run effectiveness of alternative interventions, uncertainty about efficacy, displacement of risky behaviour, implementation costs, forgone consumer and social benefits outside the health domain, and public acceptability.

Figure D.1 **A preventative health framework**



Source: Adapted from Australian Institute of Health and Welfare 2014, *Australia's Health 2014*, Australia's health series no. 14, Cat. no. AUS 178.

D.2 Setting out the key questions in evaluating interventions

What are the key modifiable risk factors?

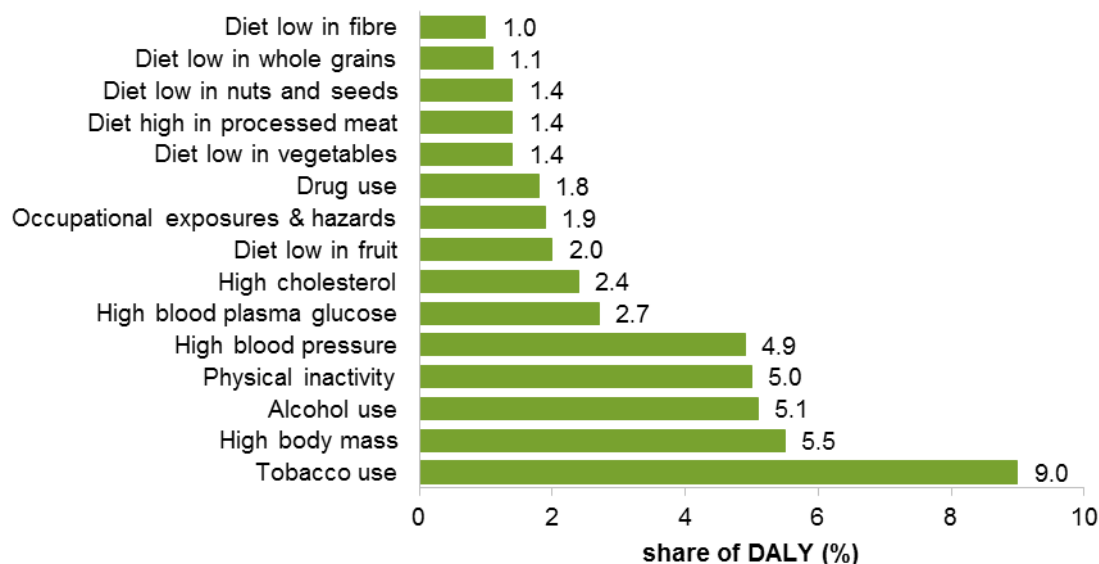
There have been many successful preventative health initiatives: anti-tobacco campaigns, road safety measures curbing automobile accidents and cervical cancer vaccines. Historically, the most crucial preventative health measures related to vaccinations (such as smallpox and poliomyelitis), improved sewerage, potable water and urban design. But the kinds of chronic conditions that now affect population health often relate to lifestyle behaviours, and the policies that attempt to prevent associated disease are different in character.

The modifiable risk factors that contribute most to the Australia's total burden of disease are tobacco use, high body mass, alcohol misuse, physical inactivity and high blood pressure, noting that there are interactions between the risk factors that mean they cannot be added up (AIHW 2016a, p. 57).⁶³ For example, some of the effects of high blood pressure can be attributed to inactivity and high body mass.

Of the risk factors, tobacco, body mass and alcohol are central to preventative health in Australia because there are a plethora of potentially powerful regulatory, educational and economic interventions that could affect their severity. While the AIHW does not publish an aggregate estimate of the impact of dietary risk factors (the types of food eaten compared with the quantity), it is clear that collectively they also play an important role in causing disease (figure D.2), and yet are very readily modifiable.

⁶³ The burden of disease is the impact of a disease or injury on disability-adjusted life years. The attributable disease burden is the reduction in the total burden of disease that would have occurred had the exposure to the risk factor been at its theoretical minimum (for example, zero alcohol consumption). So eliminating a risk factor reduces the prevalence and incidence of diseases (such as the 36 per cent of respiratory disease associated with tobacco use) that lead to reduced functioning (disability) and longevity.

Figure D.2 **Share of total disability-adjusted life years associated with given risk factors**
2011^a

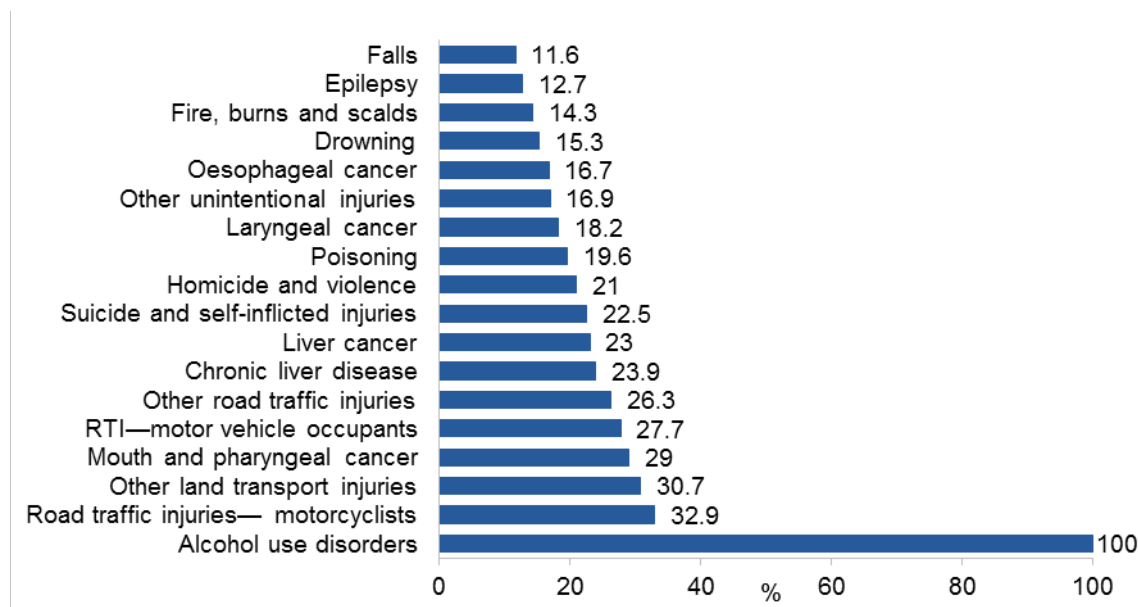


^a The effects cannot be added up because there are interdependencies.

Source: AIHW (2016a).

The estimates of the burden of disease reflect the multiplicity of routes by which some behavioural or environmental factors can trigger subsequent adverse effects. Alcohol provides a good example (figure D.3). The harms from excessive alcohol consumption can include cancer, cardiovascular disease, liver disease, birth defects, self-harm, assault, domestic violence and road deaths from drunk driving, among many others (NHMRC 2009; RACS 2016a; Welch 2017; WHO 2014). The above estimates of the burden of disease of alcohol do not take account of new evidence about its harmful effects. For example, alcohol dependence appears to be an important cause of dementia, accounting for potentially 10 per cent of early onset dementia and 10-24 per cent of dementia cases in nursing homes (Welch 2017).

Figure D.3 **The share of disease burdens attributable to alcohol**
2011



Source: AIHW (2016a).

The relationship between the exposure to risk and adverse health outcomes

In many cases, harms are strongly related to the frequency and intensity of use. For instance, reducing rather than complete abstinence from the use of tobacco still produces some health benefits (Schane, Ling and Glantz 2010). Similarly, morbid obesity poses far higher mortality and disability risks than obesity (Aune et al. 2016). There is little evidence that light drinking of alcohol has any adverse health impacts.⁶⁴

Accordingly, preventative health measures that reduce a lifestyle risk can still be an effective measure. This is particularly relevant to modifiable risk factors where a significant reduction is hard to achieve. So far, obesity rates fit into this category.

Economic and other impacts of ill-health

The impacts of various conditions or resulting disabilities on labour market and other economic outcomes (including avoidable use of the health care system) depend on the source of the ill health and its form.

⁶⁴ On the other hand, claims about the *beneficial* health impacts of moderate alcohol consumption may reflect the confounding impact of socioeconomic status, rather than alcohol itself (Towers et al. 2016).

The effects of various health conditions on labour market outcomes varies with age (PC 2016, p. 7). Stroke, kidney disease, osteoporosis and emphysema all reduce participation rates by between 29 and 46 percentage points for those aged 25-54 years, with the effects being even greater for those aged 55-64 years. Mental health problems and substance abuse are associated with poor labour market participation outcomes at all ages. The cost of physical inactivity was estimated to be about \$640 million through direct health care costs in 2013 and \$165 million in lost productivity (Ding et al. 2016).

The Australian Institute of Criminology estimated in 2013 that the cost of alcohol consumption to the health care sector was \$1.7 billion each year, with further costs incurred in the criminal justice system, traffic accidents and lost workforce productivity (Manning, Smith and Mazerolle 2013). Substance abuse can also increase antisocial behaviour (that may not be criminal in nature), corrode community and family life, and undermine perceptions of public safety — intangible costs that are hard to measure and that nevertheless matter to people (for example, AIHW 2017b). The particularly adverse social impacts of alcohol misuse in some Indigenous communities is well-documented.

The degree to which various interventions can reduce different risk factors

The effectiveness of measures vary with the type of health risk, the relevant affected population groups, and the type of intervention.

Variations in responses by sub-groups matter

For instance, measures aimed at obesity may need to differentiate between people of different ages. Weight loss is harder for people who are already obese than for people whose weight is still below unhealthy levels, suggesting that early-in-life interventions may be more likely to avoid lifetime obesity. Moreover, the effects of body mass on health seem to be less significant for older people (Adams et al. 2006; Patel, Hildebrand and Gapstur 2014).⁶⁵ As discussed in section D.3, the effectiveness of taxes on sugary beverages are likely to depend on the consumption patterns and price responsiveness of heavy consumers of such products, rather than the average consumer.

In addition, for some groups, interventions may sometimes justifiably seek to counteract the adverse effects of some modifiable risk factors without changing the risk factor itself. For instance, there is some evidence that physical activity counters the adverse effects of high body mass (Herman et al. 2012).

⁶⁵ Some evidence suggests that overweight people may be more healthy than lower weight people, even after controlling for smoking (Carnethon et al. 2012; Dahl et al. 2013; Diehr et al. 2008; Reuser, Bonneux and Willekens 2008).

Information and education interventions have mixed effectiveness

Views about the effectiveness of education and information programs in reducing harms is contested and context-dependent (table D.1).

Table D.1 Findings from a review of reviews
Preventative strategies to reduce smoking and alcohol harm among adolescents^a

Area	Result
Tobacco use	
School-based	<ul style="list-style-type: none">• Avoiding smoking — No impacts of information-only or social influence interventions. Significant effects for combined social competence and social influences curricula• 'Smoke Free Class Competition', including prizes — effective in reducing current smoking rates (but another review in multiple settings, including outside school, found no overall effects from incentives)• Very limited evidence of the long-term impact of school-based smoking prevention programs
Family/community-based interventions	<ul style="list-style-type: none">• Family-based interventions effective in avoiding smoking and reducing smoking behaviour• Positive impacts from community-based interventions on reducing smoking rates, but evidence is 'not strong'• Primary care initiatives (including combined mass media campaigns, school-based programs, price increases) suggest a significant reduction in smoking initiation• Media campaigns vary in effectiveness across racial/ethnic groups, but can be positive. Evidence of effectiveness for young people is 'not strong'• Web-based interventions among college students had mixed results, while interactive internet-based interventions had positive impacts
Impacts of promotion of smoking	<ul style="list-style-type: none">• Increases likelihood of adolescent smoking
Alcohol	
School-based	<ul style="list-style-type: none">• Appear to be effective, but effects can be small
Family-based interventions	<ul style="list-style-type: none">• Family-based prevention interventions have small but generally consistent beneficial impacts and also persist over the medium to long term
Digital platforms	<ul style="list-style-type: none">• Computer-delivered interventions are found to reduce the quantity and frequency of drinking among college students
Promotion	<ul style="list-style-type: none">• Lack of robust evidence
Multi-component interventions	<ul style="list-style-type: none">• Little evidence that they are better than single component measures

^a There is an extensive bias towards US studies, which may affect outcomes.

Source: Das et al (2016).

For instance, educational programmes for middle adolescents appear to be often ineffective, whereas measures to reduce substance abuse amongst late adolescents is greater (Onrust et al. 2016). It appears that educational measures are more effective when supported by other prevention measures that target the environmental factors underlying harm (Kelly-Weeder, Phillips and Rounseville 2011). One review suggests that the effects of mass media campaigns on alcohol-related injuries and crashes are unclear due to deficiencies in the studies (Yadav and Kobayashi 2015). However, another interpretation of the evidence by the European Monitoring Centre for Drugs and Drug Addiction (2017)

suggested the evidence was favourable for such campaigns, but not so for *standalone* mass media campaigns to address alcohol misuse or tobacco consumption.

A key difficulty in all evaluations of education and media campaigns is establishing their long-run effectiveness because such interventions are often of short duration (unlike taxation and regulatory policies that change prices or the environment permanently). Moreover, by their nature, all marketing and education interventions vary significantly in their content, form, and targeting. Australia's 'Slip Slop Slap' mass media and education program has been seen as very effective for limiting dangerous sun exposure.

Measures that affect prices appear to be generally effective

For all but a few exotic exceptions, an increased price associated with a tax on any good or service generates a reduction in the overall demand for that good or services, with the associated reduction in harm depending on the responsiveness to prices amongst the varying risk groups of consumers.

Smoking prevalence rates respond to prices, with Australian rates tumbling from 28 per cent in 1989 to 15 per cent in 2013, following a range of anti-smoking measures, including substantial tobacco excise increases from the early 1990s, regulations limiting where people can smoke, information campaigns, and education (Scollo and Winstanley 2016). The evidence on price elasticities suggests that price changes would have played a decisive role in reducing demand.

Measures that raise the price of alcohol also appear to be effective (Elder et al. 2010; Gilmore et al. 2016; Wagenaar, Salois and Komro 2009; Wright, Smith and Hellowell 2017). Alcohol taxes are already imposed in Australia. However, the tax regime is complex, with multiple concessions and incoherencies. Taxes do not treat alcohol consistently across different beverages. This reflects vested interests and accidents of history, overlaid with revenue-raising imperatives. Harm prevention has not been a key motivating element of Australian alcohol taxes. This issue is examined further in chapter 2 in the main report. The Productivity Commission recommends that alcohol taxes be aligned with the goal of harm minimisation — which is best achieved through taxes that are set according to the volume of alcohol in a beverage ('volumetric' taxes).

It is important to examine other behavioural responses to higher prices:

- higher prices may displace demand to other harmful forms of consumption. For instance, volumetric taxes on alcohol in Australia would increase the price of low-priced concessionaly-taxed wines, but would not change the price of spirits, which are already subject to volumetric taxes. While partial substitution could be anticipated, some claim that volumetric taxes on low-priced wine would lead to *sufficient* substitution to spirits that there would be few beneficial impacts on alcohol misuse. The conditions for this to hold are unlikely, as it would require people's overall alcohol consumption to increase, notwithstanding that the average price of alcohol had risen

significantly. In addition, the evidence on the cross-price elasticity of demand for different alcohol types suggests that a price increase in one relative to the other has few impacts on relative consumption levels (Sharma, Lebrun-Harris and Ngo-Metzger 2014, p. 5).

- people may find sources of untaxed products from illicit suppliers.

The costs of any intervention and forgone benefits

It is important to assess the costs as well as benefits of preventative health measures. Interventions can entail administrative costs and compliance burdens for businesses. School educational programs displace other parts of a crowded syllabus.

Above all, many of the activities and products that lead to major harm can also produce large personal and social benefits. This is obvious in the case of motor vehicles as a means of transport, and alcohol use as a source of enjoyment and as a key element of social activities. When there is a wide-ranging taxonomy of negative effects (as in alcohol), and just a few categories of benefits, it is easy to give too little weight to the positive aspects, though these can often exceed the negatives. That is important because some policy measures that address harmful product use or activities can also undermine their safe and enjoyable use. That impact should not be neglected in any assessment of harm minimisation measures. For example, in its analysis of problem gambling, the Productivity Commission gave particular weight to measures that were unlikely to affect the enjoyment of recreational gamblers (PC 2010). The main implication is that where a product or activity also produces significant benefits, harm minimisation measures should *attempt* to target the most affected people.

By their nature, some measures cannot be targeted, in which case the desirability of their adoption involves a balancing act. For instance, while taxes are often effective in reducing the overall demand for products with harmful effects, they have the incidental outcome that people consuming at safe levels are as penalised as those who are not. Whether this matters depends on the extent of harm and the degree to which harm is present for low levels of consumption. Tobacco use appears to be harmful even in small quantities, but alcohol and sugary beverages are not. A decision to tax must weigh up the gains and losses for the different sub-groups.

The costs of preventative health measures also include the community and personal acceptability of the educational, regulatory, marketing or tax measures that underpin many strategies. Practical preventative health measures cannot ignore how people view the legitimacy of government action in any given area. There is reasonable evidence that people are often opposed to measures that increase the prices of goods or services that have harmful effects because such measures are perceived to be indiscriminate, unfair for the most disadvantaged, and ineffective, even if some of these perceptions are poorly-based (Keatley et al. 2016). As observed in a recent study of tax policy for preventative measures:

... public support for new commodity taxes tends to be low, and high public or political support is likely to be required for taxes to be initiated and sustained. (Wright, Smith and Hellowell 2017, p. 11)

However, if tax measures are accompanied by earmarking of additional revenues for other preventative health or health initiatives, public support is higher. Accordingly, some proponents for tax measures have also recommended that a share of any revenue be used for preventative and treatment initiatives (such as for alcohol taxation, as suggested by ACDPA 2011). Hypothecation of revenues for specific purposes is often inefficient because it does not consider other spending options with higher public benefits, but failure to consider it may limit the capacity for worthwhile reforms. In any case, as discussed above, there are grounds for a package of reforms anyway, so the inefficiency losses may be modest or nonexistent.

Moreover, good design is critical to positive public reception. The fat tax introduced in Denmark in 2011 was abolished only 15 months later. In part, this reflected opposition by the food industry, but it also appears that the tax was poorly designed, and was mainly oriented to raising revenue, rather than reducing harm. It accordingly lost support from the public and health experts (Bødker et al. 2015).

Taking account of adverse impacts primarily felt by the person

From an orthodox economic perspective, the strongest argument for measures that reduce some lifestyle risk is that those risks translate into costs not borne by the individual. For instance, obesity increases health care costs, which must be borne by people who are not obese (Duckett and Swerissen 2016), while alcohol misuse will often affect other people through violence, health care costs and accidents.

Some analyses go further in estimates of the costs of a modifiable risk factor to include those borne by the person exposed to that factor. This is often used to strengthen the policy case for intervention.

On the one hand, the extent to which reducing *personal* discomfort and disability are real benefits is a vexed question. Many people consider the risks of their actions when making choices, balancing them against the benefits. So regulatory or tax measures that proscribe or limit the activity giving rise to those risks may reduce costs, but can also forgo the (bigger) benefits. This will most commonly occur where people are reasonably well informed about the nature and the magnitude of the risks, are forward-looking, and can exercise self-control. Ignoring people's capacity to balance risks and benefits can lead to significantly exaggerated estimates of the benefits of harm minimisation measures. Costs rationally borne by people should not be included as social costs in cost-benefit studies.

On the other hand, in some circumstances, people may find it very hard to control their behaviour (as in addictions to alcohol, drugs and gambling). People can also be poorly informed about risks that, were they to be aware of them, *might* alter their consumption.

For example, an Australian study found that less than 50 per cent of adults were aware that alcohol can cause cancer (Cotter et al. 2013).

There is also a distinction between understanding that a lifestyle behaviour *can* have an adverse impact on health and knowledge about the *degree* to which that is the case. The latter is required to make an informed choice.

The implications are twofold. Ignorance of a risk may be largely irrelevant to policy if the risk is low or people do not place much weight on it. On the other hand, even if people are aware of a risk, that does not mean regulation is unwarranted if well-informed people would change their decision if they knew the likely extent of the risks.

Moreover, children are sometimes affected by lifestyle risks — such as lack of exercise, low fruit and vegetable diets and obesity. While children consume little alcohol and mostly do not smoke, they are significant consumers of non-alcoholic sugar-sweetened beverages. The view that choice is rational and informed for children is less clear cut — as suggested by the prohibition of various products for their use at all (tobacco for example). In this instance, the relevant issue is the quality of parental decision making.

In this more complex context, it can no longer be *assumed* that the voluntary bearing of risk reveals that people value the benefits of their actions over the problems they may pose for them. Deciding where any particular lifestyle choice lies on the continuum between rational and ‘irrational’ decision making is integral to both the cost-benefit analysis of alternative preventative health strategies and to their form. For example, prohibition is a very costly measure if many people undertake a risky activity with their eyes (reasonably) wide open or can be informed of the risks.

Some cost-benefit studies place too much weight on personally-borne costs as if these were invisible to the person engaged in a risky behaviour. This is a critical oversight that leads to potentially spurious policy conclusions, and ultimately discredits studies of the costs and benefits of alternative preventative health strategies. The decision to include some or all of personal costs of a disease in any cost-benefit analysis of a prospective preventative health intervention should include explicit justification.

Distributional effects

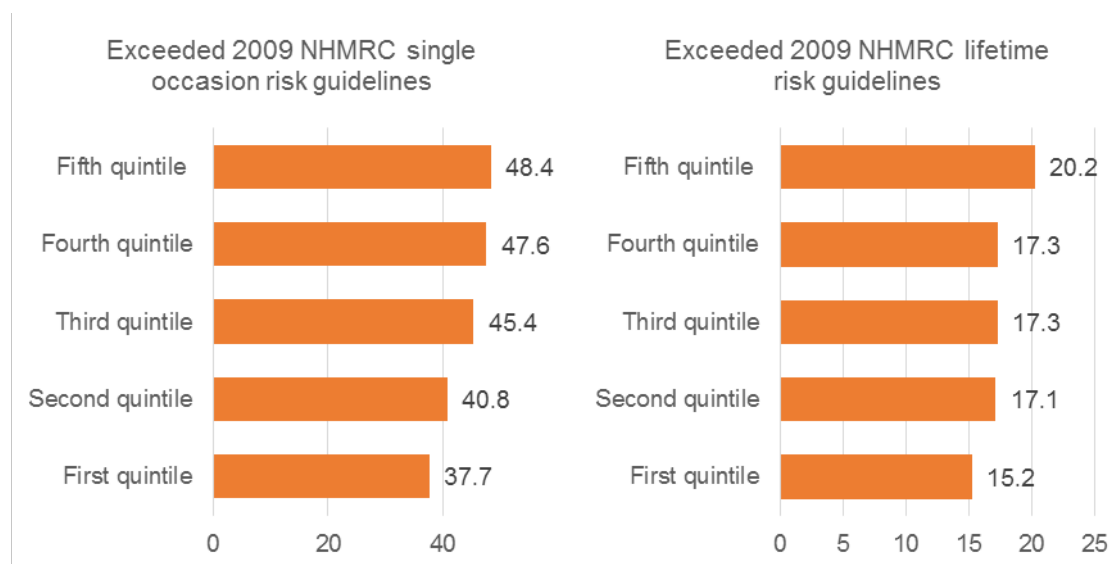
Preventative health policies intend to change the behaviour of producers or/and consumers, and will inevitably have different effects for different groups of consumers. For instance, tobacco taxes are highly regressive. However, what applies in one area does not necessarily translate to others.

For example, alcohol taxes do not appear to be as regressive as might be thought. Based on scanner data of purchases by Australian consumers, it appears that current and alternative taxation policies of alcohol are not highly regressive because the average amount spent is relatively small (Vandenberg and Sharma 2016). The largest burden of alcohol taxes falls

on heavy drinkers across the income spectrum, who are those whose behaviour is the target of the policies. In a companion study to that above, the heaviest consumers of alcohol (about 3 per cent of the population) consumed 20 per cent of the total litres of alcohol sold (Sharma, Vandenberg and Hollingsworth 2014). They were more likely to drink full-strength beer and cask wine, and because of the overall favourable tax treatment of their selected products, they paid substantially less per standard drink than light drinkers. The impact of volumetric taxes would therefore be greater for this group.

It is also notable that, unlike most other modifiable risk factors like smoking, low exercise and obesity, alcohol consumption that exceeds the NHMRC guidelines is greater among higher-income households (figure D.4).

Figure D.4 Higher-income households engage in higher-risk alcohol use
Percentage in each group, 2014-15^a



^a The first (fifth) quintile is the lowest (highest) income household. Exceeding the single occasion risk guidelines means drinking more than four standard drinks on a single occasion in the last year. Exceeding the lifetime risk is consuming more than two standard drinks per day on average.

Source: ABS 2015, *National Health Survey, First Results, Australia, 2014-15*, Cat. no. 4364.0.55.001, released 8 December.

While the United Kingdom has a different alcohol tax regime than Australia, it shares the feature that spirits are taxed at a much higher rate per unit of alcohol than cider and wine. Analysis of a switch to volumetric or minimum unit pricing of alcohol shows that the largest health benefits occur for those in the lowest socioeconomic groups (Holmes et al. and Purshouse 2014; Meier et al. 2016).

Should weighting of impacts vary by age or other criteria?

Some contend that a greater weight should be given to the burden of disease for younger people to reflect that they may not have been able to experience as many of the aspects of a ‘full life’ as people in the oldest age brackets. Younger people are also more likely to participate in the labour market, with the shared benefits for society that this brings, while in later years are still able to make the contributions that older people make in other ways. Greater weighting of the burden of disease borne by the young would mean that lifestyle and environmental risks that disproportionately affect younger people would be rated as more significant in assessments of preventative health priorities and the allocation of health resources. While the 2011 Australian study of the burden of disease did not use age-varying rates, previous studies did so.

Equally, when assessing the burden of different diseases and the ‘returns’ from investments that reduce those burdens, potentially, different weights could be allocated to years experiencing disability compared with premature death. The existing equal weights are arbitrary. A greater weight on health-adjusted life expectancy would also tend to reduce protracted provision of publicly-funded health care, income support and disability services.

Even if policymakers do not, when deciding which interventions to pursue, explicitly state their views about the desirable tradeoffs between lives saved, quality of life and other desirable outcomes from health interventions, they implicitly still make these judgments. Some national bodies providing guidance on health interventions, including preventative measures, make explicit the tradeoffs to ensure consistency. For example, the UK National Institute for Health and Care Excellence assesses interventions on several criteria, including the cost per quality-adjusted life year (QALY) — as one basis for determining what should be funded under the NHS. It considers that interventions costing the NHS less than £20 000 per QALY are cost effective, while those costing between £20 000 and £30 000 per QALY may also be deemed cost effective, if certain conditions are met (NICE 2014a).

D.3 Obesity and sugar taxes — a case study of preventative health

Obesity has complex origins. However, caloric intake is the fundamental driver. Accordingly, public policy advocates have recommended policy measures that reduce the easy consumption of high calorie products. Although there has been opposition by industry groups, public health experts globally and in Australia have urged the adoption of taxes on

non-alcoholic Sugar-Sweetened Beverages (SSBs) to combat obesity and diabetes, usually as part of a package of measures.⁶⁶

For instance:

There is no doubt at all that these drinks are unhealthy, and price signals work: if you make these items more expensive you reduce consumption. Similarly, we should look at ways of supporting fresh foods perhaps being cheaper. So I think that [a sugar tax], as a part of a whole suite of policies, might be a good idea. Dr Michael Gannon, Australian Medical Association President quoted in Rollins (2016, p. 2)

The Rethink Sugary Drink alliance recommends that the Australian Government introduce a health levy on sugar-sweetened beverages, as part of a comprehensive approach to decreasing overweight and obesity, and with revenue supporting public education campaigns and initiatives to prevent chronic disease and address childhood obesity. A health levy on sugar-sweetened beverages should not be viewed as the single solution to the obesity epidemic in Australia. Rather, it should be one component of a comprehensive approach, including restrictions on children's exposure to marketing of these products, restrictions on their sale in schools, other children's settings and public institutions, and effective public education campaigns. Rethink Sugary Drink Alliance, which comprises various major health and community organisations (2017, p. 1)

So far, no policy change has occurred in this area. The debate provides a good case study of the complexities that face decision makers when attempting to promote healthy lifestyles. Chapter 2 in the main report summarises the initial position of the Productivity Commission on this issue.

Seven OECD countries currently impose taxes — Mexico, Norway, Hungary, France, Finland, Chile and Belgium. So do various cities in the United States. The UK Government has announced a Soft Drinks Industry Levy set to begin in 2018 to encourage soft drink manufacturers to reduce their sugar contents below certain thresholds. However, Denmark repealed a longstanding sugar tax in 2014 (and a 'fat' tax in 2013), so the direction has not always been to impose a tax.

Putting aside the role of policy, there are strong grounds for Australians to reduce their sugar intake given its contribution to diabetes and obesity. Soft drinks are very high sources of sugar (nine teaspoons in a typical 375 ml can), and are particularly problematic given high consumption by non-adults. The sugars in SSBs are quickly absorbed by the body, and overload the pancreas, whose role is to regulate blood-sugar levels, heightening the risk of type 2 diabetes. All other things being equal, the high caloric content of SSBs heighten the risk of weight gain.

⁶⁶ For example, Duckett and Swerissen (2016), Reeve and Jones (2016), and Colagiuri (2017). Public health experts have generally favoured taxes on SSBs (exemplified by an editorial in the *Lancet* and a statement by the Australian Healthcare and Hospital Association - AHHA 2016; Editorial 2017).

On face value, an SSB tax looks appealing as a preventative measure. The causal pathway for success is straightforward:

1. the tax raises supplier costs
2. suppliers pass on a share of these costs to consumer ('pass through')
3. in response to higher prices, consumers reduce the consumption of sugary drinks
4. overall caloric intake falls
5. obesity rates decrease, as does the incidence of dental caries
6. chronic disease incidence and prevalence falls
7. health care and other social costs fall, and wellbeing rises
8. revenue raised by the tax can be used to fund government spending (such as better health care) or relieve future tax burdens associated with the Australian Government's fiscal deficit

There is reasonable evidence for some parts of this casual pathway. The evidence suggests that the demand for SSBs is relatively price elastic, which implies that any tax-induced increase in price would reduce the demand for SSBs, and by more for lower-income households. Moreover, some consider that taxes on SSBs increase consciousness of healthier eating habits more generally, which could add to the direct health benefits of any tax (Ortun, Lopez-Valcarcel and Pinilla 2016).

In most instances where governments have introduced sugar taxes, it is hard to separate the effects from other influences, such as trends in SSB consumption over time that would have occurred anyway. However, the taxes imposed in some cities in the United States provide a stronger basis for estimating price and demand effects because neighbouring cities can be used as control sites. An SSB tax imposed in the US city of Berkeley in 2015 reduced sales of SSBs by 21 per cent in low-income neighbourhoods in the first four months, while sales increased by 4 per cent in neighbouring cities (Falbe et al. 2016). Sales of bottled water consumption rose by 63 per cent. Only about 50 per cent of the SSB tax was passed through to higher retail prices, so the demand effect would be much greater in a market where complete pass-through occurred.⁶⁷ A more recent study based on supermarket scanner data found smaller, but still significant, reductions in SSBs of 9.6 per cent across the whole city compared with the counterfactual (Silver et al. 2017). Pass-through was much higher than in the Falbe study, particularly for large chains and soda drinks. Consumer spending per average grocery bill did not increase. While city studies are useful for considering demand and pass-through effects, they cannot capture all of the possible effects of sugar taxes.

⁶⁷ A study considering price pass through shortly after the tax found a pass-through of 43 per cent (Cawley and Frisvold 2015).

There is a likelihood that manufacturers will reformulate products to reduce their sugar content if an entire country (rather than a single city or state) introduced SSB taxes. In the UK's tax model, the levy is designed to create strong incentives to lower sugar content below given levels, rather than taxing any given amount of sugar at a fixed rate. Ahead of the implementation of an SSB tax in the United Kingdom, this appears to be occurring already (Danershkhu 2017). In Hungary, which has already implemented a sugar tax, 40 per cent of manufacturers reformulated their SSBs to reduce their sugar content (Editorial 2017; Wright, Smith and Hellowell 2017). So long as an SSB tax is based on the sugar content of a beverage, reformulation directly reduces sugar consumption, even if overall demand for beverages does not change. Reformulation has the additional advantage that consumer prices will not rise by as much. This reduces the income effects for people who are intensive consumers of SSBs and eases any transition costs for the beverage industry. (Of course, it also reduces any revenue from the tax, but this is not an important consideration for a measure whose rationale is improved public health.)

Overall, it seems probable that a tax will reduce the aggregate consumption of sugars obtained from SSBs, leading to substitution to lower sugar products, including artificially-sweetened drinks, water and other beverages.

But there are some risks and concerns.

On the income side, any tax levied on sweetened beverages is regressive because the evidence suggests that lower socioeconomic groups are higher users (ABS 2014). However:

- if the use of such beverages is greater amongst such groups (box D.1), they will also be the disproportionate beneficiaries of sugar taxes, as has been found in a recent Australian study (Lal et al. 2017). There is a tradeoff between income inequality and health inequality. Reductions in the latter should not be ignored
- the average amount of spending is relatively low, and so the actual income effects are likely to be small for *most* people
- the ultimate extent of any regressivity depends on how the Australian Government spends any tax revenue.

A crucial question — not adequately explored yet — is the incidence of income effects associated with the *heavy* users of SSBs. Average outcomes across income deciles may not be large, but regressivity may be a concern if heavy users are disproportionately in poorer households — an issue that warrants further analysis.

A bigger concern is that obesity reflects overall caloric intake, not intake from any given product. Sugar taxes predominantly relate to beverages, not other high-sugar content products like confectionary, cereals, honey, jams,⁶⁸ and other high caloric products, such

⁶⁸ Hungary's SSB tax is part of a tax on sugars more generally.

as fats. Complex carbohydrates are metabolised into glucose, albeit with slower effects on blood-sugar levels than SSBs. The concern is that people may shift caloric intake from one source of food to another, in which case the effects of a reduced intake of SSBs may be partly or fully compensated by other food sources. Most empirical analyses only consider the demand for SSBs, not the overall demand for calories.

Box D.1 **Patterns of sugar use**

Some population sub-groups account for a disproportionate share of the consumption of added sugars. Based on interpolation of ABS health survey data, the Commission estimates that depending on age, the top 20 per cent of males' daily intake of added sugars accounted for between 32 and 41 per cent of the total male consumption of sugars. For females, the comparable estimates were between 34 and 38 per cent. The bottom 20 per cent of males' daily intake of added sugars accounted for between 5.8 and 9.7 per cent of the total male consumption of sugars. For females, the comparable estimates were between 7.4 and 9 per cent.

The figures for 'free sugars' were similar, with for example, the top 20 per cent of males' daily intake of added sugars accounting for between 32 and 40 per cent of the total male consumption of sugars. (Free sugars are monosaccharides and disaccharides added to foods and drinks by the manufacturer, cook or consumer, and sugars naturally present in honey, syrups, fruit juices and fruit juice concentrates.)

The proportion of added sugars consumed in the form of cordials and SSBs was 28.3 per cent for males aged two years and over (with a further 6 percentage points consumed in the form of fruit and vegetable juices). The shares were lower for females (20.1 and 6.4 per cent respectively). Overall, beverages are the single dominant source of added sugars in people's diets.

Overall, added sugars represented about 10 per cent of total energy for males and 9.4 per cent for females. Added sugars were a more important source of energy for 14-18 year old males (13 per cent). The peak age of use was younger for females at 12.3 per cent for those aged 9-13 years.

The numbers imply that on average the share of total energy obtained from SSBs is comparatively small. However, the highly skewed nature of consumption of sugary drinks indicates that this will not hold for some groups.

Source: ABS 2016, Australian Health Survey: Consumption of Added sugars, 2011-12 — Australia, Cat. no. 4364.0, released 27 April.

Even if substitution between beverages and solid foods is low, that is less likely for substitution between different beverages. The pending UK tax exempts fruit juices and milk products, which can still have high sugar content (Wright, Smith and Hellowell 2017).⁶⁹ That suggests that any SSB tax should define the relevant market for sugary beverages carefully (defining it in terms of those sugary products that are close substitutes to each other). Substitution can also occur with non-sugary beverages, such as a whole milk, which few would argue should be subject to a tax. A US study of the impact of taxes on soft drinks found that demand was affected by taxes, but the caloric reductions achieved were offset by increased consumption of whole milk, so that the taxes produced no weight losses for children or adolescents (Fletcher, Frisvold and Tefft 2010).

⁶⁹ The UK levy is also poorly designed in that it is a constant price per litre of SSB, not a volumetric sugar tax. Accordingly, a one litre beverage with 15.9 grams of sugar (a particular brand in the UK) will attract a 24 pence tax, the same tax as another beverage with 10.6 grams of sugar. There is therefore the potential for consumers to switch to high sugar low priced SSBs. This repeats the flaws of many alcohol taxes, such as that in Australia (chapter 2 in the main report).

The physical effects of any additional consumption of artificially-sweetened drinks provide an avenue through which caloric shifting may occur (Borges et al. 2017; Brown, De Banate and Rother 2010). As one paper notes:

However, there are long-standing concerns that ASBs [artificially sweetened beverages] may trigger compensatory mechanisms, which could offset a reduction in energy and sugar intake provided by their replacement of SSBs. The main proposed mechanisms are that ASBs stimulate sweet taste receptors, which could theoretically increase appetite, induce preference for sweet taste, and modulate gut hormone secretion, or result in overconsumption of solid foods due to awareness of the low calorie content of ASBs. (Borges et al. 2017, p. 3)

The empirical literature on the impacts of artificially-sweetened beverages is emerging, but if the above effects are present, they pose a risk that SSB taxes may have unintended outcomes for weight gain.

Another concern relates to the (controversial) ‘paradox’ that SSB consumption rates have fallen in Australia, notwithstanding rising obesity rates, a coexistence that some suggest reduces the relevance of SSB taxes. The ABS found that the share of people drinking sugar-sweetened beverages decreased from 43 per cent in 1995 to 34 per cent in 2011-12.⁷⁰ The change largely reflected reduced demand for cordials. Among the key demographic of concern (14-18 year old males), the consumption rate of canned and bottled pre-prepared drinks (carbonated SSBs and energy/electrolyte drinks) did not change much (55.5 per cent in 1995 to 53.2 per cent in 2011-12). There was, however, a considerable decrease in the consumption of such products by females of this age — underlining the importance of analysing trends for different sub-groups.

Changes in *prevalence* rates of consumption does not necessarily equate to reductions in overall *consumption*. While some estimates suggest that sugar intakes per person have also fallen (Brand-Miller and Barclay 2017), unfortunately we are not aware of longitudinal data concerning consumption levels by the relevant sub-groups, which may show different trends. For example, it is possible that the trend reflects the reduction in SSB consumption by moderate drinkers, rather than a reduction across heavy drinkers. Or the pattern may go the other way. So quite different patterns of consumption with different policy implications may yield equivalent results at the aggregate level.

Brand-Miller and Barclay argued that findings concerning reduced intakes:

... challenge the widespread belief that energy from added sugars or sugars in solution are uniquely linked to the prevalence of obesity (ibid, p. 1)

In fact, few public health experts attribute obesity *uniquely* to consumption of SSBs, recognising that many factors are at play. It is nevertheless clear that SSBs are not the primary factor behind obesity. This does *not* mean that SSBs have no effect on obesity as levels may have been higher had SSB consumption not fallen. Consequently, the above

⁷⁰ ABS 2015, *Australian Health Survey: Nutrition First Results – Foods and Nutrients, 2011–12 – Australia*, Cat. no. 4364.0, released 16 October.

evidence does not invalidate the potential for SSB reduction policies to affect obesity levels to some degree. Whether the effect is material is an empirical matter.

Lessons and unanswered questions

Overall, evidence concerning the effectiveness of sugar taxes in reducing obesity, and their optimal design to do this, is still being gathered. Though some results support the health benefits of a tax, many analyses are based on modelling of likely effects, rather than empirical analysis of actual outcomes.

The prospective nature of the SSB levy in the United Kingdom provides an opportunity for a careful assessment, given that the evaluation can be designed now and initial baseline data collected.⁷¹ If properly evaluated, the outcomes of the UK provisions should provide clearer evidence about the impacts of a levy on:

- the demand for SSBs across different population sub-groups, and substitution between different beverage types and other food products
- reformulation of products by manufacturers
- pass-through of costs by different retail segments
- distributional effects
- short and longer-run weight loss or gain for different groups of people (age, gender, existing obesity status, income and ethnicity) and their linkages to changes in the caloric intake from SSBs. Longitudinal analysis would uncover the behavioural changes of individuals pre and post-tax
- implementation costs and revenues
- consumers' consciousness of the risks of obesity
- consumer resistance and public acceptance.

This would inform any policy action in Australia.

There are several other issues that should be explored in developing any SSB tax.

Design issues

Were an SSB introduced, it should be either a sugar volumetric tax (as proposed by Duckett and Swerissen 2016) or a sugar volumetric tax with an exemption for SSBs with sugar content below a given percentage. The former is likely to be simpler to implement,

⁷¹ While the design of the UK SSB levy is imperfect because it is not based on the volume of sugar, its outcomes nevertheless can yield insights into behaviour by consumers and producers that will provide a better evidence base for any policies in Australia.

while the latter creates particularly strong incentives for manufactures to reformulate their products, with no accompanying income effects for consumers.

Any tax should *not* be an ad valorem tax on SSBs, nor should it be a tax of a given value per litre of SSB (as proposed for the United Kingdom). Both of these are likely to produce perverse outcomes.

Consumer behaviour — some significant uncertainties remain

Not enough is known about the behaviour of consumers to be certain about impacts. There are several dimensions to this uncertainty, and they could mean that the effects on sugar consumption could be more or less than modelled in studies of the impacts of SSB taxes.

The SSB market is highly differentiated, so that there is a large variety of drink types, volumes per container, pack sizes of containers and sugar content per litre. Different market segments reflect the preferences of different consumer groups. In other words, there is no single market for SSBs and no ‘representative’ consumer. Beyond the fact that consumption decreases with higher socioeconomic status, there is limited publicly available information about the degree to which different groups consume SSBs. One of the few available studies found that in Norway, 5 per cent of households had consumption of SSBs of 206 litres per person, 35 per cent had consumption levels of less than 20 litres per year, while the average annual consumption was 61 litres per year (Bonnet and Réquillart 2016). The Australian Beverages Council noted that while the contribution of SSBs to energy intakes is relatively low across the Australia population, it is high among those who consume them on a regular basis — which suggests that the Norwegian result is not anomalous (Australian Beverages Council 2016). As noted earlier in box D.1, there is also some Australian evidence supporting the relatively high use of SSBs among a minority of Australians.

Many analyses do not consider consumer heterogeneity in their modelling of the impacts of SSBs (Duckett and Swerissen 2016). Whether that simplifying assumption matters to the outcomes of any sugar tax is not clear.

To the extent that heavy users choose the cheapest sources of SSBs (home-brand drinks), the price effects of a volumetric sugar tax will be large (box D.2). For any given degree of price responsiveness,⁷² this suggests that they will reduce consumption of lower-priced SSBs. There is likely to be some displacement of consumption to more expensive brand name SSBs, but for any given budget, that displacement may not be high. In other words, the income effects of price increases are also likely to be important determinants of the outcome. In this instance, a sugar tax may be effective at targeting heavy users of SSBs.

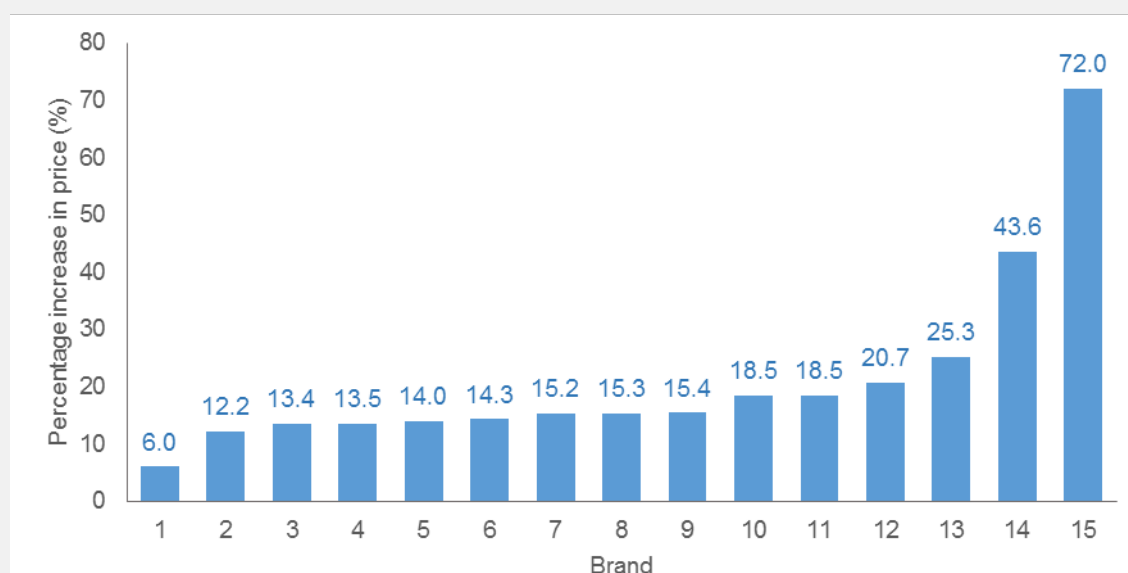
⁷² This is for a Marshallian demand elasticity (which includes pure price responsiveness and the income effects in one elasticity), as used by Duckett and Swerisson.

Box D.2 The Grattan Institute's tax proposal and product heterogeneity

The Grattan Institute recommended an excise tax of 40 cents per 100 grams of sugar in SSBs. Assuming full price pass-through, such a tax would raise the price of soft drinks by between 30 and 51 cents per litre, reflecting variations in the sugar content of popular SSBs. A standard can of soft drink would increase in price by about 15 cents.

As in the case of a volumetric excise on alcohol, the variations in the content of sugar and the large price variations between brands means that the percentage increase in prices is even more variable. The variability principally reflects the low prices per litre of unbranded SSBs and the regular practice of discounting. In addition, there is a strong association between the per container litre size of soft drinks and their price. Using the data collected by the Commission, a 10 per cent increase in the per unit product size decreased the retail price by 6 per cent per litre. Consequently, all things being equal, a sugar tax will increase the price of unbranded products by much more than branded ones, and have a much bigger proportionate effect on soft drinks that come in larger sizes.

Increase in soft drink prices after 40 cents per 100 gram excise, Australia, 22 July 2017^a



^a Based on online prices collected by the Productivity Commission for a range of popular soft drinks, including own-name brands from Woolworths and Coles stores.

To the extent that heavy users of SSBs are habituated to SSB consumption, then their price responsiveness may be lower than other groups, which would also increase the regressivity of a tax.

Behavioural economics suggests that people sometimes behave in ways that are not in accordance with standard economic theory. For instance, *some* groups of people may adopt a 'mental account' that sets a budget for their SSBs and an annual number of litres. Pre-tax, some in that group will prefer brand name SSBs in smaller drink volume containers, lower sugar content per litre, and small pack sizes. However, to maximise the share of their consumption devoted to their originally preferred SSBs, while maintaining their original budget and beverage volume, they will need to change the mix of their drink to include cheaper SSBs. Using real life products, we found that this can increase annual sugar

intakes. Whether, in fact, many consumers will behave that way is untested, but it cannot be assumed that some behavioural quirks of this nature will not occur for some sub-groups (recognising the substantial heterogeneity of consumers). On the other hand, it is possible to conceive of behaviours that for some groups accentuate the sugar reduction beyond that anticipated by a sugar tax and standard theory.

Beyond reformulation of their products to lower sugar levels, retailers and beverage manufacturers may also react to taxes through marketing and promotions, with unclear impacts on the nature of demand. There can be no assumption that businesses will be passive.

Acceptability

There are diverging views about the acceptability of SSB taxes among the public. How any intervention is framed affects the answers. Not surprisingly, the results vary across countries, though there are some common aspects to attitudes to SSB taxes.

- A national US survey found a majority of people were opposed to SSB taxes, agreeing with propositions that they were a revenue rather than a harm minimisation measure, an unacceptable intrusion into people's lives, and harmful to the poor. The authors concluded that it would be hard to obtain support in the United States for SSBs, without developing compelling pro-tax messages (Barry, Niederdeppe and Gollust 2013).
- In one US study, support was higher among people who attributed obesity to environmental factors, rather than personal choice, but an overall majority of people did not support a tax (Curry et al. 2017). Another US state-based survey found 50 per cent approved the implementation of an SSB, with support greatest among those who considered SSBs were implicated in childhood obesity (Donaldson et al. 2015). Interestingly, people who had been advised by a health care professional to lose weight were less in favour of the tax.
- A national French survey found that about half of the population supported an SSB (which was launched in 2012), and about 60 per cent thought it would improve population health. Support was greater if the revenue generated was used to improve the health care system (Julia et al. 2015).
- The Australian Beverages Council cites an Australian poll that found the two measures that Australians identified as being least effective and supported in addressing obesity were a tax on soft drinks and restrictions on where parents can give their children soft drinks (Australian Beverages Council 2016). The survey is not publicly available.
- Another Australian national survey found approximately 70 per cent of main grocery purchasers were strongly or somewhat in favour of 'taxing soft drinks to reduce the cost of healthy food', but oddly only about 60 per cent favoured 'taxing unhealthy foods and using the money for health programs'. Support for taxes was lowest among lower socioeconomic groups (Morley et al. 2012). Whether the same results would hold if people were asked whether 'SSBs should be taxed to reduce their consumption' is

unknown though this corresponds more closely to the policy advocated by public health experts

- A survey of people in the United States and Australia revealed little support for taxes on foods seen as contributing to reduced obesity, principally on the grounds that weight gain was a matter of personal choice (Lee et al. 2013). Obese people had lower levels of support for SSB taxes
- A citizens' jury in Brisbane found most people did not support taxes on fast foods and processed meats, but unanimously approved SSB taxes (Moretto et al. 2014). They favoured tax rates of 50 to 100 per cent on the value of drinks (a tax model that would have the unintended impact of generating small price increases for low-priced high-sugar products compared with higher-priced, lower-sugar SSBs). It is unlikely that the views elicited through this process would be replicated by the public given the other survey evidence presented above and the circumstances in which the views were elicited.

As is, in part, revealed by the survey results, the degree to which the state should regulate and tax activities that pose risks to some people also inescapably involves value judgements about the legitimate reach of governments — an issue that can only be resolved through public debate and the political process.

Information requirements

Further data would help to clarify some of the key issues relevant to the imposition of SSB taxes. In particular, there would be benefits from better information on the sales volumes of differently priced SSBs, the reaction of consumers to discounts, and links between socioeconomic status and particular consumption patterns. The major supermarket chains are likely to have the best information for understanding the complex market for SSBs. Engagement with them may be critical in assessing the merits of a tax and in its appropriate level.

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