



Australian Government
Productivity Commission

Efficiency in Health

Productivity Commission Research Paper

April 2015

© Commonwealth of Australia 2015

ISBN 978-1-74037-545-0



Except for the Commonwealth Coat of Arms and content supplied by third parties, this copyright work is licensed under a Creative Commons Attribution 3.0 Australia licence. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/3.0/au>. In essence, you are free to copy, communicate and adapt the work, as long as you attribute the work to the Productivity Commission (but not in any way that suggests the Commission endorses you or your use) and abide by the other licence terms.

Use of the Commonwealth Coat of Arms

For terms of use of the Coat of Arms visit the 'It's an Honour' website: <http://www.itsanhonour.gov.au>

Third party copyright

Wherever a third party holds copyright in this material, the copyright remains with that party. Their permission may be required to use the material, please contact them directly.

Attribution

This work should be attributed as follows, *Source: Productivity Commission, Efficiency in Health*.

If you have adapted, modified or transformed this work in anyway, please use the following, *Source: based on Productivity Commission data, Efficiency in Health*.

An appropriate reference for this publication is:

Productivity Commission 2015, *Efficiency in Health*, Commission Research Paper, Canberra.

JEL codes: I10, I18.

Publications enquiries

Media and Publications, phone: (03) 9653 2244 or email: maps@pc.gov.au

The Productivity Commission

The Productivity Commission is the Australian Government's independent research and advisory body on a range of economic, social and environmental issues affecting the welfare of Australians. Its role, expressed most simply, is to help governments make better policies, in the long term interest of the Australian community.

The Commission's independence is underpinned by an Act of Parliament. Its processes and outputs are open to public scrutiny and are driven by concern for the wellbeing of the community as a whole.

Further information on the Productivity Commission can be obtained from the Commission's website (www.pc.gov.au).

Contents

Executive summary	1
1 Australia's health system	7
2 Promoting clinically and cost effective medicine	13
2.1 Health technology assessment	15
2.2 Evidence-based guidance for clinicians and patients	25
2.3 Provider payment models	30
2.4 Preventive health	39
3 Opportunities for regulatory reform	45
3.1 Health workforce	45
3.2 Pharmacy	50
3.3 Pharmaceutical Benefits Scheme pricing	56
3.4 Private health insurance	63
4 Information and transparency	73
4.1 Why does information matter?	73
4.2 What information could be better collected or released?	76
4.3 Overcoming impediments to reform	83
4.4 The way forward	87
5 Summing up	91
References	97

Abbreviations

ABS	Australian Bureau of Statistics
ARTG	Australian Register of Therapeutic Goods
COAG	Council of Australian Governments
GDP	Gross domestic product
GP	General practitioner
HTA	Health technology assessment
MBS	Medicare Benefits Schedule
MSAC	Medical Services Advisory Committee
NHPA	National Health Performance Authority
OECD	Organisation for Economic Co-operation and Development
PBAC	Pharmaceutical Benefits Advisory Committee
PBS	Pharmaceutical Benefits Scheme
PHARMAC	Pharmaceutical Management Agency (New Zealand)
PC	Productivity Commission
PCEHR	Personally Controlled Electronic Health Record
PIP	Practice Incentives Program
QPACT	Queensland Policy and Advisory Committee for New Technology

Executive summary

Good health is central to human wellbeing, economic progress and a prosperous society. Reflecting this, the efficiency of Australia's health care system is an important area of government policy. In this paper, the Commission has identified and assessed opportunities to improve the operation of Australia's health care system. This is based on a roundtable the Commission held with health policy experts in November 2014, as well as follow-up research.

Specifically, the Commission has highlighted areas where there are good prospects for efficiency gains through reforms that can be delivered 'within system' — that is, *without* changing existing institutional and funding structures — and without delay. Larger-scale reforms, informed by a comprehensive and independent review of the health system, could potentially achieve more substantive efficiency gains.

Governments have previously identified various ways to improve the efficiency of Australia's health care system. However, many of these ideas have languished due to diffuse responsibility, inadequate design and implementation, poor resourcing and an absence of political will. Typically, where improvements have progressed, a particular jurisdiction or provider has assumed responsibility for resourcing and driving reform. Therefore, in outlining prospective areas for efficiency gains, the Commission has been mindful to provide a 'roadmap' and propose primary responsibility and timelines for each action.

There is considerable scope to improve Australia's health system

Australians spend a lot of money on health — through taxes, insurance premiums and direct payments — and that expenditure is growing. Australia's health care system produces good outcomes by international standards. However, parts are not performing as efficiently as they could be. This manifests in wasteful spending, reduced access to health care and substandard quality and safety outcomes.

Reforms that improve the efficiency of the health system would relieve some of the pressures associated with Australia's growing health care expenditure. The Australian Government's health spending alone is projected to increase from 4.2 per cent of GDP in 2014-15 to 5.7 per cent in 2054-55 (or \$260 billion in current dollars). But improved efficiency does *not* mean reducing government expenditure for its own sake. Rather, it means improving the quality of health services, expanding access or reducing costs, for a given level of funding.

More can be done to promote clinically and cost effective health care

Governments and patients spend a considerable amount of money on health interventions that are irrelevant, duplicative or excessive; provide very low or no benefits; or, in some cases, cause harm.

Weaknesses in Australia's **health technology assessment** (HTA) system are part of the problem. Governments subsidise many health treatments that have not been formally assessed for clinical and cost effectiveness, and mechanisms for withdrawing unwarranted subsidies are inadequate. Duplication, fragmentation and poor transparency also detract from the efficiency of HTA processes. These issues can be readily addressed through revisions to Australia's HTA architecture, informed by a national review. Importantly, this review should consider the merits of an independent body making decisions about which health treatments to subsidise, or stop subsidising. In the short-term, the Australian Government Minister for Health can accelerate reviews of existing Medicare Benefits Schedule (MBS) and Pharmaceutical Benefits Scheme (PBS) items, and reduce or remove public subsidies where appropriate, by providing the requisite resources and deadlines.

Information deficiencies also drive waste. Often clinicians do not realise they are over-diagnosing patients, providing superfluous or harmful treatments, or applying valuable treatments in the wrong way. **Clinical guidelines** (such as 'do not do' lists) can be an effective way to promote high-value medicine, but they are often too complex, out of date, lack credibility or poorly implemented. Clinician involvement and 'buy in' is critical for getting guidelines right, both in terms of content and uptake. The Australian Government Minister for Health could establish expert panels of clinicians to assess and endorse guidelines, and to advise on dissemination, implementation and review.

The **financial incentives** facing health care providers should promote clinically and cost effective health interventions, but achieving this in practice is difficult. 'Fee for service' is the dominant payment model used to fund primary care in Australia, and in a modified form, is applied to public hospitals through activity-based funding. While these payment models have advantages, concerns have been raised about over servicing, reduced quality and safety standards, fragmented care and cost shifting. No payment model is perfect, and making changes to the way providers are paid is complex and contentious. Ongoing investigation of reform options is important to expand the evidence base, including trials, consultation and evaluation. However, ways to improve and better align financial incentives with policy objectives across the health care system require investigation as part of a comprehensive review of the Australian health care system.

The benefits of greater investment in **preventive health** are widely acknowledged. But doing this cost effectively is tricky, especially for complex health problems such as obesity. Moreover, fragmented funding, financing and policy responsibilities for preventive health weaken the incentives to invest in it. There is no 'quick fix' under current institutional and funding arrangements — options would need to be canvassed in detail as part of a comprehensive review of the health system.

Regulations can be made to work better

Regulation of health care organisations, insurers and clinicians is necessary to ensure patients receive safe, affordable and accessible health care. But some regulations are not meeting their objectives as efficiently as they could be.

Health workforce scopes of practice play an important role in upholding safety and quality standards. However, they can constrain workforce flexibility and reduce workers' job satisfaction when certain tasks are made the exclusive responsibility of particular health professionals, even though they could be performed just as effectively and safely by others. There have been several successful trials of workforce roles being expanded (and tasks delegated) within parts of the Australian health workforce — for example, nurse assistants rather than nurses washing patients, and pharmacists administering vaccines instead of GPs. Considerably more could be done, and state and territory health ministers are best placed to initiate role expansions — based on evaluations of past and current trials — and amend scopes of practice accordingly.

Restrictions on the location and ownership of **retail pharmacies** limit competition, raise prices and make it harder for some consumers to access pharmacy services. There is much to gain from the Australian Government removing location restrictions, and state governments removing ownership restrictions, while targeting safety and access objectives more directly.

There is evidence that the Australian Government (taxpayers) and patients, through the **Pharmaceutical Benefits Scheme**, pay many times more for medicines than governments and patients in other countries. The Australian Government Minister for Health is best placed to eliminate delays in price disclosure processes, identify ways to apply a larger statutory price reduction to PBS items upon listing of a generic alternative, and examine the case for a statutorily independent PBS price-setting authority.

Governments regulate **private health insurance** for various reasons, including to support equity objectives. However, current regulatory settings have downsides. They can reduce competition and prevent insurers from developing new and innovative products that better meet their customers' needs, lower health care costs, and reduce insurance premiums. A careful, incremental approach to reform is warranted to ensure the multiple objectives of private health insurance regulation are not undermined. Insurers are well placed to propose how patients' needs could be met more efficiently through expansions in the types of products that insurers can offer. For example, insurers could identify specific preventive health services or coordinated-care programs, and demonstrate their cost effectiveness, building the case for reform. The Australian Government Minister for Health could facilitate trials and evaluations of these proposals. More broadly, the objectives and performance of private health insurance regulations need to be examined, ideally as part of a comprehensive and independent review of the Australian health care system.

More information should be available

Good **information** is a prerequisite for an efficient and effective health care system. But transparency has fallen short of its potential in health because data do not exist or are not made available. Data on individual hospitals' costs are collected but not published, and there is almost no reporting on the performance of individual health professionals against cost or quality metrics. Progress to introduce national electronic health records has been slow, with voluntary uptake provisions and concerns about privacy partly responsible. Governments collect large amounts of administrative data, but have a poor track record in allowing researchers to access these data or to link datasets. This is to the detriment of research into more effective health care.

Transparency can be improved by all health ministers taking steps immediately to publish more information on the performance of individual health care facilities and clinicians, and to allow researchers greater access to government-held datasets. Health ministers are also well placed to drive greater uptake of national electronic health records. Further reforms involving the collection of new data may need more work. However, experiences in other countries show that concerns about data quality, privacy or cost can often be addressed, and need not stymie reforms that help the community realise the benefits of information and 'big data'.

A comprehensive review is needed to address systemic problems

This paper looks at opportunities that can be realised immediately, within the existing architecture of Australia's health care system. But the system's institutional and funding structures compromise its performance, meaning that larger-scale reforms may be required to make real and enduring inroads into allocative and dynamic efficiency. There would be much to gain from a comprehensive and independent review of Australia's health care system that identifies long-term reform options. Such a review needs to be transparent, consultative and evidence based.

In the meantime, there are immediate gains that can be secured by progressing with 'no regrets' actions that would be beneficial under any future set of institutional or funding arrangements. Many of these actions can be implemented by any single government, although collective action will often be more productive.

Opportunities for efficiency gains in the Australian health care system

<i>Opportunities, reform actions and responsibilities</i>	<i>Timeframes</i>	<i>Outcomes</i>
Health technology assessment		
Australian Government Minister for Health to:		
<ul style="list-style-type: none"> • accelerate work to review existing MBS and PBS items — giving priority to high-cost items that have not been subject to economic evaluation, or for which the benefits are relatively uncertain — reduce or remove subsidies where appropriate, and report on progress annually • review and revise Australia’s system for health technology assessment (HTA), with a focus on reducing unnecessary duplication and fragmentation, improving disinvestment mechanisms (giving consideration to the merits of an independent decision maker), and deterring clinicians from using MBS and PBS items in circumstances where they are not clinically and cost effective • share Australian Government HTA assessments with the states and territories 	<ul style="list-style-type: none"> • Immediate • Within 1 year • Immediate 	<ul style="list-style-type: none"> • Treatments that are not clinically or cost effective — or that are harmful to patients — are not subsidised • Patients potentially have greater access to higher-value health interventions • HTA processes achieve objectives at least cost
Evidence-based guidance for clinicians		
Australian Government Minister for Health to establish expert panels of clinicians to assess and endorse clinical guidelines, and to advise on dissemination, implementation and review	<ul style="list-style-type: none"> • Within 1 year 	<ul style="list-style-type: none"> • Better informed health professionals, fewer adverse events and less waste
Provider payment models		
<ul style="list-style-type: none"> • Independent Hospital Pricing Authority to introduce a quality and safety dimension to pricing within activity-based funding, subject to current work confirming the feasibility of doing so • Australian, state and territory health ministers to trial and evaluate new payment models • A comprehensive review of the Australian health care system — instigated by the Australian Government Minister for Health — would provide an opportunity to investigate ways to better align financial incentives with health policy objectives 	<ul style="list-style-type: none"> • Within 2 years • Ongoing • Review can commence immediately 	<ul style="list-style-type: none"> • Safer and higher quality hospital services • More coordinated patient care, especially in primary care
Preventive health		
<ul style="list-style-type: none"> • Australian, state and territory governments to routinely trial and evaluate prevention initiatives • Options to strengthen incentives for cost-effective investment in preventive health to be considered as part of a comprehensive review of the health care system 	<ul style="list-style-type: none"> • Ongoing • Review can commence immediately 	<ul style="list-style-type: none"> • Cost-effective investment in preventive health

(continued next page)

(continued)

<i>Opportunities, reform actions and responsibilities</i>	<i>Timeframes</i>	<i>Outcomes</i>
Health workforce		
<ul style="list-style-type: none">• State and territory health ministers to initiate role expansions, based on evaluations of past and current trials, and amend scopes of practice accordingly	<ul style="list-style-type: none">• Ongoing	<ul style="list-style-type: none">• Greater workforce flexibility, potentially lower labour costs, better patient access and higher workforce satisfaction• Nationally coordinated workforce policy activities
<ul style="list-style-type: none">• Australian Government Minister for Health to identify where there would be benefits in expanding the types of health professionals that can access reimbursement for MBS or PBS items	<ul style="list-style-type: none">• Ongoing	
<ul style="list-style-type: none">• Australian Government Minister for Health to promote and champion workforce reforms at the national level, following abolition of Health Workforce Australia	<ul style="list-style-type: none">• Ongoing	
Pharmacy		
<ul style="list-style-type: none">• Australian Government to remove restrictions on retail pharmacy location	<ul style="list-style-type: none">• Within 1 year	<ul style="list-style-type: none">• Greater competition in retail pharmacy• Safety and access regulated cost effectively
<ul style="list-style-type: none">• State governments to remove restrictions on retail pharmacy ownership	<ul style="list-style-type: none">• Within 1 year	
Pharmaceutical Benefits Scheme pricing		
<p>Australian Government Minister for Health to:</p> <ul style="list-style-type: none">• eliminate delays in price disclosure processes• identify ways to apply a larger statutory price reduction to PBS items upon listing of a generic alternative• examine the case for a statutorily independent PBS price-setting authority	<ul style="list-style-type: none">• Within 1 year	<ul style="list-style-type: none">• More competitive PBS prices
Private health insurance		
<p>Australian Government Minister for Health to:</p> <ul style="list-style-type: none">• facilitate trials of expansions in the role of private health insurers — informed by proposals from insurers — and evaluate these trials• commission a review of the objectives and performance of private health insurance regulations, ideally as part of a comprehensive and independent review of the Australian health care system	<ul style="list-style-type: none">• Within 1 year• Review can commence immediately	<ul style="list-style-type: none">• Greater involvement of private health insurers in preventive health and coordinated care• Competitive and innovative health insurance market that serves the needs of consumers
Information and transparency		
<ul style="list-style-type: none">• Australian, state and territory health ministers to release more data on the performance of individual health care facilities and clinicians, and drive greater uptake of electronic health records	<ul style="list-style-type: none">• Immediate	<ul style="list-style-type: none">• Increased public reporting on individual hospitals and other providers, such as general practices and dentists• Greater use of electronic health records• Researchers can access and link administrative datasets
<ul style="list-style-type: none">• Australian Government Minister for Health to publicly respond to the Review of the Personally Controlled Electronic Health Record	<ul style="list-style-type: none">• Within 6 months	
<ul style="list-style-type: none">• Australian Government social policy ministers to provide researchers with greater access to MBS, PBS, Centrelink and other government-held datasets	<ul style="list-style-type: none">• Immediate	

1 Australia's health system

All Australians use the health care system. It has many positive aspects, not least the efforts of individuals at all points in the system. Australians rely on doctors, nurses, surgeons, dentists, pharmacists and a range of other professionals to provide high-quality care. And as taxpayers, they rely on governments to make the right funding and policy decisions. The importance of good health, coupled with the size and complexity of the health system, means that all stakeholders have a strong interest in how efficiently the system is performing.

Australia's health expenditure is large and growing, and demand for health care (and the cost of many health services) is projected to increase. Reforms that improve the efficiency of the health system can relieve some of these pressures. Importantly, efficiency does *not* mean reducing government expenditure for its own sake. Rather, it means improving the quality of health services, expanding access or reducing costs, for a given level of funding.

Some efficiency-enhancing reforms would involve large-scale changes to the institutional and funding structures of the health system, and are beyond the scope of this paper. However, there are significant opportunities to realise efficiency gains through incremental, 'within-system' reforms. The Commission has released this paper — following advice from over 20 experts in their fields — to highlight areas of Australia's health system where there are good and immediate prospects for such reforms.

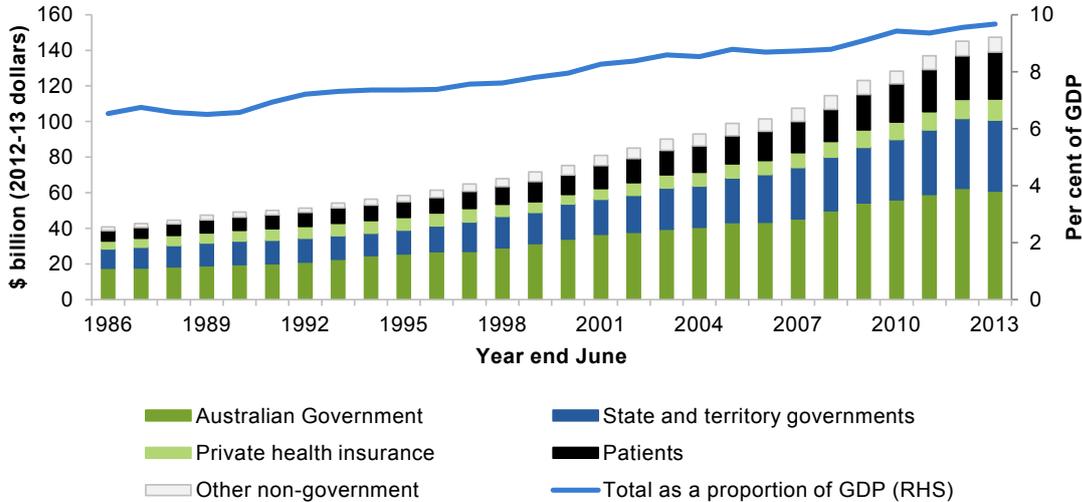
Health expenditure is large and growing

Australia spends around 10 per cent of GDP on health care each year. In 2012-13, this equated to \$147 billion, of which just over two-thirds was funded by governments (AIHW 2015a). (Technically, governments and insurers *finance* health care, as it is ultimately *funded* by patients and taxpayers. However, these terms are often used interchangeably.) The remainder was mostly funded by individuals, either through private health insurance premiums or directly. Compared to patients in other OECD countries, Australians pay a higher proportion of their health care costs 'out of pocket' (SCARC 2014). The bulk of overall expenditure is directed to hospitals (38 per cent) and primary health care (36 per cent).

Expenditure on health care is growing (figure 1.1). In the decade to 2012-13, total spending grew by an average of 4.7 per cent each year in real terms — considerably faster than real GDP (AIHW 2015a). It is expected to continue growing, mainly due to the growing burden of chronic conditions, the ageing population, rising incomes and changing

consumer expectations (Banks 2008; DPMC 2014). Expenditure will also increase as new medical technologies emerge (such as imaging machines and medicines), even though technological developments can also reduce the costs of some health services (by making them cheaper to deliver). One projection of expenditure trends is that the Australian Government’s spending alone will increase from 4.2 per cent of GDP in 2014-15 to 5.7 per cent in 2054-55 (or \$260 billion in current dollars) (Treasury 2015).

Figure 1.1 Australia’s health expenditure



Data source: AIHW (2015a).

The system works well, but there is room for improvement

The Australian health care system generally produces good outcomes by international standards: Australians enjoy some of the highest life expectancies in the world (although a gap of around ten years persists between Indigenous and non-Indigenous Australians) (SCRGSP 2015). Survival rates from cancer and heart attacks are well above average for OECD countries (OECD 2013). Rates of potentially avoidable deaths and infant mortality have been decreasing over time (SCRGSP 2015).

However, some indicators suggest that parts of Australia’s health system are not performing as well as they could be (box 1.1). While these indicators are imprecise — measuring efficiency is often fraught with difficulty — they suggest that there is significant potential to improve health outcomes and/or reduce costs.

Box 1.1 Evidence of inefficiency in the health system

Efficiency involves the allocation of available resource *inputs* in a way that provides the best *outcomes* for the community — in other words, efficiency is attained when the community's wellbeing is maximised, given the resources available.

Measuring efficiency in health care is fraught with difficulty. It is often hard to measure the outputs the health system produces, or to translate these into the health outcomes that matter most to the community (PC 2013). In many cases, good data simply do not exist. Sometimes it is only possible to assess cost effectiveness: the extent to which the inputs used to produce a given output are minimised (productive efficiency). But this in itself does not indicate whether the right mix of health service outputs is being produced (allocative efficiency), or whether the right decisions are being made about how to use resources to maximise health and wellbeing over time (dynamic efficiency).

In past work, the Productivity Commission has examined measures of efficiency within the Australian health system. An assessment of existing studies suggested that the efficiency of the health sector could be increased by up to 20 per cent by bringing performance up to best practice across a range of areas (PC 2006). Subsequently, detailed analysis by the Commission estimated that the efficiency gap between the average and most efficient acute-care hospitals was likely in the order of 10 per cent (PC 2010b). This varied by the size of the hospital: private hospitals performed better than their public counterparts in most comparisons, with smaller for-profit hospitals tending to have the highest measured efficiency.

Others have also reported on the inputs, outputs and outcomes of the health system. A recent analysis of confidential data by the Grattan Institute revealed significant variations in costs for the same procedure across Australian public hospitals, even after adjustments are made for differences in the characteristics of hospitals and patients. For example, it found that the average cost of gall bladder removal ranged from approximately \$3000 to \$9000 across hospitals, and the average cost of hip replacements varied from under \$10 000 to over \$30 000 (Duckett and Bredon 2014a). The analysis also found large cost variations within hospitals.

Other indicators similarly point to substantial scope to increase efficiency by improving the quality of care or by reducing costs (chapter 2). For example, studies have estimated that around 43 per cent of Australian adults receive care considered to be inappropriate with regard to evidence-based or consensus-based guidelines (Runciman et al. 2012).

Governments can promote efficiency

Health care is not like other parts of the economy. Australian governments choose to promote universal access by funding the bulk of the costs of health care, and market signals are muted. Yet governments and private health insurers (as funders) do not have direct control over the type of treatment provided to each patient, and patients typically rely on the expertise of professionals to make medical decisions for them (and do not face the full costs of the health services they receive). In this context, government policy settings have a direct bearing on health expenditures, outcomes, and efficiency.

Australia's health system is large, fragmented and complex. No single organisation has full responsibility for health, and in many areas responsibilities overlap. The Australian, state

and territory governments share responsibilities for funding, policy, regulation and service provision (figure 1.2), and the non-government sector also plays a significant role. This can result in cost shifting, waste, gaps in service delivery, or an unwillingness for any single party to take leadership for reforms (chapter 5).

While this complexity makes reform difficult, it does not make it impossible. Moreover, there is much that can be done to improve the quality of health services, expand access, or reduce costs *within* current institutional and funding arrangements. Even small efficiency gains could deliver significant benefits to the community.

Figure 1.2 Health system responsibilities

	Funding and financing	Service delivery	Policy and regulation
Hospitals	Australian Government	State and territory governments	Australian Government
	State and territory governments		State and territory governments
	Non government		Non government
Primary health care	Australian Government	State and territory governments	Australian Government
	State and territory governments	Non government	State and territory governments
	Non government		
Other (eg referred services)	Australian Government	State and territory governments	Australian Government
	State and territory governments	Non government	State and territory governments
	Non government		

Source: Based on AIHW (2014).

Our approach

The genesis of this paper is a roundtable the Commission held in Melbourne on 18 November 2014 with selected experts in health policy (table 1.1). The Commission is grateful to participants for their attendance and contributions. Drawing on ideas put forward at the roundtable and follow-up research, the Commission has examined several broad areas of Australia’s health system where there appear to be good prospects for efficiency gains within current institutional and funding arrangements. The list was of necessity, and is not comprehensive; rather, the approach has been to highlight areas where:

-
- there appears to be significant potential for reform
 - reform options have been proposed but progress has been slow
 - more work is needed to progress reform or establish the best course of action.

In doing so, the Commission has sought to identify who could take responsibility for pursuing these reform opportunities, either by progressing with implementation or by undertaking further work. But identifying reform ‘owners’ has not been easy. Where several parties could be responsible, the approach has been to identify the party that appears best placed to lead and coordinate reform efforts. While the Commission accepts that it may not have identified the ‘right’ reform owner in all instances, the exercise of allocating tasks to specific institutions and individuals is critically important for progressing reform.

This paper deliberately focuses on reforms that could be implemented within the current architecture of the health system. Arguably, more substantive efficiency gains could be found through a comprehensive and independent review of the institutional and funding structures of the system (chapter 5). However, the undertaking of any such review need not hold up more incremental reforms that can be achieved within the short to medium term, and that would be robust to any long-term changes to the structure of the health system.

Structure of the paper

The remainder of this paper is structured as follows.

- Chapter 2 examines ways to promote clinically and cost effective medicine through:
 - health technology assessment
 - evidence-based clinical guidelines
 - provider payment models
 - preventive health.
- Chapter 3 discusses opportunities for regulatory reform in the areas of:
 - health workforce
 - pharmacy
 - Pharmaceutical Benefits Scheme pricing
 - private health insurance.
- Chapter 4 examines ways to improve the collection and release of information to improve decision making in health.
- Chapter 5 concludes by setting out a path for progressing with the identified ‘within-system’ reforms.

Table 1.1 Participants in the Commission's roundtable^a
18 November 2014

<i>Participant</i>	<i>Organisation</i>
Alan Castleman	Australian Centre for Health Research
Debra Picone	Australian Commission on Safety and Quality in Health Care
Alison Verhoeven	Australian Healthcare and Hospitals Association
David Kalisch	Australian Institute of Health and Welfare
Rohan Mead	Australian Unity
Jeffrey Richardson	Centre for Health Economics, Monash University
Clifford Hughes	Clinical Excellence Commission
Carol Gisz	Competition Policy Review Secretariat
Martin Bowles	Department of Health (Australian Government)
David Cullen	Department of Health (Australian Government)
Frances Diver	Department of Health (Victoria)
Pradeep Philip	Department of Health (Victoria)
Jim Birch	Ernst and Young
Stephen Duckett	Grattan Institute
Sharon Willcox	Health Policy Solutions
Tony Sherbon	Independent Hospital Pricing Authority
Shane Solomon	Independent Hospital Pricing Authority
Andrew Wilson	Medibank Private
Robyn Ward	Medical Services Advisory Committee
Anthony Scott	Melbourne Institute of Applied Economic and Social Research
Adam Elshaug	Menzies Centre for Health Policy, School of Public Health, University of Sydney
Barbara Yeoh	Monash Health
Ian Scott	Princess Alexandra Hospital
Jenny Gordon	Productivity Commission
Lisa Gropp	Productivity Commission
Peter Harris	Productivity Commission
Alison McClelland	Productivity Commission
Ian Frazer	Translational Research Institute

^a Participant affiliations as at 18 November 2014.

2 Promoting clinically and cost effective medicine

Getting the best ‘value for money’ from Australia’s health expenditure depends on patients receiving the most clinically and cost effective health services for any given level of funding. However, there is evidence that Australia is spending a considerable amount of money on health interventions (tests, procedures, medicines and so on) that are irrelevant, duplicative or excessive, provide very low or no benefits (relative to the risks and costs), or in some cases, cause harm (box 2.1).

Box 2.1 **Some health care is wasteful and unnecessary**

Identifying and measuring wastefulness is not straightforward; treatments that are high value for some patients are low value for others, and evidence on the clinical and cost effectiveness of treatments changes over time. However, various data and studies illustrate that wasteful health care is a significant problem in Australia.

- Runciman et al. (2012) reviewed over 1000 Australian adults and their health care encounters and found that 43 per cent received inappropriate care, based on evidence-based and consensus-based guidelines.
- A 2007 study by the Commonwealth Fund found that 15 per cent of Australians reported undergoing unnecessary repeat imaging. This has been associated with ‘treatment cascades’ — that is, subsequent procedures that may be of low value to patients, or even unnecessary (Russell and Doggett 2015).
- The former National Institute of Clinical Studies (2003, 2005) identified gaps between evidence and practice in areas such as advising on smoking cessation, screening for lung cancer, and vaccinating against influenza.
- In 2013-14, about 30 per cent of people presenting to general practitioners in Australia for acute upper respiratory tract infection — the ‘common cold’ — were prescribed antibiotics, even though antibiotics are ineffective for treating viral infections (SCRGSP 2015).
- Paracetamol is commonly recommended and prescribed for back pain in Australia. However, a recent randomised trial of paracetamol for the treatment of acute lower back pain found no benefit versus a placebo (Carpenter et al. 2014).
- Approximately 6.5 per cent of separations in public hospitals in 2012-13 were associated with ‘adverse events’ — where patients are harmed during hospitalisation — including injuries from falls, adverse drug effects and surgical errors (SCRGSP 2015).

There are considerable potential benefits from reducing waste and improving the quality of health care. For example, Deloitte Access Economics (2015) has estimated that a 25 per cent reduction in hospital complications (such as healthcare-associated infections and cardiac complications) in 2011-12 would have saved nearly \$250 million (or over 170 000 bed days).

A range of factors contribute to wasteful expenditure on health care, many of which are amenable to policy action. Section 2.1 highlights weaknesses in Australia's health technology assessment system that mean governments do not always direct funding towards the most clinically and cost effective treatment options. Robust and up to date information on the efficacy of treatment options is also critical for reducing waste, but clinical guidelines are often too complex, out of date, lacking in credibility or poorly implemented (section 2.2). The financial incentives facing clinicians should promote high-value health interventions and deter 'low or no' value medicine, but achieving this in practice is complex (section 2.3). Finally, it is important that governments and insurers purchase (or subsidise) the right types of health services, including by finding the right balance between prevention (section 2.4) and treatment.

In each of these areas there is considerable scope for improvement, and well-designed health policies play a central role. This chapter canvasses a selection of options to better promote clinically and cost effective medicine (and remove incentives for low-value or ineffective treatments), through incremental 'within-system' reforms. Many of these proposals draw from (or were inspired by) the proceedings of the Commission's roundtable — including a list of 'ten things to focus on' presented by Associate Professor Ian Scott (box 2.2).

Box 2.2 Ian Scott's 'ten things to focus on' in health care

Associate Professor Ian Scott is Director of the Department of Internal Medicine and Clinical Epidemiology at Princess Alexandra Hospital (Brisbane), as well as Associate Professor of Medicine at the University of Queensland. At the Commission's roundtable, Associate Professor Scott presented a list of ten ways to improve health care in Australia.

1. Minimise diagnostic error
2. Discontinue low or no value interventions
3. Defer use of unproven interventions
4. Select care options according to comparative cost effectiveness
5. Target clinical intervention to those who derive the greatest net benefit
6. Adopt a more conservative approach to end-of-life care
7. Actively involve patients in shared decision making and self-management
8. Minimise operational waste and mismanagement
9. Accelerate creation and diffusion of effective care delivery innovations
10. Advocate for transformational care redesign that maximises value.

This list has also been published in an academic journal (Scott 2014).

2.1 Health technology assessment

Access to health technologies — such as medicines, diagnostic tests, medical devices, surgically implanted prostheses and medical procedures — can provide significant benefits to patients and the community. However, technology is often expensive, and is a major driver of health expenditure. Evidence-based evaluation of new and existing technologies is fundamental to delivering clinically and cost effective health care, and getting value for money from health expenditure.

Health technology assessment (HTA) is a system of processes and institutions that use scientific evidence to assess the quality, safety and cost-effectiveness of health technologies, and, ultimately, to inform government decisions about public funding of health-related goods and services. However, there is evidence that Australia's HTA system is not working as well as it could, meaning that low-value (and potentially harmful) health interventions attract public subsidies while higher-value interventions do not.

How does HTA operate in Australia?

At the Commonwealth level, Australian Government HTA agencies inform decisions by the Minister for Health (or Cabinet) about public funding of health technologies. Specifically, the:

- Medical Services Advisory Committee (MSAC) assesses medical services and devices for listing on the Medicare Benefits Schedule (MBS) (listed MBS items include general practitioner consultations, eye examinations and epidural injections) (Department of Health 2014e, 2015e)
- Pharmaceutical Benefits Advisory Committee (PBAC) assesses medicines and vaccines for listing on the Pharmaceutical Benefits Scheme (PBS) or National Immunisation Program (listed PBS items include pain relievers, antibiotics and blood pressure medications) (Department of Health 2013b, 2015b)
- Prostheses List Advisory Committee assesses devices for listing on the Prostheses List, which sets benefit levels that private health insurers must pay (listed items include pacemakers, prosthetic hips and heart valves) (Department of Health 2013c, 2015d).

MSAC and PBAC advise on the comparative safety, clinical effectiveness and cost effectiveness of health technologies, and the circumstances under which public funding should be supported. The Minister for Health (or Cabinet) ultimately decides whether the technology should be listed (publicly subsidised), the conditions for listing (such as specification of the target treatment population), pricing matters (such as the 'schedule fee' for MBS items), and the level of public reimbursement (that is, how much of the schedule

fee is covered by Medicare).¹ The Minister for Health may approve listings with an estimated annual cost of \$20 million or less; if a medicine is expected to cost more than \$20 million annually, the listing decision is made by Cabinet (Department of Health 2014). A decision not to list means the technology will remain available in Australia (but not subject to reimbursement), so long as it remains listed on the Australian Register of Therapeutic Goods (as determined by the Therapeutic Goods Administration).

HTA is also conducted at the state and territory level (box 2.3) to inform decisions about whether new health technologies should be approved for use in state and territory public health systems.

Box 2.3 Examples of state and territory HTA arrangements

Health Policy Advisory Committee (HealthPACT)

HealthPACT is a sub-committee of the Australian Health Ministers' Advisory Council whose membership comprises representatives from all state and territory health departments, the Australian Government Department of Health, Medical Services Advisory Committee and the New Zealand National Health Committee. HealthPACT provides jurisdictions with evidence-based advice on emerging technologies to inform financing decisions and to assist in the managed introduction of new technologies (Queensland Health 2015).

Victoria

Victoria's New Technology Program is a statewide policy platform to support the managed introduction of new health technologies and clinical practices across the Victorian public health system. Funding decisions are informed by HealthPACT and Technology and Clinical Practice committees. These committees assess proposals, monitor uptake and review technologies once they are in use (Victorian Government 2015).

Queensland

The Queensland Policy and Advisory Committee on new Technology (QPACT) administers Queensland Health's New Technology Funding Evaluation Program. Under this program, QPACT evaluates new health technologies based on clinical need and benefit, value for money, feasibility of adoption, and consistency with expected societal and ethical values. Funding decisions are made by Queensland Health (Queensland Health 2013).

The Australian Government HTA system is well regarded internationally (DoHA 2009; MacKean et al. 2013), and has been improved over time (in part reflecting reform proposals previously identified by the Commission (2005b) and the then Department of Health and Ageing (2009)). These improvements include the introduction of the MBS Quality Framework in 2010, and its successor, the Comprehensive Management

¹ The schedule fee is the amount the Government considers appropriate as a recommended fee for an MBS item. A schedule fee does not determine the amount a health professional can charge for providing the service. Rebates for MBS items are set as a proportion (between 75 and 100 per cent) of the schedule fee. PBS prices and reimbursement levels are described in chapter 3.

Framework for the MBS, announced in the 2011-12 Budget (DoHA 2011b). Various commitments were made when these frameworks were introduced, including that:

- all applications for new MBS items, as well as significant amendments to existing items, would be referred to MSAC for assessment
- the quality, safety and fee levels of *existing* MBS items would be reviewed over time on a systematic basis
- a stronger evidence base would be used to set the price of new and reviewed MBS items (DoHA 2011b, 2011d).

While inroads have been made on elements of the Comprehensive Management Framework for the MBS, in most areas, progress has been disappointing. There is much to gain from following through with these reforms, and addressing gaps and deficiencies in the Australian Government HTA system more generally.

Processes for reviewing and revising public subsidies of health technologies are inadequate

Health technology subsidies deliver the greatest gains when they are directed towards the most clinically and cost effective treatments on offer. To achieve this, the relative benefits and costs of all of the health interventions seeking public subsidy must be carefully assessed and prioritised accordingly.

Moreover, because the case for subsidising various health services can change over time (for example, as new treatments or evidence become available), subsidy arrangements should be routinely reviewed, and revised where warranted. This may involve:

- disinvesting (that is, partly or completely withdrawing subsidies) from treatments that are found to be less clinically effective than once thought, or more expensive than new, therapeutically equivalent alternatives
- amending listing conditions to reflect changes in information about *how* technologies should be used
- adjusting (up or down) subsidy amounts to reflect changes in the costs of health products and services.

Evidence suggests that these important ‘housekeeping’ tasks are often neglected, increasing the scope for wasteful spending on health services (box 2.4). This reflects two major deficiencies in the Australian Government HTA system.

Box 2.4 Inappropriate and wasteful health technology subsidies

There is evidence to suggest that Australian Government health technology assessment processes are not achieving their objectives.

For example, Elshaug et al. (2012) reviewed 5209 items on the Medicare Benefits Schedule (MBS) and found 156 potentially unsafe, ineffective or inappropriate health services. The study considered clinical effectiveness, safety and quality, but not the cost to government of these services. As such, the 156 identified MBS items should be considered a lower bound estimate of the total number of items that might warrant review.

Carpenter et al. (2014) argued that significant savings could be generated by more rigorously assessing existing medical practices. They observed that:

A recent analysis of US Medicare data found that up to 42 per cent of beneficiaries received at least one (from a sample of 26) low-value health care practices in one year of analysis, at a direct cost of over \$8 billion. Assuming the same prevalence of waste exists here, Australian Medicare would save \$500 million annually from reducing use of just 26 low-value services. (Carpenter et al. 2014, p. 3)

Coleman (2015) — in discussing ineffective treatments for inclusion in the Choosing Wisely initiative (section 2.2) — identified 28 interventions that, if avoided, would ‘substantially improve patient safety, reduce harms caused by overtesting, overdiagnosis and overtreatment and, as a bonus, free up tens of millions of dollars annually within our health system’. Examples include cardiovascular imaging to screen low-risk patients, knee ultrasounds and unnecessary early routine ultrasound scans in pregnancy.

Some commentators have also suggested that current MBS fee setting processes do not give rise to efficient price signals. For example, Webber (2012, p. 18) considered that MBS fees for cataract surgery remain excessive despite a 2010 review of this procedure.

Minister Roxon ... tried to reduce ophthalmologists’ fees for cataract surgery by 50 per cent. These items were introduced when the procedure was not considered routine, took much longer than today, and required an inpatient stay of more than a week. The benefit [MBS fee] reflected this. In the nearly 40 years since, technology has moved on and now this surgery can be performed under local anaesthetic as a day-procedure lasting 20 minutes. In the end, the Minister was only able to achieve a 12 per cent reduction on the MBS fee. The top providers of this item have performed more than 20 procedures in one day, according to Medicare Australia data.

First, many health interventions listed on the MBS and PBS have never been subject to rigorous economic evaluation, but nonetheless continue to receive public subsidy. This ‘legacy’ problem has come about because the majority of MBS and PBS items were admitted *prior* to economic evaluation (and cost-effectiveness standards in particular) being integrated into MSAC and PBAC assessment processes. While recent data do not appear to be publicly available, there are estimates that:

- as of January 2010, only about 3 per cent of the 5703 items on the MBS had been formally assessed by MSAC (DoHA 2010)
- up to half of PBS-listed items have not been subjected to an economic evaluation (Martin 2015).

The Comprehensive Management Framework for the MBS was intended to address the legacy problem for the MBS. However, progress has been slow and only a small handful of existing items have been reviewed to date (box 2.5). As noted by Carpenter et al. (2014,

pp. 3–4), ‘regulatory changes [committed to under the Comprehensive Management Framework] appear to have stalled at the planning or implementation stage, or both’. And while PBAC has the capacity to review existing PBS items, and to initiate its own reviews, it appears that little (if any) reassessment and disinvestment activity has taken place (Gallego et al. 2010). Possible reasons for this include a lack of clarity and transparency regarding accountabilities for the reassessment task, insufficient resources or incentives to undertake this work, or a lack of political will and commitment.

Box 2.5 Reviews of existing MBS items

Four ‘demonstration reviews’ commenced in 2010 under the MBS Quality Framework, and were completed over 2011 and 2012 (Department of Health 2014d; DoHA 2011c). These covered:

- whole of specialty review of ophthalmology services
- surgical interventions for the treatment of obesity
- colonoscopy
- pulmonary artery catheterisation.

These areas were chosen because they presented ‘potential quality and safety concerns, or an opportunity to encourage more appropriate clinical use’ (DoHA 2011c).

As of April 2015, three further reviews of existing MBS items — vitamin D testing, vitamin B12 testing and folate testing — have also been completed (Department of Health 2015c).

The reviews undertaken to date have mostly resulted in changes to listing conditions (and in some cases, to fees) or to the replacement of existing MBS items with new (amended) items.

Second, even where listed items are reviewed, and a compelling case for reducing or removing public subsidies emerges, there can be barriers to disinvestment occurring (as the cataract surgery experience illustrates — box 2.4). The Minister for Health (or Cabinet) is ultimately responsible for disinvestment decisions and may face considerable opposition to the removal of public subsidies. This can temper political will to review existing items and disinvest from low-value treatments, even where there are community-wide benefits of doing so. It can also impose an unreasonably high ‘burden of proof’ on the government to justify withdrawing subsidies, raising the cost (and time involved in) undertaking reviews. For example, King (2014) observed that:

It has been said that to get a technology onto a schedule such as the MBS requires the same level of evidence as for civil trials — the balance of probabilities. To take something off a schedule requires the same level of evidences as for a criminal conviction — beyond reasonable doubt.

The lack of focus on review and disinvestment raises the prospect that a (potentially large) portion of MBS and PBS items do not meet present day clinical and cost effectiveness ‘thresholds’ — and may even cause patient harm — but continue to be used and publicly subsidised. This not only constitutes a waste of taxpayers’ and patients’ money, but can also reduce access to higher-value health interventions. There is a strong ethical and economic imperative to address these problems — for example, expenditure on the MBS

was \$19.3 billion in 2013-14 and is projected to grow to \$22.6 billion by 2017-18 (Treasury 2014).

What can be done?

Many roundtable participants considered that MBS and PBS review and disinvestment processes can and should be improved, echoing the findings of previous HTA reviews and evidence presented in the health economics literature. While the commitment to review existing MBS items under the Comprehensive Management Framework was a step in the right direction, the fact that fewer than ten reviews have been conducted over a five-year period demonstrates that these arrangements are inadequate.

Two broad options have been canvassed. The first involves expanding and accelerating the MBS review work that is currently being undertaken (with strengthened accountability and transparency requirements), and establishing a similar program for PBS items (AHHA 2014; Carpenter et al. 2014).

A second, more contentious proposal is to assign responsibility for assessing and reviewing health technologies — and for subsidy and disinvestment *decisions* — to an independent statutory body (rather than the Minister or Cabinet), potentially operating under a government-set budget constraint. This approach has been adopted in various forms internationally, including in New Zealand (for medicines), the United Kingdom and Canada (Martin 2015). Supporters of this approach claim that it would sharpen incentives to invest in high-value health technologies (and disinvest from low-value ones), depoliticise investment and disinvestment decisions, and improve the transparency of (and confidence in) health technology assessment (Duckett 2013; Martin 2015). An independent agency model has also been put forward as a way to improve how PBS prices are negotiated with medicine manufacturers (chapter 3).

Is there scope to reduce fragmentation and duplication in HTA?

HTA processes in Australia are relatively fragmented, and at times duplicative — HTA is undertaken at both the national, and state and territory levels, and there are separate assessment processes for different types of health technologies (DoHA 2009; PC 2005b).

Such a vast system of HTA institutions and processes can lead to unnecessary costs (for example, if the same health treatment is assessed twice) and inconsistent standards of assessment and outcomes. For example, Bulfone, Younie and Carter (2009, p. S29) found that ‘less formal processes and less demanding requirements’ are used for HTA assessments in public hospitals, transparency is lower in the assessment of medical services and technologies than for medicines, and fragmentation can lead to differences in the availability of health technologies across jurisdictions.

Fragmentation can also make it difficult to ensure that HTA processes make full use of research on the comparative clinical and cost effectiveness of health interventions. For example, Martin (2015) observed that the criteria used to assess medications for treating childhood depression differ from the criteria used to assess public health initiatives to improve mental health in children.

Related to this, where separate processes are used to set subsidy amounts for different types of health interventions, it can be difficult to ensure that the financial incentives facing health care providers (and patients) encourage them to provide patients with the most clinically and cost effective treatment option for their health condition. For example, a benign tumour could potentially be treated with medicines, removed through surgery, or left untreated, and each option will lead to a different payment (for the practitioner) and cost (for the patient).

To help reduce fragmentation and duplication, some stakeholders have proposed consolidating Australia's separate HTA processes. For example, Boxall (2011, p. 11) considered that establishing a single agency would 'make it easier to evaluate the effectiveness of different health care interventions designed to treat the same health problem'. A more streamlined set of HTA institutions and processes offers potential benefits, as noted in previous reviews (DoHA 2009; PC 2005b). However, any significant restructure of the current arrangements would require careful consideration and design, and may not overcome some of the systemic problems with HTA in Australia.

Regardless, there may be opportunities to reduce unnecessary duplication (and costs), and better facilitate comparative effectiveness research, through administrative changes within the existing HTA system. This might include routinely sharing MSAC and PBAC assessments with the states and territories (and vice versa), or better coordinating HTA activities across jurisdictions (for example, through HealthPACT (box 2.3)).

Are stronger safeguards required for access to subsidised treatments?

An efficient health system relies on clinicians selecting health treatments that provide a net benefit to patients *given their particular circumstances*. Even if all items subsidised by Australian governments were deemed worthy of public investment, the inappropriate use of listed items can lead to waste (for example, tests may be unnecessarily repeated, or procedures prescribed for conditions not envisaged by authorities at the time of listing), or even patient harm (due to adverse medicine interactions). The Australian Healthcare and Hospitals Association has observed that poor medicine prescribing (and dispensing) practices can lead to an unnecessary increase in anti-microbial resistance, and may mean that branded medicines are favoured over therapeutically equivalent (and cheaper) generic medications (AHHA 2014).

A range of factors contribute to the misuse of subsidised health services, including poor information and misaligned financial incentives (sections 2.2 and 2.3). While these need to

be addressed, more direct measures also have a role. Mechanisms are already in place to guard against clinicians prescribing inappropriate or duplicative treatments. For example, the Australian Government Department of Human Services monitors and compares health professionals' claims on the MBS and PBS to identify inconsistencies, and the Professional Services Review scheme investigates incidences of inappropriate clinical practice (Australian Government 2012b).

Additional safeguards may also be warranted, such as:

- requiring clinicians to disclose diagnostic indications when seeking to use certain subsidised items (Elshaug et al. 2012; Scott 2014)
- denying clinicians reimbursement for repeating a test for a patient without providing justification
- developing 'set packages' of tests on the MBS for certain common conditions (such as back pain or chest pain) and only reimbursing for a package (Russell and Doggett 2015)
- requiring clinicians to document and share information on patients' medication use in real time (Australian Government 2012a).

Transparency and consultation are crucial

In response to the 2009 review of the HTA system, the Australian Government committed to reporting performance data on HTA processes and outcomes, including information on assessment timeframes (DoHA 2011a). However, there is very little publicly available information on the performance of MSAC and PBAC, including the timeliness of their assessment processes. Most of the websites dedicated to this purpose are years out of date, or no longer exist.

MBS and PBS fee-setting processes have also been criticised for insufficient transparency and rigour. The Australian Government committed (as part of the MBS Quality Framework in 2010) to instituting a new MBS fee-setting process. This work appears to have stalled. The relevant webpages have not been updated since 2011, at which point the work was classified as 'ongoing'. With regard to the PBS, the Australian National Audit Office recently found that the cost of pharmacy remuneration in Australia (borne by taxpayers and patients) lacks transparency, making it difficult to ascertain whether this expenditure represent value for money (ANAO 2015).

Others have raised concerns about the level of community involvement in HTA processes. The Consumer Health Forum has argued that patient experiences should be given due consideration in these processes through, for example, consumer committees and consumer impact statements (CHF 2010). This is already the case in the United Kingdom and other countries (Martin 2015). There has been some recent progress in this area by PBAC, which began holding consumer hearings in March 2015, aimed at giving consumer and patient

representatives the opportunity to present information and views to inform the committee's decision-making process (Ley 2015).

A two-phased approach to improving Australia's HTA arrangements

Efficient and effective HTA processes and institutions that support patient safety and taxpayer value for money are fundamental to the performance of Australia's health system (DoHA 2009; PC 2005b). Health technology assessments must be:

- based on evidence of clinical and cost effectiveness, and on public health needs
- streamlined, with coordination across types of technologies and levels of government
- transparent, with good information disclosure and comprehensive stakeholder consultation supporting procedural fairness
- timely
- systematic, with regular monitoring and review of the clinical and cost effectiveness of technologies once in use.

Although some changes to the HTA system have been implemented in recent years, many flagged reforms have stalled and significant problems remain unaddressed.

Some of these weaknesses can be addressed immediately. Specifically, **the Australian Government Minister for Health can expand and accelerate the work underway to review existing MBS items, reduce or remove public subsidies where appropriate, and allocate explicit funding for this purpose. Similar arrangements could be established for the PBS.** Governments sometimes need to spend money in order to save money. There is merit in making dedicated investments in reviewing health technologies and progressing with disinvestment. An apt analogy is investment in tax compliance.²

Priority should be given to high-cost items on the MBS and PBS that have not been subjected to economic evaluation, or for which the benefits are relatively uncertain. The Choosing Wisely initiative (section 2.2) is anticipated to identify inappropriate and low-value health interventions, and could usefully inform reviews of MBS and PBS items. The Minister for Health should report on progress annually, and ensure appropriate consultation processes are in place.

² For example, in 2006 the Australian Government funded 'Project Wickenby', a cross-agency taskforce to target tax evasion, avoidance and crime. By 30 June 2011, the \$235 million in government funding provided to the ATO had generated around \$654 million in additional tax revenue (ANAO 2012).

The Australian Government Minister for Health could also action other worthwhile short-term reforms, including:

- **routinely sharing Australian Government health technology assessments with the states and territories (this could draw on lessons from other policy areas, such as environmental approvals)**
- **regularly reporting on the outputs, performance and timeliness of Australian Government HTA agencies**
- **publishing the reasons for Ministerial (or Cabinet) decisions regarding MBS and PBS subsidies.**

Remedying some of the deeper problems with Australia's HTA system is likely to involve larger-scale changes to institutions and processes, and should be informed by a review.

The Australian Government Minister for Health is the appropriate individual to instigate such a review. A number of issues warrant particular attention, including:

- the case for establishing more streamlined and coordinated HTA processes (at the national level and across jurisdictions)
- the merits of alternative approaches to withdrawing public subsidies (such as making a statutorily independent body responsible for decisions about subsidising and divesting from health technologies)
- whether current MBS and PBS fee-setting processes are meeting policy objectives and, in particular, whether fee levels encourage (or at least do not discourage) high-value medicine
- the merits of introducing additional mechanisms to guard against clinicians prescribing MBS or PBS services where it is not clinically and cost effective to do so.

Finally, health technology reassessment and disinvestment is not exclusively an Australian Government issue. It is equally important that state and territory governments have adequate processes for systematically monitoring and reassessing publicly subsidised health technologies, and for withdrawing subsidies where appropriate. **Many of the same issues (and reform options) confronting Australian Government HTA institutions may be just as relevant for the states and territories, and can be addressed by the relevant state and territory health ministers.**

2.2 Evidence-based guidance for clinicians and patients

Good information is essential for avoiding wasteful health care. Often clinicians do not realise they are over-diagnosing patients, providing superfluous (or harmful) treatments, or applying valuable treatments in the wrong way. Such outcomes are particularly common where evidence on good practice has changed over time, or where the costs and benefits of health treatments vary considerably across patient groups. Improving guidance for both clinicians and patients would help to promote clinically and cost effective health care.

Clinical guidelines can help, but need improving

Timely and accessible information and evidence on the clinical and cost effectiveness of health treatments can be a powerful way to promote evidence-based medicine and reduce wasteful health care. Clinical guidelines (including ‘do not do’ lists and prescribing protocols) are used by governments, professional organisations and health care providers to disseminate clinical research findings to health practitioners and promote high-value medicine.

As an example, clinical guidelines on the antenatal use of magnesium sulphate, introduced in 2010, have been implemented in most maternity hospitals and are estimated to be preventing over 150 new cases of cerebral palsy annually. This represents a substantial fiscal saving given the condition costs Australian taxpayers almost \$4 billion each year (Ghera and Anderson 2015).

What are the problems?

In Australia, the National Health and Medical Research Council plays a gatekeeper role for clinical guidelines. This includes guideline development (often in partnership with health organisations, such as professional colleges) and approving guidelines produced by other organisations. It has estimated that there are over 1000 guidelines in circulation in Australia, produced by more than 130 developers (NHMRC 2014). However, despite their potential value, clinical guidelines have been the subject of much criticism (box 2.6), and Australia does not appear to be getting as much value from these guidelines as it could.

One problem is the content and quality of the guidelines, including the ways in which they are developed, prioritised and maintained. The vast majority of published guidelines are not supported by documented evidence, are out of date or do not mention conflicts of interest (NHMRC 2014). An earlier study found that most general practitioners felt that guidelines lacked credibility and user friendliness due to having been prepared by non-clinicians (Gupta, Ward and Hayward 1997).

Box 2.6 Clinical guidelines have problems

Various problems with guideline development, dissemination, implementation and adoption have been identified. For example, Ghersi and Anderson (2015, p. 8) argued that many Australian guidelines ‘are of disappointingly poor quality and should not be trusted to inform decision making’. A recent review of 1046 clinical guidelines by the National Health and Medical Research Council found that:

- only 9 per cent had a documented dissemination plan
- only 11 per cent of government-funded guidelines had documented evidence of a full systematic review
- 60 per cent of guidelines had no acknowledgment of funding, only 36 per cent mentioned conflicts of interest and only 34 per cent contained full documentation about the authors (NHMRC 2014).

This council also found a lack of coordination in the prioritising and preparation of clinical guidelines, and inadequate or out-of-date guidelines in areas of high disease burden in Australia (such as dementia, schizophrenia and depression). It concluded that there are ‘ongoing serious and systemic problems in the way guidelines are funded and developed in Australia’ (NHMRC 2014, p. 4).

An earlier study of general practitioners’ views on clinical guidelines found that, while 49 per cent considered that their practice had changed as a result of a clinical guideline and 92 per cent agreed that guidelines were good educational tools, 85 per cent held the view that guidelines were developed by experts who do not understand clinical practice (Gupta, Ward and Hayward 1997). While this survey is somewhat dated, more recent work has found that there continue to be barriers to guideline implementation, including the complexity of guidelines, a lack of clinician awareness, limited familiarity, disagreement with the guidelines, and the presence of co-morbidities (Francke et al. 2008).

Even where guidelines provide good information, there can be barriers to their adoption and use. In particular, if a practice has become entrenched and a health care provider is confident that it works, poor clinical practice can persist. Clinicians may also be reluctant to stop or minimise treatment for which there is no clinical benefit for the patient, because of a desire to please referring clinicians or the patient, or because of concern about legal liability arising from not using a treatment. As Hiller (2013, p. 11) has noted, ‘there is a high community tolerance for over servicing’ in Australia. Scott (2013, p. 16) has observed that some clinicians suffer from pro-intervention and pro-technology (or innovation) bias, ‘choosing action over inaction’ and ‘too readily believing that newer treatments and technologies are superior to their predecessors’.

Clinician ‘buy-in’ is key

Some of the problems with clinical guidelines in Australia can be addressed through more rigorous processes for prioritising, developing and publishing guidelines. For example, there might be merit in the use of frameworks or templates to promote consistency in the format of guidelines, and routine inclusion of standard information, such as disclosure of interests. Other factors limiting the value of clinical guidelines — such as clinicians’

distrust of guideline content, and guidance that is unworkable in practical settings — are unlikely to be remedied through administrative changes.

Clinician involvement and ‘buy in’ are essential factors for facilitating credible, useful and practical clinical guidelines. Clinicians are ultimately responsible for making decisions at the point of care, and forcing changes upon them (such as through clinical guidelines written by non-clinicians) can easily ‘cause resentment and often result in push back from clinicians’ (Boxall 2014). Evidence presented to the Strategic Review of Health and Medical Research (‘McKeon Review’) indicated that the direct participation of clinicians is crucial in driving the translation of health and medical research into clinical practice. The review observed that:

All too often, research efforts stop at the stage of writing up and publishing a guideline. There is a pressing need for health professionals to take a more active role in facilitating knowledge translation and sharing learnings from research and best-practice healthcare. (McKeon et al. 2013, p. 80)

Evidence of the benefits of clinicians leading the drive for reform to clinical practice can also be seen in the success of the Choosing Wisely program in the United States and other countries (discussed below).

What can be done?

More work needs to be done to address some of the systemic problems with clinical guideline development and adoption in Australia. This work would need to cover:

- processes for prioritising and commissioning guidelines (including coordinating separate guideline development processes)
- the quality and credibility of guideline content (including the role of clinicians in developing, assessing, advising on and reviewing guidelines)
- the complexity and user-friendliness of guidelines
- the potential use of frameworks or templates to promote greater consistency and transparency across guidelines
- awareness amongst clinicians about guidelines (and education of clinicians about the strength of published evidence in contrast to less rigorous sources of information)
- incentives for guideline adoption
- the challenges of using guidelines when treating patients with co-morbidities
- ways to review, update and evaluate the effectiveness and use of guidelines.

The National Health and Medical Research Council (in collaboration with the Australian Commission on Safety and Quality in Health Care and the Australian Government Department of Health) has begun developing a new national framework for developing reliable and trustworthy clinical practice guidelines and care standards (Gherzi and

Anderson 2015). This provides an opportunity to address many of the above issues, drawing lessons from international experiences (box 2.7), and from past reviews. For example, the McKeon Review suggested that new guidelines be written for wide dissemination and in a variety of formats for end users, and that all guidelines have an implementation plan and evaluation process (McKeon et al. 2013).

The Australian Government has not yet publicly responded to the McKeon Review.

Box 2.7 Clinical evidence and guidelines — international experiences

United Kingdom

The National Institute for Health and Care Excellence (NICE) is a UK government agency that produces evidence-based guidance (including clinical guidelines) and develops quality standards and performance metrics for health care providers (NICE 2014b). NICE has been described as a world leader in clinical guideline development (Pilling 2009). It has also developed a database of 'do not do' practices that clinicians should either discontinue or not use routinely (NICE 2014a).

United States

The US Patient Protection and Affordable Care Act 2010 established the Patient-Centred Outcomes Research Institute (Kinney 2011), with a mandate to improve the quality and relevance of clinical evidence. The Institute is an independent not for profit organisation that funds research into the comparative clinical and cost effectiveness of health care practices and treatments, and disseminates the findings of this research (although not in the form of clinical guidelines) (PCORI 2014).

However, the success (and benefits) of clinical guidelines critically depends on clinicians trusting and valuing the content of the guidelines, and on the information being presented in an accessible and practical way. There is a compelling case for establishing clinicians as the chief stewards of clinical guidelines in Australia. By drawing on their substantial knowledge and expertise about what constitutes good (and bad) practice, clinicians are well placed to advise on how the quality of health care can be improved through changes in clinical practice, and how to communicate this information to clinicians at the coal face.

To this end, there would be considerable value in the Australian Government Minister for Health establishing expert panels of clinicians to assess and endorse clinical guidelines against quality standards, and to advise on dissemination, implementation and review. These panels could be modelled on the National Lead Clinicians Group, which was established in 2011 to strengthen clinical engagement in the health care system.

Finally, greater reporting on the performance of *individual* clinicians and health care organisations can motivate clinicians to improve their practices and adhere to clinical guidelines (Boxall 2014). Greater transparency can also identify where there is a prima facie case for clinical guidelines (due to poor clinical practices), and inform the design and

implementation of these guidelines. For example, clinical quality registries — which measure, monitor and report on clinical outcomes for patients with the same diagnosis — can reveal variations in outcomes, facilitate benchmarking, and lead to the identification of best practices (Larsson et al. 2012). Information and transparency are discussed further in chapter 4.

Clinical information for patients is also useful

Better information for the general public on the effectiveness of health treatments can also help. This can encourage discussions between health care professionals and patients on the merits of treatment options, and can help the public understand why disinvesting from health treatments (section 2.1) is in the public interest. While patients often have access to some clinical information (for example, through the Internet), they may not have the capacity (or ‘health literacy’) to fully understand and use the information to make good health care decisions (Schardt 2011).

The Choosing Wisely initiative — which originated in the United States and is about to be launched in Australia — offers significant potential in this regard (box 2.8). There are further opportunities to share clinical information with the public through other means — for example, research findings that have the potential to significantly benefit patients could be published in the media to widen dissemination (McKeon et al. 2013), or medical librarians could be tasked with helping patients find the best available and current information (Schardt 2011). However, such initiatives would have costs, and are best considered as part of a broader review of the health care system (chapter 5).

Box 2.8 The Choosing Wisely initiative

Choosing Wisely Australia is a national initiative developed by NPS MedicineWise, in collaboration with health and medical professional colleges and consumer groups. It aims to improve the quality of health care by:

- identifying commonly used tests, treatments and procedures that offer little or no health benefit (or are actually harmful)
- encouraging better conversations between health care providers and patients about the appropriateness and safety of health and medical treatments (NPS MedicineWise 2015).

The initiative, which is scheduled to be launched in the first half of 2015, is modelled on the Choosing Wisely campaign in the United States — introduced in 2012 — and similar programs in other countries (NPS MedicineWise 2015).

Participating organisations will each develop a list of recommendations for ‘five things providers and patients should question’. For example, the Royal Australian College of General Practitioners intends to release its recommendations list at the end of April 2015, containing tests or treatments that ‘GPs should be doing less of, or not at all’ (Coleman 2015).

2.3 Provider payment models

The way that health care providers are paid can influence their behaviour. Payment arrangements give rise to financial incentives (and disincentives) for particular actions, and thus can be used to influence the quality and cost of care provided by health care organisations (such as hospitals) and individual professionals (such as doctors). There have been some reforms to payment arrangements in Australia to better align financial incentives with policy objectives. Although further reform would to some extent depend on fundamental changes to the funding and institutional structures of the health system, there is scope to make incremental improvements within existing parameters.

All payment models have limitations

A range of models can be used to pay health care providers (figure 2.1). All these models have advantages and disadvantages. Most countries use some mixture of these base models in their health systems — for example, integrated care models (discussed below) are essentially a hybrid of capitation and pay-for-performance elements. Such hybrids are often used to address weaknesses associated with a single base model.

Figure 2.1 Payment models for health care providers

	Advantages	Disadvantages
Salary Flat payment for set period of time	<ul style="list-style-type: none"> • Expenditure is predictable • Simple to administer • Adopting innovations does not impact providers' budgets 	<ul style="list-style-type: none"> • Incentive to underprovide services to reduce workloads • No explicit incentive to improve quality of care • Limited accountability in how funds are spent • Better providers attract more work but not resources
Fee for service Reimbursement for each unit of service provided	<ul style="list-style-type: none"> • Can support patient choice • Incentive to provide care to more people • Incentive to provide services regardless of costs 	<ul style="list-style-type: none"> • Incentive to increase activity and 'over service' patients • Incentive to limit or reduce consultation times • Can tend to favour treatment over prevention • Few incentives to work with other providers • Funder bears financial risk of increased demand
Capitation Periodic lump-sum payments for each enrolled patient	<ul style="list-style-type: none"> • Expenditure is predictable • Incentive to reduce costs • Incentive to provide preventive services • Can encourage coordination between providers 	<ul style="list-style-type: none"> • Difficult to monitor and enforce quality of care • Incentives to shift care to services outside the scope of the provider • Providers may avoid patients if their needs are under compensated by the risk formula • Little incentive to increase quality/quantity of services
Pay for performance Rewards or penalties linked to performance measures	<ul style="list-style-type: none"> • Incentive to undertake beneficial services that would otherwise not be remunerated • Can aid consistency in meeting quality standards or clinical guidelines 	<ul style="list-style-type: none"> • Significant monitoring effort required • Indicators hard to define; may not link well to outcomes or factors under provider's control • Can be high compliance costs for providers • Risk of unintended consequences such as 'cherry picking' patients to meet targets • May be little incentive for improvement beyond targets

Sources: Cashin (2014a); Marshall, Charlesworth and Hurst (2014); Scott and Connolly (2011).

In Australia, ‘fee for service’ is the dominant model used to fund primary care, where a flat rate is paid per procedure (for general practitioners). Public hospitals (and some private hospitals) are funded using a broadly similar approach, where a flat rate is paid per diagnosis. Within hospitals and some other health organisations, individual professionals are mainly paid on a salary or wage basis.

Progress has been made in public hospital funding

Activity-based funding for public hospitals has been one of the major reforms to health funding in Australia over the past three decades. Under this model (also known as casemix or diagnosis-related group funding), hospitals are paid a single price to treat a patient, covering all required services (such as accommodation, surgery, pathology, nursing and medicines). The price represents a benchmark or ‘efficient’ cost of treating a particular health condition, based on a diagnosis-related group (a group of closely related conditions with similar complexity and treatment costs). While it is technically a form of ‘fee for service’, payments are designed to cover a bundle of services provided by hospitals rather than each individual service.

All state and territory governments have moved towards activity-based funding, beginning with Victoria in 1993. The Australian Government also uses this model for most of its funding contributions to the states, with the prices set at a national level by the Independent Hospital Pricing Authority (IHPA 2014). (However, the Australian Government recently announced that its funding contributions would be linked to the consumer price index and population growth from July 2017 (Treasury 2014)). Most states have adopted the national prices for their own funding arrangements, with some variations.

The main advantage of activity-based funding is that it gives hospitals a financial incentive to reduce costs (as per-patient payments are fixed) while increasing activity (by treating more patients). If a hospital provides a service at a cost that is lower than the price they receive for it, it makes a profit for that service and has an incentive to increase the activity. Internationally, activity-based funding is widely considered a more efficient way to fund hospitals than block funding — the previously dominant funding model in Australia — which gives hospitals little incentive to improve quality or reduce costs (Charlesworth, Davies and Dixon 2012).

But activity-based funding is not free from difficulties. It can be complex and costly to administer, and has significant data requirements. Further, the way it has been implemented in Australia may have implications for the quality and safety of care provided (although most concerns are largely premised on principles, with limited evidence to date about the impacts of activity-based funding on the quality of health care).

- Hospitals receive funding regardless of the safety or quality of care provided, and may have an incentive to reduce costs by lowering the quality of care (leading to an increase in preventable complications).

-
- Hospitals may have an incentive to reduce costs by transferring more complex or costly patients to settings outside the funding model or to other hospitals (although risk-adjusted funding arrangements can mitigate this to some extent).
 - Activity prices are based on average costs across hospitals, but could be above the ‘efficient’ cost of care. For example, Duckett and Breadon (2014a) found significant cost variation across Australian public hospitals for particular procedures that is difficult to explain (after taking into account measured differences in patients’ characteristics and hospitals’ size and scope). They estimated that at least \$928 million in costs are potentially avoidable.

Some initiatives are underway that could address these concerns, such as public reporting at the national level on the quality and safety of individual public and private hospitals (chapter 4). Further, the Australian Commission on Safety and Quality in Health Care has developed national safety and quality standards for health care organisations (including hospitals), which have been endorsed by Health Ministers (ACSQHC 2015a). Reporting against these standards could help identify and remedy problems with the safety and quality of health services.

However, the concerns also reflect the nature of the financial incentives embedded in fee-for-service models. Several options have been put forward to improve the financial incentives provided by the activity-based funding framework. These include linking hospital funding to safety and quality by not paying hospitals for adverse events, ineffective interventions or procedures known to be harmful (Duckett 2012), and removing ‘avoidable costs’ from activity-based funding (Duckett and Breadon 2014a).

Linking hospital payments to performance on specific safety or quality indicators would be a form of ‘pay for performance’ (figure 2.1). This has implemented in a limited way for public hospitals in Queensland and Western Australia, and has also been adopted by some private health insurers (box 2.9). Pay for performance models are more widespread in other countries, such as England and the United States (Cashin 2014b; Marshall, Charlesworth and Hurst 2014). One estimate is that around 12 to 16 per cent of total hospital costs in Australia are attributable to treating hospital-acquired conditions (HPA 2013), suggesting the potential for significant gains to be made.

The Independent Hospital Pricing Authority is in the process of exploring options for incorporating quality and safety into national activity-based pricing, in consultation with the Australian Commission on Safety and Quality in Health Care and other relevant stakeholders, including hospital clinicians (IHPA 2014). It is also exploring ‘bundled’ pricing options, where a single payment is made to hospitals to cover a range of services for a patient, such as those pertaining to maternity care, stroke care, and hip and knee replacements.

However, further moves to link activity-based funding with safety and quality outcomes would need to be taken carefully. Attempts to use pay-for-performance schemes for hospitals in England and the United States have not generated the lasting quality

improvements that were anticipated (Cashin 2014b; Kristensen et al. 2014; Marshall, Charlesworth and Hurst 2014; Ryan 2009). Key challenges include identifying the right safety and quality indicators to use, and setting payments at a meaningful level so as to influence providers' behaviour.

Box 2.9 Selected hospital incentive payments

Queensland

In Queensland, public hospitals are refused payment for episodes of care involving six 'never events' (including wrong-site surgery and death from receiving incompatible blood), and payments are reduced for two adverse events (bloodstream infections and pressure injuries sustained in hospitals) (Queensland Government 2013). The Queensland Government also ran a Clinical Practice Improvement Payment Project from 2008 until 2013, through which hospitals were paid rewards based on their performance against particular process indicators, covering mental health, stroke and other areas (CHSD 2013a).

Western Australia

In 2012, the Western Australian Government introduced a Premium Payments Program for public hospitals. Under this voluntary scheme, participating hospitals are provided additional payments for undertaking a high level of evidence-based care in treating strokes, heart attacks and hip fractures (WA Department of Health 2014). Hospitals are required to collect and submit data, but are reimbursed for the associated costs.

Private health insurers

Some private health insurers have signed contracts with private hospitals to link payments to the quality and safety of care. For example, the insurer Bupa has signed an agreement with Healthscope (a private hospital operator) whereby hospitals are not reimbursed when one of 14 defined 'never events' occur in hospital — including a patient being given the wrong blood for a transfusion, or a medication error resulting in serious disability (Bupa and Healthscope 2013). Medibank Private, another insurer, has an agreement with Health Care (a hospital operator) that includes specific targets for preventing unplanned readmissions and avoiding preventable adverse events during treatment (Medibank Private 2014a).

Primary care is more challenging, but improvements are possible

Primary care has been a more difficult area for reform. In Australia, it is mostly delivered by private providers, such as general practitioners (GPs). A substantial part of GPs' costs is reimbursed on a fee-for-service basis via the MBS. The MBS covers a range of consultations, procedures and tests by GPs, as well as some services provided by pathologists, dentists, optometrists and others. (Other funding comes directly from patient contributions, or from private health insurers in some cases.)

The problems with Australia's fee-for-service primary care funding system are well known.

- Providers have a financial incentive to increase the number of procedures or tests performed, reduce consultation times (to increase the number of patients seen) and recommend follow-up appointments (Sivey 2013), which can lead to costly and unnecessary 'over servicing' (Cashin and Chi 2014).
- Patients may have an incentive to over-utilise consultations (or seek unnecessary consultations) where they do not face an out-of-pocket charge ('bulk billing') (NCOA 2014a).
- Providers may face inadequate incentives to use preventive health measures (Cashin and Chi 2014; Sivey 2013).
- Reimbursement for some services listed on the MBS is only available to GPs, even though such services could be safely provided by other professionals (such as nurse practitioners or pharmacists) (chapter 3).
- Some MBS items have not been assessed for clinical or cost effectiveness, and could lead to the delivery of ineffective or harmful care (section 2.1).

The use of different payment systems for hospitals, GPs and other providers can also discourage integration and cooperation within the health system (Bennett 2013; DPMC 2014). There are limited financial incentives for GPs to keep their patients out of hospital, or to collaborate with one another. This can lead to fragmented patient care or, in some cases, to patients being treated in public hospitals even though out-of-hospital care might be more appropriate (Cashin and Chi 2014; DPMC 2014). One implication of this is cost shifting between levels of government, or between governments and the private sector.

While these problems are widely acknowledged, they are not unique to Australia. And the solutions are not always clear, short of fundamentally changing the funding responsibilities and payment models for primary care.

There has been limited experimentation in Australia of potential ways to deal with these issues. One example is the introduction of Chronic Disease Management items on the MBS. This allows GPs to be reimbursed for preparing management plans for patients with chronic or terminal medical conditions, and for coordinating care activities with other health professionals (Department of Health 2014k).

Payment models that link providers' pay to the quality of care they deliver and outcomes for patients have also been attempted, through targeted programs. Examples include the Practice Incentives Program (ongoing) and the General Practice Immunisation Incentives Scheme (which ended in 2013). While the Practice Incentives Program has had some modest effects on health outcomes and costs (box 2.10), its effectiveness in terms of the quality and cost of health care has not been systematically evaluated.

However, experiences with such pay-for-performance schemes in other countries have not been universally successful. For example, the Quality and Outcomes Framework in

England has been credited with improving treatment for patients with chronic conditions, but may have been subject to ‘gaming’ by GPs who focus on increasing their performance against the rewarded indicators at the expense of other areas of patient care (Marshall, Charlesworth and Hurst 2014). More generally, international experiences point to some successes in pay-for-performance systems improving processes in primary care, but with limited evidence of improved health outcomes or cost savings (De Bruin, Baan and Struijs 2011; Flodgren et al. 2011; Scott et al. 2011).

Box 2.10 The Practice Incentives Program

The Practice Incentives Program (PIP) was introduced by the Australian Government in 1998. It provides financial incentives to participating general practices across ten domains (with higher incentives applied to practices outside major metropolitan centres). These include payments for doctors that treat patients with diabetes or asthma, as well as ongoing payments for achieving outcomes related to evidence-based guidelines. There are also payments relating to cervical cancer screening, Indigenous health services, adoption of e-health measures, provision of teaching to medical students, and aged care services (Department of Human Services 2014a).

Around 4900 general practices participated in the PIP in 2009-10, with annual payments ranging from around 4 per cent of income for metropolitan practices to over 8 per cent for rural and remote practices (ANAO 2010). More recent figures are not publicly available.

Initial implementation of the PIP has been found to be associated with short-term increases in diabetes testing and cervical cancer screening, although as these increases occurred over all practices it is difficult to attribute them to the scheme (Greene 2013). Another study found evidence that diabetes test referrals increased as a result of the PIP, leading to a modest improvement in the quality of care (Scott et al. 2008).

However, the scheme has had its problems. High compliance costs for doctors participating has resulted in limited take-up (ANAO 2010; PC 2003). Practices need to obtain accreditation from the Royal Australian College of General Practitioners (which can be costly), and claiming incentives requires billing separate codes specific to the PIP. Participation has been especially low among smaller practices and those serving disadvantaged populations (Cashin and Chi 2014).

Integrated care models

A further alternative is to trial more integrated types of payment models within primary care. This would essentially involve a single entity (such as a GP) being paid to manage multiple aspects of an individual patient’s care, subject to their performance and outcomes being monitored (box 2.11). The idea behind these schemes, which have been used elsewhere in the world, is to give this entity a financial incentive to reduce the total costs of care by letting them share in some of the cost savings. This is intended to encourage the responsible entity to reduce costs by investing in preventive health measures, or avoiding unnecessary hospitalisations and cost-ineffective procedures.

Box 2.11 Integrated payment models

Integrated payment models — also termed bundled payments or capitated contracts — essentially involve a single entity (a ‘gatekeeper’) being paid to manage multiple aspects of an individual patient’s care. This entity bears some financial risk for not meeting specified clinical or cost outcomes, against which their performance is monitored. Such models can involve:

- general practices receiving a lump-sum payment for each enrolled patient and being responsible for providing a range of care options according to the patient’s needs
- a health management company receiving an upfront payment to cover all or most aspects of a patient’s care (including general practice, allied health and hospital services) — either related to an acute episode or on an ongoing basis — which it can contract out to specific providers as required
- providers receiving an upfront payment to manage a specific chronic condition (such as diabetes) for a defined period of time (Charlesworth, Davies and Dixon 2012; Porter and Lee 2013).

These models have the potential to improve allocative efficiency by removing distortions that favour one type of service or provider over another. They provide incentives to reduce the total costs of care for each patient, such as by only using procedures that are clinically necessary, or by using preventive health measures to reduce future costs (Porter and Lee 2013). The models can also facilitate ‘team-based’ care and create a more coordinated patient experience (Blomqvist and Busby 2012).

Integrated payment models have been used in other countries — by both public and private funders — with some evidence of improved quality of care and reduced costs. For example, the *Gesundes Kinzigtal* scheme in south-west Germany has involved government health insurers contracting with a health management company to provide both primary and hospital care to patients. It has been credited with improving disease prevention, reducing costs and leading to implementation of several preventive health programs (Hildebrandt, Schulte and Stunder 2012).

Such models are becoming increasingly prevalent in the United States. A well-known example is the Alternative Quality Contract program (run by the insurer Blue Cross Blue Shield of Massachusetts), which involves a single payment being paid to a physician organisation to manage all aspects of a patient’s care during a specified time period. The program has been associated with greater improvements in quality and lower spending than for comparable populations in other states (Song et al. 2014). More broadly, the US Government recently set a target of tying 30 per cent of payments through its Medicare program to bundled payment arrangements (such as Accountable Care Organizations), and 85 per cent to quality or value metrics, by 2016 as part of its Accountable Care Act reforms (US Department of Health and Human Services 2015). In addition, the US Government has established an ‘Innovation Center’ to trial and evaluate new payment models for government-funded health care (CMS 2015).

One of the main downsides with these models is the difficulty in administering them. Calculating how much should be paid for each patient is complex, as is monitoring provider behaviour. When these are not done well, there are risks of providers avoiding high-cost patients for whom payments would not cover costs, or reducing the quality of care to save on costs (Blomqvist and Busby 2012; Charlesworth, Davies and Dixon 2012). However, ongoing advances in performance management and contract development may reduce these risks.

Such models have not been widely used in Australia. The main exceptions appear to be integrated funding for the primary care of Indigenous populations through Aboriginal Community Controlled Health Services (since the 1970s), and the pooling of Australian and state or territory government funding into ‘Multi Purpose Services’ that provide a range of health and aged care services to defined populations in some rural areas (since the early 1990s).

A more recent pilot project is the Diabetes Care Project, a three-year trial run by the Australian Government Department of Health in conjunction with several state governments, health care providers and others. It involved paying 150 general practices in Queensland, South Australia and Victoria through different payment models, one of which was a mixture of capitation and performance payments to care for patients with diabetes (AIHIN 2014). An evaluation of this trial appears to be currently underway (Department of Health 2014b).

Some other integrated care initiatives have also been trialled at a state government level (DPMC 2014). For example, the NSW Government is conducting demonstrations of integrated care models in three Local Health Districts, which are intended to build partnerships across primary and acute care, and support more patient-focused care (NSW Health 2015). Trials such as these offer a way to explore solutions to some of the problems with financial incentives for primary care.

Another development has been the creation of Medicare Locals in 2011, which are to be replaced with Primary Health Networks from 1 July 2015. Medicare Locals focus on coordinating primary health care for the population of a defined geographic region (rather than directly for individuals) (Horvath 2014). Primary Health Networks will continue this function. They will be required to identify gaps in service availability and use their funding to purchase services to fill such gaps for those local groups most in need (Department of Health 2014j). The networks will operate within the existing funding and institutional structures of the health system. They must consult with health care providers in the area — including private operators and state-government funded local hospital networks and community health services — so as not to duplicate existing services.

Design, consult, trial and evaluate

International experience demonstrates that no payment model is perfect. A key conclusion in the academic literature is that incentives matter, and that reforms need to be designed and implemented with great care. Not only are there technical difficulties, but there are also institutional and cultural factors that can impede change. Researchers have put forward several principles that can assist in the reform process (box 2.12).

Box 2.12 Principles for health care payment models

Researchers have pointed to several principles or factors that should be considered when seeking to reform how health care providers are paid.

- Schemes should be supported by appropriate organisational and governance structures, such as information technology systems, data collection and internal quality control.
- Indicators used to reward performance should be evidence based and transparent, and as closely linked to system objectives (such as health outcomes, care quality or efficiency) as is practicable.
- Clinicians and hospital managers can provide valuable input into the design and evaluation of schemes, and can help to identify weaknesses. Such engagement can also improve understanding and acceptance of schemes.
- Schemes that are credible and stable can provide certainty to providers to make long-term investments, but some flexibility is also needed to adjust to changing evidence or objectives.
- The costs and benefits of schemes should be robustly assessed prior to implementation, including through use of trials where the net benefits are uncertain but potentially significant. Reforms should only be implemented if the benefits (in terms of improved efficiency or quality of care) are likely to exceed the costs (including financial and compliance costs).
- Schemes should be designed to support ongoing evaluation of their effectiveness.

Sources: Cashin et al. (2014); Charlesworth, Hawkins and Marshall (2014); Marshall, Charlesworth and Hurst (2014); Meacock, Kristensen and Sutton (2014); Scott and Connelly (2011); Scott (2008).

Alternative ways to pay health care providers are likely to be of interest to all health funders.

- **The Independent Hospital Pricing Authority could introduce a quality and safety dimension to pricing within activity-based funding for public hospitals, subject to current work confirming the feasibility of doing so. This can be done in conjunction with state and territory health ministers, which are well placed to trial different approaches to public hospital funding (such as excluding adverse events from payment).**
- **The Australian Government Minister for Health could do more to trial and evaluate new payment models (especially for primary health care), such as for particular geographic areas or patient groups.** This work could build on the roles and activities of Primary Health Networks.
- **The Australian, state and territory health departments should conduct formal evaluations of payment model trials that have been conducted to date, and publish the outcomes and policy lessons.**

An important part of trials will be to work closely with relevant stakeholders — including GPs, hospital managers, other health professionals, private health insurers and patients — to identify success factors and gain acceptance for reforms. **The Australian Government Department of Health could take a national leadership role in investigating reform**

options, working with state and territory governments, private health insurers and other stakeholders.

Implementing new payment models on a broader scale (including across all primary care, or over both primary and hospital care) would be more challenging, and would likely require larger-scale changes to the funding responsibilities of each level of government and private health insurers. **A comprehensive review of the Australian health care system — instigated by the Australian Government Minister for Health — would provide an opportunity to investigate ways to better align financial incentives with health policy objectives (chapter 5).** This review could assess the potential benefits and costs of alternative payment models, draw lessons from past trials and international experience, and consult with relevant stakeholders.

Finally, while payment models tend to attract a lot of attention in reform discussions, health system efficiency is much broader than this. Work on payment arrangements should be progressed alongside other efficiency-enhancing reforms, as discussed throughout this paper. Indeed, payment reforms are usually most fruitful when combined with other initiatives to improve health care quality or efficiency. Some have argued that the greatest benefits of change may be indirect, such as improvements in cooperation between health professionals, or in performance reporting and governance (Cashin, Chi and Borowitz 2014). Performance reporting is discussed in chapter 4.

2.4 Preventive health

There is a general view that Australia needs to invest more in preventive health to reduce the disease burden, improve health outcomes, and get better value from health expenditure. Many proposals have been put forward, with varying levels of supporting evidence. However, identifying cost-effective investments in preventive health is challenging. And even where preventive health measures are well-defined and backed by evidence, fragmented funding and policy responsibilities can weaken incentives to implement these initiatives. Addressing these issues is crucial to capitalising on prevention opportunities.

What is preventive health?

Preventive health means taking steps to avoid illness or reduce its future impacts. Individuals themselves invest in a range of preventive health measures — such as exercise, good diet and checking themselves for skin or breast cancers. However, this investment in prevention may be suboptimal, either because individuals do not have the requisite information, or because they may undervalue the long-term benefits. As such, health care professionals, governments and insurers are also involved in promoting preventive health, and target it through a range of instruments. These include:

- price signals to influence consumer behaviour, such as taxes on alcohol and cigarettes

-
- regulations to discourage undesirable behaviours, such as cigarette packaging laws, or to mandate desired behaviours, such as seatbelt and child restraint laws
 - regulations to improve information disclosure, such as food labelling requirements
 - information and moral suasion to influence behaviour, such as campaigns that encourage healthy eating and exercise
 - clinical interventions, such as screening for diabetes or prostate cancer, and counselling patients to quit smoking.

The benefits of preventive health go beyond the direct impacts on people's health and reduced treatment costs. Good preventive health can also improve long-term participation in the labour force, economywide productivity and, ultimately, Australians' quality of life (PC 2006).

Barriers to investing in preventive health

Australia has a strong record in many areas of preventive health, and has achieved notable successes in reducing road fatalities, smoking, dental decay, sudden infant death syndrome and skin cancer, following regulation changes and the use of multi-faceted prevention campaigns supported by governments (ANPHA 2013; Moodie 2013; Tursan d'Espaignet et al. 2008).

However, Australia's spending on preventive health is relatively low by OECD standards — around 1.5 per cent of total health expenditure, or \$2.1 billion, in 2012-13, of which governments paid 95 per cent (AIHW 2015a). Many researchers and organisations have argued that Australia is missing good opportunities to invest in preventive health. For example, Carter (2012) estimated that investing \$4 billion in reducing blood pressure and cholesterol would lead to future savings in disease treatment costs and one million additional years of healthy life across the population. Cadilhac et al. (2011) estimated that reducing rates of smoking, high-risk alcohol consumption, obesity, physical inactivity and other behaviour could reduce annual health care expenditures by around 2 per cent.

There are two main reasons why too little is being invested in preventive health. First, there is a lack of evidence about what works, with many proposed interventions not supported by evidence that demonstrates their cost effectiveness. Second, shared responsibility for preventive health reduces the incentive for any one party to invest in it; this is especially true for measures that have long-term benefits but short-term costs. These impacts can be exacerbated by regulatory arrangements that limit the scope of private health insurers to invest in preventive health.

Limited evidence about what works

Promoting behaviours that are consistent with good health outcomes — and deterring less desirable behaviours — is an appealing and sensible objective. However, those calling for more investment in preventive health often overlook how difficult it is to change the specific behaviours of specific groups of the population.

The investments suggested above illustrate this. While avoiding particular outcomes (such as high blood pressure) would no doubt be beneficial, the challenge is to work out *how* to do this in a cost-effective way. This is particularly true for complex health conditions such as obesity, which require individuals to change their behaviour. For this reason, caution is needed when using the success of past preventive campaigns (such as those focused on seatbelts and fluoridation) to motivate investment in measures targeted at more intricate problems.

Indeed, the recent Australian Government healthy lifestyle ‘Swap It, Don’t Stop It’ campaign is a reminder of how difficult it can be to achieve a good objective (a reduction in obesity) in a cost-effective way — the program was found to have influenced the behaviour of only 14 per cent of its intended audience (Whyte 2012), and while a formal evaluation of this program is not publicly available, doubts have been raised about its cost effectiveness (Zimmet 2012). Similarly, an analysis of 23 programs aimed at increasing fruit and vegetable consumption found that only five were cost effective, and even those had only a marginal impact on future disease burdens (Cobiac, Vos and Veerman 2010).

Evaluating prospective preventive health ideas is difficult, because:

- health outcomes are the result of many factors, making it difficult to attribute changes to specific health initiatives
- impacts may occur with a long time lag after preventive measures are initiated
- results from small-scale trials are not necessarily generalisable to the broader population (PC 2006).

Researchers have pointed to other weaknesses in the evidence base. In particular, there is wide variation in the methods used to evaluate interventions (Dalziel, Segal and Mortimer 2008), and the small scale of interventions coupled with limitations in methods makes it difficult to generalise estimates of the long-term costs and benefits of specific prevention measures (Merkur, Sassi and McDaid 2013). Moreover, some programs that are implemented are not subjected to a formal and public evaluation, making it hard to apply any lessons to future interventions.

These difficulties do not mean that cost-effective preventive health interventions are impossible. Rather, they highlight the importance of carefully designing, trialling and evaluating prevention options, consulting with key stakeholders, and drawing lessons from past successful and unsuccessful interventions.

Fragmented responsibilities

Even in the presence of good evidence that indicates specific preventive measures would improve health outcomes and reduce future treatment costs, the investment may not be forthcoming. Indeed, a number of interventions that have been cited as highly cost-effective by researchers and health experts (such as reducing television advertising of high-fat and high-sugar foods and beverages to children, or mandatory salt limits for processed foods) have not been implemented (ANPHA 2013; Moodie 2012).

Fragmented policy and funding responsibility for preventive health is one explanation for this. While policy responsibility rests mainly with the Australian and state governments' health departments, other government departments (such as transport and environment) and local governments are also involved. And individuals and private health insurers invest in preventive health to some extent too, as do community organisations and businesses. This fragmentation can impede cost-effective investment because no single party reaps all the benefits of investments in prevention — the gains from better population health are shared between individuals, different levels of government and private health insurers. The corollary is that the costs and risks of underinvesting in preventive health are borne by many.

In addition, governments may be reticent about impinging on individuals' autonomy and trying to change their behaviour. While this reticence is sometimes justified, it can also arise due to political resistance to regulatory interventions — particularly from industry lobbyists and advocacy groups (Moodie 2012) — or resistance to spending taxpayer money on measures with highly uncertain and long-term benefits.

Finally, regulatory arrangements can sometimes limit the scope to invest in preventive health. This is readily apparent in the case of private health insurance, as discussed in chapter 3.

What can be done?

The potential value of avoiding disease and illness (or reducing its effects) will only increase over time. In Australia, as in other countries, non-communicable chronic diseases such as cardiovascular disease, diabetes and cancer represent a growing share of the overall disease burden (ANPHA 2013). Many of these diseases can be avoided or prevented through behavioural choices, such as diet, physical activity, and reducing tobacco and alcohol use (ANPHA 2013). Indeed, it has been estimated that around one-third of Australia's total disease burden is attributable to modifiable risk factors (NPHT 2009).

There is no 'quick fix' to strengthen the incentives faced by the responsible parties in Australia's health care system to invest in cost-effective (and efficient) preventive health measures — especially where there are short-term costs but long-term benefits. These incentives are a product of the institutional and funding structures of the health system, and

it is not practical or desirable to revise roles and responsibilities for preventive health in isolation.

A comprehensive review covering all elements of the health system would provide an opportunity to consider options to strengthen incentives for cost-effective investment in preventive health. The Australian Government Minister for Health is the appropriate person to instigate this review (chapter 5).

That said, the undertaking of such a review does not preclude shorter-term improvements. **There is much to gain from the Australian, state and territory governments trialling and evaluating (and publishing the results of) preventive health programs as a matter of course.** Careful design and consultation when developing new initiatives are important. Private health insurers can also play a positive role in preventive health (chapter 3).

3 Opportunities for regulatory reform

The need for governments to regulate health care is well established. Without regulations, consumers may receive poor quality or harmful health services, or may not receive equitable access to health care. As a major financier of health care, governments also use regulations to manage costs. But getting regulations right in practice is difficult. Within the broad objectives that Australian governments set for health — such as safe, evidence-based, affordable and accessible care — there are many possible regulatory settings that can be used. Sometimes regulations meet their objectives well and at least cost; in other cases, they are ineffective, excessively costly or have unintended consequences that undermine their objectives. And sometimes health care demand, technologies or policy objectives change, meaning that regulations that once worked well become outdated.

There are opportunities for regulatory reform in several areas of the Australian health care system. These include workforce scopes of practice (section 3.1), the location and ownership of pharmacies (section 3.2), the pricing of Pharmaceutical Benefits Scheme medicines (section 3.3) and private health insurance (section 3.4). In identifying ways to streamline or improve regulations in these areas, the Commission has drawn on input from its roundtable as well as follow-up research (chapter 1).

3.1 Health workforce

The health workforce is an integral part of Australia's health care system. Labour costs comprise a large share of health expenditure, and so making better use of health workforce skills and competencies could lead to large efficiency gains. There is evidence that some tasks that are currently the exclusive responsibility of particular professionals could be performed just as effectively by others, without compromising patient safety or the quality of care. Carefully relaxing some specific regulations affecting scopes of practice could allow workers to be better allocated to tasks where they can add the most value, and reduce the labour resources needed to effectively deliver specific health care services (freeing up workers to deliver more services and potentially improving patients' access to health care).

Greater workforce flexibility can deliver significant gains

The tasks that health professionals can perform are tightly regulated, and for good reason: health care delivered by unqualified or incompetent practitioners can harm patients. Most health professionals — including doctors, surgeons, dentists, nurses and pharmacists —

must obtain a minimum level of qualifications and experience to obtain registration (legal permission to practise). Registration standards, along with clinical protocols, define what tasks can be performed by which workers.

However, these regulations — coupled with entrenched work practices — can constrain the flexibility of the workforce to adjust to changing circumstances and reduce workers' job satisfaction. In some cases, regulations may require that tasks be performed by one type of worker (such as a registered nurse) even though they could instead be safely delegated to another (such as a nursing assistant). Health professionals in Australia have long expressed concern that their training and skills are not optimally utilised when they spend time on relatively low-skilled or routine tasks that might be better allocated to other workers (PC 2005a).

Extending the scopes of practice for particular health care professionals — subject to appropriate education and training — could produce a more flexible, sustainable and responsive workforce while maintaining (or even improving) the quality and safety of care. The potential benefits include:

- improved timeliness of care delivered to patients and greater access to care (by freeing up more highly skilled clinicians to perform more complex tasks), leading to fewer costs from delays and possibly greater patient satisfaction
- increased job satisfaction for (and retention of) health care workers
- reduced costs of service delivery (although these could be offset by the costs of training and remunerating workers to take on more responsibilities)
- greater operational efficiencies for hospitals, general practices and other organisations arising through greater flexibility in rostering and hiring
- greater capacity to respond to changes in demand for health services (Duckett and Breadon 2014b; PC 2005a).

Although consideration must be given to all the associated costs and benefits when making decisions to amend workforce scopes of practice — including impacts on patient safety, the quality of care, and education and training providers (PC 2005a) — the potential to expand workforce roles has been identified in several areas (table 3.1). Some of these specific expansions have been adopted in other countries without compromising the quality of care — for example, specialist nurses have long been able to provide endoscopies in the United States and United Kingdom, and pharmacists are permitted to provide vaccinations in the United States, United Kingdom and New Zealand (Duckett and Breadon 2014b; NCAH 2015; NSW Ministry of Health 2013). Internationally, evaluations have found that reforming health workers' scopes of practice can allow for quicker responses to changes in demand (Leggat 2014).

Table 3.1 Potential ways to expand workforce roles

<i>Tasks</i>	<i>Currently done by</i>	<i>Potential for expanded duties</i>
Performing basic personal care (washing patients) and indirect care (clerical work)	Registered nurses	Nurse assistants
Performing endoscopy and sedation procedures	Medical practitioners	Nurse practitioners
Assisting with patient procedures, administration tasks and patient transfer	Allied health professionals	Allied health assistants
Administering vaccines, monitoring blood pressure, diabetes testing, and issuing some medical certificates and repeat prescriptions	General practitioners	Pharmacists or nurse practitioners
Diagnosing patients, performing examinations, prescribing medicines, and referring patients to specialists	General practitioners	Physician assistants
Diagnosing and treating some patients within hospital emergency departments	Medical practitioners	Physiotherapists
Treating patients in their usual place of residence rather than in hospital emergency departments	Medical practitioners	Paramedics

Sources: CHSD (2013b); Duckett and Breadon (2013a, 2014b); LSILC (2014); NCOA (2014a); PGA (2014b).

Some progress has been made, but there is more to do

There has been some progress towards improving the flexibility of Australia’s health workforce, including by redefining scopes of practice.

- There have been several successful trials of roles being expanded (and tasks delegated) within parts of the Australian health workforce (box 3.1).
- COAG established Health Workforce Australia in 2010 to lead and coordinate health workforce reforms across the Australian, state and territory governments, following a recommendation from the Productivity Commission in its report on Australia’s health workforce (PC 2005a). Health Workforce Australia advised governments and funded programs on a range of workforce matters, including ways to expand professional scopes of practice and address barriers to reform (CHSD 2013b; HWA 2013). It was abolished in 2014 with its functions reported to have been absorbed into the Australian Government Department of Health.
- State and territory governments established the National Registration and Accreditation Scheme (through COAG) to consolidate the regulation of Australia’s main health professions (Department of Health 2013a). From 2010, a single national board for each health profession was established to manage practitioner registration and approve accreditation standards for training courses.
- Also in 2010, the Australian Government allowed nurse practitioners and midwives to provide specific services through the Medicare Benefits Schedule (MBS) and Pharmaceutical Benefits Scheme (PBS) that previously could only be provided by

medical practitioners. These services include consultations and referrals, as well as some imaging, pathology tests and prescription of certain medications (ACNP 2013). However, the limited range of items that can be accessed has meant that nurse practitioners have not been widely used in primary care settings (Helms, Crookes and Bailey 2015).

Box 3.1 Potential benefits of extending scopes of practice

Nursing assistants could take on some nursing roles

A trial by Austin Health (a public hospital group in Victoria) in 2009 found that nursing assistants could take on some tasks usually performed by registered nurses without reducing quality of care. These tasks covered hygiene, manual handling, feeding and restocking of ward supplies. The trial found that greater use of nursing assistants reduced staff overtime, improved staff and patient satisfaction and enabled registered nurses to focus on more complex tasks (PwC 2011).

Nurse practitioners could perform some tasks done by doctors

There have been several trials of nurse practitioners performing tasks that are traditionally done by doctors. In 2006, a trial in South Australia found that allowing nurses to provide sedation (following 12 weeks of training) could create a more collaborative approach among professionals to patient care and improve patient safety and satisfaction (Jones, Long and Zeitz 2011). Internationally, trials have found that allowing nurses to provide endoscopies (subject to adequate training) can reduce costs without impacting health outcomes (Dorn 2010; Lee et al. 2012; Maslekar et al. 2010).

Allied health assistants could do more tasks

The Victorian Government has identified eight case studies where allied health assistants were used to free up allied health professionals to focus on more complex tasks (such as diagnosis and treatment planning) (Victorian Department of Health 2012). This led to expanded use of allied health services by patients. An earlier Victorian study found that making greater use of allied health assistants can improve patient outcomes (Nall, Cary and Blackburn 2007).

Pharmacists could administer vaccines

Several states have shown interest in giving pharmacists authority to administer vaccines (traditionally administered by general practitioners or registered nurses). Under the Queensland Pharmacist Immunisation Pilot, over 10 000 vaccinations were administered by registered pharmacists to the general public in 2014, with no significant adverse events reported (Newman and Springborg 2014). Other jurisdictions, including Western Australia, South Australia and the Northern Territory, have taken steps to allow pharmacists to provide vaccinations (LSILC 2014; NCAH 2015; Northern Territory Government 2014).

However, more could be done. All levels of government, and ultimately taxpayers, stand to benefit from greater flexibility in the health workforce. For example, the Grattan Institute has estimated that extending the professional roles of nursing assistants, nurse practitioners, allied health assistants and pharmacists could lead to savings in the order of \$430 million per year across the health system (Duckett and Breadon 2014b). There is scope to build on past trials and experiences in other countries, and to investigate new

opportunities to extend the responsibilities of different groups of health professionals. This will be of increasing importance as demands on the health system change and advances in technology open up new possibilities (such as the ability to deliver more services outside of a hospital setting) (Leggat 2014).

Getting on with health workforce reform

State and territory governments are key to advancing health workforce reform and should take responsibility for achieving greater progress. The states stand to be significant beneficiaries of reform through their roles in funding and managing public hospital systems. In this capacity, they have a role to play in ensuring hospitals have the flexibility to assign tasks to a broader range of health professionals (for example, states could update clinical protocols or review nurse–patient ratios). They are also well placed to consult with health professionals about potential reforms and to facilitate cultural change within workplaces. Some states have already set up bodies to perform such tasks (for example, the Victorian Government has established a Health Workforce Reform Implementation Taskforce).

State and territory health ministers can initiate role expansions, based on evaluations of past and current trials, and amend scopes of practice accordingly. Individual states, or individual hospitals, can drive innovations and improvements in good practice which, over time, make their way to other jurisdictions or hospitals through competitive pressures or knowledge sharing.

There is also a role for cooperation between state and territory governments. In most cases, more flexible use of health professionals’ skills would require changes to national registration and accreditation arrangements, including by expanding regulated scopes of practice and accreditation processes for educational and training courses. This process could involve the Australian Health Practitioner Regulation Agency, which supports the national registration boards.

The Australian Government has a role to play too. Specifically, to facilitate expansions in workforce roles, **the Australian Government Minister for Health could identify where there would be benefits in expanding the types of health professionals that can access reimbursement for MBS and PBS items, and monitor the effectiveness of any changes.**

There has been some progress in this area through the creation of new MBS and PBS items specifically for nurse practitioners and midwives (as noted above), and the earlier creation of Chronic Disease Management items for which some allied health professionals can access the MBS (Department of Health 2014c). But funding restrictions have held up other expansions to workforce roles — such as pharmacists providing vaccinations (LSILC 2014) — and so there may be scope for further changes, thereby giving states and territories a greater incentive to pursue the necessary regulatory reforms.

The Australian Government Minister for Health is also well placed to promote and champion workforce reform efforts at a national level, in consultation with the states and territories. This could be done as part of broader Australian Government policy initiatives related to the health workforce, such as projecting future workforce needs, identifying ways to retain existing health workers and reviewing education and training arrangements. Health Workforce Australia used to advise on such matters, as well as on ways to address barriers to reform (HWA 2012).

It is important that momentum continues in these policy areas at the national level. This will require taking a long-term view and ongoing work to trial and evaluate changes in scopes of practice. Sustained effort will also need to be made in consulting with, and bringing along, affected stakeholders to successfully implement reforms that are in the public interest.

3.2 Pharmacy

The Australian retail pharmacy sector is highly regulated. State legislation restricts pharmacy ownership to registered pharmacists and limits the number of pharmacies a single pharmacist can own. The Australian Government regulates the location of retail pharmacies approved to dispense subsidised medicines under the Pharmaceutical Benefits Scheme (box 3.2). These regulations are additional to professional registration requirements for pharmacists, pharmacy licensing requirements, the *Competition and Consumer Act 2010* (Cwlth), land-use planning regulation and other rules.

Restrictions on retail pharmacy location and ownership are clearly more about protecting the vested interests of incumbent pharmacists than about promoting consumers' interests and maximising benefits for society as a whole. These rules limit competition in the sector and can make it harder for some consumers to access pharmacy services. There is much to gain from removing these regulations while targeting safety and access objectives more directly.

Location and ownership restrictions limit competition and access

The adverse impacts of location and ownership restrictions on pharmacies have long been recognised. Multiple reviews have found that these restrictions serve to protect incumbent businesses from competition and act to reduce consumer access, convenience and value (box 3.3).

Box 3.2 Pharmacy location and ownership restrictions

Location

A pharmacist seeking to open a new pharmacy, or relocate an existing pharmacy, must seek approval from the Secretary of the Australian Government Department of Human Services, who must refer the application to the Australian Community Pharmacy Authority for assessment. The authority assesses the application against the location rules referred to in the Fifth Community Pharmacy Agreement — an agreement between the Australian Government Minister for Health and the Pharmacy Guild of Australia — which are given legal effect through a Ministerial Determination under the *National Health Act 1953* (Cwlth).

These location rules are complex. In essence, they specify that:

- a new pharmacy may not open within a set distance of an existing approved pharmacy — generally 1.5 kilometres in urban areas and 10 kilometres in rural areas
- in relocating a pharmacy by more than 1.5 kilometres, it must be at least 1.5 kilometres from the nearest approved pharmacy
- a pharmacy must not be directly accessible to the public from within a supermarket (although pharmacists can operate pharmacies that also sell supermarket products).

Some exemptions apply to pharmacies located within shopping centres, medical centres and private hospitals. The location rules do not apply to pharmacies that have been in the same place since before the rules were introduced in 1990 (for example, in established urban areas).

Ownership

All state governments (but not the territories) restrict ownership of pharmacies to pharmacists (with some jurisdictions making exceptions for nonprofit friendly societies). They also restrict the number of pharmacies a pharmacist can own or have a financial interest in (the maximum ranges from 4 to 6, depending on the jurisdiction). These regulations do not prevent pharmacies (owned by different pharmacists) from operating under a common name and brand.

Sources: Australian Government (2011, 2014); Competition Policy Review (2015); Department of Health (2014i); Hattingh (2011).

Box 3.3 Impacts of pharmacy regulation

Concerns about the costs and anticompetitive effects of pharmacy location and ownership regulations are longstanding and have been widely raised. For example, the National Competition Policy Review of Pharmacy (Wilkinson Review) noted that:

[T]hese location controls are an anti-competitive layer of regulation and government intrusion on the community pharmacy industry and market ... [T]hey also help to insulate pharmacies from new competitors in their catchment areas. (COAG 2000, p. 9)

The Productivity Commission's submission to the Wilkinson Review stated that:

These restrictions on competition accordingly inflate the costs of pharmacy services and reduce consumer convenience. They have also retarded the development of alternatives to conventional pharmacy services — including mail-order pharmacy, which is widely used in a number of other countries. (PC 1999, p. vii)

(continued next page)

Box 3.3 (continued)

Further, in its Review of National Competition Policy Reforms, the Commission argued that:

... there seems little doubt that whatever the benefits, pharmacy restrictions potentially impose large costs on consumers, taxpayers and the wider community ... Australian pharmacy restrictions appear quite stringent relative to several other countries and compared to the remaining restrictions on competition in other health sectors. (PC 2005c, p. 264)

The National Commission of Audit considered that:

Allowing a wide range of new competitors to enter the market would provide greater access and choice for consumers and, over time, place greater downward pressure on pharmaceutical prices. This could involve non-pharmacists owning pharmacies and relaxing location rules allowing pharmacies to collocate in other retail outlets such as supermarkets. (NCOA 2014a, p. 229)

The Competition Policy Review (Harper Review) considered that:

... [P]resent restrictions on ownership and location are unnecessary to uphold the quality of advice and care provided to patients. Further, it is clear that such restrictions limit both consumers' ability to choose where to obtain pharmacy products and services, and providers' ability to meet consumers' preferences. (Competition Policy Review 2015, p. 189)

Some pharmacy owners have themselves backed the need for reform. For example, in its submission to the Competition Policy Review, Chemist Warehouse (2014) argued that the location and ownership rules constrain consumer choice, inflate prices, protect out-dated business practices, reduce innovation and reduce access to pharmacy services in some communities.

Experiences in several European countries have shown that relaxing location and ownership restrictions on pharmacies can benefit consumers through an increase in the number of pharmacies, longer opening hours, shorter waiting times and a larger range of products and services available (UK Office of Fair Trading 2010; Vogler 2014). There is also evidence of supermarket pharmacies in the United Kingdom offering lower prices and higher-quality advice to consumers than standalone retail pharmacies (Department of Health 2014i).

By limiting the number of pharmacies that can open in a given area, the location rules reduce accessibility and convenience for many consumers, and make it harder for consumers to compare price and service offerings across pharmacies. This acts to reduce the competitive pressure on pharmacies to reduce prices or increase service offerings (including opening hours). In competitive markets without these restrictions, firms would be able to open or relocate where the commercial opportunities are greatest. But this is not the case for pharmacies: the location rules can prevent a pharmacy opening in a high-demand area if another pharmacy is already present, or from co-locating with another business (such as a supermarket) where this improves convenience for consumers.

Pharmacy ownership rules also hurt consumers by reducing innovation and entrepreneurship in the sector. Excluding corporations (such as supermarkets and general retail outlets) and non-pharmacists from owning pharmacy businesses limits the scope to leverage specialised management skills and expertise that could reduce costs and improve service quality. Coupled with limits on the number of separate businesses a pharmacist may own, this limits opportunities to reduce costs (and prices) by operating on a larger scale or across a broader range of service offerings.

These rules have had a significant impact. As of June 2014, there were around 5500 retail pharmacies approved to supply PBS medications in Australia (ANAO 2015) — a number that has not significantly changed since the location rules were introduced in 1990, despite the population having grown by more than 5 million and the number of scripts dispensed under the PBS by over 90 million (Clarke 2014). Between 2005 and 2010, about one third of applications to open new pharmacies were rejected (Urbis 2010), and in the three years to 2012, around 40 per cent of applications were rejected (Department of Health 2014i) — suggesting that many pharmacy owners were prevented from providing services in locations they considered to be commercially viable.

Arguments in support of the restrictions do not stack up

The most common arguments put forward for retaining current location and ownership restrictions — most prominently by incumbent pharmacy owners — are that they:

- ensure equitable access for rural and remote communities
- are needed to maintain ethical and professional standards
- guard against ‘too many’ pharmacies in a region
- prevent the exercise of market power (ANAO 2015; PC 1999; PGA 2014a).

These arguments are not compelling and have been widely and repeatedly refuted (including by the reviews cited in box 3.3). Proponents of retaining the location and ownership restrictions often point to the good outcomes for consumer safety and access that have been achieved. However, there is no clear link between the location and ownership restrictions and the attainment of these outcomes. And given the other policy measures in place for safety and access purposes (including registration requirements for pharmacies and more direct measures to improve access in rural areas), the restrictions are unlikely to play a significant role. They are a poorly targeted and costly way of pursuing safety and access objectives, and have come at a significant cost to the community.

Location rules are a blunt and costly tool for supporting community access

There is no obvious reason why setting a minimum distance between pharmacies (as the location rules require) should of itself lead to more pharmacies opening in rural or remote areas — pharmacists will have an incentive to open a business in a particular location where it is commercially viable to do so, which in turn will depend on the size of the customer base. If it is not commercially viable, there is no reason why a pharmacist would be expected to set up a shop there — let alone two pharmacies in close proximity.

Governments can more directly encourage pharmacists to operate in underserved locations — without restricting competition — by providing direct subsidies. In fact, the Australian Government already does this through programs which directly subsidise retail pharmacies located in rural and remote areas for the additional costs of servicing those areas, and

which provide funding to pharmaceutical wholesalers to supply the full range of PBS medicines to any pharmacy in Australia regardless of its location (ANAO 2015).

This approach is more in line with how equity and access objectives are targeted for other health and social services, such as general practices and childcare — and for pharmacy services in other countries such as England (PSNC 2015). There is no good reason why Australian pharmacies should be treated differently to other parts of the economy, to the detriment of competition and consumer choice across the whole retail pharmacy market.

Consumer safety depends on pharmacists' conduct, not business ownership

Professional standards and consumer safety are an important concern. However, as the quality of pharmacy services depends on the conduct, integrity and professional skills of pharmacists, regulations regarding who may practise pharmacy, and the way pharmacy is practised, are a far more effective means of promoting patient safety than ownership restrictions. Such measures are already in place, including national registration requirements for pharmacists, regulations on the advertising of medicines, codes of ethics and professional practice standards (Competition Policy Review 2015).

These are similar to measures used to maintain standards in other parts of the health sector — including general practice, nursing and surgery — where there are no specific regulations on who can own a business. As long as reforms retain the requirement that only a registered pharmacist can dispense regulated pharmaceutical products, the safety of consumers remains in the hands of the trained professional.

There is no reason to treat pharmacy differently from other sectors of the economy

The *Competition and Consumer Act 2010* (Cwlth) contains provisions to protect consumers from inappropriate market conduct, including the exercise of market power (including by supermarkets or other companies that may enter the pharmacy sector if ownership rules are relaxed). This Act applies to a broad range of sectors across the economy. Separate arrangements for preventing the abuse of market power in the pharmacy sector are not necessary.

Moreover, it is not clear why governments need to concern themselves with whether there are 'too many' pharmacies operating in a particular region (or on what basis they are qualified to make such judgements). Businesses are much better placed than governments to decide whether it is commercially feasible to operate a business, taking into account the number and location of competitors already in the market. And where there are apparently too few pharmacies, as noted above, subsidy options are already available.

Removing location and ownership restrictions would benefit the community

All regulations should be reviewed over time to ensure they remain relevant, proportionate and cost effective. Pharmacy location and ownership regulations do not meet these tests — they limit competition, reduce consumer value and convenience, and are out of step with other areas of the health sector (such as general practice).

Reform will require action by the Australian and state governments. Liberalising the location rules will require the Australian Government Minister for Health to remove these restrictions by Ministerial Determination. State governments can act unilaterally to remove ownership restrictions through legislative amendment.

In doing so, each government will need to consult with relevant stakeholders, including existing pharmacy owners (via the Pharmacy Guild of Australia), the Pharmaceutical Society of Australia, consumers and others. Resistance by vested interests is not a sufficient reason to retain regulations that are not in the public interest. Governments will need to publicly build the case for reform and ensure that other policy arrangements are adequate to protect consumers (through the continuation of registration standards to protect safety, and subsidies to support access to pharmacy services in rural areas). Removing location and ownership restrictions does not mean removing all regulations on pharmacies.

In the long term, reform is inevitable. Ongoing developments in technology, including the Internet, are already shaping consumers' expectations about how medicines can be bought. Consumers will increasingly question why they cannot purchase pharmaceuticals in the same way that people in other countries do — for example, in New Zealand, the United Kingdom and United States, consumers can buy prescription medicines in supermarkets (dispensed by a qualified pharmacist) or fill prescriptions online. Removing location and ownership restrictions now would give Australian pharmacists the opportunity and incentive to adjust to these developments.

There is also scope for the Australian Government Minister for Health to improve transparency in pharmacy policy formulation. The Australian Government has been criticised for inadequate transparency and financial accountability in its negotiation and administration of the Fifth Community Pharmacy Agreement (through which the government committed to maintain the location rules) (ANAO 2015). Under this agreement, the government will pay around \$15.4 billion to retail pharmacies over the period 2010–2015, covering dispensing fees, professional programs and funding for wholesalers. The quantum of funding and the restricted pool of recipients further elevates the imperative for transparency and cost effectiveness under the Agreement.

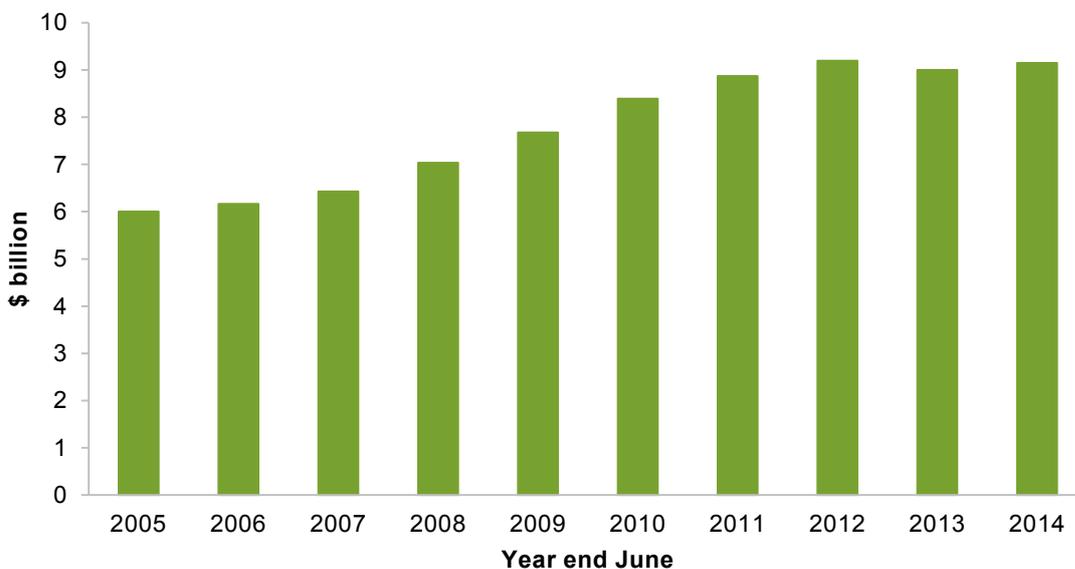
Governments can also progress with reforms in other policy areas that would benefit pharmacists — for example, as previously mentioned, broadening workforce scopes of practice could open up new opportunities for pharmacists to deliver vaccinations, blood-pressure testing and other services (section 3.1).

3.3 Pharmaceutical Benefits Scheme pricing

The Australian Government subsidises medicines through the Pharmaceutical Benefits Scheme (PBS). About 210 million prescriptions were covered by the PBS in 2013-14, at a cost to the government of almost \$9.15 billion. The Australian Government funded 83 per cent of the total cost of PBS prescriptions that year (on a cash accounting basis), with direct patient co-payments funding the remainder (Department of Health 2014f). Australian Government expenditure on the PBS has grown by 4.3 per cent per year in nominal terms over the past decade (figure 3.1). Some of the factors driving this growth (such as access to new technologies) reflect the relatively high standard of living enjoyed by Australians.

However, there is evidence that the institutional and regulatory arrangements underpinning the PBS may be adding unnecessarily to the cost of the scheme. There appears to be scope to amend these arrangements so that Australian taxpayers and patients get better value from PBS expenditure.

Figure 3.1 **Australian Government PBS expenditure^a**



^a Nominal expenditure on an accrual accounting basis.

Data source: Department of Health (2014f).

Complex arrangements govern PBS listing and pricing decisions

Several bodies play a role in determining which medicines are subsidised by the Australian Government, patient access to those medicines, the nature of PBS subsidies, and the total cost (to patients and taxpayers) of PBS medicines.

First, medicines must be registered on the Australian Register of Therapeutic Goods (ARTG) before they can be supplied in Australia. The Therapeutic Goods Administration is responsible for assessing new medicines for safety, quality and efficacy; once it has approved a medicine, that medicine is placed on the ARTG and can be supplied on the Australian market.

Second, for any medicine registered on the ARTG, an application can be made to have the item listed on the PBS, which means it will be subsidised for some or all patients whose doctors prescribe it. The Pharmaceutical Benefits Advisory Committee (PBAC) is responsible for assessing the clinical and cost effectiveness of medicines seeking admission to the PBS (apart from some generic medicines), and for providing advice and recommendations to the Minister for Health about whether a medicine should be subsidised, and any conditions for listing.

Once PBAC has recommended a medicine be listed, a number of further processes need to occur. These include pricing negotiations between the medicine manufacturer and the Department of Health to formally agree the approved ex-manufacturer price. This price has a direct bearing on the expected cost to the Australian Government (and taxpayers) of listing medicines on the PBS, as explained below. The Minister for Health (or Cabinet) is then responsible for determining:

- whether the medicine is to be listed on the PBS
- any restrictions on the use of the medicine (for example, the maximum quantity per prescription, or the maximum number of repeats before a re-examination of the patient is required)
- any restrictions on the patient group(s) or medical condition(s) that would be eligible for the subsidised medicine.

A new medicine cannot be listed on the PBS without a positive recommendation from PBAC. The Minister for Health may approve listings with an estimated annual cost of \$20 million or less. If a medicine is expected to cost more than \$20 million annually, the listing decision is made by Cabinet.

What does the Australian Government (and taxpayers) pay?

A network of around 5500 retail pharmacies is the primary means of dispensing PBS medicines to the Australian public (ANAO 2015). (Some hospitals and doctors can also supply PBS medicines, although reimbursement arrangements differ for these providers.) Retail pharmacies claim reimbursement for dispensing PBS medicines from the Australian Government Department of Human Services. The Department calculates the amount owed by the Australian Government to the pharmacy as a PBS dispensed price less any patient co-payment (for each medicine).

PBS dispensed prices are usually determined by the Pharmaceutical Benefits Remuneration Tribunal and set out in Community Pharmacy Agreements between the Minister for Health

and the Pharmacy Guild of Australia (Department of Human Services 2014). A PBS dispensed price comprises several components:

- the cost to the pharmacist of procuring the medicine (calculated as the approved ex-manufacturer price plus a wholesale mark-up)
- a pharmacy (retail) mark-up, to cover the cost of storage and handling
- dispensing fees (set at \$8.80 where the medicine requires further preparation or compounding, or \$6.76 otherwise)
- other fees the pharmacist is entitled to (for example, the dangerous drug fee of \$2.71) (Department of Human Services 2014b).

While Australian Government payments to pharmacists are based on the dispensed price, the *actual* wholesale cost of a PBS medicine dispensed via a retail pharmacy may differ from the tribunal-determined wholesale cost (that is, the approved ex-manufacturer price plus mark-up). This is because pharmacies purchase PBS-listed drugs directly from medicine manufacturers.

What do patients pay?

The Australian Government requires patients to directly contribute to the cost of subsidised medicines. Consumers pay a set price (a co-payment) for PBS medicines, currently set at \$37.70 for general patients and \$6.10 for concession card holders (Department of Health 2015a). If the dispensed price of a PBS medicine is less than the \$37.70 co-payment, general patients pay the dispensed price plus additional charges at the discretion of the pharmacist, such as a safety-net recording fee (provided that the total cost to the patient does not rise above \$37.70). Patients may be charged fees above the co-payment only in particular circumstances, for example, if a patient chooses to purchase a branded medicine that attracts a premium.

A safety net applies to a patient's total co-payment contributions over a year. Once costs in a given calendar year exceed \$1453.90 for general patients, they pay the concessional co-payment rate for subsequent PBS prescriptions. Concession card holders face no further charges once annual costs reach \$366.

Co-payment amounts are adjusted annually in line with the consumer price index. In its 2014-15 budget, the Australian Government announced its intention to increase the PBS co-payment by \$5 for general patients and 80 cents for concession card holders, and to make adjustments to safety net thresholds (Department of Health 2014a). The consequent revenue would benefit the Commonwealth budget, provided PBS dispensed prices do not also rise.

Is the PBS operating efficiently?

Access to PBS medicines, and the development of new medicines, delivers significant benefits to patients and the community more generally. However, there is some evidence that Australia could reduce its expenditure on the PBS without compromising patient health outcomes. In particular, several commentators have reported that Australian taxpayers and patients pay many times more for PBS medicines than governments and patients in other countries (box 3.4). Various explanations have been put forward, including slow price disclosure processes and Australia's approach to negotiating prices with medicine manufacturers.

Box 3.4 Is Australia paying more than other countries?

A growing body of evidence suggests that Australians are paying more for some medicines than people in other countries.

- Duckett (2013) estimated that Australians are paying at least \$1.3 billion per year more than necessary for prescription medicines, and that Australian prices for pharmaceuticals are generally more than six times higher than in New Zealand.
- Drawing on analysis from the UK Office of Health Economics, Clarke (2013) observed that prices for a basket of the top 250 most prescribed drugs in England in 2011 are higher in Australia than in many other countries — and 40 per cent higher than in England. He estimated that this could amount to the Australian Government paying \$1.5 billion too much for medicines each year.
- Clarke (2013) also compared Australian and UK prices for the eight generic medicines that received the largest PBS subsidies in 2011-12. He found that prices in Australia were 2 to 30 times higher than in the United Kingdom, and on average 10 times higher. He estimated that the Australian Government could save \$1 billion if it paid UK-equivalent prices.
- The National Commission of Audit reported that the price paid for Atorvastatin — one of the most highly prescribed and highest cost medicines on the PBS — was \$2.01 by the New Zealand Government compared to \$38.69 by the Australian Government, a difference of nearly twenty-fold (NCOA 2014c).
- Mansfield (2014) found that prices for many generic medications are higher in Australia than in England, the United States or New Zealand.
- Duckett and Breadon (2013b) reported that of the seven PBS medicines for which there were statutory price reductions in December 2013, Australia's prices (after these reductions) were still, on average, almost 16 times higher than the lowest prices in the United Kingdom, New Zealand and Ontario (Canada).

Are price disclosure arrangements operating effectively?

In 2007, the Australian Government implemented a system of price disclosure which requires suppliers of certain medicines on the PBS to disclose the actual prices at which their medicines are sold (box 3.5). The primary objective of price disclosure arrangements is to bring PBS-dispensed prices paid by the Australian Government closer to the actual

market price at which medicines are supplied to pharmacies, therefore providing better value for money for consumers and taxpayers (Department of Health 2014h).

Box 3.5 Price disclosure requirements

Which PBS medicines are subject to price disclosure?

Items on the PBS are allocated to one of two 'formularies' — the F1 category (for single brand medicines) or F2 category (for medicines that have multiple brands, or are in a therapeutic group with other medicines with multiple brands). Medicines on F1 move to F2 when the first additional brand is listed on the PBS. All brands of pharmaceutical items containing a drug on the F2 formulary are subject to price disclosure (with some exemptions).

What does price disclosure involve?

Suppliers of brands of medicines covered by the price disclosure requirements are required to submit sales revenue and volume information to the Department of Health. (Suppliers are also required to submit information on any incentives provided to pharmacies relating to the sale of F2 medicines). This information is used by the Pharmaceutical Benefits Remuneration Tribunal to work out the price at which medicines are sold to pharmacists and, based on this, the Australian Government adjusts the prices it pays for PBS-listed medicines so they better reflect the average actual prices paid by pharmacies. A typical price disclosure cycle consists of:

- a data collection period of six months (timeframes vary for the first data collection period — that is, when a drug first becomes subject to price disclosure)
- a processing period
- a reduction day (either 1 April or 1 October) when price reductions come into effect.

Source: Department of Health (2014h).

The price disclosure reforms have revealed (and helped remedy) significant differences between the actual wholesale prices pharmacies had been paying to PBS medicine manufacturers and the reimbursement amounts pharmacies had been receiving from the Australian Government. For example:

- Medicines Australia (2014) estimated that price disclosure arrangements have led to price reductions of over 80 per cent for several medicines.
- Duckett (2013) estimated that the April 2013 round of price disclosure adjustments would reduce the prices of 62 medicines by an average of 25 per cent, with eight medicines falling in price by more than 50 per cent.
- Clarke (2012) pointed out that price disclosure revealed that the Australian Government had been considerably overpaying pharmacists for simvastatin: while the dispensed price that the government had been paying to pharmacists was \$34 (for 20 milligrams), including \$22 intended to cover the wholesale cost, pharmacists had in fact been paying (on average) \$10 to suppliers.

However, researchers have pointed to weaknesses in Australia's price disclosure arrangements that constrain the price reductions that can be achieved. In particular,

concerns have been raised about the timeliness of the arrangements. It can take at least 18 months (from the start of the data collection period) for price adjustments to take effect, with the prices paid by pharmacies often falling even further in the interim (Clarke 2013; Duckett 2013). Other ‘loopholes’ in the price disclosure system have also been identified — for example, prices are not reduced if the potential price reduction is less than 10 per cent, and the first month of the data collection period is excluded from the calculation of the price reduction even though suppliers have been known to offer lower-price ‘specials’ during this period (Duckett and Breadon 2013b).

Would an alternative approach to price negotiation achieve better outcomes?

Commentators have suggested that Australia would secure lower-cost medicines if it assigned responsibility for PBS pricing negotiations to an independent statutory body (acting on behalf of the Australian Government, but insulated from lobbying) and imposed a cap on the pharmaceutical budget. This approach has been adopted in New Zealand (box 3.6).

Box 3.6 New Zealand’s Pharmaceutical Management Agency

In New Zealand, responsibility for deciding which medicines are subsidised by the government for use in public hospitals and the community rests with the Pharmaceutical Management Agency (PHARMAC), an independent Crown agency. Specifically, PHARMAC is responsible for assessing whether medicines and medical devices should be publicly subsidised (drawing on clinical advice from the Pharmacology and Therapeutics Advisory Committee), negotiating with pharmaceutical suppliers on prices, public consultation, and deciding whether to list medicines on the Pharmaceutical Schedule. PHARMAC operates under a fixed budget constraint set by the New Zealand Government.

PHARMAC uses a range of commercial purchasing strategies, including tendering, direct negotiation and reference pricing. Tendering is used extensively for generic medicines, which make up nearly half of all subsidised medicines by volume and around 20 per cent of total medicine costs. Tendering arrangements have been estimated to generate NZ\$40–50 million in savings each year.

Sources: PHARMAC (2013, 2015a, 2015b).

A NZ-style model offers potential advantages — it could improve Australia’s negotiating position with pharmaceutical companies, give the Australian Government greater control over PBS spending, and take the politics out of listing and pricing decisions (Duckett 2013; NCOA 2014b). On the other hand, concerns have been raised about limiting the breadth of subsidised medicines that patients would be able to access under this approach (Shaw 2013).

A budget cap would provide incentives to remove less clinically and cost effective medicines from the PBS. While New Zealand does not subsidise as wide a range of medicines as is covered by the PBS, Babar and Vitry (2014) found that most of these

non-subsidised drugs are therapeutically similar to medicines that are publicly subsidised. Moreover, Duckett (2013) noted that a capped PBS budget can still be adjusted to account for changes in population, health needs, and the availability of new medicines, and that Australia need not adopt New Zealand's sole-supplier tendering model (which limits choice by typically funding only one brand for each medicine).

At present, Australia's public hospitals negotiate with medicine suppliers directly, and there is evidence that they often secure lower prices than the Australian Government pays through the PBS. For example, Duckett (2013) noted that the price of olanzapine, an anti-psychotic medicine, is 64 times higher on the PBS than the prices paid by public hospitals in Western Australia. He estimated that \$750 million could be saved (over all subsidised medicines) by matching PBS prices to those paid by public hospitals in Western Australia.

Should Australia impose sharper statutory price reductions?

A statutory price reduction of 16 per cent is applied to existing PBS items when another medication that is bioequivalent or biosimilar, and administered in the same way, is first listed in the PBS. Statutory price reductions have helped curtail growth in PBS prices since they were introduced in 2005 (and strengthened in 2011).

However, some commentators have suggested that a more dramatic statutory price reduction is warranted to ensure Australia is not overpaying for medicines, and to bring Australia into line with other countries. For example, the Netherlands introduced a mandatory price reduction in 2008, which halved the price of medicines at the time of patent expiry (de Boer and Scully 2010). Canada now requires some generic medicines to be priced at an 82 per cent discount relative to the price of the original patented medicine (Duckett 2013).

Further reform of PBS pricing arrangements could deliver gains

Australia may not be getting as much value from its expenditure on PBS medicines as it could due to institutional and regulatory arrangements that unnecessarily inflate the costs of the scheme. If Australia can obtain PBS medicines at more competitive prices through regulatory reform, there is considerable scope to improve the efficiency of the PBS, to the benefit of governments, taxpayers and patients. These benefits would increase over time as new, higher-cost medicines are developed. That said, PBS pricing arrangements are complex, and any changes to the way medicine prices are negotiated, adjusted or administered requires careful consideration.

The Australian Government is responsible for the funding, regulation and administration of the PBS. **There would be value in the Australian Government Minister for Health:**

- **eliminating delays in price disclosure processes**

-
- **identifying ways to apply a larger (than 16 per cent) statutory price reduction to PBS items upon listing of a generic alternative**
 - **examining the case for establishing a statutorily independent PBS price-setting authority.**

Reforms canvassed elsewhere in this paper would also help ensure the PBS meets its objectives at least cost to taxpayers and patients. Removing retail pharmacy location and ownership rules (section 3.2) would increase competition in the sector and strengthen incentives for price discounting on ‘under co-payment’ medicines. Better information and guidance for clinicians (and patients) on the clinical and cost effectiveness of medicines (chapter 2), such as clinical guidelines and prescribing protocols, may encourage the uptake of therapeutically equivalent (but cheaper) generic alternatives.

3.4 Private health insurance

Private health insurance is an important part of Australia’s health system, with about half the population holding some form of cover. Private health insurance plays a major role in supplementing public funding in some areas, and replacing public funding in others. There are 34 private health insurers in Australia, with the two largest (Medibank Private and Bupa) accounting for 56 per cent of policies (PHIAC 2015b). In aggregate, private health insurers covered 8 per cent of total health care expenditure in Australia in 2012-13 (AIHW 2015a).

A range of regulations influence what health insurance products can be offered and how they are priced. Governments regulate private health insurance markets for legitimate reasons, including to support equity objectives and address market failures. However, current regulatory settings have downsides — they can discourage or prevent insurers from developing new products that better meet consumers’ needs, and can dampen incentives for both insurers and consumers to invest in preventive health and other cost-effective health care options. There may be scope to review some of the regulations on private health insurers. A careful, incremental approach to reform — including through the use of trials and evaluations — is warranted to ensure changes do not undermine policy objectives.

What is private health insurance?

Private health insurance provides both a financing and funding mechanism for health care services. In Australia, people can choose their insurer and level of cover, or choose not to purchase private health insurance at all.

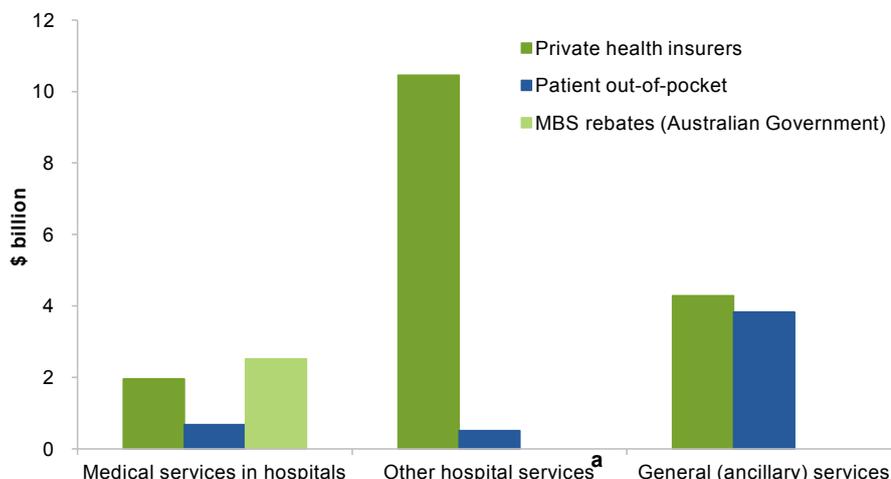
There are two main types of private health insurance, and many consumers hold both.

- Hospital insurance covers admission and accommodation in private hospitals, or the costs associated with being a private patient in a public hospital (around 47 per cent of the Australian population held this cover as of September 2014).
- General or ‘extras’ insurance covers dental, optical, physiotherapy and other allied health services provided outside of a hospital setting (around 55 per cent of the Australian population held this cover as of September 2014) (PHIAC 2013a, 2014).

Private health insurance allows consumers to insure for a level of service above that which governments would usually provide through universal health care arrangements. While any Australian can seek ‘free’ treatment in a public hospital, those with private hospital cover can choose to be treated as a private patient, and typically have shorter waiting times for elective surgery and greater choice of doctor. General cover typically includes services that governments do not usually provide or subsidise (such as dental and physiotherapy services), or that can be difficult to access from public providers (for example, due to long waiting times for public dental programs).

Private health insurers (and ultimately, through premiums, their customers) cover most of the cost of privately insured health services, but not all (figure 3.2). The Australian Government pays around half the cost of medical services provided to private patients in hospitals by rebating 75 per cent of the relevant fee on the Medicare Benefits Schedule. Private patients themselves, through co-payments (excesses and gap payments), pay around half the cost of general services provided outside of hospitals, such as dentistry, optometry and hospital-substitute treatment (PHIAC 2015b). However, the shares can vary significantly across patients, depending on the particular services they receive and the type of insurance policy they have (including excess levels and exclusions or limitations).

Figure 3.2 Financing of privately insured services, 2013-14



^a Includes accommodation, theatre fees, in-hospital nursing care, medicines, prostheses and disposables.

Data source: PHIAC (2015b).

Private health insurance is highly regulated

In general, governments regulate private health insurance markets for various reasons, including to:

- achieve social policy objectives, such as promoting equal access to health care (or health insurance) and promoting better population health outcomes
- protect consumer interests by maintaining the solvency of insurance funds and addressing market failures such as adverse selection, moral hazard or a lack of scope for effective competition.

The private health insurance market in Australia is tightly regulated, with regulations covering product and pricing approval, community rating, private health insurance incentives and solvency (box 3.7). The Australian Government is responsible for these regulations, with its powers exercised by the Minister for Health, Department of Health and Private Health Insurance Advisory Council. Private health insurers are also subject to the Competition and Consumer Act.

Are current regulations impeding efficiency?

Several reviews have identified aspects of Australia's private health insurance regulations that are likely to impede efficiency by reducing competition and discouraging innovation. However, they have also pointed to the complexity and tradeoffs associated with reform.

Insurers have limited scope to support primary care

Effective primary care is crucial for maintaining a healthy population and keeping people out of hospital — and thus avoiding higher-cost health services in the future. Private health insurers have a clear financial incentive to keep people healthy, because they bear much of the financial risk when their customers require hospital care or other forms of treatment. Moreover, insurers can sometimes be better placed to invest in preventive health than governments and individuals (chapter 2).

Current regulations on private health insurance content and benefit payments (box 3.7) prevent insurers from covering out-of-hospital services already subsidised by Medicare, including most consultations and procedures provided by general practitioners (GPs). These regulations have been supported on the basis that allowing private health insurers to directly cover primary care could lead to a 'two-tiered' health system, whereby privately insured patients enjoy privileged access to services while waiting times for public patients increase (SCALC 2014; Wells 2014). Other arguments are that prices could increase — by giving doctors an incentive to increase fees if these are mostly covered by insurers — and that insurers could interfere with the doctor–patient relationship by seeking to influence which medical services patients receive (SCALC 2014; Wells 2014).

Box 3.7 Main policy instruments affecting private health insurance**Regulation of content and benefit payments**

Private health insurers cannot cover out-of-hospital services that are currently listed on the Medicare Benefits Schedule and funded by the Australian Government. This includes much of primary care, such as general practitioner visits. Regulations are also imposed on the content and minimum benefits of insurance policies. Insurers must use prostheses on the Prostheses List, and pay a set level of benefits for prostheses, to be eligible for government rebates.

Ministerial approval of premiums

Private health insurers must apply to the Minister for Health for approval of any change in premiums. The Minister may disallow a change deemed to be not in the public interest.

Community rating

Community rating prohibits private health insurers from varying premiums according to a customer's health risk (including lifestyle factors such as smoking or diet), sex, race, sexuality, previous claims history or age (excluding aged entry under Lifetime Health Cover). Insurers must also renew a policy regardless of the customer's health profile.

Risk equalisation

The Risk Equalisation Trust Fund is used to share the cost of 'high-cost' claims, and claims for customers over 55 years of age, across all private health insurers (on an ex-post basis). This reduces the financial impact of community rating on insurers with customers who are riskier or sicker than average.

Lifetime Health Cover

Annual premiums for hospital cover are increased for people who take out private health insurance after the age of 30, at a rate of 2 per cent for each year of deferral (up to a maximum of 70 per cent). The loading is removed once a customer has held insurance for 10 continuous years. The Private Health Insurance Rebate does not apply to this component of premiums.

Medicare Levy Surcharge

The Medicare Levy Surcharge is imposed on high-income earners who do not hold private health insurance (earning over \$90 000 a year for singles or \$180 000 for families). The rate varies with income from 1.0 to 1.5 per cent of taxable income.

Private Health Insurance Rebate

Most Australians holding private health insurance receive a rebate on premiums. The rebate is approximately 30 per cent for most taxpayers, but varies according to age (older taxpayers receive a higher rebate of almost 40 per cent) and income (the rebate falls to zero for those on the highest incomes).

Portability requirements

Private health insurers are prohibited from penalising consumers that switch insurers or switch policies with the same insurer. This means that consumers do not need to re-serve waiting periods to access benefits. These rules only apply to hospital cover.

Sources: PHIAC (2013a, 2013b).

However, there have been calls to relax the restrictions on content and benefit payments (NCOA 2014a; PHA 2014; SCALC 2014). The regulations have been criticised for locking insurers out of investing in primary and preventive care that could reduce the future financial (and non-financial) costs associated with hospital treatment. In particular, the regulations can restrict insurers from offering products and services that could better meet their members' health needs, lower health care costs, and ultimately reduce insurance premiums. Examples include preventive health, early intervention, programs to coordinate care for patients with chronic diseases, and integrated care models where a single entity (such as a GP) is responsible for managing and purchasing all of a patient's health care (chapter 2). Indeed, private health insurers could potentially help to address some of the systemic problems facing primary care in Australia.

Some insurers have recently sought to trial new ways to improve their customers' access to GPs to better coordinate care for customers with chronic diseases (box 3.8). However, the scope of these trials has been limited by the current regulatory restrictions — for example, Medibank only pays for GPs' administrative costs under its GP Access program, but not the cost of medical services (which continue to be reimbursed through the MBS). Ongoing experimentation in this area, as well as independent and public evaluation of trial outcomes, would provide valuable insights into the potential implications (both positive and negative) of regulatory changes on clinical, cost, equity and access outcomes.

Price regulations can discourage innovation and impede competition

Several regulations affect how private health insurers can set premiums, including risk equalisation and Ministerial approval of premium changes (box 3.7). These regulations can have consequences for the level of competition in the private health insurance market, and potentially discourage innovation and cost minimisation.

Current risk equalisation arrangements may reduce the incentive for insurers to innovate by developing and investing in health promotion strategies, chronic disease management programs and other measures to improve their customers' health. While content and benefit regulations generally permit insurers to provide such programs (outside of GP clinics), insurers may underinvest in them because they bear the upfront costs themselves while the ongoing savings (through reduced claims) are shared across the industry through the risk equalisation process (NCOA 2014a; PHIAC 2013a).

Ministerial approval of premium changes reduces insurers' pricing flexibility because their premiums can only be changed once every 12 months. The approval requirements can also dampen competitive pressures to minimise costs, and hence mean that premiums remain higher than they otherwise would be. This is because any reductions in administrative costs would likely be factored into the Minister's assessment of the premium increase, leaving an insurer no better off (Deloitte Access Economics 2011; NCOA 2014a). Premium approval requirements can have other adverse effects on the market, such as discouraging new insurers from entering the market, or opening up avenues for collusive behaviour (Deloitte Access Economics 2011; IC 1997; PHIAC 2013a).

Box 3.8 Medibank pilot programs

GP Access

In January 2014, Medibank Private commenced its GP Access pilot program. This trial operates in selected general practitioner (GP) clinics in Queensland and aims to encourage and support Medibank members to access a GP. Under this program, Medibank customers are guaranteed same-day appointments if they call before 10 am and fee-free (bulk billed) consultations. Customers located in metropolitan areas can also access after-hours home visits by GPs within three hours.

Medibank has argued that by increasing access to GP services, the program could improve customers' health outcomes and reduce the need for costly hospital admissions (and thus ease pressures on insurance premiums). Medibank has indicated that it would evaluate the program throughout 2014.

CarePoint

In August 2014, Medibank launched the CarePoint trial in partnership with the Victorian Government Department of Health. This program aims to provide an integrated model of care for people with chronic conditions and complex needs, across health care service settings. The objective is to reduce hospital admissions for participants by 25 per cent through improving the experience of care, population health and the way patients utilise the health system.

Participating organisations include public and private health services, primary care providers (including general practices) and Medicare Local districts. Around 2200 people are involved in the trial, including Medibank customers and non-insured adults. The trial is scheduled to run until 2017, with an independent evaluation upon its completion.

Sources: Beer, Harrowfield and Waite (2014); Medibank Private (2014b); Victorian Government (2014).

There may be ways to address some of these problems through use of alternative regulatory arrangements. Two options to consider would be altering the risk equalisation process to share costs between insurers based on their customers' expected costs (rather than actual costs); and replacing Ministerial approval of premium changes with a more light-handed price monitoring approach, subject to greater transparency (PHIAC 2013a).

Regulations can distort consumer behaviour

Community rating and other price regulations effectively act to cross-subsidise private health insurance premiums. Consumers are charged prices that reflect the services their policy covers and the associated benefit levels, but not their individual claims history, health needs, behaviours or other personal factors (such as their age). The costs of paying customers' claims are effectively spread over all of an insurer's customers and, through risk equalisation, shared with other insurers.

These regulations support equity objectives, but also have implications for consumer and insurer behaviour, and can constrain the ability of insurance markets to efficiently manage risks at the lowest total cost. Consumers (or their doctors) might overuse health services if

individuals do not bear the full financial consequences through higher individual premiums. Insurers may be unable to reward consumers for good behaviour and penalise bad behaviour, such as smoking or excessive alcohol consumption (NCOA 2014a). The regulations may further discourage insurers from investing in preventive health and behaviour-change programs (as is done by health insurers in other countries) (Hall 2009). All these factors could lead to higher premiums for everyone.

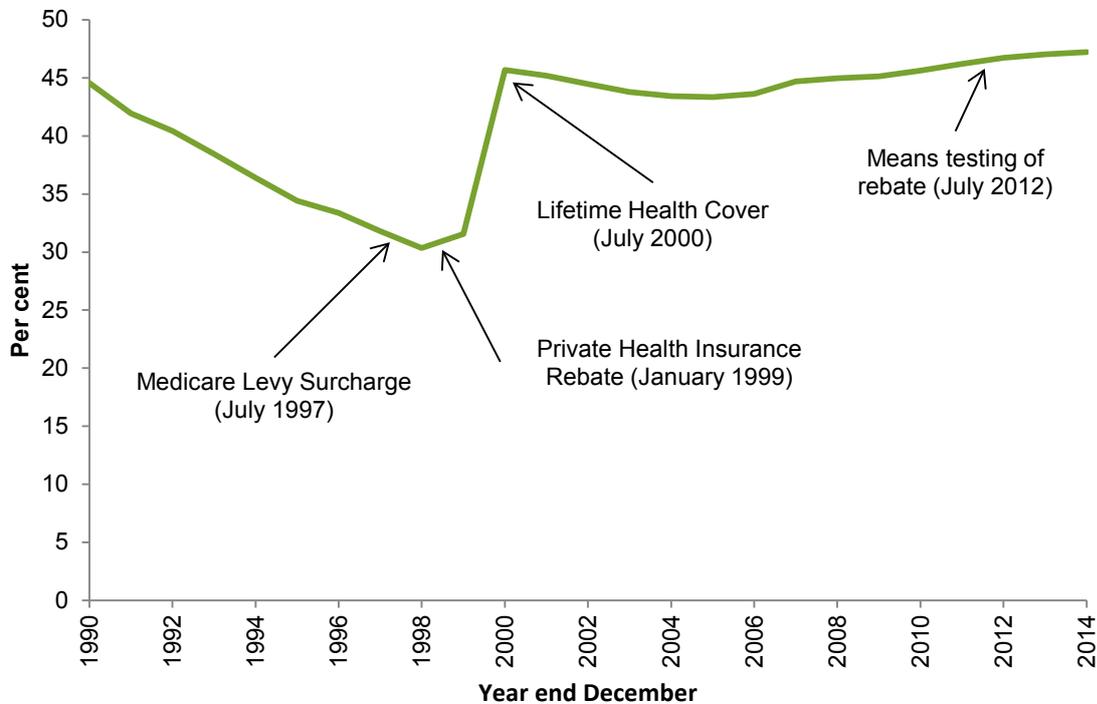
Community rating is a matter of degree rather than a binary proposition. It would be inappropriate (and contravene equity objectives) to penalise consumers whose health needs are higher because of factors they cannot control — such as age, sex, race or genetics. But there may be merit in allowing price discrimination for health risks that are well understood and under the control of the consumer — such as smoking. This would arguably be fairer than the current situation, and could lead to desirable behavioural change and lower costs.

There is always a risk that changes to such regulations could have unintended consequences. One possibility is that changes to community rating exacerbate adverse selection in the market — a phenomenon where low-risk customers drop out of insurance (or choose less generous policies) and leave insurers with higher-risk and higher-cost customers (Cutler and Zechauser 1997). While this specific proposal would need further consideration, it may have limited impact on the underlying information asymmetries that give rise to adverse selection, and could even encourage low-risk consumers to remain insured if they are rewarded for healthy behaviours.

Demand-side policies can also affect utilisation of insured health services. Measures such as the Medicare Levy Surcharge and Private Health Insurance Rebate act to reduce the cost to individuals of taking out private health insurance, and therefore encourage take-up. These policies have been associated with rising take-up of private health insurance since their introduction in the late 1990s (figure 3.3). But to the extent that these measures subsidise premiums, they could encourage overuse of health services (especially ancillary services, which are more open to discretionary use). Some commentators have also questioned whether the rebate is appropriately targeted, whether the benefits exceed the costs, and the extent of any fiscal savings (Cheng 2013; NCOA 2014a).

Figure 3.3 **Uptake of private-health insurance, 1990–2014**

Proportion of population with hospital treatment cover^a



^a In 2007, there was a change in how policies were classified. This led to an artificial decrease in the number of 'hospital treatment only' policies in the dataset.

Data source: PHIAC (2015a).

There is scope for a broad review

There are legitimate efficiency and equity reasons for regulating the private health insurance market. But concerns have been raised about how well the current regulatory framework is meeting its objectives (of protecting consumers, constraining premium growth and providing more equitable access to private health care) and whether it is stifling innovation in the private health insurance market.

There would be merit the Australian Government Minister for Health facilitating trials of specific expansions in the types of products and services that private health insurers can offer their customers — informed by proposals from insurers — and evaluating these trials. This would provide an opportunity for greater insurer involvement in preventive health and coordinated care (a need for better coordinated health care was a clear theme to emerge from the Commission's roundtable, and other recent health reviews). Such trials should be monitored and subject to independent and public evaluation to assess all the associated benefits and costs, including any adverse impacts on access to publicly or privately funded health care.

Reforming private health insurance regulation is complex. It must be done carefully, given the multiple objectives of regulation and the interconnected nature of the regulations. Changes to single regulations in isolation come with the risk of unintended consequences.

But this complexity is not a reason to do nothing. Rather, it highlights the considerable value there would be in a comprehensive and independent review of whether the current regulatory arrangements are the best way to meet the multiple policy objectives that governments have set. The review would need to consult widely, and could assess:

- the objectives of private health insurance regulations
- how well the current regulatory regime performs against these objectives, including its impacts on access to services, competition, private hospital costs, innovation, consumer choice and affordability
- the potential benefits and costs of alternative regulatory arrangements, including other mechanisms to address equity issues
- the outcomes of trials that have been undertaken by private health insurers in areas of primary care.

The Australian Government Minister for Health would be well placed to commission such a review, ideally as part of a broader review of Australia's health system (chapter 5).

4 Information and transparency

Information is central to an efficient and effective health system. It shines a light on good and bad performance, helps the community and governments to hold health care providers to account, facilitates good patient care, and forms part of the evidence base on health interventions. But transparency has fallen short of its potential in health, either because data do not exist or, more importantly, data are not made available. The United Kingdom, United States and Canada outperform Australia in collecting and releasing data on particular aspects of health service delivery, such as performance data on individual hospitals and administrative data on the use of health services. Better progress in these areas would benefit clinicians, hospital managers, researchers, policy makers and, ultimately, patients and taxpayers.

4.1 Why does information matter?

The complex and technical nature of health care means that patients — as well as governments and insurers — do not have the same information and expertise as health care providers, who diagnose patients and make decisions about their treatment. This asymmetry in information can make it difficult for patients, governments and insurers to exercise control over the quality of care and its value to individual patients. The asymmetry also makes it hard to identify (and remedy) where the actions of health care providers diverge from the best interests of patients and funders (a ‘principal–agent problem’).

This information problem is pervasive in health systems around the world. In Australia, its effects are exacerbated by fragmented responsibilities for funding, regulating and delivering health care services. The result is that different parts of the health care system hold different pieces of information and often fail to share them. Fragmented responsibilities can also make it difficult for any single entity to collect information beyond its immediate area of responsibility (chapter 5).

Information has many uses

Reducing these information problems involves measuring and reporting on various aspects of health care. There are several key sources of data that can be collected, each of which has a range of uses: performance data (which aids choice and accountability), patient health records (which help to coordinate care) and other administrative data (which facilitate research on the effectiveness of health interventions). These kinds of information

help a range of parties to make better decisions — including more efficient purchasing of health care and more informed use of medical interventions (table 4.1).

Table 4.1 Who benefits from addressing gaps in health data?^a

<i>Type of information</i>	<i>Potential users and benefits</i>	<i>Key gaps</i>
Performance of individual health care organisations and clinicians (quality, safety, outcomes, costs)	<ul style="list-style-type: none"> Helps consumers to choose where to obtain treatment Enables governments, taxpayers and insurers to assess value for money and hold providers to account Encourages providers to compete to improve performance Helps organisations to identify good practices and ways to improve quality or reduce costs (for example, by using technology) 	<ul style="list-style-type: none"> Cost data, and some key quality measures, are not reported for all hospitals Measures of patient experience in hospitals vary across jurisdictions, and are not always timely or comprehensive No performance data currently reported for hospital clinicians, individual general practitioners or other professionals Information on the characteristics of patients treated is not always complete
Patient health records	<ul style="list-style-type: none"> Allows health professionals to access and share data on individual patients Improves the coordination of care Reduces risk of medical errors or duplicated testing Facilitates clinical and epidemiological research (using de-identified data) 	<ul style="list-style-type: none"> Take up of national electronic health records has been modest, in part due to concerns over quality of included information
Other administrative data	<ul style="list-style-type: none"> Facilitates clinical and epidemiological research (using de-identified data) Enables research into policy impacts Supports development of an evidence base for improving medical practice, developing clinical guidelines or evaluating health treatments and technologies 	<ul style="list-style-type: none"> Many data are collected, but it has been difficult for researchers to access or link datasets

^a This table does not cover surveys of population health, clinical trials and other non-administrative data sources.

Performance data directly benefit all parties in the health system by helping them to understand how well health care providers (and the system itself) are functioning, and to identify good and bad practices among hospitals, doctors, dentists and other professionals. Performance data can include information on the outcomes of health care where these can be measured (such as how quickly patients recover or the costs incurred by governments, insurers or patients), as well as process measures such as the use of medications and procedures, waiting times for treatment, adverse events (such as hospital-acquired infections) and patient experiences.

Performance information can help patients to make better choices about which health care providers to consult — for example, by helping them to compare providers in terms of quality of care, convenience, reputation and out-of-pocket costs. While patients are not always in a good position to make well-informed decisions — for example, when they are in an emergency situation or lack medical expertise — information can empower patients

when it is available, accessible, allows comparisons to be made easily, and can be acted upon (Competition Policy Review 2015).

Performance information also benefits patients in indirect ways. Data on how well individual health care providers are performing allows providers to compare themselves to their peers and to compete to improve their practices by providing higher-quality care (and therefore attract more patients or funding). And performance data allow governments and insurers (who finance and purchase health care) to identify which providers deliver the best value for money — in terms of quality and outcomes, as well as costs. This helps to detect fraud, hold providers accountable for their actions, and direct funding to where it can achieve the greatest returns.

Other types of information deliver benefits too. The sharing of information between different health care providers (and between providers and patients) in the form of patient health records can support more coordinated care and reduce medical errors. These records can also help patients to compile and keep track of their medical history. There are clear benefits for patients' health, as well as for the work of health care providers.

More generally, administrative data — including performance data, patient health records and government-held datasets on patients' use of medications or procedures — can support development of a more rigorous evidence base on the clinical and cost effectiveness of health interventions. Among other things, these data (subject to appropriate privacy safeguards) enable researchers to investigate the burden of disease, access to health care across the community, and the effectiveness of specific health interventions. This can help health care providers to choose the best treatments for individual patients. It also helps governments and insurers to make better overall funding decisions by directing funding to where the greatest health benefits can be achieved (including to preventive health measures), and away from interventions with low or no clinical value.

Good information can facilitate efficiency-enhancing reforms

Ultimately, good information can stimulate policy changes that increase efficiency in the health care system, and thereby improve health outcomes or save money. Data can reveal areas of waste and duplication where improvements can be made for low or no cost. For example, highlighting the benefits of more efficient management practices within hospitals (such as organisational structures, procurement policies or use of information technology) can encourage other hospitals to adopt these practices. Data can also shed light on which policies are not working as well as they could, and provide the evidence base for reforms to address the causes of poor performance within the health care system (PC 2013; VAGO 2015).

Realising all the benefits of information and transparency is tricky. No single indicator or data source is perfect, and the measurement challenges can be formidable. Even so, there is much that can be measured and made available to the public or researchers — and more than is at present.

4.2 What information could be better collected or released?

Multiple bodies at the national and state government levels already collate and publish a considerable amount of data on the Australian health care system. But efforts to date have been partial and fragmented, and much data are collected but not made available to health care providers, researchers or the public, in part because of concerns about privacy, confidentiality or data quality (section 4.3).

Expand public reporting on individual hospitals

Hospitals are the largest area of health expenditure in Australia, accounting for over 40 per cent of total funding. Some data on the performance of public hospital systems have long been available in most states and territories, covering indicators such as average waiting times for treatment, length of stay and bed numbers. Several national bodies also report on hospital performance across the country, including the Australian Institute of Health and Welfare and the Productivity Commission (through the Review of Government Service Provision) (table 4.2). These organisations generally draw on administrative data held by state and territory governments (meaning that the bodies that report hospital information are not always the same bodies that collect it).

Table 4.2 National reporting on hospitals

<i>Organisation</i>	<i>Access and waiting times</i>	<i>Safety and quality</i>	<i>Patient experiences</i>	<i>Costs</i>
Australian Institute of Health and Welfare	✓	✓	✗	✓
National Health Performance Authority	✓ ^a	✓ ^a	✗	✗
Australian Bureau of Statistics	✗	✗	✓ ^b	✓ ^{b,c}
Productivity Commission (Review of Government Service Provision)	✓	✓	✓ ^b	✓
Independent Hospital Pricing Authority	✗	✗	✗	✓
Australian Commission on Safety and Quality in Health Care	✗	✓	✗	✗

^a Includes reporting on individual hospitals. ^b Survey data. ^c Private hospitals only.

Hospital data have mostly been published in aggregate form, such as totals across states or (on occasion) groups of public hospitals. Data on private hospitals have rarely been available until recently. As a result, it has been difficult or even impossible to obtain

comparable information on the performance of *individual* hospitals, and thus to see (or question) variations between hospitals.

Some improvements in reporting on individual hospitals have come about in recent years. At the national level, the National Health Performance Authority (NHPA) was established to report on the performance of individual public and private hospitals in a way that is ‘nationally consistent and locally relevant’ (NHPA 2012, p. 4). To date, the NHPA has largely focused on reporting against indicators that have already been published in more aggregated forms (such as waiting times) (box 4.1). It has also played a key part in national efforts to measure and report on adverse events in individual hospitals in a consistent way (covering hand hygiene and healthcare-associated bloodstream infections).

Box 4.1 National reporting on hospital performance

The National Health Performance Authority was established by COAG in 2011 to report quarterly on the performance of Local Hospital Networks as well as individual public and private hospitals (drawing on data provided by state and territory governments). It currently reports on individual public hospitals through the MyHospitals website (www.myhospitals.gov.au), which was established by the Australian Institute of Health and Welfare in 2010. Among other indicators, the website provides hospital-by-hospital data on:

- the proportion of emergency department patients treated within recommended waiting times
- the mean waiting time for patients undergoing treatment, the percentage of patients receiving treatment within the clinically recommended time, and/or the average length of stay — across selected surgeries and procedures
- rates of hand hygiene and healthcare-associated bloodstream infections.

The website covers all public hospitals plus around 200 private hospitals (out of approximately 600 nationwide). Although participation is currently voluntary for private hospitals, the authority is required to extend reporting to cover all private hospitals (which already submit data to the Department of Health). However, the timeframe for this and whether participation will be compulsory for private hospitals are not clear.

Sources: NHPA (2012, 2014a, 2015).

The states and territories have also made progress, with some demonstrating a greater willingness than others to publish performance data on individual hospitals. In particular, state governments have been proactive in reporting the results of surveys conducted by public hospitals of patients’ experiences in hospital, and sometimes on a hospital-by-hospital basis. For example, in New South Wales patients are surveyed about whether they were treated with respect, given reasons for delayed treatment, or involved in decision making (NSW Bureau of Health Information 2014). In Queensland, surveys have recently been conducted on patients’ experiences in emergency departments, small hospitals and maternity units (Queensland Health 2014).

However, current reporting arrangements for hospitals are fragmented and some data are simply not reported. The NHPA does not yet report on all private hospitals, or on all indicators in its reporting framework, including those related to individual hospitals' standardised mortality ratios, unplanned readmission rates, average costs per weighted separation, financial performance and patient experience measures (NHPA 2012). It has announced that it will start reporting on poor performance by public hospitals in 2015, against benchmarks for waiting times and healthcare-associated infections (NHPA 2014b). But progress in these areas appears to have stalled following the announcement that the NHPA would be merged into a new Health Productivity and Performance Commission (Dutton and Cormann 2014).

Across all jurisdictions, there do not appear to have been any instances of systematic and detailed cost data being released for individual hospitals (as of April 2015), even though such cost data are already collected for public hospitals on a national basis to inform activity-based funding (using each hospital's average costs for a range of individual procedures, as defined in Australian Refined Diagnosis-Related Groups). Likewise, data are lacking on the specific treatments performed in individual hospitals, including treatments that are on 'do not do' lists (chapter 2). Moreover, there have been no attempts to report on the performance of individual hospital clinicians (such as cardiac surgeons or oncologists) — indeed, the NHPA is explicitly prohibited from doing this (NHPA 2012).

The most straightforward way to address some of these issues would be to publish more of the data that the Australian, state and territory governments already collect on individual hospitals. For example, governments already collect detailed information about patient demographics, diagnoses, the type of treatments provided, treatment times, safety and quality measures, and costs relating to individual public hospitals — and transmit these data to consistent national databases (AIHW 2013). Releasing more of these data for both public and private hospitals would allow comparisons to be made between hospitals, highlight areas of good and bad performance, and ultimately drive improvements.

Reporting on the performance of individual clinicians (or even clinical units in hospitals) may prove more complex. But it is not impossible, as experiences in other countries have shown. For example, several US states have reported publicly on the performance of individual cardiac surgeons since the early 1990s. Despite some initial concerns about the accuracy of the published information and its value to consumers, there is evidence that the reporting has improved the quality of care provided and reduced mortality rates from surgery (Jha and Epstein 2006; Oakley 2011; Peterson et al. 1998).

A case can also be made for more harmonised data collection and more streamlined reporting arrangements. For example, survey data on patient-reported outcomes and experiences in public hospitals could be collected more systematically — or expanded to private hospitals — drawing on work already underway at the state and national levels, including by the ABS and Australian Commission on Safety and Quality in Health Care (ACSQHC 2015b). There may also be opportunities to make greater use of clinical quality registries to monitor, measure and report on the quality of health care provided to patients.

Publicly report on other health care providers

There is scope to release more data about the performance of individual health care providers outside of hospitals, including general practitioners (GPs), specialists, pharmacists, dentists and other allied health professionals. This could include data on their clinical outcomes, patient satisfaction, adherence to clinical guidelines (or other process-based measures) and costs to governments or patients. It could be done at the level of individual professionals or practices. There has been considerably less effort in collecting and publishing data on individual providers than there has been for hospitals, aside from initiatives by some state governments (such as Queensland and Victoria) to report limited performance data relating to individual public dental clinics.

The Australian Government collects significant and comprehensive data on the activities of GPs and specialists via the Medicare Benefits Schedule (MBS), and on some other measures of care for GP practices participating in the Practice Incentives Program. It also collects some data from pharmacies, although it has not been successful in collecting data on the cost of prescriptions (ANAO 2015). State and territory governments, private health insurers and the Australian Health Practitioner Regulation Agency also collect data on the activities of a range of health professionals. In most cases, these data are not made public.

This lack of transparency makes it hard for patients, private health insurers and even governments to assess how well individual non-hospital health care providers are performing — and thus to identify good and bad practices or ways to make improvements. Other countries have recognised the benefits of governments collecting and releasing information on individual providers and practices, including the fees that they charge. For example, GPs' performance against a range of metrics has been reported in England since 2004, and the US Government has recently started publishing payment data for GPs and specialists that receive Medicare funding (box 4.2).

Accelerate rollout of electronic health records

Electronic health records offer the potential to improve patient care and care coordination by facilitating the sharing of information between health care providers, including on patients' diagnoses, tests and medications, and by reducing duplication in tests and procedures. A single, centralised health record would also help consumers to keep track of — and exercise control over — their own care, while simultaneously being a valuable information source for researchers (discussed below). While electronic record keeping is widely used by most providers, their systems are not always compatible, meaning that patients (and doctors) lack a central record of their care (Department of Health 2013d; Jolly 2011).

The benefits of a national system of electronic health records have been widely recognised, but progress in Australia has been slow (Jolly 2011). Personally Controlled Electronic Health Records (PCEHRs) were introduced by the Australian Government in July 2012. These records are designed to contain detailed information on an individual's diagnoses,

allergies and medication, as well as treatment records and their use of Medicare and pharmaceutical benefits (Department of Health 2013d). Patients are given full access to the information stored in their PCEHR and a record of who accesses their record and when. They also have control over what information particular health care providers can access. However, participation is voluntary for both patients and health care providers on an opt-in basis.

Box 4.2 How do other countries report on general practitioners?

England

Almost all general practices in England participate in the Quality and Outcomes Framework, a financial incentive program that has been in place since 2004. As part of this, each practice's performance is published online. There are currently 121 indicators in the framework, covering clinical processes for managing particular conditions (such as hypertension and kidney disease), public health measures (such as cancer screening and smoking cessation), reviewing and implementing plans for outpatient referrals and emergency admissions, and patient experience (length of consultations) (HSCIC 2014).

There is some evidence that the Quality and Outcomes Framework has improved the treatment of chronic conditions and the quality of care, although formal evaluations have tended to produce mixed results (Gillam, Siriwardena and Steel 2012; Marshall, Charlesworth and Hurst 2014). However, the effects of the public reporting component of this scheme have been difficult to separate from the impacts of the financial incentives attached to the indicators.

United States

In 2014, the US Government started publishing detailed payment data online for over 880 000 individual physicians (general practitioners and specialists) that receive payments through the Medicare program (CMS 2014). For each physician, the dataset includes the types of services delivered, the number of patients seen, and payment information (including average amounts charged and payments received through Medicare).

There have been expectations that publishing these data would inform choices of provider by patients or their insurers — and ultimately reduce variation in the fees providers charge — or potentially lead to legal action against physicians with poor performance (Reichard and Bettelheim 2014). Thus far, the data release has been successful in focusing attention on specific examples of high-cost services. While the release is recent and has not yet been formally evaluated, some researchers have observed that the dataset could be improved by making it more user friendly, expanding the time period covered, and including information about the quality of care each physician provides and the patients they see (Patel, Masi and Brandt 2014, 2015).

As of June 2014, around 1.7 million people and over 7000 health care provider organisations had registered to participate in the PCEHR system, including most public hospitals in Queensland (Department of Health 2014g). But limited take up to date reflects the challenges that have arisen in implementing PCHERs. Specifically, voluntary take up provisions have meant that most patients' records are incomplete (as data from non-participating providers are not uploaded) and so many providers need to maintain their

own separate patient records. Features of the system designed to strengthen patient control or privacy (such as the ability for patients to withhold information from specific health professionals) may have undermined the clinical usefulness of the records to health professionals (Jolly 2011).

Moreover, participating in the scheme can be costly for providers, in terms of the upfront costs of implementing new systems and the ongoing costs of uploading patient data. The Australian Government provides incentive payments to GPs that apply to participate in the program, but notably these are not contingent on ongoing use of PCEHRs (Department of Human Services 2013).

Electronic health records are inevitable. There is scope to realise greater value from electronic health records by facilitating greater participation by patients and, especially, health professionals. A review in 2013 found that there was insufficient information of clinical value held in PCEHRs, and that it was difficult for clinicians to find the information they needed (Department of Health 2013d). It recommended including more clinical data, paying GPs for contributing clinically relevant information to PCEHRs, and making participation opt-out for patients (rather than opt-in) as a way of boosting uptake. It is highly desirable that the Australian Government publicly responds to this review.

Release more population and administrative data

Governments at all levels collect information on the health of their populations. This includes data on how patients are treated by health care providers, as well as more general health indicators. For example, most state and territory governments collect data on disease incidence, risk factors (such as obesity or smoking) and use of health services, and publish these data at the state and/or local government levels. In addition, the NHPA operates the MyHealthyCommunities website (www.myhealthycommunities.gov.au), which reports on population health indicators for Medicare Local regions across the country (to be replaced with Primary Health Networks from July 2015). Indicators cover life expectancy, infant mortality, immunisation rates, risk factors and use of health services (including waiting times and expenditure on GPs), among other things.

While these sources generally provide comparable indicators across geographic regions and have widespread benefits, they also have limitations. All are based on population surveys and so may be biased by non-response or affected by small sample sizes. Because they are aggregated over populations, the data do not reveal how individual patients fare over multiple indicators or over time. This significantly limits the types of questions that researchers can answer using the data.

Richer data sources exist in the form of administrative data. These are data collected by governments as part of service provision or regulatory requirements, including individuals' use of the MBS, Pharmaceutical Benefits Scheme (PBS) and Centrelink, as well as data stored in national electronic health records and state hospital, mortality and cancer databases. These sources contain a wealth of information — most have a high level of

coverage of patients and track individuals over time — but have been difficult for researchers to access or to link to one another, in part due to legislative restrictions such as constraints on linking Centrelink payment data to MBS or PBS data (PC 2013).

These ‘big data’ have been underexploited. In particular, despite many good efforts to link datasets at the state level, there have been few cases of administrative datasets being linked at the national level to inform research (box 4.3). This has happened to some extent in Western Australia, where the state government has been proactive in linking its own datasets (such as public hospital data) and seeking permission from the Australian Government to use MBS and PBS data (PC 2013). Some researchers have also been able to link with MBS or PBS data for specific projects, assisted by agencies such as the Australian Institute of Health and Welfare (AIHW 2015b). Overall, however, progress has been limited.

Box 4.3 The value of linking administrative data — examples

Medicines and birth defects

Researchers have linked data from the Birth Defects Registry of Western Australia with data on use of the Australian Government’s Pharmaceutical Benefits Scheme by over 100 000 pregnant women over the period 2002 to 2005 (Colvin et al. 2010). They found that, of the 47 medicines dispensed to mothers at least once during pregnancy, 23 were associated with birth defects in their children. The study concluded that linked administrative data could be an important means of detecting adverse drug effects in pregnant women in Australia.

Treatment patterns of colorectal cancer

Administrative data from the private and public health sectors have been linked to assess patterns of concordance with guidelines for colorectal cancer management (Beckmann et al. 2014). Researchers examined clinical and treatment characteristics for 4641 colorectal cancer patients aged 50–79 by drawing on data held in the South Australian Cancer Registry, hospital separations, radiotherapy services and hospital-based cancer registries. They found that older patients, those from rural areas, those with rectal cancer and those with severe or multiple co-morbidities were less likely to have received the recommended treatment.

War widows’ use of health services

A study compared the use of health services by war widows (whose treatment is funded by the Department of Veterans’ Affairs) with similarly aged widows drawn from the wider population (Tooth et al. 2012). Data for 730 women aged 70–84 were linked between the Australian Longitudinal Study on Women’s Health, Medicare Benefits Schedule and Pharmaceutical Benefits Scheme. The study found that war widows did not use significantly more medical services than other widows, despite a financial incentive to do so.

Making better use of administrative data held by governments would have substantial benefits. For example, linking PBS data on the pharmaceutical products people use with MBS or hospital data on the medical procedures they receive would help researchers to identify adverse drug reactions or evaluate the impact of medicines on long-term health outcomes. Such research can be used to assess the clinical and cost effectiveness of health

interventions (in addition to research drawing on clinical trials and other data sources), and thus inform processes to reduce wasteful or unnecessary health care (chapter 2). In addition, linking clinical datasets with data on Centrelink benefits would allow researchers to investigate the links between health and employment outcomes over the population. The wealth of data in government repositories would also be invaluable in tracing the impact of government policies and helping to evaluate new policies before they are implemented.

Australia lags far behind countries such as the United Kingdom and Canada when it comes to releasing administrative health data to researchers (CIHI 2014; Verhulst et al. 2014). This is likely due to several reasons, including concerns about data quality and privacy (section 4.3). While the Australian Government has established protocols for linking the datasets it holds and requires ‘integrating authorities’ to undertake the linkage for projects deemed to be high risk (Australian Government 2010), processes for accessing data have been arduous for researchers and are not well structured to encourage access. Moreover, there is a lack of transparency about the specific data governments collect or hold, and a tendency for data owners to extract and transform data for researchers on a case-by-case basis (sometimes at high cost) rather than developing ‘common use’ datasets for use by multiple researchers (ASSA 2013).

The potential of administrative data is not being realised in Australia, and the lost opportunities will only grow as technology continues to open up new ways to use and analyse data. Calls to release and better link administrative datasets have been made previously by the Commission (PC 2013) and by others (AIHW 2014; ASSA 2013; NCOA 2014b; NHHRC 2009).

Failure to do so reflects a lack of active guidance from all ministers for health. Data holders often profess to be willing to release data, but point to a lack of ministerial authority to create and curate publicly available datasets.

4.3 Overcoming impediments to reform

There would be substantial benefits in collecting and releasing more health care information. But this needs to be done carefully. These activities can be costly, and there are good reasons why some data should not be made public. While the potential benefits need to be weighed against the costs (and risks) on a case-by-case basis, impediments to reform are not insurmountable.

Data quality

Data are only as good as the methods used to collect them. In the case of performance data, some health care outcomes can be difficult to measure and, even when they can be measured, difficult to link to an individual health care provider’s performance. Proxy indicators are often used where measurement is difficult, with the risk that these indicators

may not perfectly align with the outcomes of interest or may capture factors that are beyond the control of the provider (AIHI 2013; Lilford, Brown and Nicoll 2007).

For example, measuring the impact of a surgeon's actions on a patient's long-term health and wellbeing is very difficult. Where health outcomes can be measured, the link to the surgeon's performance could be obscured by the actions of other professionals caring for that patient, or whether the patient followed the medical advice given (such as taking medication or quitting smoking). The surgeons' results would also need to be adjusted for differences in the mix of patients each surgeon treats (known as casemix) for results to be comparable across surgeons. Concerns that imperfect risk-adjustment in published performance data could induce some surgeons to 'cherry pick' the lowest-risk patients and avoid treating more complex cases would need to be addressed (Fung et al. 2008; Totten et al. 2012).

Where measuring outcomes is tricky, indicators can be supplemented by process-based measures — for example, whether the surgeon followed clinical guidelines in their treatment or whether the patient was later re-hospitalised. However, process measures also have imperfections. They may not have a clear link to the ultimate outcomes that the community cares about. There is a risk that excessive focus on a narrow range of indicators can induce some providers to focus on indicators that are reported at the expense of unreported aspects of care (for example, discharging patients too early to free up hospital beds as a way to improve performance against waiting-time criteria).

More broadly, administrative data can have problems that stem from how data are recorded. For example, data points can sometimes be entered incorrectly, or changes in policies or definitions of variables can make it hard to compare data collected across different time periods. In some cases, there may be an absence of information on how data were collected or what particular variables mean (metadata), making it hard for researchers to understand what the data are actually measuring (PC 2013).

No real world data are perfect, and the existence of quality concerns does not mean that data should never be released. Many quality problems can and have been dealt with. One strategy is to carefully identify which indicators or measures are reported against, working with stakeholders to assess the practicality and reliability of potential indicators. This has generally been the case, for example, with the performance indicators used by the NHPA, which are selected using criteria including policy relevance, validity, comparability and administrative simplicity (NHPA 2012). Statistical and analytical advances have also improved risk-adjustment techniques that allow performance indicators to be adjusted for differences in casemix or other factors. A related approach is to provide more detailed data on these factors (such as patient characteristics) and let researchers analyse the links between the various factors and outcomes of interest.

In many contexts, a strong argument can be made for releasing data in their raw form (for example, without risk adjustment) — that is, erring on the side of publishing rather than withholding information. Even where data are partial or there are potential biases, making them public can stimulate discussion of the causes of variation and encourage researchers

and others (such as the private sector) to analyse and package data in ways that are useful to health care providers and patients. Such data releases can also stimulate efforts to better measure the outcomes of interest or to investigate new research questions. The risks of releasing erroneous or misleading data can in part be mitigated by including quality statements or ‘metadata’ that specify how the data were collected, their reliability and their limitations.

Privacy and confidentiality

Care is needed in using or releasing detailed health data that are specific to individual patients or facilities, since this can risk compromising privacy or commercial confidentiality. For example, some patients may not consent to data relating to their health care being made public or used by researchers if they can be identified as individuals. Some health care providers (such as surgeons or GPs) could resist attempts to publish data on their performance, or insurers may withhold data that are commercially sensitive. And governments themselves may be reluctant to release data because of concern about unfavourable findings on their performance or the effectiveness of their policies (PC 2013).

Privacy has been a particularly prominent consideration in the linking of administrative datasets. Patient confidentiality is a legitimate concern of governments, especially where data may be used without a patient’s explicit consent. The Privacy Guidelines for the MBS and PBS, for example, prohibit information from both sources being stored in the same database and place strong limits on how the data can be linked (OAIC 2015). Privacy has been prominent in attempts to introduce national electronic health records: many past reform attempts in this area failed to achieve sufficient support because of concerns about who would be able to access patients’ health information and how securely it would be stored (Jolly 2011).

There are ways to protect privacy and confidentiality while still allowing data to be used by researchers. Strategies include using anonymous identifier numbers to link records across datasets without identifying individuals, suppressing variables where there are too few observations, and making data less precise by changing the level of detail (PC 2013). Where there are risks of misuse, access to data can be restricted to authorised researchers for pre-approved purposes. Such approaches for protecting privacy are already reflected in the Australian Government’s principles for linking government datasets (Australian Government 2010). State-based efforts in using and linking administrative datasets for research have shown that significant benefits can be realised with low risks, manageable costs and the protection of people’s privacy (PC 2013).

Political will is often needed to address privacy concerns in a way that allows data to be released. Policy makers need to make tradeoffs between a high level of confidentiality and the consequences of *not* making data available. Concealing data can mean that patients receive ineffective (or even harmful) care, adverse effects of drugs go undetected, or

significant money is spent on interventions that do not improve health outcomes (rather than on interventions that do). It can also make it difficult to hold health care providers to account for their performance.

Importantly, moving towards releasing more data does not need to mean releasing *all* data: releasing some data (with appropriate safeguards) is still better than releasing none. As a general principle, the onus should be on those who wish to withhold data to make a strong case for doing so.

Cost

Collecting, storing and analysing data — or implementing new reporting systems — can be expensive. For example, surveys can be costly to administer and analyse, and reporting requirements on health care providers can impose ongoing compliance costs. Processes are needed to securely collect data and to convert those data into a consistent format. It would be possible in some cases for the costs of collecting and releasing data to exceed the benefits.

Technological innovations can bring down these costs over time. Many hospitals have already made significant investments in information technologies to manage operational data on patient care, and have used these systems to identify ways to function more efficiently (box 4.4). Publicly disclosing more data on hospitals could also encourage them to better monitor their performance as a way to seek further improvements.

There is potential for reform efforts to build on these growing capacities to obtain detailed and high-quality data for public reporting purposes in a quick and cost-effective way. Governments can also reduce the costs of collecting and releasing data by reducing duplication in data collection, better aligning reporting requirements, and consulting with health care providers to align reporting requirements with their system capabilities.

Evaluation can help

Although impediments to reform can be addressed, progress is not guaranteed. Good policy process will be essential to making reform happen, including consulting with relevant stakeholders and evaluating reforms (chapter 5). Internationally, evaluation has been a challenge: not all health performance reporting systems have been designed with evaluation in mind, and many reporting schemes have not been subject to robust evaluation (Fung et al. 2008; Ketelaar et al. 2011; Totten et al. 2012). For those that have, the results have been mixed, and it is not always easy to separate out the impact of a scheme from that of other reforms or influences. This points to the importance of evaluating the reliability and usefulness of health data over time, especially as technological capacities, patient preferences or policy settings change.

Evaluation can also aid decisions about embarking on further reforms, such as initiatives to reduce waste in health care or to link providers' pay to their performance (chapter 2). But in some cases the incremental efficiency gains of such reforms may not be as great as the gains that better data can achieve. This means there can be value in implementing and evaluating reforms to information and transparency before going further.

Box 4.4 Hospitals' use of information technology — examples

Variable Life Adjusted Displays

Public hospitals in Queensland use Variable Life Adjustment Displays to monitor clinical outcomes. This system generates charts that compare a hospital's actual and expected patient outcomes across various clinical indicators — for example, in-hospital mortality from heart attacks — which are adjusted for patient characteristics. It displays trends over time within a hospital and makes comparisons to the statewide average. This allows hospitals to track their own performance and to detect systemic problems in how they are treating patients.

Electronic medication management

Many Australian hospitals have started to use information technologies to improve how they administer medications to patients. These include the use of electronic records of what medications have been prescribed to patients, on-screen prompts for nurses that administer the medication, and requiring nurses to scan barcodes on medications and patient wrist bands. The primary objective is to reduce errors such as providing the wrong medication or wrong dose to a patient. Evaluations of these technologies (in Australia and internationally) have found that they can reduce errors, but success can be limited by how 'user friendly' they are, workplace culture and other factors.

Patient prediction tools

Over 30 hospitals across Queensland use a Patient Admissions Prediction Tool that was developed by the Queensland Government in conjunction with several research institutions. This tool uses predictive analytics to plan for future patient presentations and demand at hospital emergency departments. It is used to predict patient loads on an hourly, daily, weekly and longer basis, as well as to prepare for admissions arising from large public events or influenza outbreaks. The tool allows hospitals to make more efficient decisions about staffing and scheduling surgery, while reducing the time patients spend in hospital.

Sources: Australian Government (2015); CHSSR (2013a, 2013b); Queensland Health (nd).

4.4 The way forward

Significant amounts of health care information are already collected and could be released immediately, at low or modest cost and with limited adverse consequences. This includes making more detailed information on the performance of individual public and private hospitals available to the public, and better linking existing datasets for use by researchers. Where more data need to be collected — or there are concerns about data quality, privacy or cost — further work is needed.

Fragmented institutional and funding responsibilities can discourage any single level of government from taking leadership for reform efforts, and can lead to a loss of focus on the long-term benefits of reforms (chapter 5). But the lack of a single body with overarching responsibility for information on health care does not mean that nothing can be done. Even a single government, acting on its own, stands to benefit from the efficiency gains that would arise from releasing more data.

State and territory government health ministers, as custodians of a considerable amount of data, can release more detailed health care data — either acting independently or in cooperation. This includes data on the performance of individual health care facilities and clinicians that these governments fund or regulate, as well as the administrative datasets they hold. State and territory health ministers are also in a good position to take leadership for implementing national electronic health records within state-funded facilities (including public hospitals).

The Australian Government could progress reform through national initiatives, in consultation with relevant stakeholders (including existing state and national bodies, private hospitals, private health insurers, professional groups and patients).

- **The Minister for Health could indicate support for the release of more Australian Government data on health care facilities and clinicians, and take leadership for national efforts to collect and release performance data.**
- **The Minister can also examine ways to improve take-up of electronic health records by health care providers and patients. A public response to the Review of the Personally Controlled Electronic Health Record, and the use of financial incentives given to health care providers (such as GPs) to use the national electronic record system, would be a practical pathway forward.**
- **Social policy ministers (in consultation with the Office of the Australian Information Commissioner) would be well placed to provide researchers with greater access to national-level datasets — including the MBS, PBS and Centrelink — and to reduce barriers to linking these datasets. They should also direct government departments to publish reasons for rejecting applications to use or link datasets.**

All governments can also do more to assess, and publicly communicate, the long-term fiscal implications of financing and providing health care. This could involve dedicated research and analysis by all governments to inform intergenerational reports.

Delaying reform will only compound the costs and lost opportunities of not releasing and sharing health care information. In other countries and other parts of the economy, the private sector has demonstrated a willingness to collect data — from both official and non-governmental sources — and to make these available to consumers in useful and innovative ways, including through new technologies. Governments risk being left behind in health.

Ultimately, taxpayers spend significant amounts of money on health care and have a right to know what they are paying for. As the Australian Government's Principles on Open Public Sector Information state:

If there is no legal need to protect the information it should be open to public access ... Agencies should use information technology to disseminate public sector information, applying a presumption of openness and adopting a proactive publication stance. (OAIC 2011, p. 1)

Health should be no exception. Australia has a relatively poor record in making health care data transparent. The will to instigate and sustain reform in data use has been lacking. Experiences elsewhere in the world have shown that much more data could be made available without compromising privacy or the quality of care afforded to patients. Without such information, it is hard to know where the biggest potential efficiency gains in health lie.

5 Summing up

Drawing on its roundtable of November 2014 and follow-up research, the Commission has identified areas of Australia's health system where there are good prospects for efficiency gains through incremental, within-system reform. In this context, achieving greater efficiency means securing better health outcomes, higher quality of care, improved access to health services or less waste — for a given level of funding. It is not about reducing government expenditure per se.

The Commission has tried to allocate ownership for taking the next step in these areas, as the shared nature of responsibility for health care services often means numerous parties are in some way responsible, and as a consequence no party has clear responsibility to take the lead.

These opportunities give a taste of what can be gained through reforms in health. While this has been a far from comprehensive exercise, the reforms identified in this paper could generate significant gains within the short to medium term, and within the existing institutional and funding structures of the health system. Indeed, they are 'no regrets' actions that would be beneficial under any future set of institutional or funding arrangements. However, more systemic changes are needed to address some of the deeper problems looming within Australia's health care system.

Opportunities for incremental reform

Progressing with the reforms identified in this paper would involve changing policies and, in some cases, leading efforts among multiple parties (table 5.1). Some discrete actions can be progressed immediately. Where the problems or potential solutions are complex, more considered review and analysis is needed.

Progressing with reform will require concerted actions by governments and other stakeholders. Reform leaders can bolster the prospects of success by following good-practice principles of policy making (box 5.1). Getting this right can be challenging, but sustaining momentum for reform and achieving lasting results will ultimately require good policy evaluation and meaningful consultation — including with other levels of government, provider organisations, professional associations and, not least, patients and the general public. This includes putting in place arrangements that allow the impacts of reforms to be measured and evaluated once they have been implemented. Many past reform efforts in health have failed because good practice was not followed.

Table 5.1 Opportunities for efficiency gains in the Australian health care system

<i>Opportunities, reform actions and responsibilities</i>	<i>Timeframes</i>	<i>Outcomes</i>
Health technology assessment		
Australian Government Minister for Health to:		
<ul style="list-style-type: none"> • accelerate work to review existing MBS and PBS items — giving priority to high-cost items that have not been subject to economic evaluation, or for which the benefits are relatively uncertain — reduce or remove subsidies where appropriate, and report on progress annually • review and revise Australia’s system for health technology assessment (HTA), with a focus on reducing unnecessary duplication and fragmentation, improving disinvestment mechanisms (giving consideration to the merits of an independent decision maker), and deterring clinicians from using MBS and PBS items in circumstances where they are not clinically and cost effective • share Australian Government HTA assessments with the states and territories 	<ul style="list-style-type: none"> • Immediate • Within 1 year • Immediate 	<ul style="list-style-type: none"> • Treatments that are not clinically or cost effective — or that are harmful to patients — are not subsidised • Patients potentially have greater access to higher-value health interventions • HTA processes achieve objectives at least cost
Evidence-based guidance for clinicians		
<p>Australian Government Minister for Health to establish expert panels of clinicians to assess and endorse clinical guidelines, and to advise on dissemination, implementation and review</p>	<ul style="list-style-type: none"> • Within 1 year 	<ul style="list-style-type: none"> • Better informed health professionals, fewer adverse events and less waste
Provider payment models		
<ul style="list-style-type: none"> • Independent Hospital Pricing Authority to introduce a quality and safety dimension to pricing within activity-based funding, subject to current work confirming the feasibility of doing so • Australian, state and territory health ministers to trial and evaluate new payment models • A comprehensive review of the Australian health care system — instigated by the Australian Government Minister for Health — would provide an opportunity to investigate ways to better align financial incentives with health policy objectives 	<ul style="list-style-type: none"> • Within 2 years • Ongoing • Review can commence immediately 	<ul style="list-style-type: none"> • Safer and higher quality hospital services • More coordinated patient care, especially in primary care
Preventive health		
<ul style="list-style-type: none"> • Australian, state and territory governments to routinely trial and evaluate prevention initiatives • Options to strengthen incentives for cost-effective investment in preventive health to be considered as part of a comprehensive review of the health care system 	<ul style="list-style-type: none"> • Ongoing • Review can commence immediately 	<ul style="list-style-type: none"> • Cost-effective investment in preventive health

(continued next page)

Table 5.1 (continued)

<i>Opportunities, reform actions and responsibilities</i>	<i>Timeframes</i>	<i>Outcomes</i>
Health workforce		
<ul style="list-style-type: none"> • State and territory health ministers to initiate role expansions, based on evaluations of past and current trials, and amend scopes of practice accordingly 	<ul style="list-style-type: none"> • Ongoing 	<ul style="list-style-type: none"> • Greater workforce flexibility, potentially lower labour costs, better patient access and higher workforce satisfaction • Nationally coordinated workforce policy activities
<ul style="list-style-type: none"> • Australian Government Minister for Health to identify where there would be benefits in expanding the types of health professionals that can access reimbursement for MBS or PBS items 	<ul style="list-style-type: none"> • Ongoing 	
<ul style="list-style-type: none"> • Australian Government Minister for Health to promote and champion workforce reforms at the national level, following abolition of Health Workforce Australia 	<ul style="list-style-type: none"> • Ongoing 	
Pharmacy		
<ul style="list-style-type: none"> • Australian Government to remove restrictions on retail pharmacy location 	<ul style="list-style-type: none"> • Within 1 year 	<ul style="list-style-type: none"> • Greater competition in retail pharmacy • Safety and access regulated cost effectively
<ul style="list-style-type: none"> • State governments to remove restrictions on retail pharmacy ownership 	<ul style="list-style-type: none"> • Within 1 year 	
Pharmaceutical Benefits Scheme pricing		
<p>Australian Government Minister for Health to:</p> <ul style="list-style-type: none"> • eliminate delays in price disclosure processes • identify ways to apply a larger statutory price reduction to PBS items upon listing of a generic alternative • examine the case for a statutorily independent PBS price-setting authority 	<ul style="list-style-type: none"> • Within 1 year 	<ul style="list-style-type: none"> • More competitive PBS prices
Private health insurance		
<p>Australian Government Minister for Health to:</p> <ul style="list-style-type: none"> • facilitate trials of expansions in the role of private health insurers — informed by proposals from insurers — and evaluate these trials • commission a review of the objectives and performance of private health insurance regulations, ideally as part of a comprehensive and independent review of the Australian health care system 	<ul style="list-style-type: none"> • Within 1 year • Review can commence immediately 	<ul style="list-style-type: none"> • Greater involvement of private health insurers in preventive health and coordinated care • Competitive and innovative health insurance market that serves the needs of consumers
Information and transparency		
<ul style="list-style-type: none"> • Australian, state and territory health ministers to release more data on the performance of individual health care facilities and clinicians, and drive greater uptake of electronic health records 	<ul style="list-style-type: none"> • Immediate 	<ul style="list-style-type: none"> • Increased public reporting on individual hospitals and other providers, such as general practices and dentists • Greater use of electronic health records • Researchers can access and link administrative datasets
<ul style="list-style-type: none"> • Australian Government Minister for Health to publicly respond to the Review of the Personally Controlled Electronic Health Record 	<ul style="list-style-type: none"> • Within 6 months 	
<ul style="list-style-type: none"> • Australian Government social policy ministers to provide researchers with greater access to MBS, PBS, Centrelink and other government-held datasets 	<ul style="list-style-type: none"> • Immediate 	

Box 5.1 **What does good-practice reform look like?**

Getting reforms right matters, not just for the financial implications but also for the wellbeing of Australians. Making good use of evidence and process is fundamental to achieving successful and lasting reform. With this in mind, the Commission has previously set out elements of good-practice policy making.

Evidence is needed to build the case for reform

The need for government intervention, its objectives, policy options and the likely impacts of these options should be clearly identified, including the option of doing nothing. The option that leads to the greatest increase in community wellbeing should be implemented. This is the Regulatory Impact Assessment process, which is explained in detail in the Australian Government's *Best Practice Regulation Handbook* (2013).

As part of this assessment, different options need to be carefully analysed by drawing on the available evidence. This can be facilitated by acquiring better data, measuring outcomes as policies are implemented, and allowing researchers and experts to access the data (chapter 4).

Trials and past experiences can be an invaluable source of evidence. Piloting reforms (such as in one jurisdiction or through voluntary participation) can help to test the impacts, gather relevant evidence and demonstrate the potential benefits of reform to stakeholders.

Good process is key to success

Reforms can be facilitated — and progress accelerated — by consulting widely to allow all available evidence to be incorporated. This can involve 'stress testing' the viability of reform options with stakeholders early in the process.

Making evaluation and consultation processes transparent can allow judgements made by policy makers to be adequately scrutinised by interested stakeholders. This includes making public as much evidence and analysis as possible, as well as the reasons for decisions that are made. Independent review processes can also help.

Where there are significant uncertainties or intractable policy problems, a phased or iterative approach to policy reforms is often a good way to proceed. This allows policy makers to draw on accumulating evidence to assess the direction of long-term reform options.

And once reforms have been implemented, ex-post evaluation of whether the benefits have exceeded the costs allows policy makers to identify unintended consequences and ways to refine policies or progress with further reforms. This process can best be facilitated by building evaluation mechanisms into policies before they are implemented.

Source: PC (2010a).

The bigger picture

This paper has focused on incremental, within-system reform opportunities. Achieving more systemic and substantive efficiency gains in health — and making the health system more sustainable in the long-term — may require fundamental reforms to institutional, financing and funding structures. These structures have a large influence on the incentives and actions of governments, insurers, health care providers and patients — and, ultimately,

on the efficiency of the entire health system. Institutional and funding arrangements also affect what can be achieved through incremental, within-system reforms, as the Commission has observed throughout this paper.

The effects of current institutional and funding structures on the performance of Australia's health system are well understood, even though they have proven difficult to address. Consumers have to deal with a complex and fragmented health system, which can result in information gaps, reduced quality of care or access to services, or wasteful duplication of clinical interventions. The split of funding and decision-making responsibilities means a lack of long-term coordinated care, manifesting in cost and blame shifting, underinvestment in preventive health and inappropriate treatment of chronic disease. Such perverse or unintended consequences compromise the performance and long-term sustainability of the overall health system.

The current arrangements can also inhibit reform. Overlapping responsibilities for particular areas of service delivery or funding can mean that no single entity is willing to pursue reforms, since success may depend on the actions of others. And no-one may be willing to take leadership for long-term reforms if those who bear the short-term costs of change do not reap the long-term gains.

But Australia's health system is not broken. It achieves good outcomes by world standards, and (for the most part) it is complex for good reasons. Any conceivable set of institutional or funding arrangements will have weaknesses as well as strengths: there is no panacea. Indeed, many of the problems noted above are pervasive features of health systems around the world.

The structure of the health system and the complex nature of health services can make reform challenging, but do not make it impossible. **There would be much to gain by holistically reviewing Australia's health system and identifying long-term reform options. The Australian Government Minister for Health is well placed to commission this review.**

Such a review needs to be independent, transparent and evidence based to ensure ensuing reform ideas are practicable and have widespread acceptance. Although implementing systemic reforms to the health system can be complex, costly and time consuming, it need not involve abrupt and disruptive change. It can also be achieved through steady and ongoing adjustment. The most successful reforms may well be those that are robust to future changes, whether in demand for health care, the incidence of disease, health technologies or policy settings.

In the meantime, there are immediate gains that can be secured by progressing with incremental reforms within the current health system. The opportunities identified in this paper would be a good place to start.

References

- ACNP (Australian College of Nurse Practitioners) 2013, *Information Regarding Prescribing, Ordering Diagnostic Tests and Referring*, <https://acnp.org.au/mbs-and-pbs> (accessed 5 March 2014).
- ACSQHC (Australian Commission on Safety and Quality in Health Care) 2015a, *Accreditation and the NSQHS Standards*, www.safetyandquality.gov.au/our-work/accreditation-and-the-nsqhs-standards (accessed 4 March 2015).
- 2015b, *Core, Common Questions for Patient Experience Surveys in Hospitals*, www.safetyandquality.gov.au/our-work/information-strategy/indicators/hospital-patient-experience/ (accessed 19 March 2015).
- AHHA (Australian Healthcare and Hospitals Association) 2014, *Pre-budget Submission to Treasury 2015-16*, Sydney.
- AIHI (Australian Institute of Health Innovation) 2013, *Final Report: Performance Indicators Used Internationally to Report Publicly on Healthcare Organisations and Local Health Systems*, Sydney.
- AIHIN (Australian Indigenous HealthInfoNet) 2014, *Diabetes Care Project — DCP*, www.healthinfonet.ecu.edu.au/key-resources/programs-projects?pid=1922 (accessed 27 January 2015).
- AIHW (Australian Institute of Health and Welfare) 2013, *Hospitals Data*, www.aihw.gov.au/hospitals-data (accessed 20 January 2015).
- 2014, *Australia's Health 2014*, Canberra.
- 2015a, *Australian Institute of Health and Welfare Expenditure Database*, Canberra.
- 2015b, *Data Integration Projects 2014*, www.aihw.gov.au/data-integration/projects-2014 (accessed 26 February 2015).
- ANAO (Australian National Audit Office) 2010, *Practice Incentives Program: Department of Health and Ageing*, Audit Report No. 5 2010-11, Canberra.
- 2012, *Administration of Project Wickenby*, Audit Report No. 25 2011-12, Canberra.
- 2015, *Administration of the Fifth Community Pharmacy Agreement*, Audit Report No. 25 2014-15, Canberra.
- ANPHA (Australian National Preventive Health Agency) 2013, *State of Preventive Health 2013*, Canberra.
- ASSA (Academy of the Social Sciences in Australia) 2013, *Facilitating Access to Routine Data for Research Benefiting the Australian People*, Canberra.

-
- Australian Government 2010, *High Level Principles for Data Integration Involving Commonwealth Data for Statistical and Research Purposes*, Cross Portfolio Statistical Integration Committee, Canberra.
- 2011, *National Health (Australian Community Pharmacy Authority Rules) Determination 2011*, Canberra.
- 2012, *National Pharmaceutical Drug Misuse Framework for Action (2012–2015)*, Canberra.
- 2013, *Best Practice Regulation Handbook*, Canberra.
- 2014, *Pharmacy Location Rules Applicant’s Handbook*, Version 1.1, Canberra.
- 2015, *Australian Public Service Better Practice Guide for Big Data*, Canberra.
- Babar, Z.-U.-D. and Vitry, A. 2014, ‘Differences in Australian and New Zealand medicines funding policies’, *Australian Prescriber*, vol. 37, no. 5, pp. 150–151.
- Banks, G. 2008, *Health Costs and Policy in an Ageing Australia*, Productivity Commission Chairman’s Speech, Canberra.
- Beckmann, K.R., Bennett, A., Young, G.P. and Roder, D.M. 2014, ‘Treatment patterns among colorectal cancer patients in South Australia: A demonstration of the utility of population-based data linkage’, *Journal of Evaluation in Clinical Practice*, vol. 20, no. 4, pp. 467–477.
- Beer, J., Harrowfield, S. and Waite, L. 2014, ‘CarePoint: The Right Direction for Your Health’, presented at Health Roundtable Innovations Workshops, Melbourne, 13 November.
- Bennett, C. 2013, *Are We There Yet? A Journey of Health Reform in Australia*, University of Notre Dame Australia, Sydney.
- Blomqvist, Å. and Busby, C. 2012, *How to Pay Family Doctors: Why ‘Pay per Patient’ is Better Than Fee for Service*, Commentary No. 365, CD Howe Institute, Toronto.
- De Boer, R. and Scully, S. 2010, *National Health Amendment (Pharmaceutical Benefit Scheme) Bill 2010*, Bill Digest No. 13 2010-11, Parliamentary Library, Canberra.
- Boxall, A.-M. 2011, *What Are We Doing to Ensure the Sustainability of the Health System?*, Research Paper No. 4 2011-12, Parliamentary Library, Canberra.
- 2014, *Finding Savings in Healthcare: Moving From Theory to Reality*, Australian Healthcare and Hospitals Association, <http://ahha.asn.au/news/finding-savings-healthcare-moving-theory-reality> (accessed 30 March 2015).
- De Bruin, S.R., Baan, C.A. and Struijs, J.N. 2011, ‘Pay-for-performance in disease management: A systematic review of the literature’, *BMC Health Services Research*, vol. 11, pp. 272–286.
- Bulfone, L., Younie, S. and Carter, R. 2009, ‘Health technology assessment: Reflections from the Antipodes’, *Value in health*, vol. 12, no. S2, pp. S28–S38.

-
- Bupa and Healthscope 2013, *Improving Focus on Quality Healthcare Outcomes*, Media Release, 22 October, Melbourne.
- Cadilhac, D.A., Magnus, A., Sheppard, L., Cumming, T.B., Pearce, D.C. and Carter, R. 2011, 'The societal benefits of reducing six behavioural risk factors: An economic modelling study from Australia', *BMC Public Health*, vol. 11, no. 483, pp. 1–12.
- Carpenter, A., Elshaug, A., Turnbull, F., Wilson, A. and Jan, S. 2014, *Health Policy, Administration and Expenditure*, Submission to the Senate Select Committee on Health, Canberra.
- Carter, R. 2012, 'The economics of prevention: Health setting and key messages from the landmark ACE-Prevention Study', presented at Deakin Health Policy Forum, Melbourne, 20 June.
- Cashin, C. 2014a, 'P4P programme design', in Cashin, C., Chi, Y.-L., Smith, P., Borowitz, M. and Thomson, S. (eds), *Paying for Performance in Health Care: Implications for Health System Performance and Accountability*, Open University Press, Maidenhead, UK, pp. 23–39.
- 2014b, 'United States: Hospital quality incentive demonstration', in Cashin, C., Chi, Y.-L., Smith, P., Borowitz, M. and Thomson, S. (eds), *Paying for Performance in Health Care: Implications for Health System Performance and Accountability*, Open University Press, Maidenhead, UK, pp. 287–300.
- and Chi, Y.-L. 2014, 'Australia: Practice incentives programme', in Cashin, C., Chi, Y.-L., Smith, P., Borowitz, M. and Thomson, S. (eds), *Paying for Performance in Health Care: Implications for Health System Performance and Accountability*, Open University Press, Maidenhead, UK, pp. 109–125.
- , ——— and Borowitz, M. 2014, 'Lessons from the case study P4P programmes', in Cashin, C., Chi, Y.-L., Smith, P., Borowitz, M. and Thomson, S. (eds), *Paying for Performance in Health Care: Implications for Health System Performance and Accountability*, Open University Press, Maidenhead, UK, pp. 83–105.
- , ———, Smith, P.C., Borowitz, M. and Thomson, S. 2014, 'Health provider P4P strategic health purchasing', in Cashin, C., Chi, Y.-L., Smith, P., Borowitz, M. and Thomson, S. (eds), *Paying for Performance in Health Care: Implications for Health System Performance and Accountability*, Open University Press, Maidenhead, UK, pp. 3–21.
- Charlesworth, A., Davies, A. and Dixon, J. 2012, *Reforming Payment for Health Care in Europe to Achieve Better Value*, Nuffield Trust, London.
- , Hawkins, L. and Marshall, L. 2014, *NHS Payment Reform: Lessons from the Past and Directions for the Future*, Nuffield Trust, London.
- Chemist Warehouse 2014, *Chemist Warehouse Submission to the Competition Policy Review*, http://competitionpolicyreview.gov.au/files/2014/07/Chemist_Warehouse.pdf (accessed 12 January 2015).

-
- Cheng, T. 2013, *Does Reducing Rebates for Private Health Insurance Generate Cost Savings?*, Melbourne Institute Policy Brief Series, Melbourne Institute of Applied Economic and Social Research, Melbourne.
- CHF (Consumers Health Forum) 2010, *Building Consumer Capacity and Providing Consumer Input on the Development of a Quality Framework for the Medicare Benefits Schedule*, Consumer Information and Consultation Paper, Canberra.
- CHSD (Centre for Health Service Development) 2013a, *A Literature Review on Integrating Quality and Safety into Hospital Pricing Systems*, University of Wollongong, Wollongong.
- 2013b, *Health Workforce Australia Expanded Scopes of Practice Program Evaluation Progress Report 3*, University of Wollongong, Wollongong.
- CHSSR (Centre for Health Systems and Safety Research) 2013a, *Bar Code Medication Administration Systems*, Evidence Briefings on Interventions to Improve Medication Safety, Australian Commission on Safety and Quality in Health Care, Sydney.
- 2013b, *Electronic Medication Administration Records*, Evidence Briefings on Interventions to Improve Medication Safety, Australian Commission on Safety and Quality in Health Care, Sydney.
- CIHI (Canadian Institute for Health Information) 2014, *CIHI Annual Report 2013–2014*, Ottawa.
- Clarke, P. 2012, ‘Challenges and opportunities for the Pharmaceutical Benefits Scheme’, *The Medical Journal of Australia*, vol. 196, no. 3, pp. 153–154.
- 2013, ‘The price is wrong: Pharmaceutical expenditure in Australia over the last decade and options for reform’, in Committee for Economic Development of Australia (ed), *Health Care: Reform or Ration*, Melbourne.
- Clarke, P. 2014, ‘Pharmacies “rent hostages” under regulatory restrictions’, *Australian Financial Review*, 30 July.
- CMS (Centers for Medicare and Medicaid Services) 2014, *Medicare Provider Utilization and Payment Data*, www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Medicare-Provider-Charge-Data/index.html (accessed 21 January 2015).
- 2015, *About the CMS Innovation Center*, <http://innovation.cms.gov/About/index.html> (accessed 1 April 2015).
- COAG (Council of Australian Governments) 2000, *National Competition Policy Review of Pharmacy*, Final Report, Canberra.
- Cobiac, L.J., Vos, T. and Veerman, J.L. 2010, ‘Cost-effectiveness of interventions to promote fruit and vegetable consumption’, *PLoS One*, vol. 5, no. 11, pp. 1–8.
- Coleman, J. 2015, *Choosing Wisely: Sneak Preview of GP Shortlist*, <http://drjustincoleman.com/2015/02/05/choosing-wisely-gp-shortlist> (accessed 30 March 2015).

-
- Colvin, L., Slack-Smith, L., Stanley, F.J. and Bower, C. 2010, 'Linking a pharmaceutical claims database with a birth defects registry to investigate birth defect rates of suspected teratogens', *Pharmacoepidemiology and Drug Safety*, vol. 19, no. 11, pp. 1137–1150.
- Competition Policy Review 2015, *Final Report*, Australian Government, Canberra.
- Cutler, D.M. and Zechauser, R.J. 1997, *Adverse Selection in Health Insurance*, Working Paper 6107, National Bureau of Economic Research, Cambridge, Massachusetts USA.
- Dalziel, K., Segal, L. and Mortimer, D. 2008, 'Review of Australian health economic evaluation – 245 interventions: What can we say about cost effectiveness?', *Cost Effectiveness and Resource Allocation*, vol. 6, no. 9, pp. 1–12.
- Deloitte Access Economics 2011, *The Future of Private Health Insurance Premium Setting: Seeking Integrative Solutions*, report to Medibank Private Limited, Sydney.
- 2015, *The Burden of High Priority Complications and Healthcare Variation in Australian Hospitals*, report to the Australian Commission on Safety and Quality in Health Care, Sydney.
- Department of Health 2013a, *National Registration and Accreditation Scheme (NRAS)*, Australian Government Department of Health, www.health.gov.au/internet/main/publishing.nsf/Content/work-nras (accessed 3 February 2015).
- 2013b, *Pharmaceutical Benefits Advisory Committee (PBAC)*, www.pbs.gov.au/info/industry/listing/participants/pbac (accessed 12 March 2015).
- 2013c, *Prostheses List Advisory Committee*, www.health.gov.au/internet/main/publishing.nsf/Content/health-privatehealth-plac (accessed 12 March 2015).
- 2013d, *Review of the Personally Controlled Electronic Health Record*, Canberra.
- 2014a, *2015 Pharmaceutical Benefits Scheme Co-payment and Safety Net Information*, www.pbs.gov.au/info/healthpro/explanatory-notes/front/fee (accessed 5 February 2015).
- 2014b, *Australian Government 2014-15 Health Portfolio Budget Statements*, www.health.gov.au/internet/budget/publishing.nsf/Content/2014-2015_Health_PBS (accessed 1 April 2015).
- 2014c, *Chronic Disease Management — Individual Allied Health Services under Medicare — Provider Information*, www.health.gov.au/internet/main/publishing.nsf/Content/health-medicare-health_pro-gp-pdf-allied-cnt.htm (accessed 26 March 2015).
- 2014d, *Completed Assessments and Reviews*, www.msac.gov.au/internet/msac/publishing.nsf/Content/completed-assessments (accessed 21 January 2015).
- 2014e, *MSAC: About Us*, www.msac.gov.au/internet/msac/publishing.nsf/Content/about-us-lp-1 (accessed 8 January 2015).
- 2014f, *PBS Expenditure and Prescriptions Twelve Months to 30 June 2014*, www.pbs.gov.au/info/statistics/expenditure-and-prescriptions-30-06-2014 (accessed 4 March 2015).

-
- 2014g, *Personally Controlled Electronic Health Record System Operator Annual Report 1 July 2013 to 30 June 2014*, Canberra.
- 2014h, *Pharmaceutical Benefits Scheme Price Disclosure Arrangements: Procedural and Operational Guidelines*, Version 5, Canberra.
- 2014i, *Post-Implementation Review: Amendments to the National Health Act 1953 to Extend the Pharmacy Location Rules to 30 June 2015*, Canberra.
- 2014j, *Primary Health Networks Grant Programme Guidelines*, Canberra.
- 2014k, *Questions and Answers on the Chronic Disease Management (CDM) Items*, www.health.gov.au/internet/main/publishing.nsf/Content/mbsprimarycare-chronicdiseasemanagement-qanda (accessed 5 March 2015).
- 2014l, *The Listing Steps*, www.pbs.gov.au/info/industry/listing/listing-steps (accessed 21 January 2015).
- 2015a, *About the PBS*, www.pbs.gov.au/info/about-the-pbs (accessed 21 January 2015).
- 2015b, *A-Z Medicine Listing*, www.pbs.gov.au/browse/medicine-listing (accessed 12 March 2015).
- 2015c, *MBS Reviews*, www.health.gov.au/internet/main/publishing.nsf/Content/Review_MBS_Items (accessed 17 March 2015).
- 2015d, *Private Health Insurance: Prostheses List*, www.health.gov.au/internet/main/publishing.nsf/content/health-privatehealth-prostheseslist.htm (accessed 12 March 2015).
- 2015e, *The 1 January 2015 MBS Files Are Now Available*, www.mbsonline.gov.au/internet/mbsonline/publishing.nsf/Content/news-2015-01-01-latest-news-January (accessed 12 March 2015).
- Department of Human Services 2013, *Practice Incentives Program: eHealth Incentive Guidelines August 2013*, Canberra.
- 2014a, *Practice Incentives Program (PIP)*, Medicare Australia, www.medicareaustralia.gov.au/provider/incentives/pip (accessed 16 January 2015).
- 2014b, *Pricing of Pharmaceutical Benefits Scheme Medicine*, www.medicareaustralia.gov.au/provider/pbs/pharmacists/pricing.jsp (accessed 1 February 2015).
- DoHA (Department of Health and Ageing) 2009, *Review of Health Technology Assessment in Australia*, Canberra.
- 2010, *Development of a Quality Framework for the Medicare Benefits Schedule*, Discussion Paper, Medical Benefits Reviews Task Group, Canberra.
- 2011a, *Australian Government HTA Performance*, www.health.gov.au/internet/hta/publishing.nsf/Content/performance-1 (accessed 6 January 2015).

-
- 2011b, *Comprehensive Management Framework for the MBS*, www.mbsonline.gov.au/internet/main/publishing.nsf/Content/New_MBS_Items (accessed 3 February 2015).
- 2011c, *Demonstration Reviews of Existing MBS Items*, Demonstration Reviews of Existing MBS Items, www.msac.gov.au/internet/msac/publishing.nsf/Content/MBRTG-demonstration-reviews (accessed 20 March 2015).
- 2011d, *The MBS Quality Framework*, The MBS Quality Framework, www.health.gov.au/internet/main/publishing.nsf/Content/MBS_Quality_Framework (accessed 30 March 2015).
- Dorn, S.D. 2010, 'Mid-Level providers in gastroenterology', *The American Journal of Gastroenterology*, vol. 105, pp. 246–251.
- DPMC (Department of the Prime Minister and Cabinet) 2014, *Reform of the Federation White Paper: Roles and Responsibilities in Health*, Issues Paper 3, Canberra.
- Duckett, S. 2012, 'Designing incentives for good-quality hospital care', *Medical Journal of Australia*, vol. 196, no. 11, pp. 678–679.
- Duckett, S. 2013, *Australia's Bad Drug Deal: High Pharmaceutical Prices*, Grattan Institute, Melbourne.
- and Breadon, P. 2013a, *Access All Areas: New Solutions for GP Shortages in Rural Australia*, Grattan Institute, Melbourne.
- and — 2013b, *Poor Pricing Progress: Price Disclosure Isn't the Answer to High Drug Prices*, Grattan Institute, Melbourne.
- and — 2014a, *Controlling Costly Care: A Billion-Dollar Hospital Opportunity*, Grattan Institute, Melbourne.
- and — 2014b, *Unlocking Skills in Hospitals: Better Jobs, More Care*, Grattan Institute, Melbourne.
- Dutton, P. and Cormann, M. 2014, *Improving Productivity And Performance In The Health Care Sector*, Joint Media Release MC 40/14, 13 May, Canberra.
- Elshaug, A.G., Watt, A.M., Mundy, L. and Willis, C.D. 2012, 'Over 150 potentially low-value health care practices: An Australian study', *Medical Journal of Australia*, vol. 197, no. 10, pp. 556–560.
- Flodgren, G., Eccles, M.P., Shepperd, S., Scott, A., Parmelli, E. and Beyer, F.R. 2011, 'An overview of reviews evaluating the effectiveness of financial incentives in changing healthcare professional behaviours and patient outcomes', *Cochrane Database of Systematic Reviews*, no. 7, pp. 1–94.
- Francke, A.L., Smit, M.C., de Veer, A.J.E. and Mistiaen, P. 2008, 'Factors influencing the implementation of clinical guidelines for health care professionals: A systematic meta-review', *BMC Medical Informatics and Decision Making*, vol. 8, no. 38.

-
- Fung, C.H., Lim, Y.-W., Mattke, S., Damberg, C. and Shekelle, P.G. 2008, 'Systematic review: The evidence that publishing patient care performance data improves quality of care', *Annals of Internal Medicine*, vol. 148, pp. 111–123.
- Gallego, G., Haas, M., Hall, J. and Viney, R. 2010, *Reducing the Use of Ineffective Health Care Interventions: A Rapid Review*, Sax Institute, Sydney.
- Gherzi, D. and Anderson, W.P. 2015, 'Can Australia's clinical practice guidelines be trusted?', *Medical Journal of Australia*, vol. 202, no. 1, p. 8.
- Gillam, S.J., Siriwardena, A.N. and Steel, N. 2012, 'Pay-for-performance in the United Kingdom: Impact of the Quality and Outcomes Framework — A Systematic Review', *Annals of Family Medicine*, vol. 10, no. 5, pp. 461–468.
- Greene, J. 2013, 'An examination of pay-for-performance in general practice in Australia', *Health Services Research*, vol. 48, no. 4, pp. 1415–1432.
- Gupta, L., Ward, J.E. and Hayward, R.S. 1997, 'Clinical practice guidelines in general practice: A national survey of recall, attitudes and impact', *Medical Journal of Australia*, vol. 166, no. 2, pp. 69–72.
- Hall, J. 2009, *Financial Incentives for Health Behaviour Change: A Rapid Review*, Sax Institute, Sydney.
- Hattingh, H.L. 2011, 'The regulation of pharmacy ownership in Australia: The potential impact of changes to the health landscape', *Journal of Law and Medicine*, vol. 19, no. 1, pp. 147–154.
- Helms, C., Crookes, J. and Bailey, D. 2015, 'Financial viability, benefits and challenges of employing a nurse practitioner in general practice', *Australian Health Review*, vol. 39, no. 2, pp. 205–210.
- Hildebrandt, H., Schulte, T. and Stunder, B. 2012, 'Triple Aim in Kinzigtal, Germany: Improving population health, integrating health care and reducing costs of care – Lessons for the UK?', *Journal of Integrated Care*, vol. 20, no. 4, pp. 205–222.
- Hiller, J. 2013, 'Research initiatives: The ASTUTE study — Lessons learnt from the NHMRC funded disinvestment research journey', in Health Policy Advisory Committee on Technology (ed), *Disinvestment in Australia and New Zealand*, HealthPACT, Brisbane, pp. 10–11.
- Horvath, J. 2014, *Review of Medicare Locals*, report to the Minister for Health and Minister for Sport, Department of Health, Canberra.
- HPA (Health Policy Analysis) 2013, *Analysis of Hospital-Acquired Diagnoses and Their Effect on Case Complexity and Resource Use*, Australian Commission on Safety and Quality in Health Care, Sydney.
- HSCIC (Health and Social Care Information Centre) 2014, *QOF 2013/14 Results*, <http://qof.hscic.gov.uk> (accessed 12 January 2015).
- HWA (Health Workforce Australia) 2012, *Health Workforce 2025 Doctors, Nurses and Midwives*, vol. 1, Adelaide.

— 2013, *Strategic Plan 2013–2016*, Adelaide.

IC (Industry Commission) 1997, *Private Health Insurance*, Report No. 57, AGPS, Canberra.

IHPA (Independent Hospitals Pricing Authority) 2014, *The Pricing Framework for Australian Public Hospital Services 2015-16*, Sydney.

Jha, A.K. and Epstein, A.M. 2006, 'The predictive accuracy of the New York State coronary artery bypass surgery report-card system', *Health Affairs*, vol. 25, no. 3, pp. 844–855.

Jolly, R. 2011, *The E Health Revolution: Easier Said Than Done*, Research Paper No. 3 2011-12, Parliamentary Library, Canberra.

Jones, N., Long, L. and Zeitz, K. 2011, 'The role of the nurse sedationist', *Collegian*, vol. 18, pp. 115–123.

Ketelaar, N.A.B.M., Faber, M.J., Flottorp, S., Rygh, L.H., Deane, K.H.O. and Eccles, M.P. 2011, 'Public release of performance data in changing the behaviour of healthcare consumers, professionals or organisations', *Cochrane Database of Systematic Reviews*, no. 11, pp. 1–62.

King, R. 2014, *Richard King: What Not To Do*, Medical Journal of Australia, MJA InSight, www.mja.com.au/insight/2014/34/richard-king-what-not-do (accessed 21 January 2015).

Kinney, E.D. 2011, 'Comparative effectiveness research under the Patient Protection and Affordable Care Act: Can new bottles accommodate old wine?', *American Journal of Law and Medicine*, vol. 37, no. 4, pp. 522–566.

Kristensen, S.R., Meacock, R., Turner, A.J., Boaden, R., McDonald, R., Roland, M. and Sutton, M. 2014, 'Long-term effect of hospital pay for performance on mortality in England', *New England Journal of Medicine*, vol. 371, no. 6, pp. 540–548.

Larsson, S., Lawyer, P., Garellick, G., Lindahl, B. and Lundstrom, M. 2012, 'Use of 13 disease registries in 5 countries demonstrates the potential to use outcome data to improve health care's value', *Health Affairs*, vol. 31, no. 1, pp. 220–227.

Lee, T.J.W., Nickerson, C., Rees, C.J., Patnick, J. and Rutter, M.D. 2012, 'Comparison of colonoscopy quality indicators between surgeons, physicians and nurse endoscopists in the NHS bowel cancer screening programme: Analysis of the national database', *Gut*, vol. 61, pp. A384–A384.

Leggat, S.G. 2014, *Changing Health Professionals' Scope of Practice: How Do We Continue to Make Progress?*, Deeble Institute, Sydney.

Ley, S. 2015, *More Consumer Consultation in PBS Process*, Media Release, 13 March, Canberra.

Lilford, R.J., Brown, C.A. and Nicoll, J. 2007, 'Use of process measures to monitor the quality of clinical practice', *British Medical Journal*, vol. 335, pp. 648–650.

-
- LSILC (Legal and Social Issues Legislation Committee) 2014, *Inquiry into Community Pharmacy in Victoria*, Report no. 3, Parliament of Victoria, Melbourne.
- MacKean, G., Noseworthy, T., Elshaug, A.G., Leggett, L., Littlejohns, P., Berezanski, J. and Clement, F. 2013, 'Health technology reassessment: The art of the possible', *International Journal of Technology Assessment in Health Care*, vol. 29, no. 4, pp. 418–423.
- Mansfield, S.J. 2014, 'Generic drug prices and policy in Australia: Room for improvement? A comparative analysis with England', *Australian Health Review*, vol. 38, no. 1, pp. 1–10.
- Marshall, L., Charlesworth, A. and Hurst, J. 2014, *The NHS Payment System: Evolving Policy and Emerging Evidence*, Nuffield Trust, London.
- Martin, E. 2015, *Rationing in Healthcare*, Deeble Institute, Sydney.
- Maslekar, S., Hughes, M., Gardiner, A., Monson, J.R.T. and Duthrie, G.S. 2010, 'Patient satisfaction with lower gastrointestinal endoscopy: doctors, nurse and nonmedical endoscopists', *Colorectal Disease*, vol. 12, no. 10, pp. 1033–1038.
- McKeon, S., Alexander, E., Brodaty, H., Ferris, B., Frazer, I. and Little, M. 2013, *Strategic Review of Health and Medical Research*, Final Report, Canberra.
- Meacock, R., Kristensen, S. and Sutton, M. 2014, 'Paying for improvements in quality: Recent experience in the NHS in England', *Nordic Journal of Health Economics*, vol. 2, no. 1, pp. 239–255.
- Medibank Private 2014a, *Health Care and Medibank Sign Up To Quality Hospital Care*, www.medibank.com.au/content/about/media-centre/2014/08/health-care-and-medibank-sign-up-to-quality-hospital-care.html (accessed 1 April 2015).
- 2014b, *Medibank and IPN Trial to Give Members More Options to Access to GPs at No Cost*, www.medibank.com.au/About-Us/Media-Centre-Details.aspx?news=535 (accessed 18 March 2015).
- Medicines Australia 2014, *Submission to the Senate Select Committee on Health*, Canberra.
- Merkur, S., Sassi, F. and McDaid, D. 2013, *Promoting Health, Preventing Disease: Is There an Economic Case?*, Policy Summary 6, World Health Organization, Copenhagen.
- Moodie, M. 2012, 'Case study: The economics of obesity prevention', presented at Deakin Health Policy Forum, Melbourne, 20 June.
- Moodie, R. 2013, *Focus on Prevention to Control the Growing Health Budget*, 2 May, The Conversation, <http://theconversation.com/focus-on-prevention-to-control-the-growing-health-budget-13665> (accessed 11 March 2015).
- Nall, C., Cary, B. and Blackburn, M. 2007, 'Evaluation of an advanced allied health assistant (physiotherapy) role on an acute medical ward', presented at 7th National Allied Health Conference, Hobart, 18 August.

-
- NCAH (Nursing Careers Allied Health) 2015, *SA Pharmacists to Administer Vaccinations*, www.ncah.com.au/art/public-health/kk1/sa-pharmacists-to-administer-vaccinations/388 (accessed 15 January 2015).
- NCOA (National Commission of Audit) 2014a, *Towards Responsible Government: Appendix to the Report of the National Commission of Audit*, vol. 1, Canberra.
- 2014b, *Towards Responsible Government: Appendix to the Report of the National Commission of Audit*, vol. 2, Canberra.
- 2014c, *Towards Responsible Government: The Report of the National Commission of Audit: Phase One*, Canberra.
- Newman, C. and Springborg, L. 2014, *Pharmacy Immunisation Trial Broadened*, Media Release, 9 July, Brisbane.
- NHHRC (National Health and Hospitals Reform Commission) 2009, *A Healthier Future for all Australians*, Final Report, Canberra.
- NHMRC (National Health and Medical Research Council) 2014, *2014 Annual Report on Australian Clinical Practice Guidelines*, Canberra.
- NHPA (National Health Performance Authority) 2012, *National Health Reform: Performance and Accountability Framework*, Sydney.
- 2014a, *Find Hospitals*, www.myhospitals.gov.au/search/hospitals (accessed 17 December 2014).
- 2014b, *Process for Identifying Poor Performance Agreed*, www.nhpa.gov.au/internet/nhpa/publishing.nsf/Content/Process-for-identifying-poor-performance-agreed-at-Standing-Council-on-Health (accessed 17 December 2014).
- 2015, *About the Data*, www.myhospitals.gov.au/about-the-data (accessed 29 January 2015).
- NICE (National Institute for Health and Care Excellence) 2014a, *Cut NHS Waste Through NICE's 'Do Not Do' database*, www.nice.org.uk/news/article/cut-nhs-waste-through-nice%E2%80%99s-%E2%80%98do-not-do%E2%80%99-database (accessed 19 January 2015).
- 2014b, *What We Do*, www.nice.org.uk/about/what-we-do (accessed 19 January 2015).
- NICS (National Institute of Clinical Studies) 2003, *Evidence-Practice Gaps Report*, vol. 1, Melbourne.
- 2005, *Evidence-Practice Gaps Report*, vol. 2, Melbourne.
- Northern Territory Government 2014, *New Legislation for Safe and Easy Access to Vaccines*, <http://newsroom.nt.gov.au/mediaRelease/9191> (accessed 6 March 2015).
- NPHT (National Preventative Health Taskforce) 2009, *Australia: The Healthiest Country by 2020*, Canberra.

-
- NPS MedicineWise 2015, *Choosing Wisely Australia Launching in 2015*, www.nps.org.au/media-centre/media-releases/repository/choosing-wisely-australia-launching-in-2015 (accessed 30 March 2015).
- NSW Bureau of Health Information 2014, *NSW Patient Survey Program*, www.bhi.nsw.gov.au/nsw_patient_survey_program (accessed 17 December 2014).
- NSW Health 2015, *Integrated Care Demonstrators*, www.health.nsw.gov.au/wohp/Pages/demonstrators.aspx (accessed 1 April 2015).
- NSW Ministry of Health 2013, *Allied Health Assistant Framework Guideline*, Sydney.
- OAIC (Office of the Australian Information Commissioner) 2011, *Principles on Open Public Sector Information*, Sydney.
- 2015, *Medicare and Pharmaceutical Benefits*, www.oaic.gov.au/privacy/privacy-act/medicare-and-pharmaceutical-benefits (accessed 10 February 2015).
- Oakley, J. 2011, 'Surgeon report cards, clinical realities, and the quality of patient care', *Monash Bioethics Review*, vol. 28, no. 3, pp. 21.1–21.6.
- OECD (Organisation for Economic Co-operation and Development) 2013, *Health at a Glance 2013*, Paris.
- Patel, K., Masi, D. and Brandt, C. 2014, *Making Sense of the Medicare Physician Payment Data Release: Uses, Limitations, and Potential*, The Commonwealth Fund, New York.
- , — and — 2015, *How Open Data Can Reveal - And Correct - the Faults in our Health System*, Brookings Institution, www.brookings.edu/blogs/health360/posts/2015/02/18-open-data-reveal-and-correct-faults-in-health-system-patel (accessed 14 April 2015).
- PC (Productivity Commission) 1999, *Productivity Commission Submission to the National Review of Pharmacy*, Canberra.
- 2003, *General Practice Administrative and Compliance Costs*, Research Report, Canberra.
- 2005a, *Australia's Health Workforce*, Research Report, Canberra.
- 2005b, *Impacts of Advances in Medical Technology in Australia*, Research Report, Canberra.
- 2005c, *Review of National Competition Policy Reforms*, Report no. 33, Canberra.
- 2006, *Potential Benefits of the National Reform Agenda*, Commission Research Paper, Canberra.
- 2010a, *Annual Report 2009-10*, Canberra.
- 2010b, *Public and Private Hospitals: Multivariate Analysis*, Supplement to Research Report, Canberra.
- 2013, *Annual Report 2012-13*, Canberra.

-
- PCORI (Patient-Centered Outcomes Research Institute) 2014, *About Us*, www.pcori.org/about-us (accessed 30 March 2015).
- Peterson, E.D., DeLong, E.R., Jollis, J.G., Muhlbaier, L.H. and Mark, D.B. 1998, 'The effects of New York's bypass surgery provider profiling on access to care and patient outcomes in the elderly', *Journal of the American College of Cardiology*, vol. 32, no. 4, pp. 993–999.
- PGA (The Pharmacy Guild of Australia) 2014a, *Community Pharmacy Delivering Accessibility, Quality and Choice for All Australians: Submission in Response to the Competition Policy Review Draft Report*, Canberra.
- 2014b, *Queensland Pharmacist Immunisation Pilot (QPIP)*, www.guild.org.au/qld_branch/professional-services/queensland-pharmacist-immunisation-pilot-%28qip%29 (accessed 6 March 2015).
- PHA (Private Healthcare Australia) 2014, *Submission: Private Health Insurance Amendment (GP Services) Bill 2014*, Submission to the Senate Community Affairs Legislation Committee, Canberra.
- PHARMAC (Pharmaceutical Management Agency) 2013, *Annual Report For the Year Ended 30 June 2013*, New Zealand Government, Wellington.
- 2015a, *Our History*, www.pharmac.health.nz/about/our-history/ (accessed 6 March 2015).
- 2015b, *Purchasing Medicines*, Information Sheet 05, New Zealand Government, Wellington.
- PHIAC (Private Health Insurance Administration Council) 2013a, *Competition in the Australian Private Health Insurance Market*, Research Paper 1, Canberra.
- 2013b, *The Operations of Private Health Insurers Annual Report 2012-13*, Canberra.
- 2014, *Private Health Insurance Australia: Quarterly Statistics September 2014*, Canberra.
- 2015a, *Statistical Trends in Membership and Benefits Data Tables*, <http://phiac.gov.au/industry/industry-statistics/statistical-trends> (accessed 31 March 2015).
- 2015b, *The Operations of Private Health Insurers Annual Report 2013-14*, Canberra.
- Pilling, S. 2009, 'Developing evidence-based guidance: Implications for systemic interventions', *Journal of Family Therapy*, vol. 31, no. 2, pp. 194–205.
- Porter, M.E. and Lee, T.H. 2013, 'The strategy that will fix health care', *Harvard Business Review*, October, pp. 50–70.
- PSNC (Pharmaceutical Services Negotiating Committee) 2015, *Essential Small Pharmacies*, <http://psnc.org.uk/contract-it/pharmacy-regulation/essential-small-pharmacies> (accessed 12 January 2015).

-
- PwC (PricewaterhouseCoopers) 2011, *Evaluation of Three Better Skills Best Care Pilot Projects*, Melbourne.
- Queensland Government 2013, *Health Funding Principles and Guidelines 2013-14*, Brisbane.
- Queensland Health nd, *VLADs: Variable Life Adjusted Displays*, Brisbane.
- 2013, *Queensland Policy and Advisory Committee for New Technology (QPACT)*, www.health.qld.gov.au/newtech/html/QPACT.asp (accessed 17 March 2015).
- 2014, *Patient Experience*, www.health.qld.gov.au/system-governance/performance/patient-experience/default.asp (accessed 19 January 2015).
- 2015, *Health Policy Advisory Committee on Technology*, www.health.qld.gov.au/healthpact (accessed 17 March 2015).
- Reichard, J. and Bettelheim, A. 2014, *Release of Doctor Billing Data May Help Insurers, Trial Lawyers*, The Commonwealth Fund, www.commonwealthfund.org/publications/newsletters/washington-health-policy-in-review/2014/apr/april-14-2014/release-of-doctor-billing-data-may-help-insurers (accessed 21 January 2015).
- Runciman, W.B., Hunt, T.D., Hannaford, N.A., Hibbert, P.D., Westbrook, J.I., Coiera, E.W., Day, R.O., Hindmarsh, D.M., McGlynn, E.A. and Braithwaite, J. 2012, 'CareTrack: Assessing the appropriateness of health care delivery in Australia', *Medical Journal of Australia*, vol. 197, no. 2, pp. 100–105.
- Russell, L. and Doggett, J. 2015, *Tackling Out-of-Pocket Health Care Costs*, Menzies Centre for Health Policy, University of Sydney, Sydney.
- Ryan, A.M. 2009, 'Effects of the Premier Hospital Quality Incentive Demonstration on Medicare patient mortality and cost', *Health Services Research*, vol. 44, no. 3, pp. 821–842.
- SCALC (Senate Community Affairs Legislation Committee) 2014, *Private Health Insurance Amendment (GP Services) Bill 2014*, The Senate, Canberra.
- SCARC (Senate Community Affairs Reference Committee) 2014, *Out-of-Pocket Costs in Australian Healthcare*, The Senate, Canberra.
- Schardt, C. 2011, 'Health information literacy meets evidence-based practice', *Journal of the Medical Library Association*, vol. 99, no. 1, pp. 1–2.
- Scott, A. and Connelly, L.B. 2011, 'Financial incentives and the health workforce', *Australian Health Review*, vol. 35, no. 3, pp. 273–277.
- , Schurer, S., Jensen, P.H. and Sivey, P. 2008, *The Effect of Financial Incentives on Quality of Care: The Case of Diabetes*, Melbourne Institute Working Paper Series, Working Paper No. 12/08, Melbourne Institute of Applied Economic and Social Research, Melbourne.
- , Sivey, P., Ait Ouakrim, D., Willenberg, L., Naccarella, L., Furler, J. and Young, D. 2011, 'The effect of financial incentives on the quality of health care provided by primary care physicians', *Cochrane Database of Systematic Reviews*, no. 9, pp. 1–25.

-
- Scott, I. 2008, 'Pay for performance in Australia: A need for guiding principles', *Australian Health Review*, vol. 32, no. 4, pp. 740–749.
- 2013, 'Selecting the Most Appropriate and Relevant Tests and Treatments Care (SMAART Care)', in Health Policy Advisory Committee on Technology (ed), *Disinvestment in Australia and New Zealand*, HealthPACT, Brisbane, pp. 15–16.
- 2014, 'Ten clinician-driven strategies for maximising value of Australian health care', *Australian Health Review*, vol. 38, pp. 125–133.
- SCRGSP (Steering Committee for the Review of Government Service Provision) 2015, *Report on Government Services 2015*, vol. E, *Health*, Productivity Commission, Canberra.
- Shaw, B. 2013, 'Pressures on market access in Australia', presented at Medicines New Zealand Conference, Auckland, 9 October.
- Sivey, P. 2013, *Phase Out GP Consultation Fees for a Better Medicare*, 1 May, The Conversation, <http://theconversation.com/phase-out-gp-consultation-fees-for-a-better-medicare-13690> (accessed 27 January 2015).
- Song, Z., Rose, S., Safran, D.G., Landon, B.E., Day, M.P. and Chernew, M.E. 2014, 'Changes in health care spending and quality 4 years into global payment', *New England Journal of Medicine*, vol. 371, no. 18, pp. 1704–1714.
- Tooth, L.R., Hockey, R., Treloar, S., McClintock, C. and Dobson, A. 2012, 'Does government subsidy for costs of medical and pharmaceutical services result in higher service utilization by older widowed women in Australia?', *BMC Health Services Research*, vol. 12, no. 179.
- Totten, A.M., Wagner, J., Tiwari, A., O'Haire, C., Griffin, J. and Walker, M. 2012, *Closing the Quality Gap: Revisiting the State of the Science (Vol. 5: Public Reporting as a Quality Improvement Strategy)*, AHRQ Publication No. 12-E011-EF, Agency for Healthcare Research and Quality, Rockville, Maryland, USA.
- Treasury 2014, *Budget 2014-15: Budget Strategy and Outlook*, Budget Paper No. 1, Canberra.
- 2015, *2015 Intergenerational Report: Australia in 2055*, Canberra.
- Tursan d'Espaignet, E., Bulsara, M., Wolfenden, L., Byard, R. and Stanley, F. 2008, 'Trends in sudden infant death syndrome in Australia from 1980 to 2002', *Forensic Science, Medicine, and Pathology*, vol. 4, no. 2, pp. 83–90.
- UK Office of Fair Trading 2010, *Evaluating the Impact of the 2003 OFT Study on the Control of Entry Regulations in the Retail Pharmacies Market*, United Kingdom Government, London.
- Urbis 2010, *Review of the Pharmacy Location Rules Under the Fourth Community Pharmacy Agreement*, Final Report, Sydney.
- US Department of Health and Human Services 2015, *Better, Smarter, Healthier: In Historic Announcement, HHS Sets Clear Goals and Timeline for Shifting Medicare*

-
- Reimbursements from Volume to Value*, Media Release, 26 January, www.hhs.gov/news/press/2015pres/01/20150126a.html (accessed 11 March 2015).
- VAGO (Victorian Auditor-General's Office) 2015, *Efficiency and Effectiveness of Hospital Services: High-value Equipment*, Melbourne.
- Verhulst, S., Noveck, B.S., Caplan, R., Brown, K. and Paz, C. 2014, *The Open Data Era in Health and Social Care*, The Governance Lab, New York.
- Victorian Department of Health 2012, *Supervision and Delegation Framework for Allied Health Assistants: Case Studies*, Melbourne.
- 2014, *CarePoint: The Right Direction for Your Health*, www.health.vic.gov.au/news/carepoint.htm (accessed 18 March 2015).
- Victorian Government 2015, *Health Technology Program*, www.health.vic.gov.au/newtech/newtech.htm (accessed 16 March 2015).
- Vogler, S. 2014, *Competition Issues in the Distribution of Pharmaceuticals: Contribution from Ms Sabine Vogler*, Global Forum on Competition, Organisation for Economic Co-operation and Development, Paris.
- WA Department of Health 2014, *Health Activity Purchasing Intentions 2014–2015*, Perth.
- Webber, T. 2012, 'What is wrong with Medicare?', *Medical Journal of Australia*, vol. 196, no. 1, pp. 18–19.
- Wells, R. 2014, *Balancing Public and Private as Health Insurers Move Into Primary Care*, 23 January, *The Conversation*, <http://theconversation.com/balancing-public-and-private-as-health-insurers-move-into-primary-care-21995> (accessed 6 February 2015).
- Whyte, S. 2012, 'Obesity campaign results on thin side', *The Sydney Morning Herald*, 12 August.
- Zimmet, P. 2012, *Simple Answers to the Obesity Epidemic Block Solutions*, 19 June, *The Conversation*, <http://theconversation.com/simple-answers-to-the-obesity-epidemic-block-solutions-7317> (accessed 31 March 2015).