

March 2016

Chronic failure in primary care

Hal Swerissen and Stephen Duckett



Grattan Institute Support

Founding Members



Australian Government



Program Support

Higher Education Program



THE MYER
FOUNDATION

Affiliate Partners

Google
Origin Foundation
Medibank Private

Senior Affiliates

EY
PwC
The Scanlon Foundation
Wesfarmers

Affiliates

Ashurst
Corrs
Deloitte
GE ANZ
Urbis
Westpac

Grattan Institute Report No. 2016-2, March 2016

This report was written by Hal Swerissen, Stephen Duckett and Jo Wright.

We would like to thank the members of Grattan Institute's Health Program Reference Group for their helpful comments, the reference group for this project and the numerous industry participants and officials for their input.

The opinions in this report are those of the authors and do not necessarily represent the views of Grattan Institute's founding members, affiliates, individual board members or reference group members. Any remaining errors or omissions are the responsibility of the authors.

Grattan Institute is an independent think-tank focused on Australian public policy. Our work is independent, practical and rigorous. We aim to improve policy outcomes by engaging with both decision-makers and the community.

For further information on the Institute's programs, or to join our mailing list, please go to: <http://www.grattan.edu.au/>

This report may be cited as: Swerissen, H., Duckett, S., and Wright, J., 2016, *Chronic failure in primary medical care*, Grattan Institute

ISBN: 978-1-925015-80-5

All material published or otherwise created by Grattan Institute is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 3.0 Unported License

Overview

Good primary care is vital for good health. But Australian primary care is failing in one crucial area: the prevention and management of chronic disease.

Australia's health system was designed to deal with infectious disease, wars and accidents. But the most significant burden on the health system today is chronic disease. Three quarters of Australians over the age of 65 have at least one chronic condition that puts them at risk of serious complications and premature death.

Each year the government spends at least \$1 billion on planning, coordinating and reviewing chronic disease management and encouraging good practice in primary care. Yet each year there are more than a quarter of a million hospital admissions for health problems that potentially could have been prevented by better primary care for chronic disease.

Primary care services are not working anywhere near as well as they should because the way we pay for and organise them through Medicare goes against what we know works.

At best our primary care system only provides half the recommended care it should for chronic conditions. Often it is much less. For example, nearly a million Australians have been diagnosed with diabetes, but only about a quarter get the care that is recommended each year.

Ineffective management of chronic conditions in primary care leads to worse health outcomes and higher costs.

Some estimates suggest the cost of potentially preventable hospital admissions from chronic disease is \$2 billion each year. Even if we use the more realistic estimates developed for this report, the costs are \$322 million per year. And of course, Australians would be in better health.

Social, economic and environmental changes are the best way to prevent chronic conditions. But where good quality primary care services are in place, the outcomes are much better.

Prevention and management of chronic disease in primary care is not easy. It requires sustained effort by people with chronic conditions working in partnership with a team of health professionals. The role of GPs is vital. Care must be planned rather than reactive; it must focus on the patient, rather than on health professionals, and it must focus on outcomes.

We need more effective regional management of primary care services by Primary Health Networks. We need clear targets and financial incentives for the prevention and management of chronic disease in regional areas. The focus of chronic disease funding needs to move away from a patient-related payment to a general practice and towards a broader payment for integrated care.

The evidence shows that a consistent approach to clinical care pathways for specific chronic diseases can make a real difference to outcomes. And for that, we need much greater investment in supporting service development and innovation in primary care.

Table of contents

Overview	1
Table of figures	3
1 The chronic disease challenge	4
2 Primary care is failing	7
3 Primary care costs are high	10
4 The causes of the problem	15
5 Better care for people with chronic disease.....	21
6 Conclusions	33
Appendix 1: Quality and outcomes of care	35
Appendix 2: Avoidable hospital admissions.....	38
References.....	42

Table of figures

Figure 1: People living with disadvantage have more chronic disease	4
Figure 2: Chronic disease costs are high	5
Figure 3: Poor quality and outcomes for diabetes in general practice	9
Figure 4: There is significant funding to support chronic disease care	13
Figure 5: There has been substantial growth in cost for chronic disease and mental health planning and coordination.....	14
Figure 6: The Kaiser pyramid provides guidance	30
Figure 7: Number of Asthma separations by duration of admission.....	39
Figure 8: Congestive cardiac failure separations by duration of the admission	40

1 The chronic disease challenge

Australians' health needs are changing as more people experience chronic disease. Three quarters of people over the age of 65 now have one or more chronic diseases and 90 per cent of Australians die from chronic disease,¹ with disadvantaged people having higher rates of chronic disease (see Figure 1).

Chronic disease is different from acute disease. Typically, acute diseases do not last long, and present a discrete threat to patients. They occur suddenly and have a specific, identifiable cause. They are usually self-limiting, curable or lead to a relatively quick death. Acute care focuses on rapid diagnosis and treatment to cure the patient by addressing the causes of the disease.

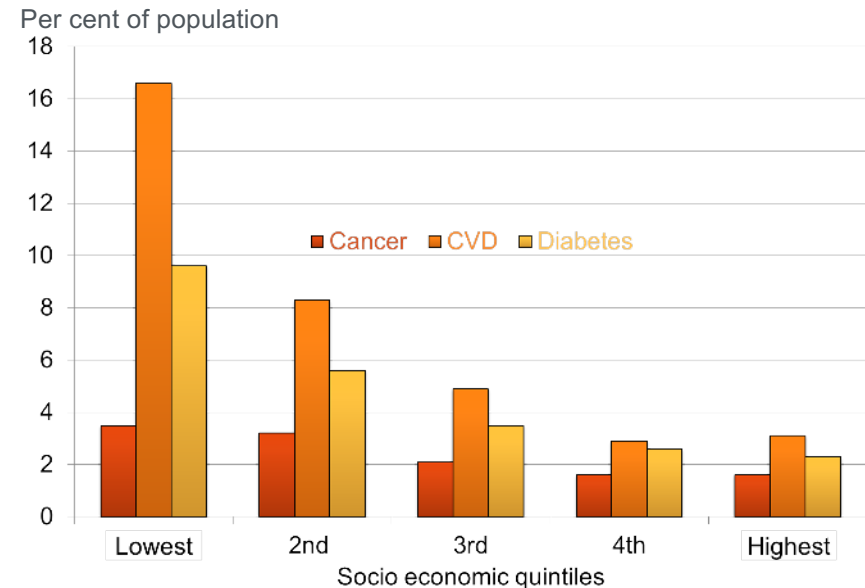
By contrast, chronic diseases usually take time to develop and then get progressively worse, causing increasing distress and disability. Chronic diseases often take time to diagnose. They are difficult to cure and rarely disappear completely.²

Many chronic diseases can be self-managed with limited health care support, especially during their early stages. As they become more serious and disabling, more intensive team care may be required and hospital care may be needed for acute episodes.

¹ Diseases that last longer than 3 months and which are not self-limiting, see Institute of Medicine (2001) p27. Broad definitions like those used by the AIHW include diseases like diabetes, asthma and cancer; psychological conditions like depression, and behavioural risk factors like smoking as indicators of chronic disease. Australian Institute for Health and Welfare (2014) p101

² Kane, *et al.* (2005) pp. 3-16.

Figure 1: People living with disadvantage have more chronic disease



Source: adapted from Australian Institute for Health and Welfare (2012c)

With better prevention of infectious disease and improved treatment for trauma, life expectancy has increased over the past century. Chronic disease has become the main cause of illness and death and the most significant burden on the Australian health system.³ While life expectancy for those aged 65 and older

³ Australian Institute for Health and Welfare (2014) p91, Kane, *et al.* (2005) p23-42

has increased, expected years of life with a disability have also increased.⁴

People experiencing disadvantage have worse health outcomes. For example, people on lower incomes are much more likely to experience chronic disease than those better off. For example, people in the bottom 20 per cent of incomes are about five times more likely to have cardiovascular disease or diabetes than those in the highest 20 per cent (see Figure 1).

1.1 Chronic disease is costly

The cost of chronic disease is high. Six chronic conditions – cardiovascular disease, oral health, mental disorders, musculoskeletal conditions, respiratory disease and diabetes – account for about half of total disease costs (see Figure 2). These costs will grow in future as the population ages.

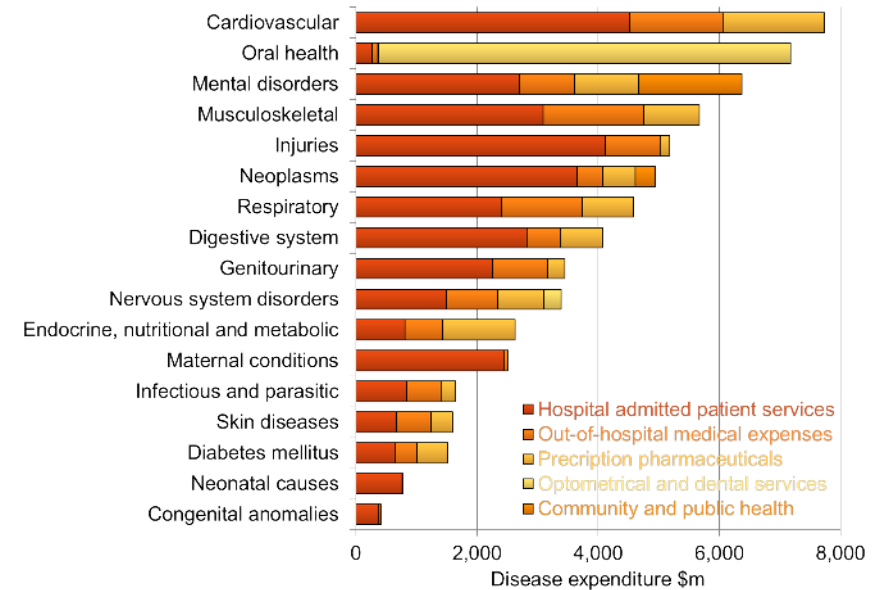
1.2 Primary care is important

Primary care is the main pathway into the health system for most people with chronic disease. It is their first point of contact and often their main form of care. Primary care services include medical, nursing, pharmaceutical, diagnostic, allied health, mental health and dental, and for many, home and community support services as well.⁵

⁴ Australian Institute for Health and Welfare (2012a) p17.

⁵ Primary care is often differentiated from primary health care. Primary health care is a broader term that includes primary prevention, public health and health promotion with an emphasis on addressing the social determinants of health.

Figure 2: Chronic disease costs are high



Source: Australian Institute for Health and Welfare (2014), see figure 2.6

Not surprisingly, stronger primary care systems result in better health outcomes.⁶ Systems are stronger if they are more comprehensive, coordinated, community focused, universal, affordable and family oriented.

In Australia, medical care provided by general practitioners is the main focus of the primary care system. The Commonwealth Government has the main responsibility for primary care. In addition to primary medical care a range of nursing, allied health, pharmacy and dental practitioners also provide services. General

⁶ Macinko, *et al.* (2003); Ham (2010), Hansen, *et al.* (2015)

practitioners have an important role in coordinating referral and access to these services. The Commonwealth provides about \$6.8 billion per year for general practice through Medicare and associated programs.⁷ The states also provide important funding.⁸

General practice funding for Chronic Disease Management (CDM) services is provided for people with diseases that are likely to be present for at least six months, or that are terminal.⁹

This report focuses on the role of general practice in the prevention and management¹⁰ of chronic disease in primary care and the role of the Commonwealth Government in reforming primary care to achieve better outcomes for chronic conditions.

⁷ Australian Government Department of Health (2016a). Additional funding is also allocated through the Primary Health Networks and Practice Incentives Program and Service Incentive Payments.

⁸ Australian Institute for Health and Welfare (2014)p50

⁹ Commonwealth Department of Health (2015b)

¹⁰ Secondary prevention focuses on the reduction of individual risk factors for chronic disease including diet, physical activity, and alcohol and tobacco use. Chronic disease management is concerned with treatment, intervention and self-management of established disease.

2 Primary care is failing

Medicare provides significant funding to encourage, develop and coordinate better practice in primary care. But recommended care is not always provided and recommended treatment outcomes are often not achieved.

2.1 Outcomes are poor

Comprehensive data on outcomes for people with chronic disease in Australia is limited, but indications are that many people with chronic disease have poor outcomes. Each year, for example, 40,000 people die from cardiovascular disease.¹¹ Yet research shows that major risk factors are not well monitored in primary care. Only 30 per cent of patients attending GPs have their cholesterol adequately managed.¹² Less than 20 per cent of people with high cholesterol who see a general practitioner reach recommended cholesterol levels. Less than 30 per cent with high blood pressure who saw a GP had it adequately controlled.¹³

Diabetes is another major underlying cause of death from circulatory and heart disease. People with diabetes are two to four times more likely to develop cardiovascular disease and about two thirds die from it.¹⁴

Undiagnosed kidney disease is also common in people with diabetes.¹⁵ Around 40 per cent of people with type 2 diabetes have kidney disease and they have a 23 per cent higher risk of dying over 10 years than people without diabetes.¹⁶

Yet, the available research indicates that less than half of people with diabetes seeing Australian general practitioners had recommended levels of blood pressure, blood sugar and cholesterol, which are important risk factors for kidney and heart disease. A study of the quality of care for diabetes and heart disease in general practice found that only half had good control of blood sugar levels, just a quarter reached recommended blood pressure levels and less than 20 per cent achieved adequate management of their cholesterol levels.¹⁷

Mental illness is often a chronic condition. One in five people report having had a mental disorder in the past 12 months. Each year, about 2,300 people commit suicide.¹⁸ But there is surprisingly little data on the outcomes of primary mental health treatment in Australia.

In a study of the treatment of common mental disorders in general practice, conducted over a decade ago, less than a third of those with mental illness received some form of intervention. Even among those with severe conditions, only half were provided with

¹¹ Heart Foundation (2015)

¹² Webster, *et al.* (2009)

¹³ Huang, *et al.* (2009); National Heart Foundation (2010), p. 3.

¹⁴ Wan, *et al.* (2006); Taggart, *et al.* (2008)

¹⁵ Middleton, *et al.* (2005)

¹⁶ Afkarian, *et al.* (2013)

¹⁷ Wan, *et al.* (2006)

¹⁸ Australian Bureau of Statistics (2008)

specific psychological or pharmacological treatment.¹⁹ There has been considerable expansion of primary health services in the meantime, but significant concerns about their distribution and entitlements to services remain.²⁰

Many people who see GPs are overweight, physically inactive and smoke.²¹ But a study of GP management of heart health found that few patients receive advice or support to address these risks (see Table 1).

Because evidence on outcomes and quality of care is so limited, we analysed a nationally representative sample of general practice clinical records collected in 2013-2014 by 162 general practices using the Medical Director patient management system (see Appendix 1). We analysed outcomes for treatment of diabetes, asthma, Chronic Obstructive Pulmonary Disease (COPD) and hypertension.

Our findings were generally consistent with previous research. Only 15 per cent of 7,474 patients with diabetes had recorded all values for glucose and body mass and blood pressure (see Figure 3).²² Of those with measurements, 20 per cent had recommended overall outcomes for weight, blood pressure and blood sugar.²³

¹⁹ Hickie, *et al.* (2001)

²⁰ National Mental Health Commission (2014)

²¹ Magliano, *et al.* (2008)

²² Commonwealth Service Incentive Payments for diabetes (in part) require two measurements of BMI and blood pressure annually and one measurement of HbA1c.

²³ BMI below 30, blood pressure below 90/140 mm Hg, HbA1c <7.

Table 1: Behavioural health risks not managed

	Community prevalence	General practice prevalence	GP interventions
Smoking	20.0 - 21.3% smoke daily	16 - 17% smoke daily, 3 - 4% smoke occasionally, 27-29% are ex-smokers	0.6% of encounters involve smoking cessation advice
Nutrition	70 - 86% have low vegetable intake, 46 - 48% have low fruit intake	No data	3.4% of encounters involve nutrition or weight counseling
Alcohol	10 - 14% drink at 'harmful' levels	26 - 27% drink at 'at risk' levels	0.3% of encounters involve alcohol advice
Physical Activity	34-54% are insufficiently active	No data	1.1% of encounters involve physical activity advice
Overweight/obesity	54 - 60% are overweight	58.5% are overweight or obese	3.4% of encounters involve nutrition or weight counseling

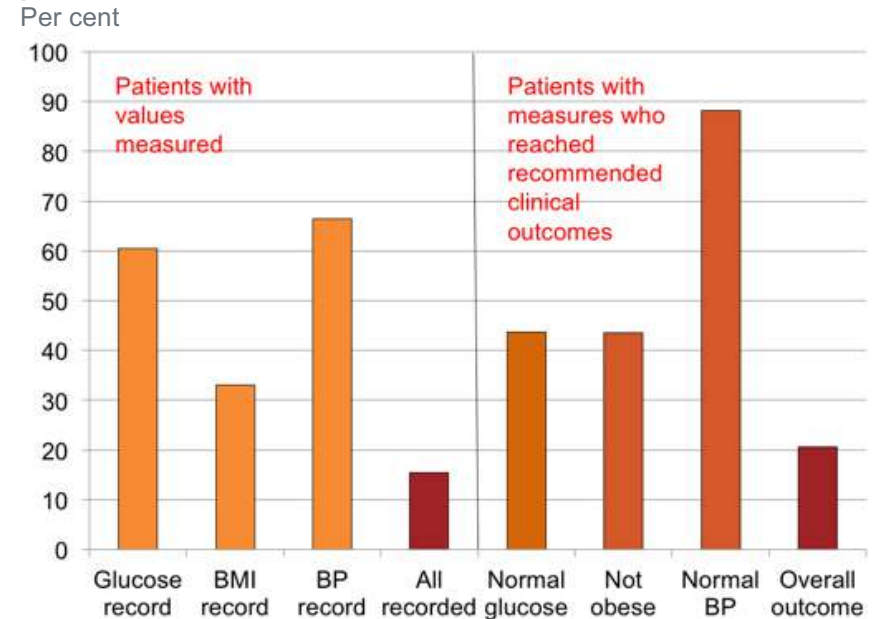
Source: adapted from Huang *et al.* (2009)

The analysis of 11,103 patients with asthma in the Medical Director data indicated that only 4.1 per cent had spirometry measures in 2013-14.²⁴ Similarly, for patients with COPD (3,646) only 4.6 per cent had spirometry measurements recorded.

Of the 31,237 patients with hypertension in the Medical Director data, about a quarter had their body mass recorded in 2013-14 and three quarters had their blood pressure recorded at least twice. About half of those patients with records had high blood pressure and a similar proportion was obese.²⁵

There are no Australian general practice benchmarks or targets for quality of care and outcomes for management of patients with chronic diseases such as asthma, diabetes, COPD and hypertension.²⁶ However, the available evidence suggests there is considerable room for improvement in clinical outcomes for people with these conditions in general practice.²⁷

Figure 3: Poor quality and outcomes for diabetes in general practice



Notes: Grattan analysis of MedicalDirector data for 2013-14. See Appendix 1.

²⁴ Spirometry (e.g Forced Expiratory Flow) is recommended to assess and monitor lung function for asthma (Oei, *et al.* (2011) particularly for people with moderate or severe disease (33%-50% of the population with asthma).

²⁵ Greater than or equal to 90 mm hg (diastolic) and 140 mm hg (systolic).

²⁶ There are clinical guidelines and recommended cycles of care for some conditions (e.g. diabetes and asthma). However, there is no comparative data to compare the quality of care and outcomes across practices.

²⁷ For example, the achievement target for the English Quality and Outcomes Framework for Diabetes for hba1c less than or equal to 7.5 mm/mol was between 52 and 92 per cent of patients seeing GPs.

3 Primary care costs are high

Significant funding is devoted to the assessment, planning, coordination and review of services for chronic disease in general practice. The Medicare Benefits Schedule includes a set of items for planning and coordinating health care for patients with chronic or terminal conditions.²⁸ Payments are made for preparing a management plan for chronic or terminal conditions, coordinating team care arrangements, reviewing plans and contributing to multidisciplinary team care for individual patients.

In 2013-14 GPs received \$588 million for planning, coordinating and managing chronic disease. They received a further \$183 million for health assessments and \$119 million for planning and review of mental health conditions (see Table 2).²⁹

In addition to these Medicare and Medicare-related payments, the Commonwealth Government has a number of grants programs related to chronic disease such as the Chronic Disease Prevention and Service Improvement Flexible Fund.³⁰

²⁸ Commonwealth Department of Health (2015b)

²⁹ CDM items are available for the secondary prevention and management of chronic disease which lasts for more than 3 months and which is not self-limiting, or for terminal conditions. Health assessment items are often concerned with secondary prevention of risk factors for chronic disease. Management of mental health shares many of the characteristics of chronic disease management. All of these items are for assessment, planning, coordination and review of services. Treatment and intervention services are funded separately.

³⁰ Commonwealth Department of Health (2016)

Table 2: The cost of chronic disease assessment and coordination, 2013-14

<i>Item number</i>	<i>Description</i>	<i>Services</i>	<i>Benefit claimed \$'000</i>
10986	Health assessment kids check	23,864	1,389
701	Health assessment brief	70,631	4,112
703	Health assessment standard	233,348	31,551
705	Health assessment long	199,835	37,280
707	Health assessment prolonged	293,192	77,273
715	Health assessment ATSI	150,354	31,287
721	Chronic disease plan	1,832,720	259,160
723	Team care coordination	1,485,874	166,492
729	Contribution to team care (health)	2,823	195
731	Contribution to team care (aged)	86,477	5,967
732	Review of GP management plan	2,205,398	155,826
2700	Mental health treatment plan 20 min	154,779	10,922
2701	Mental health treatment plan 40 min	74,026	7,671
2712	Mental health plan review	352,779	24,974
2715	Mental health treatment plan 20 min	509,268	45,607
2717	Mental health treatment plan 4 min	227,873	30,005
Total		7,903,241	889,711

Source: Grattan analysis of Medicare Item Statistics

3.1 Practice and incentive payments are not working

GPs also receive incentive payments to improve their practice. Incentive payments for general practice were first implemented in the 1990s.³¹ Now known as the Practice Incentives Program, the scheme includes payments to participating practices,³² outcome payments for meeting agreed standards of care and Service Incentive Payments for each patient who completes a cycle of care.

In 2010 the Australian National Audit Office estimated that 67 per cent of general practices were participating in the Practice Incentives Program.³³ Total expenditure was \$282 million. As part of the program payments encourage good care and best practice for diabetes mellitus and moderate and severe asthma.³⁴

³¹ Incentives were introduced through the Better Practice Program and a Rural Incentives Program. The Better Practice Program was established to improve the quality and continuity of care in general practice. The Rural Incentives Program sought to encourage greater access to higher quality GP services in rural and remote areas. The Better Practice Program was replaced by the Practice Incentives Program in the late 1990s.

³² About 80 per cent of GP care is delivered through 5000 participating practices. Each of these practices must meet Royal Australian College of General Practice accreditation standards. Cashin and Chi (2011)

³³ Australian National Audit Office (2010)

³⁴ SIPs are also available for women who are screened for cervical cancer. More generally the PIP scheme includes incentive payments for quality prescribing, indigenous health, ehealth, teaching, rural loading, GP procedures, and GP aged care access, Australian Government Department of Health (2016c)

Box 1: Incentives for Diabetes

GPs receive Practice Incentives Program payments for signing on to the program, together with outcome payments and service incentives.³⁵

To be eligible, a patient registry and a recall and reminder system have to be maintained for patients with diabetes, and practices have to agree to provide a cycle of care for these patients.

A cycle of care includes measuring blood sugar, cholesterol, triglycerides, microalbumin, glomerular filtration and blood pressure, conducting eye and feet checks, providing advice and monitoring on diet, smoking and exercise and reviewing medication.

Diabetes is a major problem. The National Health Survey³⁶ estimated there were 875,000 people with diagnosed diabetes in 2011-12 (excluding gestational diabetes). Yet in that year, only 197,574 Service Incentive Payments were made for a total benefit value of \$10.3 million.³⁷ GPs therefore claimed a Service Incentive Payment for less than a quarter of people diagnosed with diabetes.³⁸

³⁵ Because patients can visit more than one GP, payments are adjusted to reflect the yearly proportion of their care provided by each GP they see. This measure is known as the Standardized Weighted Equivalent Patient (SWPE).

³⁶ Australian Bureau of Statistics (2012)

³⁷ Grattan analysis of Medicare Item Reports, Australian Government Department of Health (2016b)

³⁸ This is broadly consistent with the finding in section 2.1 above that 15 per cent of patients with diabetes had met the cycle of care requirements for BMI, blood glucose and blood pressure. The Medical Director dataset did not include data in

Box 2: Incentives for Asthma

Practices can receive a one off sign-on payment for each person with moderate or severe asthma.

Practices must have a register and recall system and agree to use the asthma cycle of care.

An asthma cycle of care must include at least two asthma-related consultations for patients with moderate or severe asthma, at least one of which must be a planned review; documentation of the diagnosis of asthma and its severity; a review of the access to and use of asthma related medication and devices; the provision of an asthma action plan; asthma self-management education; and a review of the plan.³⁹

Participating practices can also claim an annual SIP for a completed cycle of care for each patient with moderate or severe asthma.

Incentive payments for asthma care follow the same pattern. In 2011-12 there were 2.3 million people with asthma in Australia.⁴⁰ At least a third of those, some 750,000 people, are estimated to have moderate to severe disease.⁴¹

SIP payments and it was therefore not possible to reconcile quality indicators with payments data.

³⁹ Department of Human Services (2015)

⁴⁰ Australian Bureau of Statistics (2012)

⁴¹ Australian Bureau of Statistics (2006); Australian Institute for Health and Welfare (2011); Australian Bureau of Statistics (2012)

But in 2010-11 just 46,427 Service Incentive Payments totalling \$1.4 million were made to GPs for providing recommended asthma management.⁴² This indicates that a Service Incentive Payment was claimed for less than 10 per cent of people with moderate or severe asthma.⁴³

Neither the diabetes nor the asthma program is working well. Although it appears that the incentives may initially have resulted in improved care,⁴⁴ take-up is now low, possibly because of lack of awareness of the programs or the perceived reporting burden associated with the incentives.⁴⁵

Low participation rates can either mean that recommended care is not being provided or that it is and for some reason – such as red tape – GPs are not claiming the benefit. Neither is a desirable outcome.⁴⁶

3.2 Overall coordination costs are high

In all, more than \$1.7 billion was spent on systems management, care planning and coordination for primary care in 2013-14. This included \$904 million for health assessment, management of

⁴² Grattan analysis of Medicare Item Reports

http://medicarestatistics.humanservices.gov.au/statistics/mbs_item.jsp

⁴³ This finding is also consistent with the analysis of spirometry measurements in the Medical Director data set (see section 2.1).

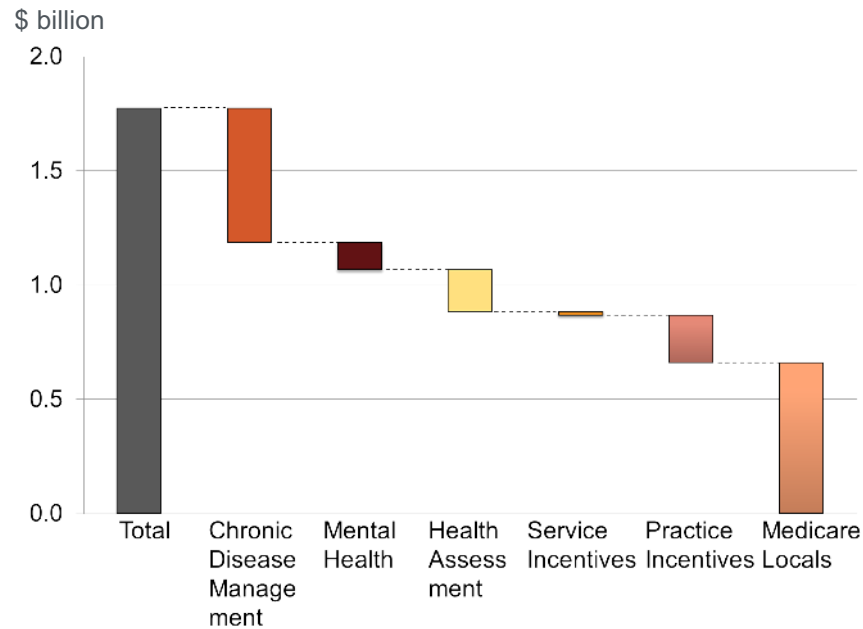
⁴⁴ Scott, *et al.* (2009)

⁴⁵ Zwar, *et al.* (2005), Oldroyd, *et al.* (2003)

⁴⁶ Grattan analysis of Medical Director patient records (see section 2.1) indicate that it is more likely that recommended care is not being provided for diabetes and asthma in general practice. Australian National Audit Office (2010)

chronic disease and mental health, and incentive payments for asthma and diabetes.⁴⁷

Figure 4: There is significant funding to support chronic disease care



Notes: Grattan analysis of Commonwealth Medicare Benefits Schedule and 2013-14 Budget papers, p135

Practices also received \$210 million in Practice Incentives to support infrastructure development and better practice.⁴⁸ A further

\$661 million was spent supporting GPs and primary care through regional primary care networks, Medicare Locals (see Figure 4).⁴⁹

Payments for planning, coordination and support for chronic conditions were a significant part of the \$4.5 billion GPs received for services to consumers in 2013-14.⁵⁰

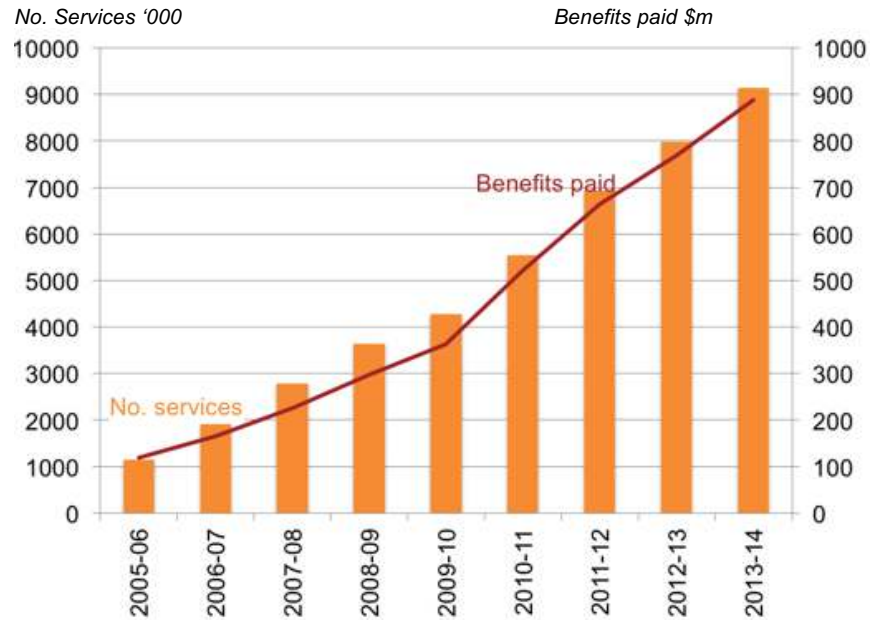
As Figure 5 shows, spending on chronic disease and mental health services has grown substantially over time.

Yet despite the high level of funding to encourage good practice – to pay for planning, team care coordination, health assessments and care reviews in primary care – the quality of care and clinical outcomes for people with chronic disease remains poor or unknown due to lack of data.

⁴⁷ Service Incentive Payments
⁴⁸ Practice Incentive Payments

⁴⁹ Commonwealth of Australia (2014) p. 135.
⁵⁰ Grattan analysis of Medicare Statistics

Figure 5: There has been substantial growth in cost for chronic disease and mental health planning and coordination



Note: Analysis of Medicare item statistics for items 701, 703, 705, 707, 715, 721, 723, 729, 731, 732, 2700, 2701, 2712, 2715, 2717

4 The causes of the problem

Government invests a significant level of expenditure in incentives, system management and coordination for chronic disease. So why aren't outcomes better? Several important factors reduce the effectiveness of chronic disease management in primary care in Australia.

4.1 Funding incentives are poorly designed

The dominant Medicare fee-for-service model 'encourages reactive rather than systematic care'.⁵¹ Medicare assessment, planning, coordination and review items have been grafted onto the fee-for-service model to try to address this problem. But they are paid for individual consultations or treatments rather than for the quality of care and outcomes achieved for a practice population overall.

The Medicare payment rules for these items inhibit innovation in the way practices manage chronic disease, such as making greater use of nursing and allied health staff to assess, plan, coordinate and review chronic disease prevention, in conjunction with GPs and specialists.⁵²

Practice and Service Incentives Payments were also introduced to try to overcome the problems of fee-for-service payments.⁵³ But

their purpose has become confused. The Practice Incentives Program provides infrastructure payments for general practice and incentives for better care. Eligibility and payment arrangements vary from element to element of the program. Administration costs are considered burdensome by GPs who find themselves wrapped up in red tape.⁵⁴

Few people with chronic disease seem to benefit from the incentive programs. In 2013-14 only around five per cent of the \$210 million allocated to general practices through the Practice Incentives Program was paid for improvements in diabetes and asthma care.⁵⁵ None of these payments was directly tied to improvements in patient outcomes or reductions in hospitalisation.

Nor do these schemes provide comprehensive, broad-based approaches to management of chronic diseases. Chronic obstructive pulmonary disease, heart disease, mental illness, musculoskeletal conditions, and neurological conditions like dementia, are not included.

4.2 No risk adjustment

Overall service needs and costs (including potentially avoidable hospital admissions) are heavily skewed to a comparatively small

⁵¹ Harris and Zwar (2007)

⁵² See for example Robson, *et al.* (2014)

⁵³ Practice Incentives Program <http://www.humanservices.gov.au/health-professionals/services/practice-incentives-programme/>, Service Incentives Payments

http://www.health.gov.au/internet/publications/publishing.nsf/Content/oatish-accreditation-manual_toc~sn6%3Aresources~sip

⁵⁴ Australian National Audit Office (2010)

⁵⁵ *Ibid.*

subgroup of people with chronic disease.⁵⁶ It has been estimated that in the United States twenty per cent of costs are incurred by one per cent of patients and the same is probably true in Australia.⁵⁷ Typically these people are older, with higher risk factors and more advanced disease and comorbidities.⁵⁸

However, current payments for chronic disease planning and coordination are not risk-adjusted or targeted on the basis of the complexity and intensity of the services that are required. The same levels of payment for assessment, planning, coordination and review apply for people who need intensive case management as for those who need only self-management support.

4.3 Performance outcomes are not specified

It is difficult to pay for better care for people with chronic conditions if the quality and outcomes of care are not measured and monitored. Without measurable chronic disease targets for health systems better outcomes are unlikely to be achieved.⁵⁹

The National Health Performance Authority has developed a measure of chronic disease admissions as an indicator of potentially preventable hospitalisations.

This measure includes a range of chronic disease admissions including those for asthma, chronic cardiac failure, diabetes, chronic obstructive pulmonary disease, angina, iron deficiency,

high blood pressure, nutritional deficiency and rheumatic heart disease.⁶⁰ In 2010-11 these admissions accounted for 3 per cent of all admissions and 5.1 per cent of bed days, at a cost of approximately \$2 billion.⁶¹

But that figure overstates the number of admissions that might be prevented by general practice in the short to medium term. The current approach to the identification of preventable hospital admissions is a blunt instrument that does little to help either hospitals or the primary care sector identify and manage potential targets for intervention (see Appendix 2).

4.3.1 No primary care performance framework

In Australia performance targets for primary care are not specified, measured, monitored or reported systematically at regional, state or national levels. Neither has funding been systematically tied to performance and outcomes for chronic disease for catchment populations.

By contrast, comprehensive schemes of indicators and targets for a range of chronic conditions have been developed in the United Kingdom and the United States.⁶² In England 10 per cent of

⁵⁶ National Institute for Health Care Management (2012), p. 1.

⁵⁷ Ellis, *et al.* (2013)

⁵⁸ National Institute for Health Care Management (2012)

⁵⁹ Institute of Medicine (2001)

⁶⁰ National Health Performance Authority (2013). Other preventable admissions are for acute conditions like dental, ear, nose and throat conditions and for vaccine preventable illnesses like whooping cough.

⁶¹ Grattan analysis of National Hospital Morbidity Database and National Hospital Cost Data Collection

⁶² MNCommunity Measurement (2014); National Health Services (2014)

funding was allocated to practices for the quality of care they provide and the clinical outcomes that are achieved in 2014-15.⁶³

In the United Kingdom the Quality Outcomes Framework⁶⁴ includes indicators for a broad set of chronic diseases (see Box 3).⁶⁵ Evidence-based indicators are developed by the UK National Institute for Health Care Excellence and adjusted through negotiation between the General Practitioners Committee of the British Medical Association and the National Health Service. Targets are set for each indicator and annual GP practice performance is translated into payments for the quality of services delivered and the clinical outcomes achieved.

The Quality Outcomes Framework has led to an increased use of evidence-based care in general practice through systematic prompts, decision support, and reminder and recall systems.⁶⁶ Although the research is contested, modest but important

improvements in patient outcomes across a range of indicators have been attributed to its introduction.⁶⁷

Box 3: UK QOF Diabetes Mellitus indicators

The UK General Practice Quality Outcomes Framework indicators for type 2 diabetes specify that a register of all patients 17 or over with diabetes mellitus be kept and that percentage targets be achieved for:

- Blood Pressure
- Total cholesterol
- ACE or ARB treatment for micro albuminuria or neuropathy
- HbA1c
- Foot examinations
- Referral to diabetes education
- Influenza vaccination

4.4 Integrated care is not supported systematically

Evidence from around the world suggests that much greater emphasis needs to be placed on service coordination and integration for people with chronic disease.⁶⁸ This has become the dominant direction of policy internationally. There is now widespread international support for the implementation of models like the Chronic Care Model, which was developed in the US.⁶⁹

⁶³ Health and Social Care Information Centre (2016)

⁶⁴ National Health Services (2014)

⁶⁵ Indicators and targets are included for atrial fibrillation, coronary heart disease, heart failure, hypertension, peripheral arterial disease, stroke, diabetes, asthma, chronic obstructive pulmonary disease, dementia, depression, mental health, cancer, kidney disease, epilepsy, learning disability, osteoporosis, rheumatoid arthritis and palliative care.

⁶⁶ Gillam and Siriwardena (2011) p156-167. It should be noted that there are important differences between Australian and UK general practice – notably, in the UK patients enrol with a general practice whereas in Australia they may use multiple practices. This makes it easier to fund practices for patient outcomes in the UK. Nevertheless, in Australia over 80 per cent of people get most or all of their GP services from one practice.

⁶⁷ Gillam and Steel (2013)

⁶⁸ Australian Institute for Health and Welfare (2014) p91; Kane, *et al.* (2005) p23-42.

⁶⁹ For example, Singh and Hamm (2006)

Adaptations of the model, including the Flinders Program, have been developed and applied in Australia.⁷⁰

The main features of effective chronic disease management at the clinical level are patient education and self-management support, multidisciplinary team-based care, and service planning and coordination. These practices are supported by patient information systems, clinical guidelines and funding models to promote continuity of care across settings and over time.⁷¹

Registration with a specific primary care provider is also a feature of a number of chronic disease management approaches. These include patient-centred medical homes and primary care medical homes.⁷²

The main purpose of registration or enrolment is to strengthen care coordination and continuity. Often a nurse, physician assistant or allied health professional is allocated responsibility for care coordination.⁷³

4.4.1 The emphasis has been on referral rather than integration

Currently, most interventions remain focused on episodic pharmaceutical treatment and medical procedures. Care coordination is usually limited to referral and information

exchange. There is little active team management across specialist medical practitioners, nursing, pharmacy and allied health services.⁷⁴

A *coordinating* relationship would see an initiating practitioner, typically a GP, assign part of a treatment plan to others. The initiating practitioner would make referrals to a number of other practitioners, monitoring and keeping track of what each of them is doing and initiating changes to their role in light of feedback and reassessment of the patient's condition.

For a proportion of people with highly complex, ongoing problems, coordination by GPs is not sufficient. For these people, including those who are very frail and dying, responsibility for care needs to shift across providers as acute episodes occur. New problems (comorbidities) have to be addressed as they arise and a broader range of personal, social, and community supports have to be provided. *Integrated* relationships would see a number of practitioners working together as a team to treat patients. This would include joint involvement in developing treatment plans, joint monitoring of progress and jointly agreeing changes to treatment plans.

General practitioners have difficulty establishing systems to identify and follow up people with chronic disease. They are often too busy with other clinical priorities to adopt an integrated approach to chronic disease.⁷⁵ Under the current system, GPs are able to offer little in the way of self-management, systematic patient education or social and behavioural interventions to

⁷⁰ Flinders University School of Medicine (2015)

⁷¹ Zwar, *et al.* (2006); Wagner, *et al.* (2001); other models include the WHO innovative care for chronic conditions model, Expanded Chronic Care Model in British Columbia, and the NHS social care model.

⁷² Kalucy L, *et al.* (2009)

⁷³ Peikes, *et al.* (2012)

⁷⁴ Zwar, *et al.* (2006); Harris and Zwar (2007)

⁷⁵ Beilby and Holton (2005)

manage risks for chronic disease and support people with complex and ongoing conditions.

4.5 Regional primary care organisations have had limited impact

The Commonwealth established regional primary care organisations to address the problems of service innovation, coordination, support and communication with GPs more than 20 years ago.⁷⁶

Originally known as Divisions of General Practice, they were replaced in 2010 by broader primary care organisations called Medicare Locals, which had larger catchments and a greater focus on developing integrated relationships between primary care services and acute and extended care services. Medicare Locals were replaced by thirty-one Primary Health Networks in July 2015.

Despite widespread recognition of the challenge of chronic disease prevention and management, the Commonwealth gave Divisions and Medicare Locals little authority to support reform. Their role was limited to communication, education, engagement and capacity-building, with only a minor part to play in commissioning and service-system development.

Neither Divisions nor Medicare Locals had the capacity to influence service quality, outcomes or costs through performance reporting, auditing, funding or regulation. The budget for Medicare Locals was only a small proportion of total health spending in their

areas, and no more than a modest proportion of overall funding for general practice. With no ability to shape financial incentives for hospitals or general practice their capacity to improve the performance of the system was minimal.

Divisions and Medicare Locals were also limited in the degree to which they could work with other primary health services, acute residential services and state and territory health departments. In a number of cases they took on service provision themselves rather than remaining focused on shaping services in their areas. This created potential role conflict with other agencies. Not surprisingly there was considerable variation in their priorities, roles and operational arrangements, and perceptions of their effectiveness were mixed.⁷⁷

4.6 The Commonwealth and the states are at odds

Primary care is poorly integrated with acute and extended care. The states and territories are responsible for hospital care and community health services (although the Commonwealth makes a significant funding contribution). The Commonwealth funds medical, diagnostic, allied health and pharmaceutical services and aged care services.

Both levels of government are involved in policy and regulation. Neither has overall responsibility for system performance and outcomes either for individual patients or populations. Nor are there overarching arrangements to coordinate health policy development.

⁷⁶ Smith and Sibthorpe (2007)

⁷⁷ Horvath (2014); Robinson, *et al.* (2015); Javanparast, *et al.* (2015)

As a result policy, funding and regulation are often simultaneously fragmented and duplicated. Mistrust between Commonwealth and state governments means that coordinated efforts to solve common problems are seldom attempted and tend to be difficult when they are.⁷⁸

4.7 We use the wrong model

The dominant model of health service delivery in use today evolved in another era. It was designed to deal with infectious disease, wars and accidents. It focuses on the diagnosis and immediate treatment of acute episodes of illness by medical practitioners.⁷⁹

Greater specialisation and treatment intensity, often delivered in hospital settings, evolved over time. Patients were expected to present their problem, let professionals sort out what needed to be done and then follow treatment directions. This model works well in the right circumstances, particularly for self-limiting episodic illnesses and injuries, but not for chronic disease. As Horvath's report on the future of Medicare Locals concludes:

The Australian health care system consists of universal access to the PBS, the MBS and the public hospital system; reflecting the pattern of illness and the medical knowledge of the time they were established – 40 years ago.

While the system has remained as a frozen snapshot of that moment when episodic care prevailed, today's health care

needs are very different. The burden of disease has shifted to chronic illnesses...⁸⁰

More recently there has been more emphasis on holistic and patient-centred care in the education and training of primary care practitioners, including GPs. There is now much greater emphasis on primary care teams made up of a range of health professionals. More attention is being given to patient self-management of chronic conditions in education, research and innovation.

However, in practice, system changes have not kept pace and often actively work against the expectations promoted in education and training.

Medicare was developed as a funding system to underwrite health service delivery for a different time. It performed well to meet the needs of the day. But neither the approach to service delivery, nor the funding system that supports it, adequately addresses chronic conditions. As a result the quality of care and outcomes for these health needs are not what they should be. A new approach to chronic disease is needed for primary care.

⁷⁸ Swerissen and Duckett (2007)

⁷⁹ Kane, *et al.* (2005)

⁸⁰ Horvath (2014) p. ii.

5 Better care for people with chronic disease

Australia is not the only country grappling with the need to update its health system. Across the developed world, policymakers are facing the challenge of addressing the increased prevalence of chronic disease.⁸¹

5.1 Prevention is better than the cure, but not always possible

Chronic diseases are hard to cure, so it is better to prevent them when possible. The majority of heart disease, stroke and diabetes cases, and a high proportion of many cancers, are probably preventable.⁸²

For some conditions, prevention has been highly successful. For example, the strategy to reduce tobacco-related deaths in Australia has seen the progressive introduction of bans on advertising, regulations to control smoking in public places, price increases, social marketing, public information and quit services. As a result, there has been 53 per cent reduction in smoking for adults since 1977.⁸³

Unfortunately, not all chronic diseases are preventable. Some, like dementia, we do not know how to prevent. Others like obesity are highly preventable, but only with very significant societal and organisational change. The bottom line is that chronic disease will

continue to be the major challenge for health systems for the foreseeable future.

5.2 International policy directions

Despite starting from different places, there is broad consensus over policy directions internationally. Services need to be integrated, innovation needs to be supported, payment models need to be reformed, the quality of care needs to be monitored and health systems should be managed for defined populations.⁸⁴ More emphasis is needed on intervening earlier in the course of a chronic illness.

Critically, health systems also need to get better at managing disease where it already exists, to reduce the progression of chronic disease, minimise negative impacts and improve patients' quality of life.⁸⁵ Patients live with their chronic disease all day, every day. They have to be put at the centre of prevention and management, particularly in primary care. This shift has fundamental implications for health systems currently dominated by a focus on the treatment of acute disease.

⁸¹ Organisation of Economic Cooperation and Development (2010)

⁸² Wilcox (2014) piv.

⁸³ Australian Bureau of Statistics (2011)

⁸⁴ Baker, *et al.* (2008); Ham (2010); Organisation of Economic Cooperation and Development (2010); Timmins and Ham (2013); Rosen (2015); Priester, *et al.* (2005); Kane, *et al.* (2005); Institute of Medicine (2001)

⁸⁵ Disease management is intervention and support for people with established chronic disease to reduce its progression, reduce its negative impact and improve the quality of their lives while living with the disease.

A range of smaller scale studies have found that chronic disease management can improve the quality of care, clinical outcomes and resource use.⁸⁶ Specific findings include reduced hospitalisation and costs for people with heart failure;⁸⁷ improved blood sugar levels, eye checks and foot ulcers for type 2 diabetes;⁸⁸ and reduced hospitalisation and emergency department visits for COPD.⁸⁹ Chronic disease management has also been found to improve quality of life and clinical outcomes for people with asthma⁹⁰ and diabetes.⁹¹

Delivery system design, team based care and consumer self-management have consistently been found to influence the success of chronic disease management. The importance of other elements like clinical guidelines and information systems is less clear.⁹²

Despite the limitations of the evidence, there is growing interest in the implementation of chronic disease management models in local health systems. But it has proved difficult to test an integrated comprehensive reform strategy because of the systems changes that are required to implement it.⁹³

⁸⁶ Davy, *et al.* (2015) Ouwens, *et al.* (2005); Singh and Hamm (2006)

⁸⁷ McAlister, *et al.* (2001)

⁸⁸ Knight, *et al.* (2005); Commonwealth of Australia (2015)

⁸⁹ Rice, *et al.* (2010)

⁹⁰ Peytremann-Bridevaux, *et al.* (2015)

⁹¹ Stellefson, *et al.* (2013)

⁹² Zwar, *et al.* (2006)

⁹³ *Ibid.*; de Bruin, *et al.* (2011)

5.3 A history of trials and pilots

Australia now has a considerable history of trials, pilots and demonstration projects investigating the introduction of chronic disease management models in one form or another. These range from the ambitious coordinated care trials of the 1990s⁹⁴ to the more recent Diabetes Care Project.⁹⁵

But it has proved difficult to achieve major improvements in outcomes for chronic disease in the absence of broader change to the funding and organisation of primary care, and its relationship to acute and extended care for regional populations.⁹⁶ Local systems are complex, and innovation and change is disruptive. Demands for improved performance are inevitably balanced against the costs of change to existing relationships.

The evidentiary basis for what works is still slim, possibly because many interventions focus on changing one element of the system while keeping everything else constant. International experience suggests that a multipronged set of innovations aimed at changing systems, and not just the behaviour of individual practitioners, is what's needed.⁹⁷

5.4 Getting the system right

There is no simple quick fix to ensure that the needs of people with chronic illnesses are better addressed by the health system.

⁹⁴ Esterman and Ben-Tovin (2002)

⁹⁵ Commonwealth of Australia (2015)

⁹⁶ The same is true internationally see Thoumi, *et al.* (2015)

⁹⁷ Rosen (2015); Dietz, *et al.* (2015)

Improvements in the primary care system need to occur across five broad areas:

- Strengthening the role of Primary Health Networks;
- Improving measurement and target setting;
- Improving implementation of evidence-based care through use of care pathways;
- Increasing the role of payments which encourage integrated care; and
- Strengthening innovation and development.

Taken together, these changes have the capacity to transform the primary care system in Australia. They rely on effective and capable Primary Health Networks, who engage with people with chronic conditions. These organisations are still new and most currently do not have the capacity to take on the roles proposed. Primary care reform needs to be staged to allow capacity to be built.

Importantly, in order to ensure good value for money, getting the foundations right should precede any significant additional investment in primary care.

International evidence suggests that population systems management is central to improving the quality of care and outcomes for people with chronic conditions. This has been a

weak point of the Australian environment, fractured as it is by Commonwealth-state relationships.

Though, as noted, there is scant evidence for what works in this area and what doesn't, there are now a number of case studies that have described the characteristics of high performing health systems for the management of chronic conditions.⁹⁸ Measuring and monitoring outcomes, aligning incentives, supporting and engaging clinicians in change, phasing changes strategically over time and managing change systematically for populations are common themes for high performing health systems in the policy literature.⁹⁹ At present, the Australian health system is not capable of these things.

The Australian health system is organized geographically. The United Kingdom, New Zealand, Canada and a number of Scandinavian countries have adopted regional management models. High-performing regions that have been identified include Canterbury in New Zealand¹⁰⁰ and Jonkoping¹⁰¹ in Sweden.

High-performing regional health systems aim to improve efficiency and outcomes for their local population by integrating regional primary, acute and extended care. Regional governance structures are given power to plan, monitor, regulate and fund local providers in order to achieve population health outcomes. Important design decisions include the size and dispersion of the population, the scope of services to be included, the relationship

⁹⁸ Baker, *et al.* (2008); Timmins and Ham (2013)

⁹⁹ Ham (2010); Timmins and Ham (2013); Baker, *et al.* (2008)

¹⁰⁰ Timmins and Ham (2013)

¹⁰¹ Baker, *et al.* (2008)

between funders and providers, and the role of central and regional governments.

Regional primary care governance structures need to be strengthened in Australia. The development and implementation of Primary Health Networks provide an opportunity to do this. They are of sufficient scale. If the Commonwealth and State programs are to be integrated for local health service delivery regional governance arrangements that are supported by both levels of government will be important.

5.4.1 Make use of Primary Health Networks

The implementation of Primary Health Networks provides an opportunity to reconsider how best to develop the relationship between primary care services and other health providers.

But it is important that recent history is taken into account in developing Primary Health Networks. They need to be more effective than the old Divisions of General Practice and Medicare Locals. They will have to significantly lift their capacity to develop, encourage and manage service innovation if they are to succeed in improving care and outcomes for people with chronic conditions. Without a coherent plan for their development and implementation it will be easy to repeat the mistakes of the past.

In the absence of more fundamental health reform,¹⁰² better coordination and cooperation between the Commonwealth and

the states is needed if local health systems are to work successfully. State governments could enter into service agreements with Primary Health Networks to improve the quality and outcomes of care. In particular, the states and territories could provide additional funding to Primary Health Networks for agreed reductions in preventable hospital admissions through improved primary health services.

Primary Health Networks are an important vehicle for the Commonwealth and states to cooperate in the delivery of more integrated services across primary, acute and extended care. But both levels of government will need to support Primary Health Networks if they are to succeed in improving outcomes for people with chronic disease. Significant improvement in systems management capacity will be required.

Over the next five years Primary Health Networks should be progressively given the responsibility and authority for managing regional primary health systems to strengthen primary care services. Improvements to prevention and management of chronic disease should be a central focus including:

- building multi-disciplinary networks of services;
- improving quality of referrals;
- building support for self-management; and

¹⁰² More fundamental reform would require realignment of Commonwealth and state responsibilities and funding arrangements for primary, secondary and extended care. For example, either the states or the Commonwealth could

assume system management responsibility for all health services, including primary care.

- improving local prevention activities.

Primary Health Networks will vary in their ability to take on new and expanded functions. Commonwealth and state governments will need to monitor the networks' capacity to assess the potential of each network to take on additional functions.

Commonwealth and state governments should regularly consult on Primary Health network capacity, and monitor potential opportunities for strengthening them and allocating them additional functions.

As the capacity of networks grows, the Commonwealth government should reduce its detailed management of networks, adopting a more arms-length approach. This would make the networks more neutral – in terms of their perceived identity as either a 'Commonwealth' or 'state' initiative – and make it easier for states to use the networks as a vehicle for their programs, thus further facilitating integration.

5.5 Focus on quality and outcomes

It is difficult to improve the quality and outcomes of care for people with chronic disease without measuring and monitoring them. Targets matter. For example, when glucose levels (HbA1c) are reduced by one per cent for people with type 2 diabetes there are significant improvements in end-stage kidney disease, amputations, eye disease and heart attacks.¹⁰³

¹⁰³ Baker IDI (2012)

5.5.1 Avoidable hospital admissions

There is considerable interest in reducing potentially preventable hospital admissions, particularly given that their cost to the system has been estimated at \$2 billion a year. Preventable admissions measures are often used as a proxy performance indicator for the primary care system.

But it is unlikely that all these admissions can be prevented by improved management or substitution in primary care, at least in the short to medium term.¹⁰⁴

One significant change to address this problem would be to separate the indicator into those potentially preventable admissions with a length of stay of two days or less, and those with stays longer than that.¹⁰⁵

The brief-duration admissions are at the lower end of severity and most avoidable or substitutable admissions will fall into that time-frame. These potentially avoidable admissions are more modest in scope, and identify a smaller but still important number of admissions. They could be used to set realistic targets for catchment areas to encourage service innovation and improvement.

We estimate that 1.3 per cent of hospital admissions are potentially avoidable through substitution and better chronic

¹⁰⁴ A systematic review by Renom-Guiteras, *et al.* (2014) highlighted the many factors which impact on admission decisions

¹⁰⁵ Cecil, *et al.* (2015) has also adopted a cut-off of less than two days as the criterion for preventability in primary care.

disease management.¹⁰⁶ Such admissions account for about \$322 million of hospital expenditure in 2010-11.

The balance of the admissions – those admitted for more than two days – may still be preventable, but generally will require interventions over a much longer period of perhaps 10 years or more. Minimising these admissions may require changes to a mix of state government and local services. Accordingly, this second indicator (>2 days) may still be useful, but should be used with caution, particularly in terms of who is accountable for potential improvements.

5.5.2 Quality of care indicators for primary care

Currently there is no national primary care performance framework that includes comprehensive indicators and performance standards for the management of chronic disease.

The UK Quality Outcomes Framework provides a well-tested starting point for the development of chronic disease indicators in Australia. The UK model includes indicators for: atrial fibrillation, coronary heart disease, heart failure, hypertension, peripheral arterial disease, stroke, diabetes, asthma, chronic obstructive pulmonary disease, dementia, depression, mental health, cancer, kidney disease, epilepsy, learning disability, osteoporosis, rheumatoid arthritis and palliative care.¹⁰⁷

Australia needs an agreed set of indicators to track progress on improving management of specific chronic conditions. The

¹⁰⁶ More detailed examination of the preventable hospital admissions is available in Appendix 2.

¹⁰⁷ Based on the UK Quality Outcomes Framework.

indicators should be developed nationally and used by states and Primary Health Networks. The indicators need to be negotiated and agreed with relevant professional bodies including the Royal Australian College of General Practitioners, the Australian Medical Association and the Consumers Health Forum.

National targets need to be cascaded down so that targets are established for each Primary Health Network that take into account local population profiles and health status.¹⁰⁸ Comparative performance against the national performance indicators should be published annually for each Primary Health Network.

Primary Health Networks could have responsibility for monitoring and auditing the performance of primary health care services against the indicators established in the national primary care performance framework. They would need to work with primary care providers to put in place the necessary data systems, data extraction and reporting arrangements. These could be based on records management systems that are already in widespread use.¹⁰⁹

5.6 Care pathways can promote integrated care

The development and implementation of integrated care will require agreement between local providers about the best way to achieve it. One systemic strategy to improve links between

¹⁰⁸ The indicators especially need to take account of the socio-economic status of the population, given its impact on health status.

¹⁰⁹ There are well developed GP records management systems like Medical Director and data extraction tools such as PenCAT that can be developed and adapted for this purpose.

primary and acute care (and to strengthen evidence-based care in primary care) has been the development of ‘care pathways’ – recommended diagnosis and treatment options specified for well-defined groups of patients for specific periods of time across specific settings.¹¹⁰

Care pathways aim to reduce the time taken to diagnose and deliver care. They can improve the consistency and coherence of care, optimise care experience and outcomes, and use resources efficiently. An example of a care pathway for diabetes is described in Box 4.

Care pathways are not a panacea for everyone with chronic disease. They are less effective for people with more variable illness trajectories and they do not add a great deal where best practice is already in place. Developing care pathways for people with multiple conditions can be a challenge, and there can also be resistance to care pathways from clinicians.

However, where they have been introduced, safety and quality, clinical outcomes, adherence to guidelines, communication, and efficiency have improved.¹¹¹ They are most effective when patient care is predictable and there are gaps in services.¹¹²

5.6.1 Care pathways in Australia

There has been a rapid expansion of the use of care pathways.¹¹³ Widely used, well-developed care pathway models include the Map of Medicine¹¹⁴ and the Canterbury Health Pathways.¹¹⁵ These pathways have been adopted by a number of Medicare Locals in Australia. An example of a pathway originally developed by the Canterbury District Health Board in New Zealand is outlined in Box 4.

¹¹⁰ Schrijvers, *et al.* (2012)

¹¹¹ Allen, *et al.* (2009); Centre for Policy on Ageing (2014); Hindle and Yazbeck (2005)

¹¹² Allen, *et al.* (2009)

¹¹³ Hindle and Yazbeck (2005)

¹¹⁴ <http://mapofmedicine.com/>

¹¹⁵ <http://www.cdhb.health.nz/Hospitals-Services/Health-Professionals/Pages/Health-Pathways.aspx>

Box 4: Managing type 2 diabetes care pathway¹¹⁶

Assessment: document glycaemic control and micro and macrovascular status and laboratory status. Schedule periodic reviews. Ensure practice has diabetes annual cycle of care. Review as planned. Consider ECG for over 55-year-olds with risk factors. Check urinary infection for high risk patients.

Management: Aim for 5 to 10 per cent weight loss for obese patients. Consider referral to dietician. Provide information on diet, exercise and diabetes. Give smoking cessation advice. Reduce cardiovascular risk factors. Maintain optimal blood pressure. Screen for early detection of eye, renal and foot disease. Assess and manage any other associated conditions. Check vaccination status. Consider preconception referral for women planning a family. Registration in national diabetes scheme and advise on driver's license notification obligations. Consider sick day management. Consider allied health services available under Medicare. Create a GP management plan, team care arrangement and set up Diabetes Cycle of Care.

Referral: Immediate referral to endocrinologist if acute coexisting illness or comorbidity present. Routine referral if Hba1c > 7.5%/58 mmol/mol despite oral agent or diabetic neuropathy or peripheral vascular disease or dyslipidaemia unresponsive to standard therapy.

Integrated chronic disease management can be systematically developed and supported for local populations through a consistent model like the Canterbury Health Pathways or the Map

¹¹⁶ adapted from Canterbury Health Pathways

of Medicine. There is scope for the further development of care pathways in Australia by Primary Health Networks.

5.7 Payments need to promote integrated care

It is difficult to drive care integration for people with chronic disease if payment incentives are not aligned with the objective. The current Medicare payment model is dominated by fee-for-service payments for GPs and specialists. Fee-for-service payments are unlikely to lead to better quality care and outcomes for chronic disease on their own. Compared to fixed payment models, they are more likely to promote higher levels of service, fewer referrals and less emphasis on prevention.¹¹⁷

Payment models and incentives for performance need to be seen as part of an overall strategy for improving the secondary prevention and management of chronic disease.¹¹⁸ Over time, funding for general practice should shift away from predominantly fee-for-service payments to a model that has a more balanced mix of fee-for-service payments and payments for the quality and outcomes of care. There is now significant interest in introducing this 'blended' payment model.¹¹⁹

In 2013-14 the Commonwealth spent about \$1 billion on managing chronic disease through the Practice Incentives Program, Service Incentive Payments, Health Assessments and chronic disease and mental health management. These payments could be combined into an annual practice payment to encourage high quality of care for people with chronic disease. This would

¹¹⁷ Peckham and Gousia (2014)

¹¹⁸ Rosen (2015)

¹¹⁹ Hambleton (2015)

give practices much greater flexibility in the way they provide care and support for these people.

Annual practice payments could be made for the number of patients with an agreed set of chronic and mental health conditions¹²⁰ registered at an accredited practice¹²¹ where they normally get their care.¹²² With better data, payments would be adjusted for the extent to which avoidable hospital admissions had been avoided, for performance on primary care quality of care and clinical outcome indicators, and for the proportion of all patient services provided.

Other episodic payments¹²³ for GP and allied health treatment services would remain unchanged. Primary Health Networks could have responsibility for negotiating and monitoring agreements with practices for receipt of annual practice payments.¹²⁴ Agreements would specify reporting requirements and the quality and outcome levels for chronic disease to be met for annual payments.

¹²⁰ Chronic diseases would include diabetes, chronic obstructive pulmonary disease, asthma, chronic cardiac failure, angina, hypertension, rheumatic heart disease, nutritional deficiencies, depression, dementia, epilepsy, learning disability, osteoporosis, rheumatoid arthritis and palliative care.

¹²¹ The Royal Australian College of General Practitioners sets accreditation standards for general practices, deputising services, after hours services and Aboriginal health services.

¹²² The current Standard Weighted Patient Equivalent methodology should be adapted for this purpose, and include a patient risk classification.

¹²³ Unreferred attendance items in the Commonwealth Medicare Benefits Schedule.

¹²⁴ As part of this process PHNs could review the infrastructure and staffing of practices to assess eligibility for the new annual practice payment.

Annual practice payments should also be adjusted for risk. Service needs and costs are strongly related to chronic disease complexity. In the US, over 70 per cent of people self-manage their chronic disease with some support from GPs and specialists.¹²⁵ Most of service needs and costs are for the remaining 30 per cent.

Frameworks like the Kaiser pyramid (see Figure 6) provide general guidance, but more detailed risk adjustment methods are needed for primary care if resources for prevention and management of chronic disease re to be better targeted¹²⁶

Higher payments should be made for registered patients at risk of hospitalisation who require case management. The lowest level of payment should be made for patients who need supported self-care to manage their chronic disease. Significant work would be required to develop an appropriate risk adjustment methodology.

Care must be taken in the design and implementation of payment schemes if they are to be successful.¹²⁷ The results of payment incentives schemes in healthcare are mixed and they do not always produce cost-effective improvements.¹²⁸

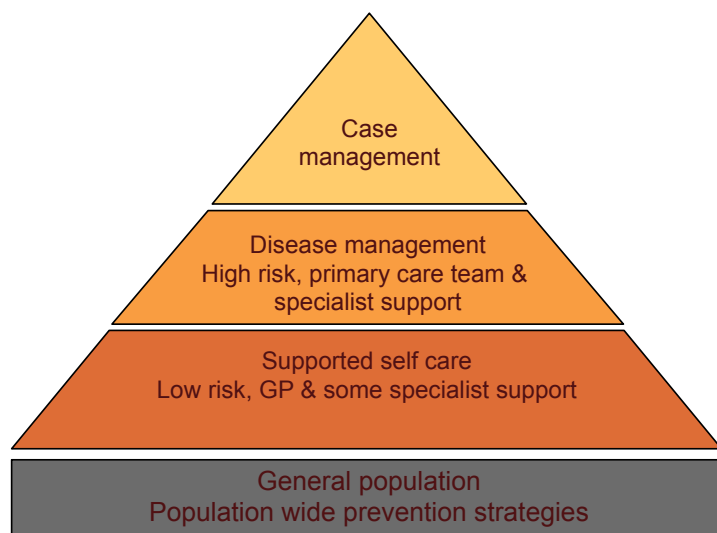
¹²⁵ Hudson (2005)

¹²⁶ Rosen (2015)

¹²⁷ Barai (2015)

¹²⁸ The recent evaluation of the Diabetes Care Project is a case in point (see Commonwealth of Australia (2015)).

Figure 6: The Kaiser pyramid provides guidance



Note: adapted from Singh and Hamm (2006) The Kaiser chronic disease pyramid is constructed so that each segment has approximately the same health care costs (25%). Those with complex chronic and acute conditions make up 0.5% of the population, the complex chronic group is 4.5%, the self-managed group is 20% and 75% of people have no chronic disease. See Lewis (2007).

But payment models for quality and outcomes can encourage good practice and help achieve recommended clinical outcomes for people with chronic disease.¹²⁹ Incentives work better when performance targets are clear, achievable and easy to track, when

¹²⁹ Oliver-Baxter and Brown (2013)

feedback and payments are timely, and incentives are sufficiently large to be significant within overall remuneration.¹³⁰

There are approximately 25,000 full-time equivalent GPs in Australia.¹³¹ If the Commonwealth spent \$1 billion on annual practice payments about \$40,000 per full-time equivalent GP would be available to practices for improvements in chronic disease prevention and management.

Over time, growth funding could also be delivered to GP practices through annual practice payments. For example, funding for indexation of non-referred Medicare items, which is currently frozen, could be reallocated for this purpose. The blended payment system would complement the Medicare fee-for-service system. It would allow GP practices to use funding for good practice much more flexibly to improve services for people with chronic disease. More flexible services might include greater use of nurses and allied health staff for assessment, planning, coordination, review and support of people with chronic disease.¹³²

5.8 A new role for state governments

The Commonwealth and the states will have to work together much more cooperatively if local health systems are to work well. State and territory governments could enter into service agreements with Primary Health Networks to improve the quality and outcomes of care.

¹³⁰ Eijkenaar, *et al.* (2013)

¹³¹ Australian Institute for Health and Welfare (2012b)

¹³² see for example Robson, *et al.* (2014)

In particular, the states and territories could provide additional funding to Primary Health Networks to meet goals that are important to them – for example, for agreed reductions in preventable hospital admissions through improved primary health services. These funds could be added to annual practice payments made to primary care providers through the practice payments pool for relevant Primary Health Networks.¹³³

States are more likely to work with Primary Health Networks if they are seen as ‘neutral’ organisations, beholden neither to Commonwealth nor state. Primary Health Networks are generally incorporated as companies, so in form, at least, they are already neutral. However, their neutrality is somewhat compromised by Commonwealth over-regulation and control. If the networks are to function better as local coordinating bodies, Commonwealth control would need to be relaxed as Primary Health Networks grow in capability.

5.9 Innovation needs to be supported

Research on high performing regional health systems and the implementation of chronic disease management models shows that involving consumers and providers in the design and implementation of improvements is critical.¹³⁴

Based on the United States Breakthrough model,¹³⁵ the GP collaboratives model¹³⁶ used in Australia and the United Kingdom

¹³³ For remote areas where it is difficult to develop and deliver primary health services, Practice Agreements could also allow cashing out of all Medicare item services as part of the agreement.

¹³⁴ Ham (2010); Timmins and Ham (2013)

¹³⁵ Institute for Healthcare Improvement (2003)

has shown that engagement with GPs and consumers can lead to significant improvements in the quality of services and outcomes for chronic conditions.

While approaches to improving the quality of services and outcomes for chronic disease vary, different systems across the world have in common: a focus on continuous quality improvement, effective local leadership, engaging consumers and clinicians, aligning incentives, using reliable information and defining clear roles and responsibilities for the coordination and delivery of services.¹³⁷

Over the past decade the Australian Primary Care Collaboratives program has implemented nine waves of quality improvement with more than 1500 general practices. Collaboratives use learning workshops and ongoing support to apply improvement models and exchange ideas and experience to improve practice. Participation is voluntary and Collaboratives are supported by a nationally funded program.

Where they have been applied, Collaboratives have demonstrated significant improvements for a range of chronic conditions. For example, they have shown that a 50 per cent improvement in monitoring and outcomes of glucose blood sugar levels for people with diabetes can be achieved in general practice.¹³⁸

Similarly, a 50 per cent initial improvement in cholesterol levels for coronary heart disease was found, although these were only

¹³⁶ Commonwealth Department of Health (2015a)

¹³⁷ Baker, *et al.* (2008); Rosen (2015)

¹³⁸ Knight, *et al.* (2012)

partially sustained over time. Dramatic improvements in spirometry measurement for people with COPD were also demonstrated. The number of people on disease registers increased significantly and the use of systematic quality improvement cycles increased.¹³⁹

Despite demonstrable success, the Collaboratives model has not been systematically embedded and sustained either nationally or in local health systems. The Collaboratives model is a potentially important part of implementing integrated care, care pathways and chronic disease management within local networks of health providers. Primary Health Networks should have a greater role in developing, supporting and managing the implementation of Collaboratives to improve the quality of chronic disease care and outcomes for their catchment populations.

The Commonwealth Department of Health also has the role of ensuring that lessons learned from Collaborative projects are implemented in other locations.

5.10 Staged implementation

The directions outlined for better quality and outcomes for chronic disease in primary care are consistent with the international evidence and policy directions. Nevertheless, the research evidence remains limited and it is therefore important that implementation is staged and evaluated as it proceeds.

Important elements necessary for improved primary care are already in place. Primary Health Networks have been established.

Significant funding for secondary prevention and management of chronic disease is already available. The methodology for Collaboratives is well developed. There are several established models for care pathways. There is an extensive literature on care integration. There are well-developed frameworks for measuring and monitoring the quality and outcomes of primary care.

These elements need to be brought together within regional catchments. Less is known about how to do this successfully in the Australian context. Evaluation, review and adjustment will therefore be critical as the development and implementation of systems change proceeds.

Changes to payment arrangements could be introduced progressively over five years. Initially, the focus should be on incentives for the implementation of records management systems to allow reporting on agreed performance indicators and the development of risk adjustment methods to guide payments. Practices would be paid for participation and development activities. Annual performance-based payments could be introduced by individual Primary Health Networks when the necessary systems and infrastructure have been implemented and service system development arrangements are in place.

¹³⁹ Knight, *et al.* *Ibid.*; Knight, *et al.* (2013)

6 Conclusions

Chronic conditions are an increasing burden on the Australian health system. Primary prevention based on changes to social and economic conditions is preferable but not always possible.

Significant improvements in the quality of care and outcomes for people with chronic conditions can be realised particularly through strengthening integrated care in primary care settings.

But the Australian health care system is based on an outdated acute care model.

If better outcomes are to be achieved for people with chronic conditions, systemic change is necessary to drive a new model of integrated care. This will require the measurement and monitoring of chronic disease outcomes; payment incentives designed to promote integrated care; support for service innovation; and regional systems management.

Our analysis suggests that significant improvements in primary care service quality and health outcomes for people with chronic disease can be realised through the proposed recommendations.

We estimate that over a period of time, savings of \$322 million per year could be realised from reductions in avoidable admissions.¹⁴⁰

¹⁴⁰ While these are potential savings in hospital inpatient expenditure, they will only be achieved by reorganising expenditure for primary care, and the creation of enhanced primary care services.

The proposed recommendations are cost neutral. Funding for Primary Health Networks has already been allocated. The development of a performance framework for primary care should be possible within existing resources. Payment incentives for quality and outcomes can be funded by reforming and combining practice and service payments with chronic disease and mental health management and health assessment funding.

A summary of the proposed reform strategy to improve the quality of services and outcomes for chronic disease prevention and management is presented in Table 3.

The proposal sets out a coherent framework for investment in primary care and for better secondary prevention and management of chronic disease. It allows for adaptation and responsiveness, both to local circumstances and to the accumulation of evidence about what works and what doesn't, as local systems innovate to improve the quality of care and outcomes for people with chronic disease.

Table 3: The recommended reform strategy

<i>Reform element</i>	<i>Description</i>
Regional health systems management,	Primary Health Networks to have responsibility for improving the quality services and outcomes for chronic disease through funding incentives, service innovation and performance monitoring
Performance framework	Nationally developed framework of chronic disease indicators for avoidable hospital admissions and quality and outcomes for primary care services with local performance targets for GP practices and other primary providers negotiated annually by Primary Health Networks
Care pathways	Development of care pathways to support integrated chronic disease management
Alignment of financial incentives	Risk adjusted payments for registered practice populations for the quality of services and clinical outcomes for people with chronic disease based on performance targets negotiated annually with Primary Health Networks
Service innovation and development	Implementation of a collaboratives model for reform of clinical services by each Primary Health Network in addition to the development data systems and infrastructure to support performance monitoring and payment
Staged implementation	Changes should be introduced progressively over a five year period

Appendix 1: Quality and outcomes of care

A stratified national sample of administrative data for 162 general practices using Medical Director patient management software was collated for 2013-14. Medical Director is the most commonly used patient management software in General Practice.

Data was collected from a panel of 400 general practitioners recruited to provide electronic patient records as part of the General Practice Research Network. The GPRN panel provides de-identified patient data for research purposes to support the development of general practice. Participating GPs were monitored for adherence to electronic data quality assurance procedures and benchmarks. The sample was representative of GP age and distribution by state.

The sample included 74,024 patients who had one or more of the following chronic conditions: asthma, atrial fibrillation, chronic obstructive pulmonary disease, chronic kidney disease, congestive cardiac failure, coronary heart disease, diabetes, hypertension, iron deficiency, left ventricular hypertrophy, rheumatic fever, stroke/transient ischaemic attack.

Data was collated on patient demographic variables for age, sex and region. Results were collated for consultations, body mass, height, weight, waist circumference, smoking status, systolic and diastolic blood pressure and blood glucose and lung function. Patient referral and prescription data was also collated.

Diabetes

Data for 7,456 patients with diabetes mellitus (type 1, 2 or unclassified) were analysed.

Table 4: Diabetes sample characteristic

<i>Variable</i>	<i>Measure</i>	<i>Value</i>	<i>N</i>
Diabetes	Count	7474	7474
Age	Mean	64.8	7463
Gender - male	Per cent	55.6	4153
Gender – female	Per cent	44.4	3316
Blood sugar recorded	Per cent	60.4	4511
Blood sugar	Hba1c mean	8.02	4511
Blood sugar in range	Hba1c % <=7	26.3	1973
Body mass recorded	Per cent	33.1	2477
Body mass	BMI mean	32.2	2477
Non obese	Per cent	14.4	1081
Blood Pressure measured twice (systolic)	Per cent	66.4	4861
Blood Pressure (systolic)	mean	134.7	6190
Normal blood pressure (<140 systolic)	Per cent	57.5	4290

Gestational diabetes was excluded. The data was trimmed to exclude patients with fewer than four consultations with a practice

in 2013-14.¹⁴¹ Table 4 summarises descriptive (univariate) results for these patients.

Diabetes quality of care

The Commonwealth Medical Benefit Schedule recommended cycle of care for diabetes includes biannual measurement of blood pressure and Body Mass Index, and annual measurement of blood sugar (HbA1c). These measures were combined into a Diabetes Care Indicator (DCI).

Blood sugar was recorded at least once for 60 per cent of patients. BMI was recorded for a third of patients. Two thirds of patients had their blood pressure recorded twice.

A total of 15 per cent of patients with diabetes (1,129) met all the annual requirements of the Diabetes Care Indicator.

Diabetes outcomes

26 per cent of patients with diabetes had a recorded blood sugar level in the recommended range. The rest did not have a recorded blood sugar or the level was out of the recommended range.

15 per cent of patients with diabetes had a recorded BMI below the obese range. The rest either did not have a recorded BMI or their BMI was in the obese range.

¹⁴¹ McRae, *et al.* (2011) found that 89 per cent of Australians always or usually attend the same GP, including 82.5 per cent for those with self-reported poor health. Approximately the lowest attending 20 per cent of the sample was therefore trimmed to reduce the likelihood of casual and unaffiliated attendance.

57 per cent of patients with diabetes had a recorded blood pressure within the recommended range. The rest either did not have a recorded blood pressure, or it was outside the recommended range.

Overall 3,095 patients (41 per cent) had recorded values for body mass, blood sugar and blood pressure. Of these patients 7.2 per cent were not obese and had blood sugar and blood pressure values in the recommended range.

Asthma

The data for 11,103 patients with asthma was analysed. Patients who had less than four consultations in 2013-14 were excluded. Descriptive results are presented in Table 5.

Asthma quality of care

The Commonwealth Medical Benefit Schedule recommended cycle of care for asthma includes an annual review for people with moderate or severe asthma. Spirometry is recommended as part of asthma management review procedures.¹⁴² For the sample analysed here, spirometry was recorded for 4.1 per cent of patients with asthma in 2013-14.¹⁴³ Patients with asthma who were current smokers made up 12.2 per cent of the sample.

¹⁴² National Asthma Council of Australia (2015); Oei, *et al.* (2011)

¹⁴³ The analysis does not include spirometry results provided to general practitioners in letters from specialist physicians.

Table 5: Asthma sample characteristics

<i>Variable</i>	<i>Measure</i>	<i>Value</i>	<i>N</i>
Asthma	Count	11103	11103
Age	Mean	43.3	11088
Gender – male	Per cent	38.8	4307
Gender – female	Per cent	61.1	6781
Spirometry recorded	Per cent	4.1	770
Consultations	Mean	10.0	11103
Indigenous status	Per cent	2.0	228
Current smoking	Per cent	12.2	1357

Hypertension

The data for 31,237 patients with hypertension was analysed. Patients with fewer than three consultations in 2013-14 were excluded. Table 6 summarises descriptive (univariate) results for these patients.

Hypertension quality of care

Body mass (weight and height) was recorded for 24.2 per cent of patients. Blood pressure was measured at least twice during the year for 75.3 per cent of patients.

Table 6: Hypertension sample characteristics

<i>Variable</i>	<i>Measure</i>	<i>Value</i>	<i>N</i>
Hypertension	Count	31237	31237
Age	Mean	66.1	31131
Gender – male	Per cent	48.3	15086
Gender – female	Per cent	51.7	16137
Body mass recorded	Per cent	24.2	7558
Body mass	BMI mean	30.8	7558
Obesity	Per cent	48.0	3625
Blood Pressure measured twice (systolic)	Per cent	75.3	23521
Blood Pressure (systolic)	Mean	139.9	27724
Blood Pressure (diastolic)	Mean	79.8	27723
High Blood Pressure ($\geq 140/90$)	Per cent	46.7	14595
Current smoker	Per cent	9.2	2864

Hypertension outcomes

46.7 per cent of patients had average blood pressure readings that were equal to or greater than 90 mm hg diastolic or 140 mm hg systolic. The average BMI for patients with hypertension was 30.8. Of those with a BMI measure, approximately half were obese. 9.2 per cent were recorded as current smokers.

Appendix 2: Avoidable hospital admissions

There were 8,852,550 separations recorded in the 2010-11 Hospital Morbidity data set. The ACSC-Chronic Diseases (ACSC-CD) accounted for 3 per cent of all admissions in 2010-11, and 5.1 per cent of bed days, at a cost of approximately \$2 billion in 2010-11. There were 265,664 separations for ACSC-Chronic Diseases.

A hospital admission for an ACSC-CD may follow:

- no patient contact with the primary health care system;
- contact, but patient not offered the required care;
- patient offered the required care but unable or unwilling to follow the recommendations;
- patient adhering to recommended treatment but suffering an unavoidable complication due to lack of response to treatment or progression of the disease.

Table 7: Classification of selected potentially avoidable hospitalisations

<i>Condition</i>	<i>ICD-10_AM 7Th edition codes</i>	<i>Further selection information</i>
Asthma	J45, J46	Principal diagnosis only
Congestive cardiac failure (CCF)	I50, I11.0, J81	Principal diagnosis only, exclude cases with designated procedure codes (77 listed)
Diabetes complications	E10–E14.9	Principal diagnosis only
Chronic obstructive pulmonary disease (COPD)	J20, J41, J42, J43, J44, J47	Principal diagnosis only; J20 only with additional diagnoses of J41, J42, J43, J44, J47
Angina	I20, I24.0, I24.8, I24.9	Principal diagnosis only; exclude cases with procedure codes not in blocks [1820] to [2016]
Iron deficiency anaemia	D50.1, D50.8, D50.9	Principal diagnosis only
Hypertension	I10, I11.9	Principal diagnosis only; exclude cases with procedure codes in the CCF exclusions category above
Nutritional deficiencies	E40, E41, E42, E43, E55.0, E64.3	Principal diagnosis only
Rheumatic heart disease and rheumatic fever	I00 to I09	Principal diagnosis only

Source: National Health Performance Authority (2013)

A new indicator is required

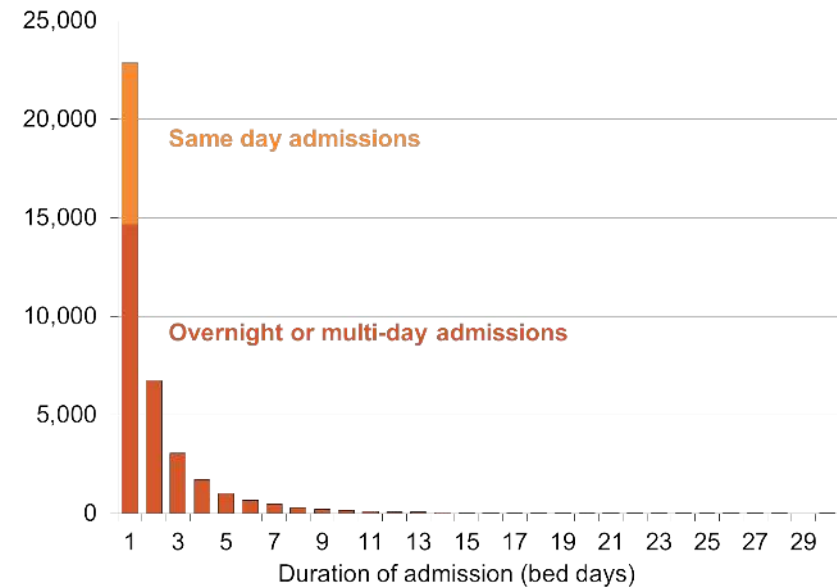
A new indicator is required to better target admissions that may truly be prevented by actions of the health care providers, and more broadly, the system. It needs to be restricted to disease categories amenable to secondary prevention or substitution, and instead of including all the admissions that meet the diagnostic criteria, the new indicator should include only admissions of short duration, to avoid severe or complicated admissions.

There are two main patterns of admission for ACSC-CD when examined by duration of admission. Asthma admissions are a good example of the first, where a rapid response to treatment sees a progressive fall in hospitalisations from a peak at day one. The second pattern applies to congestive cardiac failure and chronic obstructive pulmonary disease, where the frequency of admission duration shows a 'double-peak' – the highest on day one and then another on day three or later.

Pattern One: Asthma

Asthma generally responds rapidly to treatment initiated either before or at the time of admission. The mean duration of admission was 2.1 days, and 98.1% of admissions were of less than 10 days (see Figure 7).

Figure 7: Number of Asthma separations by duration of admission



Source: Grattan Institute analysis of Hospital Morbidity data set, 2010-11

There is evidence of room for considerable improvements in the management of asthma by the patient, their carer and the health service. Adolescents in particular are poor at managing their asthma, resulting in high rates of emergency department attendances.¹⁴⁴ Nine out of every ten asthma patients were found to be using their medication inhaler devices incorrectly.¹⁴⁵ Health care advice given to asthma patients does not always follow management guidelines. One third of general practices do not

¹⁴⁴ Australian institute for Health and Welfare (2011)

¹⁴⁵ Basheti, *et al.* (2008)

have a spirometer, and less than one quarter of Australians with current asthma reported a written asthma action plan.

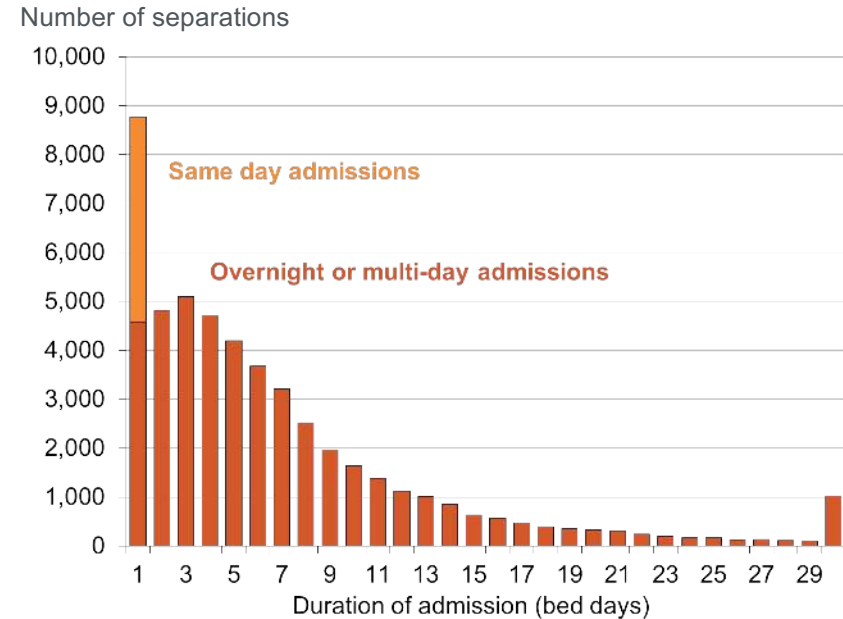
An improved focus on medication inhaler technique has been shown to reduce the severity of asthma significantly, reducing peak expiratory flow rate variability, and improving asthma-related quality of life. Improved GP asthma care will reduce the number of patients with severe asthma at risk of hospital admission.

There is also scope for substitution of hospital care when a patient is experiencing an exacerbation. Enhanced primary care available in a timely way, and incorporated in to the patient’s asthma action plan, could prevent a substantial portion of hospital admissions that currently respond quickly to the treatments commenced in hospital.

Pattern Two: Congestive cardiac failure

Congestive cardiac failure separations have a ‘double peak’, the largest number of admissions by bed day is for one day admissions, a second peak occurs on day 3 (see Figure 8). The mean duration of admission was 6.8 days, 77.3% of admissions were for less than 10 days, so nearly one quarter were for 10 days or more. It is clear from examination of both the asthma and congestive cardiac failure graphs that a significant number of the admissions are for patients requiring prolonged hospital care. This lack of specificity means that the ACSC-CD indicator includes many admissions that are not preventable to either the primary care or the hospital services. As a result estimates of potential preventable admissions and associated savings are significantly inflated by the ACSC-CD, and are seen as flawed and irrelevant by both the primary care and hospital sectors.

Figure 8: Congestive cardiac failure separations by duration of the admission



Source: Grattan Institute analysis of Hospital Morbidity data set, 2010-11

Avoidable admissions indicator

The proposed new indicator is Avoidable Admissions of 2 days or less (AA2) which is designed to focus on the early responders to care. Lower severity admissions are concentrated in this group, and it is these which are the target of activities to reduce avoidable admissions.

The chronic diseases currently included in ACSC-CD are a very mixed bag, with very different profiles and potentials for prevention or substitution. The following table summarises our assessment of their usefulness in the new indicator AA2.

Table 8: Inclusions and exclusions for avoidable hospital admissions indicator

<i>Condition</i>	<i>Avoidable admissions</i>
Asthma	Include
Congestive cardiac failure	Include
Diabetes complications	Include
Chronic Obstructive Pulmonary Disease	Include
Angina	Cease
Iron deficiency anemia	Include
Hypertension	Include
Nutritional deficiencies	Cease
Rheumatic heart disease	Cease

The cost of hospital activity identified by AA2 is substantially less than for ACSC-CD, in part because fewer conditions and shorter duration admissions are included. The hospital costs identified by AA2 are not all 'savings', as additional investment will be required in the primary care sector to develop and maintain 'enhanced primary care practices' able to substitute care to avoid an hospital admission, and costs will be incurred delivering care in other settings.

Table 9: Hospital costs due to AA2 admissions

<i>Condition</i>	<i>Cost of admissions identified by AA2 \$m¹⁴⁶</i>
Asthma	64
Congestive cardiac failure	38
Diabetes complications	77
Chronic Obstructive Pulmonary Disease	79
Iron deficiency anemia	50
Hypertension	13
Total	322

The approach recommended is to commence with the six chronic diseases that have been included in studies for the last 40 years, but to regard this as a starting point.

As additional information is gathered these performance indicators should be refined, and others appropriate to local needs may emerge with greater access to and utilisation of data.

¹⁴⁶ Using National Weighted Activity Units from NEP12, and the National Efficient Price 2015-16.

References

- Afkarian, M., Sachs, M., Kestenbaum, B., Hirsch, I., Tuttle, K., J, H. and de Boer, I. (2013) 'Kidney disease and increased mortality risk in type 2 diabetes', *Journal of the American Society of Nephrology*, 24(2), p 302-308
- Allen, D., Gillen, E. and Rixson, L. (2009) 'Systematic review of the effectiveness of integrated care pathways: what works for whom in what circumstances?', *International Journal of Evidence Based Healthcare*, 7(2), p 61-74
- Australian Bureau of Statistics (2006) *Asthma in Australia: a snapshot 2004-05*, from <http://www.abs.gov.au/ausstats/abs@.nsf/mf/4819.0.55.001#Two%20different>
- Australian Bureau of Statistics (2008) *National Survey of Mental Health and Wellbeing*, Australian Bureau of Statistics
- Australian Bureau of Statistics (2011) *Australian Social Trends*, ABS from <http://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/4102.0Main+Features10Mar+2011>
- Australian Bureau of Statistics (2012) *Australian health survey: first results 2011-12*, from <http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/66544AD757B73867CA257AA30014B671?opendocument>
- Australian Government Department of Health (2016a) 'Annual Medicare Statistics', accessed 22 February, from <http://www.health.gov.au/internet/main/publishing.nsf/content/Annual-Medicare-Statistics>
- Australian Government Department of Health (2016b) 'Medicare Item Reports', accessed 20 February
- Australian Government Department of Health (2016c) 'Practice Incentives Program', accessed 20 February, from <http://www.humanservices.gov.au/health-professionals/services/practice-incentives-programme/>
- Australian Institute for Health and Welfare (2011) *Asthma in Australia 2011*, from <http://www.aihw.gov.au/publication-detail/?id=10737420159>
- Australian Institute for Health and Welfare (2012a) 'Changes in life expectancy and disability in Australia 1998-2009', from <http://www.aihw.gov.au/WorkArea/DownloadAsset.aspx?id=60129542184>
- Australian Institute for Health and Welfare (2012b) *Medical workforce*, Australian Institute for Health and Welfare
- Australian Institute for Health and Welfare (2012c) *Social distribution of health risks and health outcomes*, Australian Institute for Health and Welfare
- Australian Institute for Health and Welfare (2014) *Australia's health 2014*, Australian Institute for Health and Welfare

- Australian National Audit Office (2010) *Practice Incentives Program: Department of Health and Ageing*, Australian National Audit Office
- Baker, G. R., MacIntosh-Murray, A., Porcellato, C., Dionne, L., Stelmacovich, K. and Born, K. (2008) *High Performing Healthcare Systems: Delivering Quality by Design.*, Longwoods
- Baker IDI (2012) *Diabetes the silent pandemic and its impact on Australia*, Baker IDI
- Barai, K. (2015) *Levers for change*, Nuffield Trust
- Basheti, I. A., Armour, C. L., Bosnic-Anticevich, S. Z. and Reddel, H. K. (2008) 'Evaluation of a novel educational strategy, including inhaler-based reminder labels, to improve asthma inhaler technique', *Patient Educ Couns*, 72(1), p 26-33
- Beilby, J. and Holton, C. (2005) 'Chronic disease management in Australia: evidence and policy mismatch, with asthma as an example', *Chronic Illness*, 1(1), p 73-80
- Cashin, C. and Chi, Y. (2011) *Australia: the Practice Incentives Program (PIP)*, World Bank from <https://rbfhealth.org/sites/rbf/files/Case%20study%20Australia%20Practice%20Incentive%20Program.pdf>
- Cecil, E., Bottle, A., Sharland, M. and Saxena, S. (2015) 'Impact of UK Primary Care Policy Reforms on Short-Stay Unplanned Hospital Admissions for Children With Primary Care–Sensitive Conditions', *The Annals of Family Medicine*, 13(3), p 214-220
- Centre for Policy on Ageing (2014) *The effectiveness of care pathways in health and social care*, Centre for Policy on Ageing
- Commonwealth Department of Health (2015a) 'Australian Primary Care Collaboratives Programme', accessed 11 June, from <http://www.health.gov.au/internet/main/publishing.nsf/Content/health-pcd-programs-apccp-index.htm>
- Commonwealth Department of Health (2015b) 'Chronic Disease Management (formerly Enhanced Primary Care or EPC) - GP services', from <http://www.health.gov.au/internet/main/publishing.nsf/content/mbprimarycare-chronicdiseasemanagement>
- Commonwealth Department of Health (2016) 'Flexible funding guidelines: chronic disease prevention and service improvement flexible fund', accessed 20 February 2016, from <http://www.health.gov.au/internet/main/publishing.nsf/Content/cdpsif-guidelines>
- Commonwealth of Australia (2014) *Portfolio budget statements 2013-14: health and ageing portfolio*, Commonwealth Government
- Commonwealth of Australia (2015) *Evaluation report on Diabetes Care Project*, Commonwealth Department of Health
- Davy, C., Bleasel, J., Hueiming, L., Tchan, M., Ponniah, S. and Brown, A. (2015) 'Effectiveness of chronic care models: opportunities for improving health care practice and health outcomes: a systematic review', *BMC Health Services Research*, 15,
- de Bruin, S., Heijink, R., Lemmens, L., Struijs, J. and Baan, C. (2011) 'Impact of disease management programs on health care expenditures for patients with diabetes, depression, heart failure or chronic obstructive pulmonary disease: a systematic review of the literature', *Health Policy*, 101(2), p 105-121

- Department of Human Services (2015) 'Practice Incentives Program: Asthma Incentives Guidelines - October 2013', from <https://www.medicareaustralia.gov.au/forms/4371.pdf>
- Dietz, W. H., Solomon, L. S., Pronk, N., Ziegenhorn, S. K., Standish, M., Longjohn, M. M., Fukuzawa, D. D., Eneli, I. U., Loy, L., Muth, N. D., Sanchez, E. J., Bogard, J. and Bradley, D. W. (2015) 'An Integrated Framework For The Prevention And Treatment Of Obesity And Its Related Chronic Diseases', *Health Affairs*, 34(9), p 1456-1463
- Eijkenaar, F., Emmert, M., Scheppach, M. and Schoffski, O. (2013) 'Effects of pay for performance in health care: a systematic review of systematic reviews', *Health Policy*, 110(2-3), p 115-130
- Ellis, R., Fiebig, D., Johar, M., Jones, G. and Savage, E. (2013) 'Explaining health care expenditure variation: large sample evidence using linked survey and health administrative data', *Health Economics*, 22(9), p 1093-1110
- Esterman, A. and Ben-Tovin, D. (2002) 'The Australian coordinated care trials. Success of failure?', *Medical Journal of Australia*, 177(9), p 469-470
- Flinders University School of Medicine (2015) 'The Flinders Program',
- Gillam, S. and Siriwardena, A. (2011) 'The quality and outcomes framework: triumph of evidence or tragedy of personal care', in *The quality and outcomes framework: QOF transforming general practice.*, S. Gillam and A. Siriwardena, Eds., Radcliffe Publishing,
- Gillam, S. and Steel, N. (2013) 'The Quality and Outcomes Framework - where to next?', *British Medical Journal*, 346,
- Ham, C. (2010) 'The ten characteristics of the high-performing chronic care system', *Health Economics, Policy and Law*, 5(01), p 71-90
- Hambleton, S. (2015) *Better outcomes for people with chronic and complex conditions*, Commonwealth Department of Health
- Hansen, J., Groenewegen, P. P., Boerma, W. G. W. and Kringos, D. S. (2015) 'Living In A Country With A Strong Primary Care System Is Beneficial To People With Chronic Conditions', *Health Affairs*, 34(9), p 1531-1537
- Harris, M. and Zwar, N. (2007) 'Care of patients with chronic disease: the challenge for general practice', *Medical Journal of Australia*, 187(2), p 104-107
- Harris, M. and Zwar, N. (2007) 'Care of patients with chronic disease: the challenge for general practice', ' *Medical Journal of Australia*, 187(2), p 104-107
- Health and Social Care Information Centre (2016) 'NHS payments to general practice , England 2014-15', accessed 24 February, from <http://www.hscic.gov.uk/catalogue/PUB18468>
- Heart Foundation (2015) 'Heart disease in Australia', from <https://heartfoundation.org.au/about-us/what-we-do/heart-disease-in-australia>
- Hickie, I., Davenport, T., Naismith, S., Scott, E., Hadzi-Pavlovic, D. and Koschera, A. (2001) 'Treatment of common mental disorders in Australian general practice', *Medical Journal of Australia*, 175(Supplement), p S25-30

- Hindle, D. and Yazbeck, A. (2005) 'Clinical pathways in 17 European countries: a purposive survey', *Australian Health Review*, 2005(1), p 94-104
- Horvath, J. (2014) *Review of Medicare Locals*, Department of Health
- Huang, N., Daddo, M. and Clune, E. (2009) 'Heart health: CHD management gaps in general practice', *Australian Family Physician*, 38(4), p 241-245
- Hudson, B. (2005) 'Sea change or quick fix? Policy on long-term conditions in England', *Health Soc Care Community*, 13(4), p 378-385
- Institute for Healthcare Improvement (2003) *The Breakthrough Series: IHI's Collaborative Model for Achieving Breakthrough Improvement*. , Institute for Healthcare Improvement from <http://www.ihl.org/resources/Pages/IHIWhitePapers/TheBreakthroughSeriesIHI'sCollaborativeModelforAchievingBreakthroughImprovement.aspx>
- Institute of Medicine (2001) *Crossing the quality chasm: a new health system for the 21st century*, National Academy Press
- Javanparast, S., Baum, F., Barton, E., Freeman, T., Lawless, A., Fuller, J., Reed, R. and Kidd, M. (2015) 'Medicare Locals - Local health network partnerships in South Australia: lessons for Primary Health Networks', *Medical Journal of Australia*, 203(5),
- Kalucy L, Katterl R, Jackson-Bowers E and A., H. (2009) *Models of patient enrolment: Policy issues review*, Primary Health Care Research & Information Service.
- Kane, R., Priester, R. and Totten, A. (2005) *Meeting the challenge of chronic illness*, Johns Hopkins University Press
- Knight, A., Caeser, C., Ford, D., Coughlin, A. and Frick, C. (2012) 'Improving primary care in Australian through the Australian Primary Care Collaboratives Program: a quality improvement report', *British Medical Journal*, doi:10.1136/bmjqs-2011-000165,
- Knight, A., Caeser, C., Ford, D., Coughlin, A. and Frick, C. (2013) 'Improving primary care in Australia through the Australian Primary Care Collaboratives Program', *British Medical Journal, Quality and Safety*, July,
- Knight, A., Ford, D., Audehm, R., Colagiuri, R. and Best, J. (2012) 'The Australian Primary Care Collaboratives Program: improving diabetes care', *British Medical Journal*, doi:10.1136/bmjqs-2011-000460,
- Knight, K., Badamgarav, E., Henning, J., Hasselblad, V., Gano, A., Ofman, J. and Weingarten, S. (2005) 'A systematic review of diabetes management programs', *American Journal of Managed Care*, 11(4), p 242-250
- Lewis, G. (2007) *Predicting who will need costly care*, Kings Fund from <http://www.kingsfund.org.uk/sites/files/kf/Predicting%20book%20final.pdf>
- Macinko, J., Starfield, B. and Shi, L. (2003) 'The contribution of primary care systems to health outcomes within Organization for Economic Cooperation and Development (OECD) countries 1970-1978', *Health Services Research*, 38(3), p 831-865
- Magliano, D., Bar, E., Zimmet, P., Cameron, A., Dunstan, D., Colagiuri, S., Jolley, D., Owen, N., Phillips, P., Tapp, R., Welborn, T. and

- Shaw, J. (2008) 'Glucose indices, health behaviors, and incidence of diabetes in Australia: the Australian Diabetes, Obesity and Lifestyle Study', *Diabetes Care*, 31(2), p 267-272
- McAlister, F., Lawson, F., Teo, K. and Armstrong, P. (2001) 'A systematic review of randomized trials of disease management programs in heart failure', *American Journal of Medicine*, 110(5), p 378-384
- McRae, I., Yen, L., Gillespie, J. and Douglas, K. (2011) 'Patient affiliation with GPs in Australia - Who is and who is not and does it matter?', *Health Policy*, 103(1), p 16-23
- Middleton, R., Foley, R., Hegarty, J., Cheung, C., McElduff, P., Gibson, J., Kalra, P., O'Donoghue, D. and New, J. (2005) 'The unrecognised prevalence of chronic kidney disease in diabetes', *Nephrology Dialysis Transplantation*, 21(1), p 88-92
- MNCommunity Measurement (2014) *2014 health care quality report*, MNCommunity Measurement from <http://mncm.org/wp-content/uploads/2015/02/2014-Health-Care-Quality-Report-FINAL-2.19.2015.pdf>
- National Asthma Council of Australia (2015) 'Asthma cycle of care',
- National Health Performance Authority (2013) *Healthy Communities: Selected potentially avoidable hospitalisations in 2011–12*, National Health Performance Authority
- National Health Services (2014) *2014/15 General Medical Services (GMS) Contract Quality and Outcomes Framework (QOF): Guidance for GMS contract 2014/15*,
- National Heart Foundation (2010) *Improving cardiovascular health outcomes in Australian general practice*, National Heart Foundation
- National Institute for Health Care Management (2012) *The concentration of health care spending*, National Institute for Health Care Management
- National Mental Health Commission (2014) *Contributing lives, thriving communities: volume 2*, National Mental Health Commission
- Oei, S., Thien, F., Schattner, R., Sulaiman, N., Birch, K., Simpson, P., del Colle, E., Aroni, R., Wolfe, R. and Abramson, M. (2011) 'Effect of spirometry and medical review on asthma control in patients in general practice: A randomized controlled trial', *Respirology*, 16(5), p 803-810
- Oldroyd, J., Proudfoot, J., Infante, F. A., Powell Davies, G., Bubner, T., Holton, C., Beilby, J. J. and Harris, M. F. (2003) 'Providing healthcare for people with chronic illness: the views of Australian GPs', *The Medical Journal of Australia*, 179(1), p 30-33
- Oliver-Baxter, J. and Brown, L. (2013) 'Primary care funding models', *PHCRIS research round up*, September 2013(33),
- Organisation of Economic Cooperation and Development (2010) *Health reform: meeting the challenge of ageing and multiple morbidities*, OECD from <http://www.oecd.org/els/health-systems/49151107.pdf>
- Ouwens, M., Wollersheim, H., Hermens, R., Hulscher, M. and Grol, R. (2005) 'Integrated care programs or chronically ill patients: a review of reviews', *International Journal for Quality of Care*, 17(2), p 141-146

- Peckham, S. and Gousia, K. (2014) *GP payments scheme review*, PRUComm from <http://www.kent.ac.uk/chss/docs/GP-payment-schemes-review-Final.pdf>
- Peikes, D., Zushi, A., Genevro, J., Smith, K., Parchman, M. and Meyers, D. (2012) *Early evidence on patient-centered medical home*, Agency for Healthcare REsearch and Quality
- Peytremann-Bridevaux, I., Arditi, C., Gex, G., Bridevaux, P. and Burnand, B. (2015) *Chronic disease management programmes for adults with asthma (Review)*, Cochrane Collaboration
- Priester, R., Kane, R. and Totten, A. (2005) *How the current system fails people with chronic illness*, Society of Actuaries
- Renom-Guiteras, A., Uhrenfeldt, L., Meyer, G. and Mann, E. (2014) 'Assessment tools for determining appropriateness of admission to acute care of persons transferred from long-term care facilities: a systematic review', *BMC Geriatrics*, 14(1), p 80
- Rice, K., Dewan, N., Bloomfield, H., Grill, J., Schult, T., Nelson, D., Kumari, S., Thomas, M., Geist, L., Beaner, C., Caldwell, M. and Niewoehner, D. (2010) 'Dease management program for chronic obstructive pulmonary disease', *American Journal of Respiratory and Critical Care Medicine*, 182(7), p 890-896
- Robinson, S., Varhol, R., Ramamurthy, V., Denehy, M., Hendrie, D., O'Leary, P. and Selvey, L. (2015) 'The Australian primary health care experiment: a national survey of Medicare Locals', *BMJ Open*, 5(e007191). doi:10.1136/bmjopen-2014-007191),
- Robson, J., Hull, S., Mathur, R. and Boomla, K. (2014) 'Improving cardiovascular disease using managed care networks in general practice', *British Journal of General Practice*(May), p e268-e274
- Rosen, R. (2015) *Transforming general practice: what are the levers for change*, Nuffield Trust
- Schrijvers, G., van Hoorn, A. and Huiskes, N. (2012) 'The care pathway: concepts and theories: an introduction', *international journal of integrated care*, 12(Special edition integrated care pathways),
- Scott, A., Schurer, S., Jensen, P. H. and Sivey, P. (2009) 'The effects of an incentive program on quality of care in diabetes management', *Health Economics*, 18(9), p 1091-1108
- Singh, D. and Hamm, C. (2006) *Improving care for people with long term conditions*, HSMC
- Smith, J. and Sibthorpe, B. (2007) 'Divisions of general practice in Australia: how do they measure up in the international context?', *Australia and New Zealand Health Policy*, 4(15), p
- Stellefson, M., Dipnarine, K. and Stopka, C. (2013) 'The Chronic Care Model and Diabetes Management in US Primary Care Settings: A Systematic Review', *Preventing Chronic Disease: Public Health Research, Practice and Policy*, 10(February), p 1-21
- Swerissen, H. and Duckett, S. J. (2007) 'Federalism and health: negotiating the problems of "fiscal squabbles", "waiting" and "waste"', in *Analysing Australian health policy: A problem orientated approach*, S. Barraclough and H. Gardner, Eds., Elsevier
- Taggart, J., Wan, Q., Harris, M. and Powell Davies, G. (2008) 'Quality of diabetes care - a comparison of diabetes registers', *Australian Family Physician*, 37(6), p 490-492

- Thoumi, A., Udayakumar, K., Drobnick, E., Taylor, A. and McClellan, M. (2015) 'Innovations In Diabetes Care Around the World: Case Studies Of Care Transformation Through Accountable Care Reforms', *Health Affairs*, 34(9), p 1489-1497
- Timmins, N. and Ham, C. (2013) *The quest for integrated health and social care: a case study in Canterbury, New Zealand*, Kings Fund
- Wagner, E., Glasgow, R., Davis, C., Bonomi, A., Provost, L., McCulloch, D., Carver, P. and Sixta, C. (2001) 'Quality improvement in chronic illness care: a collaborative approach.', *Journal of Quality Improvement*, 27(2), p 63-68-
- Wan, Q., Harris, M., Jayasinghe, U., Flack, J., Georgiou, A., Penn, D. and Burns, J. (2006) 'Quality of diabetes care and coronary heart disease absolute risk in patients with type 2 diabetes mellitus in Australian general practice', *Quality and Safety in Health Care*, 15(2), p 131-135
- Webster, R., Heeley, E., Peiris, D., Bayram, C., Cass, A. and Patel, A. (2009) 'Gaps in cardiovascular disease management in Australian general practice', *Medical Journal of Australia*, 191, p 324-329
- Wilcox, S. (2014) *Chronic disease in Australia: the case for changing course*, Mitchell Institute, Victoria University
- Zwar, N., Harris, M., Griffiths, R., Rolland, M., Dennis, S., Davies, G. and Hasan, I. (2006) *A systematic review of chronic disease management*, Australian Primary Health Care Research Institute
- Zwar, N. A., Comino, E. J., Hasan, I. and Harris, M. F. (2005) 'General practitioner views on barriers and facilitators to implementation of the Asthma 3+ Visit Plan', *The Medical Journal of Australia*, 183(2), p 64-67