

A REVIEW OF MODELS
FOR FINANCING
PRIMARY CARE SYSTEMS
IN THE NETHERLANDS,
ONTARIO-CANADA,
UNITED KINGDOM
AND USA

Commissioned by:



Professor Andrew Bonney, University of Wollongong
Professor Don Iverson, Swinburne University of Technology
Ms Bridget Dijkmans-Hadley, University of Wollongong
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PERSONALISED EXPERIENCES : WORLD-CLASS RESULTS

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EXECUTIVE SUMMARY

Background

Private health insurers have been identified as having a potential role in chronic disease management in primary care settings; however, a model integrating private health insurers in a cost-effective manner does not exist in Australia. This report was commissioned to examine successful international models that integrate cost-effective primary care across different health services. Establishing such an evidence base is required in order to inform the development of new models of care in the Australian context.

Methods

A principles-based review of the current literature was conducted from January to April 2015. Uniform searches were conducted using *Scopus*, a major international medical literature database. Material was included if it was published from 2006 through April 2015 in a peer-reviewed journal, in English or with a translation in English, and in directly detailed models for financing primary care systems in the Netherlands, Ontario-Canada, United Kingdom and USA. Two hundred and twelve papers were identified. The key features and findings of the literature were analysed in an iterative process to allow identification of robust principles underlying the finance models studied.

Results

A review of different healthcare systems identified a number of key principles which underpin successful cost-effective primary care models. These include: blended payments; pay for performance; bundled payments of integrated care; shared electronic health records; team-based care; shared-savings models; improved care planning; and incentives supporting quality improvement. Two models of care were then further developed as potential pathways for service innovation. These models, a bundled-payment model and a patient-centred medical home model, may increase coordination among different care providers, improve patient health indicators and reduce avoidable emergency department usage.

Conclusions and recommendations

Implementation of a bundled-payment model or patient-centred medical home model may reduce the costs of chronic disease care and improve patient outcomes. Pilot trials of costed models could determine the most effective way by which private health insurers can provide improved health service coordination. This report recommends a pathway for service innovation in primary care over the short and long term, grounded in the current evidence.

ACRONYMS AND GLOSSARY OF TERMS

Term	Definition
A&E	Accident and Emergency care
ACO	Accountable Care Organization
Activity-based payment	The mechanism by which governments fund their contributions to public hospital services
After-hours	After normal working or licensed opening hours
AHSRI	Australian Health Services Research Institute
Blended-payment model	A predominant payment model (e.g. fee for service or capitation), that has a blend of financial incentives, premiums and other types of payments.
Bundled payment	The reimbursement of healthcare providers on the basis of expected costs for clinically defined episodes of care
Capitation	A set amount paid to a physician or group of physicians for each enrolled person assigned to them, per period of time, whether or not that person seeks care
CHD	Coronary heart disease
CMS	Centres for Medicare and Medicaid Services
COPD	Chronic obstructive pulmonary disease
Continuity of care	Provision of care over time with a given service or health professional
CHC	Community Health Centres
Community-rated premium	The premium charged by an insurer for all people covered by the same type of health insurance policy, without regard to age, gender, health status, occupation or other factors
Co-morbidity	The presence of one or more additional disorders (or diseases) co-occurring with a primary disease or disorder
Co-payment	A fixed amount (e.g. \$15) paid for a covered healthcare service, usually when obtaining the service. The amount can vary with the type of covered healthcare service
ED	Emergency Department
EHR	Electronic Health Record
Elective admission	Admission to hospital that has been arranged in advance
Exclusion rate	Associated with the number of people or patients excluded from a study due to the defined exclusion criteria
FHG	Family Health Groups
FHN	Family Health Networks
FHO	Family Health Organization
FFS	Fee for Service
GP	General Practitioner
Global-payment model	Fixed-dollar payments for the care that patients may receive in a given time period, such as a month or year
HSO	Health Service Organization

Term	Definition
ICP	Integrated Care Project
ISLHD	Illawarra Shoalhaven Local Health District
Integrated care	The management and delivery of health services so that clients receive a continuum of preventive and curative services, according to their needs over time and across different levels of the health system
Intermediate care	Community-based health and social services that promote independence, prevent hospital admission and/or enable early discharge, provided by a team including nurses, therapists and care assistants under a consultant's supervision
KP	Kaiser Permanente
Multi-disciplinary	A group of healthcare workers who are members of different disciplines, each providing specific services to the patient
NHHRC	National Health and Hospitals Reform Commission
NHMRC	National Health and Medical Research Council
NHS	National Health Service
NCQA	National Committee of Quality Assurance
Optometry	A healthcare profession concerned with the eyes and related structures, as well as vision, visual systems and vision information processing in humans
Outcome indicator	Attempts to describe the effects of care on the health status of patients and populations, e.g. improvements in a patient's knowledge, changes in a patient's behaviour, and patient experience.
Out-patient clinic	A hospital healthcare facility that is primarily devoted to the care of ambulant patients
P4P	Pay for Performance
Pay-for-performance scheme	Different payment designs in healthcare that give financial incentives to clinicians for better health outcomes
PCMH	Patient Centered Medical Home
PCCPC	Patient-Centered Care Primary Care Collaborative
PCP	Primary Care Practice
PHN	Primary Healthcare Network
PMPM	Per Member Per Month
Preventive care	A focus on the health of individuals, communities and defined populations, the goal being to protect, promote and maintain health and well-being, and to prevent disease, disability and death
Primary care	A patient's main source for regular medical care, ideally providing continuity and integration of healthcare services
Process indicator	An indicator denoting what is actually done in giving and receiving care, i.e. the practitioner's activities in making a diagnosis, recommending or implementing treatment, or other interaction with the patient

Term	Definition
PROMETHEUS	Provider Payment Reform for Outcomes, Margins, Evidence, Transparency, Hassle Reduction, Excellence, Understandability and Sustainability
QI	Quality Improvement
QoF	The Quality and Outcomes Framework: a type of performance-related fee for GPs in the United Kingdom
Salary	A fixed regular payment, typically paid on a monthly basis but often expressed as an annual sum, made by an employer to an employee, especially a professional or white-collar worker
SCR	Summary Care Record
Shared savings	A payment strategy that offers incentives for provider entities to reduce healthcare spending for a defined patient population by offering the providers a percentage of any net savings realised as a result of their efforts
SHI	Statutory Health Insurance
Standardised rate	The requirement that the age-specific rates for all populations being studied are available and that a standard population is defined
Statistically significant	The likelihood that a result or relationship is caused by something other than random chance
Sub-acute care	A level of care needed by a patient who does not require hospital acute care, but who requires more intensive skilled nursing care than is provided to the majority of patients in a skilled nursing facility
Team-based care	At least two healthcare providers working collaboratively with patients and their caregivers to provide high-quality, coordinated care
Universal healthcare	A healthcare system that provides healthcare and financial protection to all citizens of a particular country. It is organised around providing a specified package of benefits to all members of a society, with the end goal of providing financial risk protection, improved access to health services and improved health outcomes.

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INTRODUCTION

The 2015 Australian Government's Intergenerational Report has predicted that the Australian population will double by 2055.¹ A greater proportion of the population will be aged 65 and over, and there will be fewer people of the traditional working age compared to the very young and elderly.¹ As the population ages, consumer patterns are likely to change. For example, older people tend to spend a greater proportion of their income on health services than younger people and this proportion has been rising over time.¹ Thus, the projected large increases in demand for healthcare, the associated expenditure and the recognised inequities in access to services and health outcomes provide cause for growing concerns about sustainability in the Australian health system.¹

It is well recognised that the Australian health system is under pressure. Australian health expenditure is projected to increase from 4.2% of GDP in 2014–2015, to 5.5% of GDP in 2054–2055.¹ Furthermore, the real health expenditure per person is projected to more than double over the next 40 years from \$2,800 to \$6,500 annually, a figure which is not considered economically sustainable.¹ A key factor behind the increase in health expenditure is the growing prevalence of chronic disease and multi-morbidity in Australia, both of which increase with age.² For example, an Australian study exploring general practice electronic data reported that the prevalence of multi-morbidity increased with age, with 83% of patients aged 75 years or older identified as having one or more chronic diseases.³ Multi-morbidity and co-morbid chronic diseases place a greater burden on individuals, communities and healthcare services, and are of concern to policymakers and clinicians who seek to improve health service delivery.

To achieve reform to enable efficient and effective healthcare, the different levels of government need to work together; however, the reality is that Australia's health system is fragmented, with complex divisions in funding responsibilities and performance accountabilities between different levels of government hindering timely and effective change in the system.⁴ The National Commission of Audit Phase 1 Report (2014) recommended that a medium-term solution to healthcare funding reform would be to increase private insurer involvement in primary care, particularly in chronic disease management.⁵ Private health insurers work closely with a range of allied health workers and hospital medical services that support different chronic

diseases. By expanding their coverage to primary care settings, the private health insurers could provide greater incentives for efficient and cost-effective health management through deregulating price-setting;⁵ however, there has been limited research into the effectiveness of this model in Australia.

The integration of health services, embedding early prevention into care processes and improving primary care chronic disease management were also recommended in the report of the National Health and Hospitals Reform Commission (NHHRC) (2009).⁴ The government-funded Diabetes Care Project, a pilot of different coordinated care models for diabetes, was implemented in 2011 in a response to these recommendations.⁶ The pilot involved allied health teams, general practitioners and practice nurses within a publicly funded model; however, there is uncertainty around the pilot's cost-effectiveness.⁶ Results from the pilot reported that the intervention group delivered positive clinical outcomes with improved diabetes control;⁶ however, it cost \$203 more per person per year compared to the control group.⁶ Additionally, chronic disease payments to general practitioners and allied health providers increased significantly. Although there was a reduction in the cost of hospitalisations of \$461 per patient in the intervention group, this was not statistically significant.⁶

Private health insurers and health services have been encouraged to provide access to evidence-based, consumer-friendly information to support people in understanding and making decisions about their use of health services by the NHHRC.⁴ Private health insurers have also been identified as having a potential role in chronic disease management in primary health care.⁵ In response, Peoplecare has commissioned a report to investigate successful international models that integrate cost-effective care across different health services in order to develop an evidence base that can be used to inform the development of new models of care in the Australian context. This report recommends a pathway for service innovation in primary care over the short and long term, grounded in the current evidence.

Peoplecare has articulated a series of values that would need to underpin the successful translation of any new model of care. These values are considered critical to successful implementation and acknowledge the challenge of engagement across sectors in new approaches to care. Key values underpinning Peoplecare's approach to implementing any new models of care include:

- **Fairness.** Any model of care must provide all patients, irrespective of their insurance status, with appropriate access to care based on their clinical needs.
- **Trust.** Relationships must be built on trust and a common belief that improved health is the responsibility of all.
- **Respect.** Effective models of care must be established through meaningful relationships across sectors that respect each other's roles and a belief that we can work together to achieve our mutual objectives.
- **Shared risk.** Any changes in risk created by new models of care must be acknowledged and that risk shared appropriately.
- **Accountability.** It must be recognised that all parties are accountable for contributing to health and financial outcomes that support a sustainable health system for Australia.
- **College-endorsed pathways.** Clinical excellence and leadership must be seen as critical to the translation of any new model of care.
- **Transparency.** The interests, objectives and outcomes achieved in transitioning to new models of care must be declared, measured and reported transparently across all parties.
- **Excellence in medical care.** New models of care must be informed by best practice, be evidenced based and provide quality care.

This paper details a principles-based review of international primary care models, outlines the key principles that inform the different models, and discusses two models of care involving private health insurers that could be implemented in Australia.

PART 1: REVIEW OF THE LITERATURE



A principles-based review of the current literature was conducted from January to April 2015. Uniform searches were conducted using *Scopus*, a major international medical literature database. Material was included if it was published from 2006 through April 2015 in a peer-reviewed journal, in English or with a translation in English, and in directly detailed finance models of primary care systems in the Netherlands, Canada-Ontario, United Kingdom and USA.

Initial search terms used to guide the searches are listed in the box below. Combinations of these search terms were used to generate lists of articles that were scrutinised for papers relevant to the search purpose. Using keywords from the research papers, a standardised search algorithm was developed, as outlined below.

Initial Search Terms

"The Netherlands" OR ("Canada" OR "Ontario")
("United Kingdom" OR "UK") OR "Kaiser
permanente" OR "Shared savings model"
AND ("primary care" OR "general practice"
OR "family practice" OR "primary health care")
AND ("structure" OR "model" OR "finance"
OR "experiences" OR "payment" OR "funding"
OR "policy")

Results

As of April 2015, two hundred and twelve papers were identified that directly detailed finance models of primary care systems in the Netherlands, Ontario-Canada, United Kingdom and USA.

Number of articles found
using search terms

5998

Relevant articles to review

212

Figure 1. Total number of articles searched and relevant to review



United Kingdom

Healthcare coverage in the United Kingdom is universal, with all residents entitled to healthcare that is largely free at the point of use through the NHS.⁷ Most GPs are private contractors operating under a national contract and are paid using a mixture of capitation, contract payments for specific services such as running influenza clinics, and performance-related bonuses mostly linked to care for people with long-term conditions.⁷ The bonuses account for about one-quarter of GPs' income.⁸

The Quality and Outcomes Framework (QoF) was introduced in 2004 as a pay-for-performance scheme that aimed to reward doctors based on the quality and outcomes of their treatment.⁹ GPs received financial rewards on top of their salaries if they managed to reach certain targets in healthcare quality, process and outcome. The QoF program has been costly and has been funded with substantial additional funds rather than by restructuring an existing payment system.⁸ Each QoF point amounts to £133.76. After the first year of the program, GPs met 96.7% of the clinical targets and received payments amounting to an average of a £23,000 increase in the annual income of individual physicians.^{8,10,11}

Reviews of the scheme have led to differing opinions on its effectiveness. Some studies say there were modest, cost-effective reductions in mortality and hospital admissions in some domains.¹² Some doctors reported improved data recording and teamwork, and an enhancement of nurses' specialised skills.^{9,13} Deprived areas benefited more from QoF compared to non-deprived areas, as it improved equity and access to care.^{8,14-19}

The impact of physician incentives in the NHS Quality and Outcomes Framework case studies also led to a shift in physician behaviour, which meant that other areas of care were neglected.²⁰ For example, the study by Campbell et al. (2009) identified that initially the scheme accelerated short-term improvements in quality for two to three chronic conditions; however, once the targets were reached the improvement in quality of care for patients with these conditions slowed. Other studies also suggest that the person-centredness of consultations and continuity of care were negatively affected, in particular for patients with chronic diseases.^{12,13,15,17} This scheme was implemented nationally with no control areas, and therefore its total impact was impossible to measure.

Other efforts to reduce hospital admissions and increase access to care have included providing after-hours, walk-in centres which have received high patient satisfaction and reports of 90% of patients having complied with advice received from the clinics.²¹ Intermediate care has been implemented less successfully due to short-term funding and lack of

collaborative services.²² Additionally, different eHealth initiatives to improve continuity of care within practices, and between secondary and allied care health services, have been trialled.²³⁻²⁷

More recently, pilot studies have been under way to investigate how integrated care can work within different primary health networks in England. Funding from the Department of Health was £127,000–£289,000 per integrated care project (ICP) to cover start-up costs, evaluation activity and other expenses resulting from participation in the pilot program.²⁸ Different target populations for the pilots included: the elderly (11 ICPs); people with chronic conditions, especially if at risk of hospital admissions (7 ICPs); people with dementia or mental health problems (4 ICPs); people at risk of falling (3 ICPs); and people needing end-of-life care (3 ICPs).^{18,29-31} In the outer north-west London pilot, practices developed an increased emphasis on identifying high-risk patients and proactively managing their care.³¹ Patients found the experience of care planning valuable, with 96% identifying that the conversations they had in the practice would improve their own efforts in self-management.³⁰ The pilot studies also built professional relationships across organizational boundaries and enhanced multi-disciplinary learning;³⁰ however, they were deemed time consuming by the health professionals.³¹

Preliminary results on the cost-effectiveness of the pilots

Results of the integrated pilots and their cost-effectiveness have focused on hospital utilisation through (re)admission rates, length of stay or admission days, and emergency department visits.²⁹⁻³² The National Evaluation of the integrated pilots identified a significant increase in costs for emergency admissions, although there were also significant reductions in costs for elective admissions and outpatient attendances.³² Rand Europe and Ernst and Young LLP (2012) reported a non-significant reduction in overall secondary care costs (£37 per patient/service user, $p = 0.36$).

The Netherlands

Since 2006, all residents have been required to purchase statutory health insurance (SHI) from private insurers.⁷ The SHI system under the Health Insurance Act is financed through a nationally defined, income-related contribution, and through community-rated premiums set by each insurer where everyone with the same insurer pays the same premium, regardless of age or health status.⁷ The income-related contribution is set at 7.75% of up to €50,853 of annual taxable income (as of 2013).⁷

The GP is the central figure in primary care, although other primary care providers include dentists, midwives and physiotherapists. Hospital care and specialist care (except emergency care) are accessible only upon

GP referral, with only 4% of appointments resulting in a referral to secondary care.⁷ All citizens are registered with a GP of their choice, usually in their own neighbourhood.

Information exchange across providers via electronic health records (EHR) is an essential element of an integrated approach to care that promotes a consistent and reliable care experience.³³ A strong example of this is evident in the Netherlands after-hours model, accessible via telephone, which is supported by a nurse triage and physician. About 6% of cases are referred to hospital, while the rest are managed via phone (60%) or via a house visit by the physician (25%). This model has had strong physician support, with GPs reporting increased job satisfaction.³⁴ Patients have also reported that they have been satisfied with the after-hours care model.^{34,35}

The Dutch bundled-payment scheme aimed to improve multidisciplinary collaboration, improve healthcare and also the affordability of healthcare for patients with chronic diseases, including diabetes and chronic obstructive pulmonary disease, and for patients at vascular risk.³⁶ Under the bundled-payment scheme, insurers pay a single fee to a contracting entity, the care group, to cover all of the primary care needed to manage a chronic condition. The care groups are often exclusively owned by general practitioners who assume both clinical and financial responsibility on the basis of bundled-payment contracts.³⁶ A care group either subcontracts other care providers, such as general practitioners, practice nurses, dietitians and specialists, or delivers the contracted care itself.³⁷

The price for the bundle of services is freely negotiable by insurers and care groups, and the fees for the subcontracted care providers are likewise freely negotiable by the care group and providers.³⁶ This allows flexibility in developing the different models; however, the negotiable nature of the bundled payments has led to various problems and price variations.^{38–40} For example, prices ranged from €258 to €474 per patient per year for diabetes bundled payments.³⁷ The bundled payments initially led to a 25% decline in use of hospital-based specialist care, which resulted in savings of approximately €36 per patient per year;⁴¹ however, despite these initial savings, specialist care costs increased over time, with the annual cost per patient increasing to €142 more than the control group in the study.¹⁰

Despite these cost implications, many studies have shown improvements in diabetic patient care through the bundled-payment system.^{38,40–42} Struijs et al. (2012) found a modest improvement visible on most process indicators. Most outcome indicators improved as well. Patients' blood pressure and cholesterol levels improved by 6 and 10 percentage points, respectively, within the bundled-payment group. Patients also expressed positive judgments regarding the cooperation and coordination between their various healthcare providers. More than 90% rated those qualities as good or excellent, a percentage that has remained stable over time. De Bruin (2013) evaluated the relationship between presence and nature of co-morbidity and quality of care for diabetes patients enrolled in diabetes disease management programs provided by care groups. Experiences of patients with integration of diabetes care did not differ significantly between patients with and without co-morbidity. According to De Bruin, the single-disease approach in the bundled-payment system and in the disease management program did not interfere with how diabetes care was being delivered.

Canada

Healthcare is universal in Canada, with Canadian provinces and territories responsible for administering their own universal health insurance programs. Most physicians are self-employed in private practices and paid on a fee-for-service basis; however, over the past decade there have been primary healthcare reform initiatives throughout Canada, which have involved movement towards group practices and a shift from unitary physician payment methods (mainly fee-for-service) to payment arrangements that include blends of fee-for-service, capitation, salary, or payments per session.⁴³ There have also been targeted payments designed to encourage or reward the provision of priority services.

In 2010–2011, fee-for-service payments made up 50% of payments to GPs in Ontario, compared with 70% in Quebec and 86% in British Columbia.⁴³ This is due to several reform initiatives in Ontario targeting inter-professional primary healthcare models (in the form of Community Health Centres (CHC), Health Service Organization (HSO), Family Health Groups (FHG) and Family Health Networks (FHN)), and a shift towards a mixture of capitation and activity-based payments rather than a global-payment model.^{43,44}

Characteristic	Community Health Centre (CHC)	Fee for Service		Capitation	
		Traditional FFS	Reformed FFS Family Health Group (FHG)	Health Service Organization (HSO)	Family Health Network (FHN)
Year introduced	1970s	—	2004	1970s	2001
Physician remuneration	Salary	Fee for service	Fee for service and incentives (blended-payment model)	Capitation and incentives	Capitation with 10% FFS component and incentives (blended-payment model)
Multidisciplinary	Extensive	None	None	Some	Some
Patient enrolment	Required; no limit to patient roster	Not required	Required; no limit to patient roster	Required; disincentive to enrol more than 2400 patients	Required; disincentive to enrol more than 2400 patients
Incentive for enhanced preventive care	None	None	Yes Colorectal cancer screening	Yes Four different preventive care and chronic disease management incentive schemes	Yes Four different preventive care and chronic disease management incentive schemes

Table 1. Characteristics of payment reform models in Ontario, adapted from Dahrouge (2013)

Progressive population-based bonuses provide incentives for preventive services such as Papanicolaou smears, influenza immunisations and colorectal cancer screening. The physician receives Can\$2,200 if 50% of patients over 50 years have a faecal occult blood test for colorectal cancer, and Can\$4,400 if 70% of these patients are screened.⁴⁶ A growing, but still limited, body of evidence suggests that the payment models and incentives introduced in Ontario are improving preventive care delivery, chronic disease management, physician productivity, and access to care.⁴⁷

Pay-for-performance incentives integrated in physician contracts have been found to improve care. Physicians in the Family Health Group (fee-for-service-based and incentives blended-payment model) were found to provide more services and visits, saw more patients, made fewer referrals, and treated more complex patients than did traditional fee-for-service physicians.⁴⁸ Howard and colleagues (2008) also observed a lower six-month prevalence of emergency department use by patients of Family Health Network physicians (capitation-based with 10% FFS and incentives blended-payment model), compared with patients of physicians in traditional fee-for-service practices and in the FFS and incentives blended-payment model. As shown in Table 1, common features in blended-payment

models include: patient enrolment; eligibility for a set of performance-based incentives such as preventive care bonuses; special payments for providing targeted services; and chronic disease management incentives. Saying this, current reviews of the pay-for-performance incentives found that the incentives only appeared to be effective when they were preventive care services that were linked to consistent medical guidelines.^{10,46,50}

USA

Kaiser Permanente

The current Kaiser Permanente (KP) healthcare culture is built on a closed-group model⁵¹ where practitioners are salaried and work in conjunction with the KP health plan, which owns some hospitals where the KP physicians practice. Kaiser has 8.2 million members in California, Colorado, Georgia, Hawaii, Maryland, Ohio, Oregon, Virginia, Washington and the District of Columbia.⁵² In Northern California, a range of health services and benefits are provided by the service provider KP, including hospitals, ambulatory care, preventive care, sub-acute care, accident and emergency care, as well as optometry, rehabilitation and home health care, although an individual's coverage (eligibility to access those services) depends on their chosen health plan.⁵³

The KP-managed care insurance program is different from other health management organizations' programs in that it places a strong emphasis on preventive care and reducing costs later on. KP's doctors are salaried rather than paid per service, which removes the main incentive for doctors to perform unnecessary procedures. Research centres have also been built into the model as a way to monitor quality improvement of the different preventive care initiatives.⁵¹ Furthermore, KP also attempts to minimise the time patients spend in high-cost hospitals by carefully planning their stay and by shifting care to outpatient clinics. Some comparison studies have shown how this integrated model compares with other international models of care.^{54,55} It was found in a comparison study by Ham (2003) that bed-day use in the NHS for the eleven leading causes is three and a half times that of KP's standardised rate; almost twice that of Medicare California's standardised rate; and more than 50% higher than the standardised Medicare rate in the United States. Compared with the Danish Health Care System, KP had a population with more documented disease and higher operating costs, while employing fewer physicians and resources such as hospital beds. Observed quality measures also appeared higher in KP.^{53,56}

Kaiser Permanente has a shared electronic health record (EHR) system called HealthConnect. After the implementation of the EHR there were 28.80 (5.54%) fewer ED visits per 1000 patients per year. Use of the EHR was also associated with a significantly decreased overall rate of hospitalisations (5.21% fewer).⁵⁷ KP's HealthConnect resulted in 5.54% fewer ED visits per 1000 patients per year. Another component of HealthConnect is that patients can access their own health records via My Health Manager; although following its activation, members with such access had increased rates of office visits, telephone encounters, and acute-care services compared with a matched cohort of members without online access.⁵⁸

Patient Centered Medical Homes

The Patient Centered Medical Homes (PCMH) is a team-based healthcare delivery model, led by a physician, which provides comprehensive and continuous medical care to patients, with the goal of obtaining maximised health outcomes.⁵⁹ Care coordination is an essential component of the PCMH. The patient has a single medical 'home' whether the medical needs are primary or secondary, preventive, acute or chronic care. It requires additional resources such as IT and appropriately trained staff to provide coordinated care through team-based models.⁶⁰

The PCMH is a care-delivery concept rather than a payment concept, meaning that practices can mould the model to their own practice. Due to this, there has been a wide variation in how each PCMH has been implemented, which makes comparison of the effectiveness of the model difficult between states;^{59,61}

however, it has also enabled strong models that integrate risk-adjusted, shared-savings bundled care to develop initiatives such as PROMETHUS, a bundled payment which provides for all the care a patient needs over the course of a defined clinical episode, instead of paying for each discrete service and the private health insurer Gesinger's ProvenCare episodic model.^{62,63} Nonetheless, these models have also required a long lead-in time for implementation in GP practices.⁶²

Accountable Care Organizations use a shared-savings model with bundled payments as an integral aspect of the way they organise care coordination for PCMHs.^{62,64-66} Compared to the Dutch bundled-payment system, which targets specific chronic diseases in primary care and outpatient care, the US bundled-payment initiative is targeted at inpatient and post-acute care.⁴⁰ The bundled payments are prospective and risk-adjusted to reflect differences in the case mix of patients being treated.⁶² A report from the Patient-Centered Care Primary Care Collaborative (PCPC) described decreases in the cost of care, such as per-member per-month costs, return on investment and total cost of care, in 61% of peer-reviewed papers and 57% in industry-generated studies.⁶⁷ Thirteen of eighteen Accountable Care Organizations also achieved savings-to-earn bonuses totalling \$76 million, which resulted from \$140 million in total Medicare savings, before some adjustments.⁶⁷ Further financial benefits are outlined in Table 5. A lesson learnt from the shared-savings model is that the increased reimbursement resulting from this payment structure must be sufficient to support the initial and sustained practice redesign and clinical work associated with effective management of patients in a variety of practice settings.⁶⁸

Another lesson learnt is that operating as a medical home requires increased non-reimbursed activity (e.g. care team meetings, patient self-management education, care coordination, data analysis and communication with other clinicians) and care management.⁶⁹ Numerous studies have shown that change fatigue can arise from the implementation of the PCMH model due to these practice changes.^{64,70-72}


A key feature of successful PCMH is shared electronic health records. To ensure that PCMH improves the quality of care, the NCQA in the US has set standards that GP practices must meet before gaining PCMH recognition.⁷³ The standards focus on setting up ways for the practice to improve communication and patient continuity of care, as well as ways to improve patient tracking and practice performance, with a focus on improved electronic health record management systems.⁷³ Some papers reported that practices found that improved electronic health systems provided useful links to sending targeted letters to patients, as well as producing population reports of their patients and point-of-service reminders in the patient portal.^{64,74,75} Berryman et al. (2013) reported that the use of EHR

also improved practice efficiency and decreased time spent documenting patient care. One drawback of this was that it took a long time to achieve, and it was only by the eighteenth month that the practices were able to receive these benefits.

Key features that drive primary care performance from the literature

The key features that drive primary care performance extracted from the review have been synthesised in tables outlined in Part 2. An iterative process was used to allow the identification of robust principles underlying the finance models within each health system. The positive features and negative features of each system have been summarised, highlighting the specific process and clinical outcomes achieved, as well as financial implications.



A woman with long dark hair, wearing a light pink button-down shirt, is smiling and looking down at her hand. A doctor in a white coat is using a white glucometer to test her finger. The doctor's hands are visible, and a gold watch is on the woman's left wrist. The background is a plain, light-colored wall.

PART 2:
KEY FEATURES
THAT DRIVE
PRIMARY CARE
PERFORMANCE

Table 1: United Kingdom

Positive features	Process/Clinical outcome	Negative features	Process/Clinical outcome	Financial implication
<p>The Pay for Performance (P4P) Quality Outcomes Framework (QoF) improved the quality of care for patients with some chronic diseases for the short term.</p> <p>QoF was associated with improved patient access to practices and improved clinical quality.</p> <p>QoF increased care and equity across ethnic groups.</p> <p>QoF benefited more disadvantaged areas and so, by implication, health inequalities were improved.^{8,9,13-19}</p>	<ul style="list-style-type: none"> ▪ Doctors reported improved data recording and teamwork. ▪ Improved the quality of care for asthma and diabetes for the short term. ▪ Increased the role of IT in practices. ▪ Changed roles and relationships among staff. ▪ Improved patient access and clinical quality, particularly in CHD management results, showed intermediate clinical outcomes. ▪ Three characteristics associated with higher QoF scores: training practices; group practices; and practices in less socially deprived areas. 	<p>Once the targets of the QoF were reached, the improvement in the quality of care for patients with these conditions slowed.</p> <p>Continuity of care declined.</p> <p>Practices became focused on meeting the QoF targets rather than patient needs.</p> <p>Patients were no longer individuals but a collection of measurable indicators.</p> <p>Exception reporting needed to be audited and enforced to avoid fraudulent behaviour.</p> <p>Greater deprivation was associated with marginally higher exclusion rates, some of which may have been inappropriate.</p> <p>Patient dumping.</p> <p>Resentment of team members not benefiting financially from QOF payments.</p> <p>Financial spending on primary care alone did not improve patient outcomes.</p> <p>Diabetic patients from disadvantaged backgrounds did not feel their needs were met.^{12,14-16,19,76,77}</p>	<ul style="list-style-type: none"> ▪ Low correlations with interpersonal aspects of care were reported by patients. ▪ Increases in reported QoF achievement between years two and three were associated with concurrent increases in exclusion rates. ▪ The potential existed for deskilling of GPs as a result of the enhanced role for nurses in long-term conditions. ▪ The additional money became part of the doctors' income as employers and owners of the practices, regardless of the nurses' contribution to achieving the QoF targets. ▪ Exception reporting by practices was not extensive but was a strong predictor of QoF achievement. ▪ 45% of patients reported unmet support and information needs at diagnosis of diabetes. 	<ul style="list-style-type: none"> ▪ There were modest, cost-effective reductions in mortality and hospital admission in some domains. ▪ There were weak links between primary care investment and health outcomes. ▪ The UK program is costly and was funded with substantial additional monies rather than by restructuring existing payment systems. ▪ A clear baseline is needed to avoid paying for improvements that have already occurred. ▪ Each QoF point is worth £133.76. ▪ After the first year of the program, GPs met 96.7% of the clinical targets and received payments amounting to an average of a £23,000 increase in the annual income of individual physicians.^{8,10,11}

Positive features	Process/Clinical outcome	Negative features	Process/Clinical outcome	Financial implication
<p>Integrated pilots were able to address regional problems and develop collaborative care of practices in an area.^{20,28,30,54}</p>	<ul style="list-style-type: none"> ▪ Different target populations for the pilots included: the elderly (11 ICPs); people with chronic conditions, especially if at risk of hospital admissions (7 ICPs); people with dementia or mental health problems (4 ICPs); people at risk of falling (3 ICPs); and people needing end-of-life care (3 ICPs). ▪ In the outer north-west London pilot, practices developed increased emphasis on identifying high-risk patients and proactively managing their care. ▪ Patients found the experience of care planning valuable, with 96% identifying that the conversations would improve their own efforts in self-management. ▪ Professional relationships were built across organizational boundaries and enhanced multi-disciplinary learning, but were deemed time consuming by the health professionals. 	<p>Curry et al. (2013) found that the pilot in outer north-west London did not achieve the reduction in emergency admissions they were hoping for.³¹</p>	<ul style="list-style-type: none"> ▪ The increase in emergency admissions in the pilot was less than that in outer north-west London, but greater than the change at national level and in south-west London. ▪ The intervention group did not exhibit any significant changes in emergency admissions ($p = 0.056$), accident and emergency attendances ($p = 0.195$), costs of emergency admissions ($p = 0.101$) or total inpatient costs. ▪ Patients also reported that involving them and listening to their preferences were not taken into account in the pilot. 	<ul style="list-style-type: none"> ▪ Funding was £127,000–£289,000 per ICP from the Department of Health to cover start-up costs, evaluation activity and other expenses resulting from participation in the pilot program. ▪ Busse (2014) investigated costs per patient per year: ▪ Based on six pilots. The value shown is the sum of values from mixed results on several components: emergency admissions, \$276; elective admissions, –\$529; and outpatient care, –\$106 (all dollar amounts are rounded). ▪ Based on fifteen pilots. The value shown is the sum of values from mixed results on several components: emergency admissions, \$143; elective admissions, –\$204; and outpatient care, –\$32.

Positive features	Process/Clinical outcome	Negative features	Process/Clinical outcome	Financial implication
<p>Providing after-hours, walk-in centres in the UK helped improve patient access to care.²¹</p>	<ul style="list-style-type: none"> ▪ Patients were highly or fairly satisfied with the service. ▪ 90% of patients also reported complying with the advice given. ▪ 50% reported that their reason for using the service was having GP access without an appointment. ▪ 9% reported that they used the service because their GP surgery was closed. ▪ 20% reported being unable to see their own GP because of their work hours. 	<p>Different eHealth and electronic record initiatives have not been successful in assisting access to patients' history for different events such as after-hours, walk-in clinics. This is due to lack of clinician motivation to use the systems or the lack of the GP practices to promote the initiatives to patients.²³⁻²⁷</p>	<ul style="list-style-type: none"> ▪ There were significant technical and social barriers to adoption of a summary care record (SCR) that is shared between GP practices, after-hours care and secondary care. ▪ Challenges were found in engaging clinicians, training staff, informing patients, and delays in technical solutions. ▪ SCR access was poor in secondary care due to mistrust of the data available. ▪ Poor use of this resulted in a reliance on the GP which accounted for 15% of variance in use of SCR. ▪ Consultations were longer in those practices using SCR. ▪ For each 10% increase in same-day appointments, there was an 8% reduction in patient satisfaction. 	
		<p>Intermediate care in the UK was impacted by a lack of awareness by patients and practices, as well as a lack of collaborative services and short-term funding.²²</p>	<ul style="list-style-type: none"> ▪ GPs were reluctant to provide medical cover for intermediate care facilities due to heavy workload and lack of incentives. ▪ There existed a shortage of care workers and rehabilitation assistants. 	

Table 2: The Netherlands

Positive features	Process/Clinical outcome	Negative features	Process/Clinical outcome	Financial implication
<p>Pay for Performance can have motivational effects on GPs; however, the incentive should be linked with innovation and provide incentive to continue to improve patient care rather than only providing incentive for one period of time.⁷⁸</p>	<ul style="list-style-type: none"> ▪ Feedback on performance was seen as confirmation of the normal GP routine. ▪ If feedback was unexpected and at times difficult for practices to deal with, it often resulted in plans for improvement. ▪ Most GPs saw the bonus as a stimulus to improve quality and felt appreciated by the bonus. 	<p>Pay for Performance in primary care had substantial time implications and impacted on GP behaviour in different ways.⁷⁸⁻⁸⁰</p>	<ul style="list-style-type: none"> ▪ Data collection took substantial time investment, especially for the measures of clinical care. ▪ Practices had difficulty extracting data on performance. ▪ There was no uniformity to patient registration in the P4P scheme. ▪ GPs were unsure whether they had received the bonus. ▪ There were differences in GP opinions about the effectiveness of the bonus. Some thought it had no influence, while others saw the bonus as a stimulus to improve quality and perform better next year. ▪ GPs stated that they didn't want to give detailed information on their performance to insurers, fearing that the information might be used for sanctions or penalties. ▪ One unintended consequence mentioned was 'gaming' the system, which can be caused by a fear or loss of reputation. ▪ GPs felt they had developed tunnel vision, which meant they focused on those aspects of care that were incentivised, leaving other aspects neglected. 	<ul style="list-style-type: none"> ▪ The average bonus per practice was about €7500, or roughly 5% of total turnover.⁸⁰

Positive features	Process/Clinical outcome	Negative features	Process/Clinical outcome	Financial implication
<p>The bundled-payment system makes it possible for different elements of care for specific chronic diseases to be purchased, delivered and billed as a single product or service. ^{38,40–42,81,82}</p>	<ul style="list-style-type: none"> ▪ A modest improvement was visible on most process indicators, which suggested mild to moderate improvement. Most outcome indicators improved as well, e.g. the percentage of patients whose blood pressure or cholesterol level improved by 6 and 10 percentage points, respectively. ▪ Patients expressed positive judgments regarding the cooperation and coordination between their various healthcare providers. More than 90% rated those qualities as good or excellent, a percentage that has remained stable in recent years. ▪ Experiences of patients with integration of diabetes care did not differ significantly between patients with and without co-morbidity. ▪ Coordination among care providers improved, as did protocol adherence, attendance at multidisciplinary consultations, and further training of subcontracted providers to facilitate protocol-driven work processes and use of the electronic health record. ▪ A major facilitator of bundled care was the prominent role of the practice nurse. ▪ Nearly 40% fewer diabetes management patients used diabetes-specific specialist services. 	<p>The negotiable nature of the bundled payments led to various problems and price variations. ^{10,37–41}</p>	<ul style="list-style-type: none"> ▪ There were large price variations in the bundled fees across groups, as a consequence of the free negotiations between care groups and insurers. ▪ The subcontracted caregivers felt that their relationships with the care group were distorted by the group's substantial market power. In particular, questions were raised about the potential conflict of interest of GPs, since in all care groups, GPs are simultaneously commissioning and providing care. ▪ Working with single-disease bundled payments for specific chronic conditions might result in a compartmentalised healthcare delivery system for patients with co- or multi-morbidity. A global-payment approach could be a solution. ▪ Care groups encountered considerable red-tape issues created by the need to sign contracts with multiple insurers. ▪ There were also issues in assigning correct payments to subcontractors when more than one bundled payment was applicable to patients with other chronic conditions. ▪ GPs perceived the bundled-payment system as a barrier to diabetes care; as it is not suited to chronic disease, it leads to egoism and higher costs and makes care less transparent. 	<ul style="list-style-type: none"> ▪ Use of hospital-based specialist care for diabetes declined by almost 25%, which resulted in savings of US\$47 per patient per year compared to the control group. ▪ However, total costs for specialist care increased by US\$189 more than in the control group because patients were referred to specialists later, when they needed more complex care. ▪ Total annual costs per patient increased by US\$388 more than in the control group. ▪ The curative costs for diabetes patients (average age 67) were about €4800 in 2009. General practice costs for diabetes patients came to approximately €400 per year. The largest cost categories pertained to hospital-based specialist care (€2500) and pharmacy products (€1100). ▪ The cost increase for patients transferring to bundled payments did not significantly diverge from the increases for patients transferring to care as usual, or staying in the management-fee arrangement.

Positive features	Process/Clinical outcome	Negative features	Process/Clinical outcome	Financial implication
<p>Information exchange across providers via electronic health records (EHR) is an essential element of an integrated approach to care that promotes a consistent and reliable care experience.³³⁻³⁵</p>	<ul style="list-style-type: none"> A strong example of how shared EHR was successfully implemented is evident in the Netherlands after-hours model accessible via telephone, which is supported by a nurse triage and physician. About 6% of cases are referred to hospital, while the rest are managed via phone (60%) or via a house visit by the physician (25%), indicating strong physician support and increased job satisfaction. Patients were satisfied with the after-hours care.⁶⁻⁷ 	<p>Concerns have been expressed for the safety of patients at Primary Care Practice cooperatives because of the high patient throughput, the wide diversity of clinical conditions presented, the use of nurses for telephone triage, and the limited availability of information about a patient's medical history. Moreover, PCPs work in shifts and collaborate with other healthcare providers. This increases the risk of errors caused by discontinuity in information transfer.³⁴</p>	<ul style="list-style-type: none"> The distances to patients' homes increased, with possible negative consequences for patient safety. The average waiting time was 30 minutes. Nearly 90% of all patients were visited within one hour. In the subgroup of patients with life-threatening health problems, 70% were reached by the PCP within the time target of 15 minutes. 	

Table 3: Canada

Positive features	Process/Clinical outcome	Negative features	Process/Clinical outcome	Financial implication
Formal patient enrolment in some Canadian models assists in the continuity of care of patients and reduced ED visits. ⁴⁸		Places an administrative burden on the practices. ⁴⁸	<ul style="list-style-type: none"> Respondents described patient rostering as having created an administrative burden, worsened by not being able to prevent patients from switching physicians. 	
The involvement of nurses in primary care practices enhances patient coordination.	Nil reported	Nil reported	Nil reported	Nil reported
Blended-capitation models improve access to care and outperform fee-for-service models in a number of areas. ^{49,83}	<ul style="list-style-type: none"> A lower six-month prevalence of emergency department use by patients of FHN physicians (capitation-based, blended-payment model), compared with patients of physicians in fee-for-service-based, blended-payment model and traditional fee-for-service practices. The FHO model had a significant positive impact on the preventive care bonuses. The mixed-payment model reduced billable services and visits by about 6%. Prevention scores were significantly lower in practices in the FFS compared to the capitation model. 	Physicians may treat complex patients but not roster the patients as part of their practice.		<ul style="list-style-type: none"> Capitation levels are based on the province's previous fee-for-service experience and divided into 38 levels by age and sex. The initial average annual capitation rate was Can\$124.64 per year – ranging from Can\$58.58 for a male patient aged 15 to 19 years to Can\$444.96 for a female patient aged 90 years. Additional annual payments are provided for patients with chronic diseases, such as diabetes (Can\$60 per year), serious mental disease (Can\$60), and heart failure (Can\$125).⁵⁰

Positive features	Process/Clinical outcome	Negative features	Process/Clinical outcome	Financial implication
<p>Pay for Performance incentives integrated in physician contracts can improve quality of care.⁴⁸</p>	<ul style="list-style-type: none"> ▪ FHG (fee-for-service-based, blended-payment model) physicians provided more services and visits, saw more patients, made fewer referrals, and treated more complex patients than did traditional fee-for-service physicians. ▪ The Ontario Pay for Results initiative gave financial incentives to hospitals to reduce wait times for non-urgent visits. ▪ Twenty-three hospitals were able to reduce the time non-urgent patients spent in the ED by 29%. ▪ FHG physicians have lower referral rates and treat slightly more complex patients compared to FFS physicians. The FHG also provides a wide range of comprehensive care services. 	<p>P4P incentives are only effective when the targeted performance or tasks are strongly linked to professional standards of high-quality care.^{10,46,50}</p>	<ul style="list-style-type: none"> ▪ Physicians tend to be more responsive to P4P incentives targeted at preventive care services, which are unquestionably consistent with medical guidelines of providing high-quality care. Future implementations of P4P incentives could be confined only to these services. ▪ Changing physicians' payment methods may facilitate, but does not ensure, change in the organization and delivery of care. ▪ Statistically significant increases in the mean agreement scores indicate that the established target levels and bonuses provided appropriate financial incentives to substantially increase the uptake of mammography. 	<ul style="list-style-type: none"> ▪ Progressive population-based bonuses provide incentives for preventive services, such as mammograms, Papanicolaou smears, influenza immunisation and colorectal cancer screening. The physician receives Can\$2,200 if 50% of patients older than 50 years have faecal occult blood testing for colorectal cancer, and Can\$4,400 if 70% are screened. Codes for each preventive service are submitted to the billing agency to determine the percentage of registered patents receiving the preventive procedure. Physicians may bill for the costs of sending reminders to support contacting patients about preventive services. ▪ The Pay for Results incentive was allocated US\$55.5 million to give incentives to 46 hospitals to meet specific targets and reduce patient waiting time.
<p>Capitation-based practices provide more equitable chronic disease management and immunisations than FFS practices.⁸⁴</p>	<ul style="list-style-type: none"> ▪ Women attending FFS practices but not capitation-based models were significantly less likely to have received recommended care for chronic diseases. 			
<p>Community Health Centres provide more comprehensive services than other models.^{47,85,86}</p>	<ul style="list-style-type: none"> ▪ Community orientation was present in higher levels in CHCs than in other models. ▪ Practice size and diversity of providers seemed to partially explain the better performance of CHCs. ▪ Rate of health promotion was significantly higher in CHCs than in other models. 			

United States of America

Table 4: Patient Centered Medical Homes (PCMH)

Positive features	Process/Clinical outcome	Negative features	Process/Clinical outcome	Financial implication
<p>Patient-centred care can lead to reductions in hospitalisations and ED visits.</p> <p>Patient-centred care can improve access to care, better prevention and better chronic care.</p> <p>Medical providers for PCMH had lower levels of burnout compared to providers not engaged in medical homes.^{59,61,67,72,87,88}</p>	<ul style="list-style-type: none"> The largest mean increases were seen in the following PCMH functional domains: preventive services (4% increase in preventative care); linkage to community services (4.6% increase in quality of care); and specialist referral process. Relative to the comparison group, total Medicare payments (25% lower than comparison group), acute care payments (27% lower than comparison group) and the number of emergency room visits (21% lower than comparison group) declined after a practice received NCQA PCMH recognition. The decline was larger for practices with sicker-than-average patients, primary care practices and solo practices. Reductions were seen in the use of unnecessary or avoidable services such as ED or urgent care visits (reported by 61% peer-reviewed papers and 57% industry-generated studies), inpatient admissions (reported by 31% peer-reviewed papers and 57% industry-generated studies) and hospital readmissions (13% of peer-reviewed papers and 29% of industry-generated studies). 	<p>There was a wide variation in how PCMH was implemented, making comparison of the effectiveness of the model difficult between states.</p> <p>Change fatigue can arise from the implementation of the PCMH model.</p> <p>Geographical challenges can arise when linking a constellation of patient-centred services.^{59,61,64,70,74}</p>	<ul style="list-style-type: none"> It was difficult to conclude precisely what specific aspects of PCMH affected ED use. A barrier to good team-based care was the reliance on part-time staff in the model, which led to reduced continuity of care and staff motivation. There were no improvements in patient-rated outcomes. Patient ratings of the practices' PCMH attributes did not differ between groups and, in fact, diminished in both of them. 	<ul style="list-style-type: none"> PCMH can lead to better health outcomes at a lower cost. Decreases in the cost of care, such as per-member per-month costs, return on investment and total cost of care, were reported by 61% in peer-reviewed papers and 57% in industry-generated studies (PCCPC). NCQA PCMH Recognition fees range from \$210 to under \$150 per clinician per year, and almost all practices receive some type of discount. For example, practices receive a 20% discount when sponsored by payers, and 10–20% if they are part of a multi-site group. Alexander et al. (2015) found that a mean per-member per-month (PMPM) cost for adults receiving care in study practices increased from \$413.00 (SD = \$262.85) from July 2009 through June 2010 to \$447.50 (SD = \$289.31) from July 2011 through June 2012. After multi-variable adjustment, full PCMH implementation at the beginning of the study year was associated with \$16.73 lower PMPM cost for adult patients in the following year compared with no level of PCMH implementation at the beginning of the study year. They used a chronic-care PCMH model.

Positive features	Process/Clinical outcome	Negative features	Process/Clinical outcome	Financial implication
	<ul style="list-style-type: none"> ▪ In a study of seven PCMH demonstrations, Fields et al. showed annual reductions in hospitalisations (6% to 40%) and emergency department (ED) visits (7.3% to 29%), suggesting improvements in quality, and total annual savings ranging from \$71 to \$640 per patient. ▪ PCMH-treated paediatric and adult groups had lower rates of both ED visits and hospitalisations compared with the non-PCMH cohort. ▪ Among chronically ill patients, transition to PCMH status was associated with 5–8% reductions in ED utilisation. 			<ul style="list-style-type: none"> ▪ Payment reforms are growing in popularity and vary among payers, but are most often characterised by a traditional FFS component coupled with an additional care management payment. Additional payment models include shared-savings models, bundled payments and partial or full capitation.⁶⁷ ▪ In all-payer or multi-payer initiatives, payers align around a single payment and reporting methodology for clinicians, simplifying reimbursement and reducing administrative burden.
<p>Education for practices is important when implementing a new model of care and needs leadership from clinicians or managers for successful implementation.⁷⁵</p>		<p>Communication of a new model to staff and patients is very important, as it can otherwise lead to poor teamwork.⁷⁰</p>	<ul style="list-style-type: none"> ▪ Group visits were unsuccessful due to a lack of time and support, and a sense that they were not valued enough to justify the financial incentive. 	<ul style="list-style-type: none"> ▪ Van Hasselt et al. (2015) found that total annual Medicare payments for practices that received NCQA PCMH recognition declined by \$265 ($p < 0.05$) relative to comparison group practices. The majority of this decline, 62% (\$164, $p < 0.05$), can be attributed to a relative decline in payments to acute-care hospitals.

Positive features	Process/Clinical outcome	Negative features	Process/Clinical outcome	Financial implication
<p>Electronic Medical Records (EMR) are a vehicle for communication among team members.^{64,74}</p>	<ul style="list-style-type: none"> ▪ In practices it was useful to send targeted letters to patients, e.g. flu-shot reminders, providing a link to produce population reports and point-of-service reminders in the patient portal. ▪ Use of EMR improved efficiency and decreased the time spent on documentation in the eighteenth month of the study by Berryman et al. (2013). 	<p>EMR has the potential to distract attention from interpersonal aspects of care.⁷⁰</p>	<ul style="list-style-type: none"> ▪ Using the e-visits aspect of the national demonstration project (physician-patient interaction, including virtual/electronic visits which occur over a safe, secure, online communication system), EMR was not efficient and was difficult to conduct. ▪ The initial monetary cost and stress of implementing an EMR are considerable. Negotiating the EMR was the primary reason 53% of physicians left private practice for employment in 2000–2012. 	<ul style="list-style-type: none"> ▪ Embedded care management in EMR had an impact on positive cost savings.⁶¹

Table 5: Accountable Care Organizations – Shared-Savings Model

Positive features	Process/Clinical outcome	Negative features	Process/Clinical outcome	Financial implication
<p>Interim results of the shared-savings model showed positive savings among the practices involved in the program.^{68,89-91}</p> <p><i>Fast facts ACO</i></p>	<ul style="list-style-type: none"> ▪ 404 Shared Savings Program ACOs and 19 Pioneer ACOs. ▪ Interim financial results released on the Medicare Shared Savings Program ACOs show that, in their first 12 months, nearly half (54 out of 114) of the ACOs that started program operations in 2012 already had lower expenditures than projected. ▪ Many made their numbers. Eighteen Pioneers held spending somewhat in check, including thirteen that achieved enough savings to earn bonuses totalling \$76 million. That resulted from \$140 million in total Medicare savings, before some adjustments. ▪ Spending was lower and quality of care better for Medicare beneficiaries served by larger independent physician groups with strong primary care orientations in environments where healthcare providers accepted greater risk. 	<p>Not all of the practices met their cost targets, and some experienced</p>	<ul style="list-style-type: none"> ▪ Fourteen of the Pioneers did not meet their cost targets. Two experienced overspending so significant that they will have to repay Medicare a combined \$4.5 million, according to an early CMS estimate. Nonetheless, five Pioneers with losses during the first year will continue in the program. ▪ The risk of losses contributed to the decision by some ACOs to leave the Pioneer program. These decisions appeared to be driven by factors particular to each organization, including willingness to accept risk and local market issues. ▪ The first year did not measure quality against performance benchmarks, though ACOs were evaluated and rewarded based on reporting quality measures. The use of benchmarks to measure quality performance began in year two, which started in January. 	<ul style="list-style-type: none"> ▪ 7.92 million assigned beneficiaries in 49 states plus Washington, DC and Puerto Rico. ▪ For an ACO to qualify for the bonus, the ACO's average per capita Medicare expenditures must fall below this benchmark by a given percentage, known as the Statutory Minimum Savings Rate, which varies from 2.0% to 3.9%, depending on an organization's size. ▪ Costs for the nearly 670,000 Medicare beneficiaries served by Pioneer ACOs grew by just 0.3% in 2012, compared with 0.8% for a comparable patient population. After the shared savings are paid out to the ACOs, the Pioneers will have produced an estimated net savings to Medicare of \$33 million for 2012. ▪ Of the 54 ACOs that exceeded their benchmarks in the first 12 months, 29 generated shared savings totalling more than \$126 million. ▪ In addition, these ACOs generated a total of \$128 million in net savings for the Medicare Trust Funds. ACOs share with Medicare any savings generated from lowering the growth in healthcare costs while meeting standards for high-quality care. ▪ The ten demonstration sites combined saved \$171 (2.0%) per assigned beneficiary person-year during the five-year demonstration period. Medicare paid performance bonuses to the participating PGPs at an average of \$102 per person-year. The net savings to the Medicare program were \$69 (0.8%) per person-year.

Table 6: Kaiser Permanente

Positive lesson	Process/Clinical outcome	Negative lesson	Process/Clinical outcome	Financial implication
<p>KP patients spend less time in hospital compared to the NHS.⁵⁴</p>	<ul style="list-style-type: none"> Patients who spend a third less time in hospital compared to the NHS (bed-day use in the NHS for the eleven leading cases is three and half times that of KP's standardised rate) experienced more comprehensive and convenient primary care services and had much more rapid access to specialist services and hospital admissions. 	<p>KP does not provide good psychiatric or dental cover.⁵²</p>	<ul style="list-style-type: none"> In comparison with KP, the NHS provides greater coverage in dental and psychiatric services. 	
<p>KP integrates inpatient care and outpatient care, which enables patients to move easily between hospitals and the community.⁵⁴</p>	<ul style="list-style-type: none"> Attitudinal differences exist among KP GPs, as they have an interest in minimising hospital stays because they share responsibility for the success of the program. GPs who work for KP also have fast access to diagnostic services in the outpatient setting, thereby avoiding patients staying in hospitals. 			<ul style="list-style-type: none"> In 2004, the revenues were distributed as follows: members' dues 71%; Medicare 22.3%; and co-payment, deductibles, fees and other revenues 6.7%.⁵³ These are paid to the Kaiser Foundation Health Plan, which contracts with the for-profit Permanente Medical Groups and the Kaiser Foundation Hospital, which runs medical centres in California, Oregon and Hawaii, and outpatient facilities throughout the regional entities.
<p>KP had particularly lower rates of preventable hospitalisations and readmissions associated with chronic conditions. Primary care clinicians also reported clinical integration more than GPs in Denmark.^{53,56}</p>	<ul style="list-style-type: none"> For all five conditions (COPD, heart failure, diabetes, hypertension and angina) together, the 2007 age- and gender-standardised hospitalisation rates were 2.5 times higher in the DHS compared with KP. 			<ul style="list-style-type: none"> A 2004 study of outcomes in Northern California reported mixed results: costs increased at a lower rate in disease-managed groups of patients with a particular chronic condition than in a comparison group of patients without the condition.⁵¹

Positive lesson	Process/Clinical outcome	Negative lesson	Process/Clinical outcome	Financial implication
<p>Integrated patient pathways are facilitated by a team-based approach and by multi-speciality medical centres.⁹³</p>	<ul style="list-style-type: none"> In KP practices, a high proportion (67%) of patients are enrolled in disease-management programs. This is because KP practices have adopted value system-level care-management tools. This proportion is much higher than that of independent physician associations and small practices in California. 			
<p>Information exchange across providers via electronic health records (EHR) is an essential element of an integrated approach to care that promotes a consistent and reliable care experience.⁵⁷</p>	<ul style="list-style-type: none"> A study that focused on the impact of electronic health records introduction and its impact on ED visits, hospitalisations and office visits for patients with diabetes mellitus found that after implementation of EHR there were 28.80 (5.54%) fewer ED visits per 1000 patients per year. Use of the EHR was also associated with a significantly decreased overall rate of hospitalisations (5.21% fewer). 			
<p>Information exchange across providers is possible via the operational EMR, 'KP HealthConnect'. This allows for multiple-patient panel management and two-way patient contact.⁵³</p>		<p>Another component of HealthConnect is that patients can access their own health records via My Health Manager; however, following its activation, members with such access had increased rates of office visits, telephone encounters and acute-care services compared with a matched cohort of members without online access.⁹⁴</p>	<ul style="list-style-type: none"> Members who sign up for online access may have greater health concerns that influence healthcare contact rates. 	

KEY PRINCIPLES UNDERPINNING COST EFFECTIVE MODELS OF PRIMARY CARE FUNDING

This review has identified a number of key principles that are used internationally which support cost effective primary care. These principles may influence models of primary care funding in Australia and are outlined below.

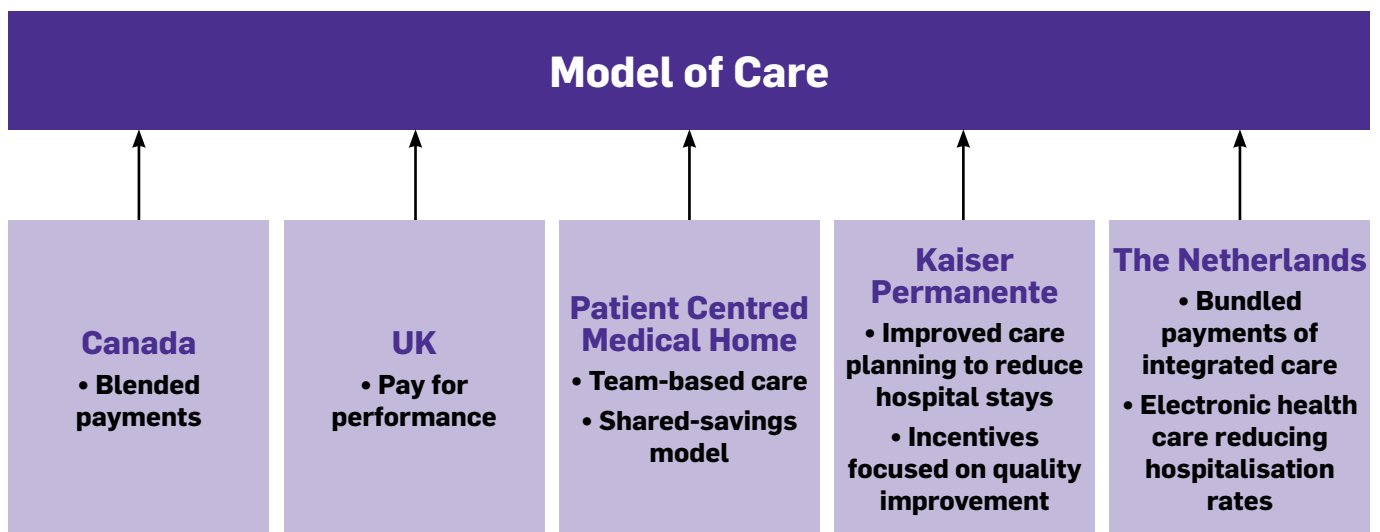


Figure 2. Principles informing models of primary care funding



FUNDING MODELS

Following the review of the literature and identification of key principles, two models are proposed as pathways for service innovation in primary care in the Australian context. These provide potential short- and long-term models integrating private insurers into a

primary care approach. These models, strategies and detailed scenarios of how they could be implemented in practices are detailed in the next two sections of this report.

Model A: Bundled-payment model

The proposed bundled payments focus on common long-term conditions impacting Australians. Back pain/problems/disc disorders affect 12.7% of the Australian population, and diabetes 7.6% of the population.⁹⁵

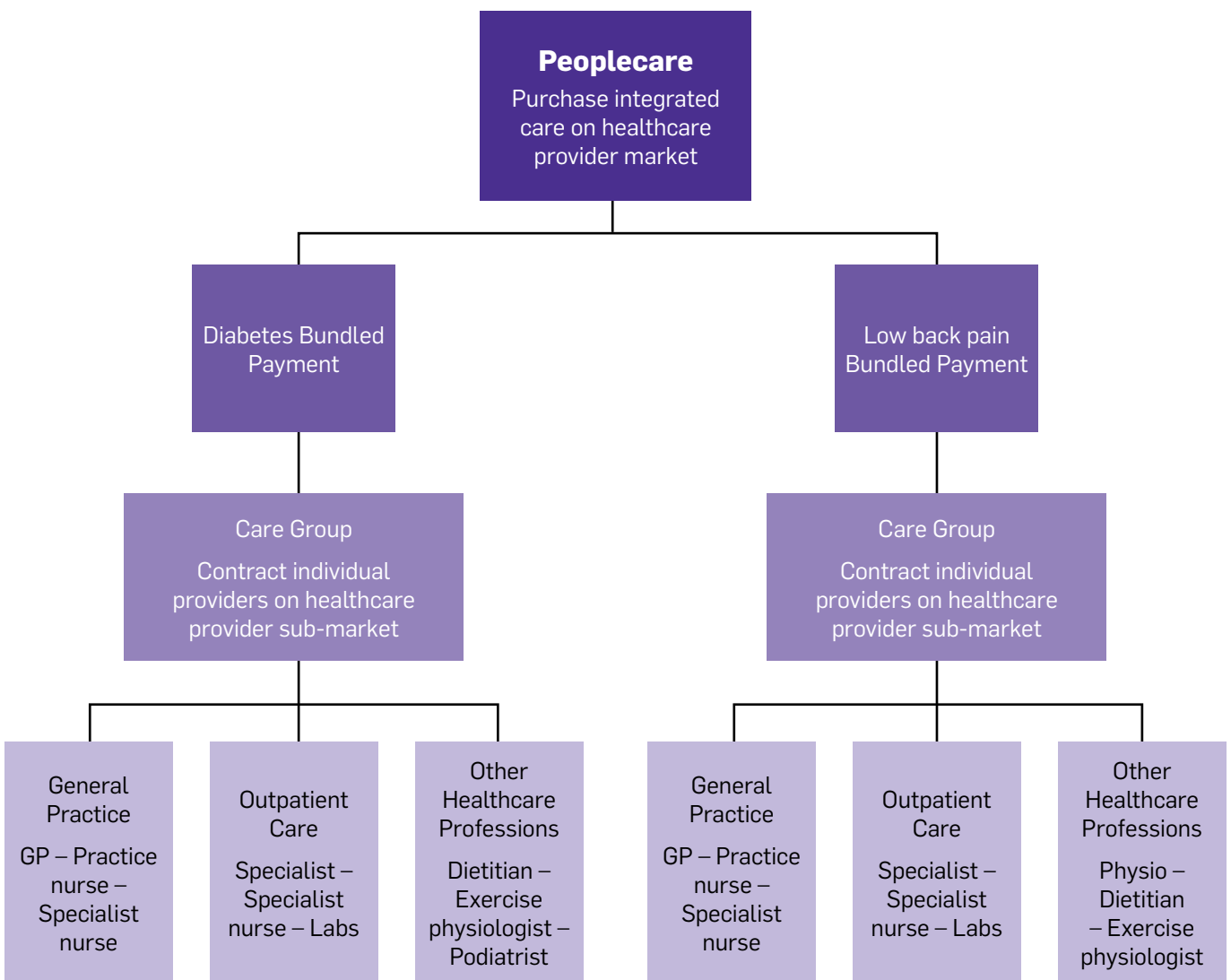


Figure 3. Pilot bundled-care model structure using the Netherlands model of bundled care, adapted from Tsiachristas et al. (2011)

Table 7: Bundled-Payment Model Strategy and Risks

Strategy	Risks	Financial implications	Initiative
Facilitate the exchange of patient medical information through integrated electronic health information.	<ul style="list-style-type: none"> ▪ Significant technical and social barriers to adoption of EMR. ▪ Challenges found in engaging clinicians and delays in technical solutions.²³ 		<ul style="list-style-type: none"> ▪ Shared EMR. ▪ Assist in improving continuity of care and data available for after-hours care.
Reduce physician clinical and resource variation through quantitative analysis and targeted interventions.	<ul style="list-style-type: none"> ▪ Clarity is required regarding what services are included in the bundle, what triggers a bundle and when the bundle ends. ▪ Bundled payment often requires new arrangements for assigning accountability because care may involve several providers, including physicians and allied health.⁶² ▪ Working with single-disease bundled payments might result in a compartmentalised healthcare delivery system.¹⁰ ▪ Issues in assigning correct payments to subcontractors when more than one bundled payment is applicable.^{38,82} 	<ul style="list-style-type: none"> ▪ Variability in price of bundled payment if care group (led by GPs who contract other providers such as physiotherapists, nutritionists, etc., to be a part of the 'care group' for the particular disease bundle) negotiates price.³⁷ ▪ Issues in assigning correct payments to subcontractors when more than one bundled payment is applicable. ▪ Physicians tend to be more responsive to P4P incentives targeted at preventive care services.⁸⁰ ▪ A clear baseline is needed to avoid paying for improvements that have already occurred.⁸ 	<ul style="list-style-type: none"> ▪ Reduce emergency department costs and use by shifting non-emergency visits to urgent-care clinics or primary care providers. ▪ Develop programs to include clinical pathways, care planning, and adherence. ▪ Educate and monitor physicians on accepted protocols. ▪ Educate and monitor practice nurses on accepted protocols.

How long does it take to set up bundled payments? What are the benefits?

Bundled payments appear to take a relatively short time to implement, according to the Netherlands experience. From September 2009 to March 2010, approximately 80% of general practitioners were participating as part of a care group, with 100 care groups established during that time.⁴⁰ The key benefits of bundled payments include greater integration of care sectors, better transparency of delivered care and fewer hospitalisations.

Does Australia have appropriate payment systems in place for bundled payments to function?

It is likely that bundled payments could be implemented for privately insured patients. The only prohibition at present is that private insurance cannot reimburse a GP; however, the nurse and allied health provider could be reimbursed by private insurance (we believe) and the GP still claim Medicare for their own consultations. For non-insured patients, current arrangements under Medicare (GP Management Plan, Team Care Arrangement and EPC referral to the allied health providers for up to five visits per year in total) would still apply, with the patient benefiting from the improved care pathway.

Expected outcomes

- Improved coordination among care providers, improved protocol adherence, attendance at

multidisciplinary consultations, further training of subcontracted providers to facilitate protocol-driven work processes and use of the electronic health record to coordinate care.^{37,38,81,82}

- A modest improvement on most process and outcome indicators.^{41,42} (Experiences in the Netherlands saw mild to moderate improvement on most process and outcome indicators, e.g. the percentage of patients whose blood pressure or cholesterol level improved by 6 and 10 percentage points, respectively.⁸²)
- Fewer patients receiving diabetes management or lower back pain management utilising outpatient or inpatient hospital-based care. For example, in the Netherlands about 17% fewer patients receiving diabetes management utilised outpatient or inpatient hospital-based care than usual care patients.⁸¹
- A reduction in patients using chronic-disease-specific services. For example, nearly 40% fewer diabetes management patients used diabetes-specific specialist services in the Netherlands (a total of 365,004 patients were enrolled in the program from 2007–2010).⁸¹ The reduced numbers of diabetes management patients using specialist care resulted in a slight saving of €36 per patient in the cost of diabetes-specific specialist care in 2009.⁸¹

Bundled-Payment Model Scenario

- Jill White, a patient with diabetes, and Bob Smith, a patient with acute new onset of lower back pain, both call the practice to arrange consultations with their GP.
- The patients are identified by the reception staff as having conditions that are eligible for management supported by a bundled payment from their private insurer, and are registered in the practice care-pathways software. The practice manager is notified via a programmed prompt from the care-pathways software to commence the process of a care-pathway, bundled-payment service for the patient.
- The patients' care is mapped against an agreed care pathway, which enables activation of a generic set of best-evidence management options and triggers periodic checks by the practice nurse to monitor the patients' progress.
- At their first consultation the patients each see the practice nurse, who informs the patient of current evidence-based best practice and works with the patient on implementing that into the patient's own situation and goals (for example, how the patient will manage transport to the doctor/specialist/allied health practitioner). The nurse has an information pack which includes patient information, e.g. a pain scale for Bob Smith and a diet guide for Jill White.
- Once a generic map of the patient's care has been discussed and the patient has had time to review the options and pathways, the patient then sees the GP. The nurse provides the GP the information he/she has discussed, e.g. the patient's pain scale, whether the patient is taking medication, whether the patient has had a referral to allied health before, etc. The GP then applies the best evidence to the diagnostic and management pathway the patient has been presented with, in accordance with the patient's goals and medical and social context. The best-evidence information is on a sheet in the bundled-payment pack and part of the care-pathways software.
- According to best practice and patient preferences, follow-up is organised within the bundled payment – a diabetes educator and dietitian for Jill, and a physiotherapist and exercise physiologist for Bob.
- Following the consultations, the nurse contacts the allied health professionals involved to arrange a case conference via video link-up (10–15 minutes). A management plan is then arranged, including specified follow-up with the various persons involved in the team.
- The GP then follows up in four weeks' time to assess progress, and either continues or alters the pathway (escalate or de-escalate). This review then re-occurs at two and three months, if required. As Bob's pain has resolved, a follow-up is arranged with the physiotherapist at six months to help prevent a recurrence. Jill has good glycaemic control by three months and is scheduled for regular practice-nurse review at three-monthly and GP review at six-monthly intervals.
- The goals are rapid control of symptoms and clinical parameters; avoidance of unnecessary investigations and medications; optimal, efficient use of multi-disciplinary care; prevention of complications; and avoidance of hospitalisation.

Model B: PCMH model

Trials of this model should focus on targeting a small number of GP practices to assess the structural changes required to improve the management of all major diseases encountered in primary care.

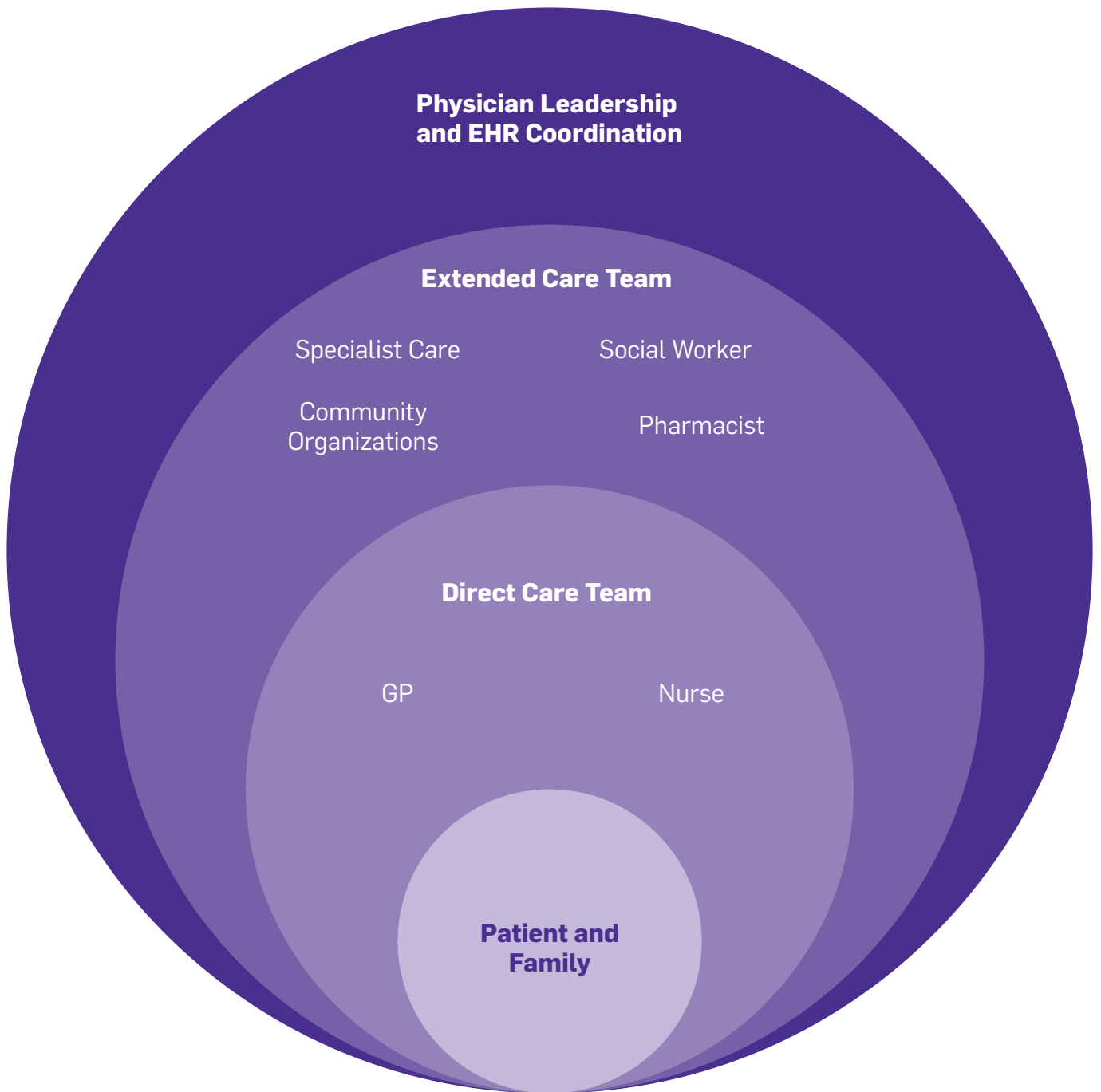


Figure 4. PCMH Model

Table 8: PCMH Strategy and Risks

Strategy	Initiative	Risks	Financial implications
Personalise care and disease management to eliminate unnecessary or non-evidence based care.	<ul style="list-style-type: none"> ▪ <i>Patient-centred care.</i> Develop a comprehensive care program across hospital, physicians and care managers to engage patients and their families. ▪ <i>Team-based integrated care,</i> centred on patients, can improve patient self-management, coordination of their care and comprehensive health treatments. ▪ <i>Targeted incentives.</i> Implement home-based medical care for all major conditions of primary care. ▪ <i>Shared-savings model,</i> used to provide more comprehensive care or improve the coordination of care by upskilling physicians or practice nurses. 	<ul style="list-style-type: none"> ▪ Education for practices is important when implementing a new model of care.⁹⁷ ▪ Implementation requires leadership from clinicians or managers.⁷⁵ ▪ Geographical challenges can arise.⁵⁹ ▪ Change fatigue can arise from the implementation of the PCMH model. ▪ Risk of practice overspending if using the shared-savings model.⁹² ▪ The use of benchmarks to measure quality performance should be implemented at the beginning of the pilot, not introduced later in the scheme.⁶⁵ ▪ Raising patient awareness of the PCMH changes in practices is important.⁷⁴ 	<ul style="list-style-type: none"> ▪ NCQA PCMH Recognition fees range from \$210 to under \$150 per clinician per year, and almost all practices receive some type of discount.⁶⁷ ▪ The ten demonstration sites combined saved \$171 (2.0%) per assigned beneficiary person-year ($p < 0.001$) during the five-year demonstration period.⁶⁸ ▪ Use of hospital-based specialist care for diabetes declined by almost 25%. ▪ Total costs for specialist care increased because patients were referred to specialists later, when they needed more complex care.
Facilitate the exchange of patient medical information through integrated electronic health information.	<ul style="list-style-type: none"> ▪ Shared EMR. ▪ Appropriate information technology that links patient data will assist in improving continuity of care and data available for after-hours care. 	<ul style="list-style-type: none"> ▪ Using e-visits is not efficient and is difficult to conduct.⁶⁴ ▪ The initial monetary cost and stress of implementing an EMR are considerable.⁷⁰ 	

How long does it take to set up a PCMH? What are the benefits?

The primary care collaborative reported that the average time required for a practice to convert to a Medical Home model in the USA was between one year and eighteen months (53% of practices took this long), and 35% of practices took from eighteen months to over two years to establish the PCMH.⁶⁷ Papers detail that it can take as long as five years to see noticeable results; however, with appropriate software, practices may be able to reduce the time required.^{61,64,74} The key benefits include better quality of care, less inequality in healthcare and health, better population health and lower costs.

Does Australia have appropriate payment systems in place for PCMH to function?

The current Australian medical financing system doesn't support our interpretation of the PCMH, as the GP is required to physically see the patient for any episode to attract a Medicare payment in Australia. Australia also has under-developed systems of care pathways, except for the major chronic illnesses.

While private insurers may pay for the allied health professional to be the first point of contact, there is no provision in Medicare for this. While funding mechanisms in Australia as they currently stand do not support this model, it is possible that experience with bundled payments may create an environment where change to the PCMH model may be achievable.

Expected outcomes

- Increased quality of care through linkage to preventive services and community services, and implementation of specialist referral processes.^{59,61,63}
- Lower cost of medical care, e.g. total annual savings in the USA ranged from \$71 to \$640 per patient.⁸⁷
- Reduction in the use of unnecessary or avoidable services such as ED or urgent-care visits, inpatient admissions and hospital readmissions.^{59,67} Particularly among chronically ill patients in the USA, transition to PCMH status was associated with a 5–8% reduction in ED utilisation.⁸⁸
- Better integration of clinical IT into practice workflow, which increases practice productivity by coordinating patient care.^{60,61,64,74}

Patient-Centred Medical Home Model Scenario

- The patient comes into the practice and, depending on the condition they have, their first contact will differ, determined by the comprehensive suite of care pathways the practice has developed.
- Patient with diabetes (Jill White): The first contact will be the nurse.
- Patient with low back pain (Bob Smith): The first contact will be the physiotherapist.
- That first contact carer (the nurse or the physiotherapist) is then responsible for that episode of care and coordinates it as per the care pathway for the presenting condition.
- Diabetes: If Jill is having trouble with her insulin injections, the nurse can provide patient education and training in self-injection; however, if it is a dietary problem or an exercise problem, the nurse will refer Jill inside the medical home model (which is either onsite or a preferred provider close to the practice).
- Low back pain: The nurse will make the appointment for Bob or walk him down the hall to the dietician or exercise physiologist, as needed.
- The GP reviews and agrees to the guidelines from which the nurse or physiotherapist is working.
- In some cases, the patient will see the GP first, e.g. for an undifferentiated presentation, medication complication or serious acute condition.
- The practice has systems across a comprehensive suite of conditions for all patients, as opposed to a set of agreed conditions as with the bundled payments. The physician still has global responsibility for the outcomes of the patient, is provided with reports routinely regarding the progress of the patient, and takes overall responsibility for the welfare of the patient.
- Continuous professional development, incentives for reaching quality outcome measures and shared savings help drive high performance across the practice.



CONCLUSIONS AND RECOMMENDATIONS

This report outlines key principles drawn from international, cost-effective primary care models, which include: blended payments; pay for performance; bundled payments of integrated care; shared electronic health care; team-based care; the shared-savings model; improved care planning; and incentives supporting quality improvement. Each of these principles has been trialled in international settings, and has also influenced the publicly funded Diabetes Care pilot in Australia. Further, private health insurer involvement in chronic disease management has been

identified by the Commission of Audit as a medium-term solution to improving coordination of care. The current review proposes two models as potential pathways by which private health insurers could be integrated into primary care in Australia, with bundled payments being feasible within current Medicare constraints. Bundled payments may provide a mechanism by which PCMH implementation in Australia is possible in the longer term. Further implementation research is required to assess feasibility in Australia.



REFERENCES

1. Commonwealth of Australia 2015 Intergenerational Report Australia in 2055. In: Australia Co, editor. March 2015 edn. Australia;; 2015. *Commonwealth of Australia*
2. Holden L, Scuffham PA, Hilton MF, Muspratt A, Shu-Kay N, Whiteford HA. Patterns of multimorbidity in working Australians. *Population Health Metrics*. 2011;9:15–9.
3. Islam MM, Valderas JM, Yen L, Dawda P, Jowsey T, McRae IS. Multimorbidity and Comorbidity of Chronic Diseases among the Senior Australians: Prevalence and Patterns. *PLoS ONE*. 2014;9(1):1–11.
4. National Health and Hospitals Reform Commission. A Healthier Future For All Australians – Final Report. In: Commission *NHaHR*, editor. *ACT: Australian Government*; 2009.
5. Commonwealth of Australia. Towards Responsible Government – The Report of the *National Commission of Audit Phase 1*. In: *Audit NCo*, editor. *ACT: Australian Government*; 2014.
6. McKinsey and Company. Evaluation Report of the Diabetes Care Project. In: *Australian Government*, editor. *ACT*2015.
7. The Commonwealth Fund. International Profiles of Health Care Systems, 2013. *The Commonwealth Fund*, 2013 November 2013. Report No.: Pub No. 1717.
8. James M, Stokes E. Spending by primary care practices – does it show what we expect? *International Journal of Health Planning and Management*. 2014;29(3):244–59.
9. Checkland K, Harrison S. The impact of the Quality and Outcomes Framework on practice organization and service delivery: Summary of evidence from two qualitative studies. *Quality in Primary Care*. 2010;18(2):139–46.
10. Wilson KJ. Pay-for-performance in health care: What can we learn from international experience. *Quality Management in Health Care*. 2013;22(1):2–15.
11. Wilkinson E, Randhawa G, Singh M. Quality improvements in diabetes care, how holistic have they been? A case-study from the United Kingdom. *International Journal for Equity in Health*. 2014;13(1).
12. Gillam SJ, Niroshan Siriwardena A, Steel N. Pay-for-performance in the United Kingdom: Impact of the quality and outcomes framework – a systematic review. *Annals of Family Medicine*. 2012;10(5):461–8.
13. Ashworth M, Armstrong D. The relationship between general practice characteristics and quality of care: A national survey of quality indicators used in the UK Quality and Outcomes Framework, 2004–5. *BMC Family Practice*. 2006;7.
14. Campbell SM, Reeves D, Kontopantelis E, Sibbald B, Roland M. Effects of Pay for Performance on the Quality of Primary Care in England. *The New England Journal of Medicine*. 2009;361(4):368–78.
15. Llanwarne NR, Abel GA, Elliott MN, Paddison CAM, Lyratzopoulos G, Campbell JL, et al. Relationship between clinical quality and patient experience: Analysis of data from the English quality and outcomes framework and the national GP patient survey. *Annals of Family Medicine*. 2013;11(5):467–72.
16. Campbell SM, McDonald R, Lester H. The experience of pay for performance in English family practice: a qualitative study. *Annals of Family Medicine*. 2008;6(3):228–34.
17. Millett C, Gray J, Wall M, Majeed A. Ethnic disparities in coronary heart disease management and pay for performance in the UK. *Journal of General Internal Medicine*. 2009;24(1):8–13.
18. Harris M, Greaves F, Patterson S, Jones J, Pappas Y, Majeed A, et al. The North West London Integrated Care Pilot: Innovative strategies to improve care coordination for older adults and people with diabetes. *Journal of Ambulatory Care Management*. 2012;35(3):216–25.
19. Doran T, Fullwood C, Kontopantelis E, Reeves D. Effect of financial incentives on inequalities in the delivery of primary clinical care in England: analysis of clinical activity indicators for the quality and outcomes framework. *The Lancet*. 2008;372(9640):728–36.
20. Addicott R, Ham C. Commissioning and funding general practice: making the case for family care networks. London: *The King's Fund*, 2014.
21. Arain M, Nicholl J, Campbell M. Patients' experience and satisfaction with GP led walk-in centres in the UK; A cross sectional study. *BMC Health Services Research*. 2013;13(1).
22. Regen E, Martin G, Glasby J, Hewitt G, Nancarrow S, Parker H. Challenges, benefits and weaknesses of intermediate care: Results from five UK case study sites. *Health and Social Care in the Community*. 2008;16(6):629–37.

23. Greenhalgh T, Stramer K, Bratan T, Byrne E, Russell J, Potts HWW. Adoption and non-adoption of a shared electronic summary record in England: A mixed-method case study. *BMJ (Online)*. 2010;340(7761):1399.
24. Flynn D, Gregory P, Makki H, Gabbay M. Expectations and experiences of eHealth in primary care: A qualitative practice-based investigation. *International Journal of Medical Informatics*. 2009;78(9):588–604.
25. Godden DJ, King G. Rational development of telehealth to support primary care respiratory medicine: Patient distribution and organizational factors. *Primary Care Respiratory Journal*. 2011;20(4):415–20.
26. May CR, Finch TL, Cornford J, Exley C, Gately C, Kirk S, et al. Integrating telecare for chronic disease management in the community: What needs to be done? *BMC Health Services Research*. 2011;11.
27. Sampson F, Pickin M, O’Cathain A, Goodall S, Salisbury C. Impact of same-day appointments on patient satisfaction with general practice appointment systems. *British Journal of General Practice*. 2008;58(554):641–3.
28. Busse R, Stahl J. Integrated care experiences and outcomes in Germany, the Netherlands, and England. *Health Affairs*. 2014;33(9):1549–58.
29. Wilkinson T, North M, Bourne SC. Reducing hospital admissions and improving the diagnosis of COPD in Southampton City: Methods and results of a 12-month service improvement project. *npj Primary Care Respiratory Medicine*. 2014;24.
30. Roberts S, Unadkat N, Chandok R, Sawtell T. Learning from the Integrated Care Pilot in West London. *London Journal of Primary Care*. 2013;5:34–7.
31. Curry N, Harris M, Gunn L, Pappas Y, Blunt I, Soljak M, et al. Integrated care pilot in north-west London: a mixed methods evaluation. *International Journal of Integrated Care*. 2013;13(1–15).
32. RAND Europe, Ernst and Young LLP. *National Evaluation of the Department of Health’s Integrated Care Pilots*. March 2012.
33. Maeda JLK, Lee KM, Horberg M. Comparative Health Systems Research among Kaiser Permanente and Other Integrated Delivery Systems: A Systematic Literature Review. *The Permanente Journal*. 2014;18(3):66–77.
34. Giesen P, Smits M, Huibers L, Grol R, Wensing M. Quality of after-hours primary care in the Netherlands: A narrative review. *Annals of Internal Medicine*. 2011;155(2):108–13.
35. Grol R, Giesen P, van Uden C. After-hours care in the United Kingdom, Denmark, and the Netherlands: new models. *Health affairs (Project Hope)*. 2006;25(6):1733–7.
36. de Jong JD, van den Brink-Muinen A, Groenewegen PP. The Dutch health insurance reform: switching between insurers, a comparison between the general population and the chronically ill and disabled. *BMC Health Services Research*. 2008;8(1):58–.
37. Struijs JN, Baan CA. Integrating Care through Bundled Payments – Lessons from the Netherlands. *The New England Journal of Medicine*. 2011;364(11):990–1.
38. Tol J, Swinkels ICS, Struijs JN, Veenhof C, de Bakker DH. Integrating care by implementation of bundled payments: Results from a national survey on the experience of Dutch dietitians. *International Journal of Integrated Care*. 2013;13(OCT/DEC).
39. Raaijmakers LGM, Hamers FJM, Martens MK, Bagchus C, De Vries NK, Kremers SPJ. Perceived facilitators and barriers in diabetes care: A qualitative study among health care professionals in the Netherlands. *BMC Family Practice*. 2013;14.
40. de Bakker DH, Struijs JN, Baan CB, Raams J, de Wildt JE, Vrijhoef HJM, et al. Early results from Adoption of bundled payment for diabetes care in the Netherlands show improvement in care coordination. *Health Affairs*. 2012;31(2):426–33.
41. Struijs JN, De Jong GM, Lemmens LC, Drewes HW, De Bruin SR, Baan CA. Three years of bundled payment for diabetes care in the Netherlands: Impact on health care delivery process and the quality of care. *Bilthoven: National Institute for Public Health and the Environment*; 2012.
42. de Bruin SR, van Oostrom SH, Drewes HW, de Jong-van Til JT, Baan CA, Struijs JN. Quality of diabetes care in Dutch care groups: No differences between diabetes patients with and without co-morbidity. *International Journal of Integrated Care*. 2013;13(OCT/DEC).
43. The Commonwealth Fund. *International Profiles of Health Care Systems: Australia, Canada, Denmark, England, France, Germany, Italy, Japan, The Netherlands, New Zealand, Norway, Singapore, Sweden, Switzerland, and the United States*. *The Commonwealth Fund*, 2014 Contract No.: Commonwealth Fund pub. no. 1802.
44. Kantarevic J, Kralj B. Risk selection and cost shifting in a prospective physician payment system: Evidence from Ontario. *Health Policy*. 2014;115(2–3):249–57.
45. Dahrouge S, Hogg W, Ward N, Tuna M, Devlin RA, Kristjansson E, et al. Delivery of primary health care to persons who are socio-economically disadvantaged: Does the organizational delivery model matter? *BMC Health Services Research*. 2013;13(1).

46. Li J, Hurley J, DeCicca P, Buckley G. Physician Response to Pay-for-Performance: Evidence from a Natural Experiment. *Health Economics*. 2014;23(8):962–78.
47. Hutchison B, Levesque JF, Strumpf E, Coyle N. Primary health care in Canada: Systems in motion. *Milbank Quarterly*. 2011;89(2):256–88.
48. Kantarevic J, Kralj B, Weinkauff D. Enhanced fee-for-service model and physician productivity: Evidence from Family Health Groups in Ontario. *Journal of Health Economics*. 2011;30(1):99–111.
49. Howard M, Goertzen J, Kaczorowski J, Hutchison B, Morris K, Thabane L, et al. Emergency Department and Walk-in Clinic Use in Models of Primary Care Practice with Different After-Hours Accessibility in Ontario. *Healthcare Policy*. 2008;4(1):73–88.
50. Rosser WW, Colwill JM, Kasperski J, Wilson L. Progress of Ontario's Family Health Team model: a patient-centered medical home. *Annals of Family Medicine*. 2011;9(2):165–71.
51. McCarthy D, Mueller K, Wrenn J. Kaiser Permanente: Bridging the quality divide with integrated practice, group accountability, and health information technology. 2009.
52. Feachem RGA, Sekhri NK, White KL. Getting more for their dollar: a comparison of the NHS with California's Kaiser Permanente. *BMJ: British Medical Journal*. 2002;324(7330):135–43.
53. Strandberg-Larsen M, Schiøtz ML, Silver JD, Frølich A, Andersen JS, Graetz I, et al. Is the Kaiser Permanente model superior in terms of clinical integration?: A comparative study of Kaiser Permanente, Northern California and the Danish healthcare system. *BMC Health Services Research*. 2010;10.
54. Ham C, York N, Sutch S, Shaw R. Hospital Bed Utilisation In The Nhs, Kaiser Permanente, And The Us Medicare Programme: Analysis Of Routine Data. *BMJ: British Medical Journal*. 2003;327(7426):1257–60.
55. Fund TC. International Profiles of Health Care Systems. *The Commonwealth Fund*, 2014.
56. Schiøtz M, Price M, Frølich A, Søgaard J, Kristensen JK, Krasnik A, et al. Something is amiss in Denmark: A comparison of preventable hospitalisations and readmissions for chronic medical conditions in the Danish Healthcare system and Kaiser Permanente. *BMC Health Services Research*. 2011;11.
57. Reed M, Huang J, Brand R, Graetz I, Neugebauer B, Fireman B, et al. Implementation of an Outpatient Electronic Health Record and Emergency Department Visits, Hospitalizations, and Office Visits Among Patients With Diabetes. *JAMA*. 2013;310(10):1060–5.
58. Bowman B, Smith S. Primary Care DirectConnect: How the Marriage of Call Center Technology and the EMR Brought Dramatic Results – A Service Quality Improvement Study. *The Permanente Journal*. 2010;14(2):18–24.
59. Hoff T, Weller W, DePuccio M. The Patient-Centered Medical Home: A Review of Recent Research. *Medical Care Research and Review*. 2012;69(6):619–44.
60. Kern LM, Edwards A, Kaushal R. The patient-centered medical home, electronic health records, and quality of care. *Annals of Internal Medicine*. 2014;160(11):741–9.
61. Jaén CR, Ferrer RL, Miller WL, Palmer RF, Wood R, Davila M, et al. Patient outcomes at 26 months in the patient-centered medical home National Demonstration Project. *Annals of Family Medicine*. 2010;8 Suppl 1:S57–67; S92.
62. Hussey PS, Ridgely MS, Rosenthal MB. The PROMETHEUS Bundled Payment Experiment: Slow Start Shows Problems In Implementing New Payment Models. *Health Affairs*. 2011;30(11):2116–24.
63. Maeng DD, Graf TR, Davis DE, Tomcavage J, Bloom FJ. Can a Patient-Centered Medical Home Lead to Better Patient Outcomes? The Quality Implications of Geisinger's ProvenHealth Navigator. *American Journal of Medical Quality*. 2012;27(3):210–6.
64. Berryman SN, Palmer SP, Kohl JE, Parham JS. Medical home model of patient-centered health care. *Medsurg Nursing: official journal of the Academy of Medical-Surgical Nurses*. 2013;22(3):166.
65. Harvey HB, Gowda V, Gazelle GS, Pandharipande PV. The ephemeral accountable care organization – An unintended consequence of the medicare shared savings program. *Journal of the American College of Radiology*. 2014;11(2):121–4.
66. Markovich P. A global budget pilot project among provider partners and Blue Shield of California led to savings in first two years. *Health affairs (Project Hope)*. 2012;31(9):1969.
67. Nielsen M, Olayiwola J, Grundy P, Grumbach K. Patient Centred Medical Home's Impact on Cost & Quality: An Annual Update of the Evidence, 2012–2013. *Patient-Centred Primary Care Collaborative*, 2014.
68. Evans M. Still finding their way. Pioneer ACOs see modest savings in first year, with nearly one-third dropping out. *Modern Healthcare*. 2013;43(29).
69. Safety Net Medical Home Initiative. Paying for the Medical Home: Payment Models to Support Patient-Centered Medical Home Transformation in the Safety Net. Seattle: *Baillt Health Purchasing and Qualis Health*, 2010.

70. Nutting PA, Crabtree BF, Miller WL, Stewart EE, Stange KC, Jaén CR. Journey to the patient-centered medical home: a qualitative analysis of the experiences of practices in the National Demonstration Project. *Annals of Family Medicine*. 2010;8 Suppl 1:S45–56; S92.
71. Fontaine P, Whitebird R, Solberg LI, Tillema J, Smithson A, Crabtree BF. Minnesota's Early Experience with Medical Home Implementation: Viewpoints from the Front Lines. *Journal of General Internal Medicine*. 2014.
72. Alexander JA, Markowitz AR, Paustian ML, Wise CG, El Reda DK, Green LA, et al. Implementation of Patient-Centered Medical Homes in Adult Primary Care Practices. *Medical Care Research and Review*. 2015.
73. NCQA. Patient Centered Medical Home (PCMH 2014) Standards Parts 1 & 2 Training 2014 [cited 2015 1.6.2015]. Available from: <http://www.ncqa.org/Programs/Recognition/RelevanttoAllRecognition/RecognitionTraining/PCMH2014Standards.aspx>.
74. Nutting PA, Crabtree BF, Stewart EE, Miller WL, Palmer RF, Stange KC, et al. Effect of facilitation on practice outcomes in the National Demonstration Project model of the patient-centered medical home. *Annals of Family Medicine*. 2010;8 Suppl 1:S33-44; S92.
75. Reynolds PP, Klink K, Gilman S, Green LA, Phillips RS, Shipman S, et al. The Patient-Centered Medical Home: Preparation of the Workforce, More Questions than Answers. *Journal of General Internal Medicine*. 2015.
76. Harris M. Payment for performance in the family health programme: Lessons from the UK quality and outcomes framework. *Revista de Saúde Pública*. 2012;46(3):577–82.
77. Doran T, Fullwood C, Gravelle H, Reeves D, Kontopantelis E, Hiroeh U, et al. Pay-for-performance programs in family practices in the United Kingdom. *New England Journal of Medicine*. 2006;355(4):375–84.
78. Kirschner K, Braspenning J, Maassen I, Bonte A, Burgers J, Grol R. Improving access to primary care: The impact of a Quality-improvement Strategy. *Quality and Safety in Health Care*. 2010;19(3):248–51.
79. Kirschner K, Braspenning J, Jacobs JEA, Grol R. Experiences of general practices with a participatory pay-for-performance program: A qualitative study in primary care. *Australian Journal of Primary Health*. 2013;19(2):102–6.
80. Pomp M. Pay for performance and health outcomes: a next step in Dutch health care reform? In: *Care CfPHaH*, editor. 2010. p. 3–43.
81. Struijs JN, Mohnen SM, Molema CCM, de Jong-van Til JT, Baan CA. Effect of bundled payments on curative health care costs in the Netherlands. An analysis for diabetes care and vascular risk management based on nationwide claim data. In: *Environment NijFPHat*, editor. Bilthoven, The Netherlands: Struijs JN, Mohnen SM; 2012.
82. Struijs JN. Payment reform and integrated care: The need for evaluation. *International Journal of Integrated Care*. 2013;13(OCT/DEC).
83. Kralj B, Kantarevic J. Quality and quantity in primary care mixed-payment models: Evidence from family health organizations in Ontario. *Canadian Journal of Economics*. 2013;46(1):208–38.
84. Dahrouge S, Hogg W, Tuna M, Russell G, Devlin RA, Tugwell P, et al. Age equity in different models of primary care practice in Ontario. *Canadian Family Physician*. 2011;57(11):1300–9.
85. Muldoon L, Dahrouge S, Hogg W, Geneau R, Russell G, Shortt M. Community orientation in primary care practices: Results from the comparison of models of primary health care in Ontario study. *Canadian Family Physician*. 2010;56(7):676–83.
86. Russell G, Dahrouge S, Tuna M, Hogg W, Geneau R, Gebremichael G. Getting it all done. Organizational factors linked with comprehensive primary care. *Family Practice*. 2010;27(5):535–41.
87. Van Hasselt M, McCall N, Keyes V, Wensky SG, Smith KW. Total cost of care lower among Medicare fee-for-service beneficiaries receiving care from patient-centered medical homes. *Health Services Research*. 2015;50(1):253–72.
88. David G, Gunnarsson C, Saynisch PA, Chawla R, Nigam S. Do patient-centered medical homes reduce emergency department visits? *Health Services Research*. 2015;50(2):418–39.
89. McWilliams JM, Chernew ME, Zaslavsky AM, Hamed P, Landon BE. Delivery system integration and health care spending and quality for medicare beneficiaries. *JAMA Internal Medicine*. 2013;173(15):1447–56.
90. Toussaint J, Milstein A, Shortell S. How the Pioneer ACO Model Needs to Change: Lessons From Its Best-Performing ACO. *JAMA*. 2013;310(13):1341–2.
91. Services. CfMaM. Fast Facts: All Medicare Shared Savings Program (Shared Savings Program) ACOs and Pioneer ACOs. 2013.
92. Pope G, Kautter J, Leung M, Trisolini M, Adamache W, Smith K. Financial and quality impacts of the medicare Physician Group practice demonstration. *Medicare and Medicaid Research Review*. 2014;4(3).
93. Rittenhouse DR, Grumbach K, O'Neil EH, Dower C, Bindman A. Physician organization and care management in California: From cottage to Kaiser. *Health Affairs*. 2004;23(6):51–62.

94. Palen T, Ross C, Powers JD, Xu S. Association of Online Patient Access to Clinicians and Medical Records With Use of Clinical Services. *JAMA*. 2012;308(19):2012–9.
95. Australian Government. Australia's Health 2014: Leading types of ill health. In: *Australian Institute of Health and Welfare*, editor. 2014.
96. Tsiachristas A, Dijkers C, Boland MRS, Rutten-van Mülken MPMH. Exploring payment schemes used to promote integrated chronic care in Europe. *Health Policy*. 2013;113(3):296–304.
97. Stewart EE, Nutting PA, Crabtree BF, Stange KC, Miller WL, Jaén CR. Implementing the patient-centered medical home: observation and description of the national demonstration project. *Annals of Family Medicine*. 2010;8 Suppl 1:S21–32; S92.

