



Bundled payments: Their role in Australian primary health care

Adjunct Associate Professor Paresh Dawda
MB BS DRCOG DFRSH FRACGP FRCGP (UK)

September 2015

Contents

CONTENTS.....	2
List of Tables	3
List of Figures.....	3
ACKNOWLEDGEMENTS.....	4
EXECUTIVE SUMMARY	5
INTRODUCTION	7
CURRENT HEALTH ISSUES IN AUSTRALIA	9
FUNDING OPTIONS FOR HEALTH CARE.....	11
LITERATURE REVIEW.....	18
The Australian Experience of Different Payment Models	18
Coordinated Care Trials.....	19
Diabetes Care Project	20
The International Literature	21
IMPACT OF BUNDLED PAYMENTS	26
Unintended consequences	27
Mechanisms of Impact	27
ENABLERS.....	27
BARRIERS	28
WORKSHOP FINDINGS	30
Current Funding Streams	30
Bundled payments in Australia – a balanced perspective.....	33
IMPLICATIONS FOR AUSTRALIA	35
REFERENCES	39
APPENDIX 1: DEFINITIONS	43

APPENDIX 2: ABBREVIATIONS.....	44
APPENDIX 3: METHOD	45
Literature Review.....	45
Workshop	47
APPENDIX 4: LIST OF FORUM PARTICIPANTS	49
APPENDIX 5: WORKSHOP CASE STUDY	51
APPENDIX 6: SUMMARY LIST OF PAPERS REVIEWED	52

List of Tables

Table 1: Basic mechanisms to fund health care	11
Table 2: Examples of Capitation Models.....	12
Table 3: Advantages and Disadvantages of payment methods.....	17
Table 4: Bundled payments in Australia – a balanced perspective	34
Table 5: Search Strategy	45
Table 6: Limits applied to search strategy	45
Table 7: List of organisations whose websites were perused	47

List of Figures

Figure 1: Advantages and Disadvantages of Payment Modalities.....	14
Figure 2: Process steps for implementing bundled payment	33
Figure 3: Questions on efficiency, effectiveness and equity in service delivery and fiscal sustainability	35
Figure 4: Requirements of a health system	36

Acknowledgements

I would like to thank all of those who have contributed to the work on which this report is based including colleagues whom I have used as a sounding board. I would especially like to thank AHHA for their commissioning of this work, Bupa for their funding and the participants at the workshop.

I'd like to acknowledge the following people for their invaluable feedback and comments on drafts of this paper:

- Alison Verhoeven
- Annette Schmiede
- Heema Dawda
- Linc Thurecht
- Paul Bates
- Susan Killon

Executive Summary

- This paper examines the issues associated with introducing bundled health care payments for primary care in Australia, including the predisposing conditions required for their successful implementation. These are discussed in the context of the Commonwealth Government-initiated Reform of the Federation and Reform of Australia's Tax System.
- Like all health care systems, the Australian health care system is facing challenges. There have been calls for an urgent reform of the funding system to better support a well-functioning primary health care system that delivers better clinical outcomes, particularly for those with chronic conditions and for vulnerable populations, and is sustainable. This requires incentivising care coordination and integration of care.
- There are fundamentally three payment mechanisms, which are along a spectrum; fee-for-service, bundled payments and capitation. Each has advantages and disadvantages and each has its place depending on the goals of the health system. The payment methods can be blended with one another and with other strategies to either encourage desirable benefits or discourage undesirable consequences. These strategies include pay for performance, benefit and risk sharing, and management strategies.
- Bundled payments describe a method of payment where services, or different elements of care, are grouped together into one payment. Evidence of benefit includes the ability to curb health care costs without decreasing quality and potentially even improving it. The mechanisms of impact are variable and include reducing waste, redesigning more effective services, provision of appropriate care, greater team based working, improved data utilisation, better coordination and care integration. However, there are significant implementation barriers, which include complexity in defining bundles of care, the payment method, implementing measurement, determining accountability and engaging providers. These difficulties and some of the mechanisms were observed during a pseudo-simulation exercise at a workshop exploring the potential of bundled payments in the Australian context.
- In considering the role of bundled payments for primary care in Australia, it needs to be recognised that payment systems cannot be the only policy lever to achieve the goals of the health system. There will inevitably be trade-offs that need to be made between the objectives and the choice or blend of payment systems. Moreover, the payment system will need to be flexible and adaptable.
- The evidence for bundled payments (or any other payment system) is not complete with significant gaps in the data and research. However, there is sufficient knowledge of risks and of strategies to circumvent those risks.

- There are a number of predisposing conditions in the Australian primary care context at present to support a transformational payment reform such as bundled payments. These include:
 - A growing call for payment reform from policy makers, independent bodies and professional colleges
 - Prior experience demonstrating the ability to pool funds between different levels of government, with the review of federalism being undertaken by the current government offering a time-limited opportunity to identify who the custodians of any future pooled funds could be
 - Recent structural reforms aligning Primary Health Networks and Local Hospital Networks creates the platform for engaging with consumers and providers, as well as the change agents to support a transformation at a microsystem level.
- There is an urgent need for quality data on outcomes and costs to support the transition towards a more fit for purpose payment system. Once this final foundation is in place, the ground will be fertile for a payment reform. The implementation of bundled payments for key primary care populations has the potential to be a bridge towards a future capitation model in a transition towards a value based primary health care system.

Introduction

Australian health care performance measures favourably when compared to other countries. The Commonwealth Fund ranked Australia fourth amongst the eleven nations studied in a report incorporating patients' and physicians' survey results on care experiences and various dimensions of care(1). It noted that every country had room for improvement and indeed Australia's health care system faces its share of challenges and pressures, some of which are also experienced by other similar countries. However, some are unique to Australia, particularly in the context of the roles and responsibilities of different levels of government. These are the focus of health reform debate and current review processes.

The Australian Government has embarked upon a review of Federalism and has produced an issues paper on health that describes the challenges and poses a series of questions on accountability, subsidiarity, national interest, equity, efficiency, effectiveness, durability and fiscal sustainability(2). The paper points out that in Australia, there is no overarching health system but a complex web of services, structures and providers with no single level of government having all the policy levers to ensure a cohesive health system. This has particular implications for those with chronic and complex conditions who require integrated and coordinated care.

The predominant mechanism for funding health care at present, including for those with chronic conditions in primary care, is a fee for service model (FFS). This model is thought to work less well for those with complex and chronic needs, and has been suggested as a factor contributing to fragmentation of care, leading to calls for an "urgent need to reform health funding"(3). The Australian Government has embarked on a 'Healthier Medicare' initiative including:

- a taskforce charged with the responsibility of reviewing the Medicare Benefits Schedule (MBS)
- the creation of a Primary Health Care Advisory Group (PHCAG) and
- a review of Medicare compliance rules(4)

A well-functioning primary health care system includes considerations of affordability, equity, effectiveness, safety and accessibility. The PHCAG has presented a consultation document on options to improve primary health care for people with chronic and complex conditions. Presented within it is a theme on establishment of suitable payment systems with the aim of achieving "a primary health care system that is supported by suitable payment mechanisms to: drive safe, high quality care; support regional flexibility; and improved patient outcomes and value, not just volume of services"(5).

A common thread across all of these discussions is a need for a more sustainable financing mechanism for health in Australia, which maintains or improves on all the dimensions of quality care and delivers improved value. 'Bundled payments' in health care are a structured way of improving the processes of care and patient outcomes, handling a patient's entire care episode and elements of care, rather than individually for every test and treatment they receive. It seeks to reach

across silos of health care services and to better coordinate care to improve patient outcomes and efficiency within the health care system.

This paper examines the issues associated with introducing bundled health care payments for primary care in Australia, including the predisposing conditions required for their successful implementation. These are discussed in the context of the Commonwealth Government initiated Reform of the Federation and Reform of Australia's Tax System.

Current Health Issues in Australia

The Australian health care system performs well compared to those of other countries and was ranked fourth in a report comparing eleven nations. It ranked higher in dimensions of quality care and chronic disease but particularly low in areas such as cost-related access problems and timeliness of care(1). However, masked within the data of overall performance, are significant shortcomings of the health system. This is particularly so for specific populations including(3):

- Aboriginal and Torres Strait Islander people
- culturally and linguistically diverse populations
- the elderly
- those with chronic illness
- those with disabilities
- those with mental illness
- people living in rural and remote locations

A pressing driver creating a sense of urgency for reform is the sustainability of health care spending. The Intergenerational Report projects real health expenditure per person will more than double over the next forty years(6). Of the total recent health care spends, the Australian Government provided around 41 percent, state and local governments contributed 27 percent, and private contributions made up the remaining 32 percent (including out of pocket costs). The major health programs funded by the Australian Government are the Medicare Benefits Schedule (MBS) and Pharmaceutical Benefits Schedule (PBS). The MBS includes most of the funding for general practice. It was initially introduced as a scheme to provide the *'most equitable and efficient means of providing health insurance coverage for all Australians'*(7). However, for the majority of general practice consultations, General Practitioners (GP) forego any fee on top of the government-determined reimbursement for the service and bill the government directly. For this reason, and because there is a mandatory contribution of 1.5 percent of taxable income, many patients would not describe Medicare as a system of patient insurance, but rather as a means of funding health care directly(8).

The growth in future spending in health is attributed to demographic and non-demographic factors(2). Amongst the demographic factors are population ageing with the median age of the population projected to continue to rise. This is associated with an increase in the prevalence of chronic diseases resulting in a rise in demand for health care. However, non-demographic factors such as new technologies and treatments also play a role as health care utilisation is increasing across all age groups. Accompanying this is increasing consumer expectation together with other non-demographic factors such as higher income, wage growth and technological change.

A health system designed in an era where communicable diseases were more prevalent than chronic diseases is struggling to meet the changing health needs of the population. The management of chronic conditions may involve multiple

providers across multiple settings. To be effective it requires care co-ordination and integration of care, particularly for those patients with multiple morbidities or greater complexity. However, for a number of reasons, the experience of patients and providers alike is a fragmented system. At a macro level, no single level of government has all the policy levers to create an integrated health system. The information systems are not shared across multiple providers and transitions of care within and between organisations is suboptimal. Moreover, the funding mechanisms, which are predominantly fee for service, are not aligned to the requirements for effective delivery of chronic care. This has been increasingly implicated as an important contributor to the system-wide problems of fragmented and inappropriate care resulting in unnecessary costs(3). This is consistent with international experience where a *“fee for service system of provider payment is increasingly viewed as an obstacle to achieving effective, coordinated, and efficient care”* because it *“rewards the overuse of services, duplication of services, use of costly specialised services, and involvement of multiple physicians in the treatment of individual patients. It does not reward the prevention of hospitalisation or rehospitalisation, effective control of chronic conditions, or care coordination”*(9).

In a recent report, the George Institute called for immediate reform to meet the needs of those with complex chronic conditions and those who are significantly disadvantaged because of a lack of access and / or poor outcomes of care. The report said there was an urgent need to reform health funding and called for a blended payment system(3). A discussion paper produced by the PHCAG stated *“our current health system is not set up to effectively manage long-term conditions”* and suggested *“stronger, more effective, and better integrated and coordinated primary care services are the best way to achieve better outcomes for patients and ensure a sustainable health system into the future”*(5). The discussion paper has a section on possible options to establish a suitable payment mechanism to enable a better primary health care system but did not explicitly present ‘bundled payments’ as an option.

Funding options for health care

One of the policy interventions to tackle the current fiscal issues in Australia is health payment reform. There are a limited number of mechanisms used to fund health. Quinn identified eight methods (Table 1) and suggests that they are on a continuum(10).

<u>Quinn's framework</u>		<u>Miller's framework</u>
Payment Method	<i>Commonly used terms</i>	
Per dollar of amount charged by provider	<i>Percentage of charges</i>	
Per dollar of cost	<i>Cost reimbursement</i>	
Per service	<i>Fee for service</i>	Number of processes x cost of process
Per day		
Per episode	<i>Bundled payment</i>	Number of services per episode
Per recipient		Number of episodes of care per condition
Per beneficiary	<i>Capitation</i>	Number of conditions per person
Per time period	<i>Salary</i>	

Table 1: Basic mechanisms to fund health care

Miller presents an alternative framework (Table 1) that adds further definition(11), in particular for the key methods being considered internationally to address issues similar to those in Australia. Miller's framework defines the basic unit as FFS, under which a predetermined amount is paid for each discrete service. The service consists of processes and each process has a cost associated to it. An episode consists of a series of services and payment can be for the whole episode. This is where the term 'bundled payment' originated as it covers the bundle of services. However, its utility has been extended and many describe bundling of services that take various forms, with three typically described:

- They may be used to describe payment for services, which are aggregated longitudinally. For example, it might include the pre-hospital elements of an elective procedure, the elective procedure itself and the post-hospital care elements for that procedure such as rehabilitation.
- The pooling of funds for disparate group of providers. This, for example, will often include all the medical specialists required to deliver an episode of care.
- The incorporation of a warranty e.g. includes the management of complications from a procedure.

Capitation is a broader concept using fixed payment per patient or member of population. It is a payment made regardless of the type and amount of services i.e. it is per beneficiary rather than per recipient. The UK has a long history of paying for primary care using a capitation-based model where currently a practice receives the majority of its income for a registered list of patients. Capitation can take various forms. For example, the capitation payment can be made to the individual provider of services, the practice (as in the UK) or a more regional organisation e.g. a primary health care organisation (as in New Zealand). Examples of approaches in the use of capitation based payment models for primary care in different countries is summarised in Table 2.

Table 2: Examples of Capitation Models

Country	Example of Model
Canada	<p>Health care in Canada is organised on a Provincial basis. There has been experimentation with payment reform and in the Province of Ontario, 80 percent of family doctors have voluntarily moved into a predominantly capitation based model of funding.</p> <p>Family Health Organisations: capitation is the primary source of income but they also receive FFS payments (for non-capitated services to enrolled patients, for all services to non-enrolled patients), shadow-billing premiums, after-hours premiums, plus various pay-for-performance bonuses and incentives. These family health organisations can be come part of a newer model of service delivery, Family Health Teams. It is an inter-professional primary health care model with teams of core (i.e. physicians and nurses) and interdisciplinary (e.g. mental health, nutrition, social work) health care providers promoting comprehensive and interdisciplinary services such as chronic disease management, counselling, health education, and palliative care.</p>
New Zealand	<p>New Zealand has a payment system that combines a universal capitated general medical subsidy, patient copayments, and targeted fee for service payments. Capitation-based payments are based on the number of patients enrolled to a primary health organisation (PHO) population and general practice services are provided by member practices.</p> <p>In addition, there are capitation adjustments based on rural ranking and additional payments:</p> <p>CarePlus: Funding provided to general practices to improve chronic care management, reduce inequalities, improve primary health care teamwork and reduce the cost of services for high-need patients</p> <p>Health Promotion: A capitation fee per patient enrolled to PHOs signed up for health promotion initiatives</p> <p>Services to improve access: An additional capitation based payment to reduce inequalities among those populations that are known to have the worst health status</p> <p>Very Low Cost Access: A voluntary scheme that provides extra funding in return for PHOs and general practices agreeing to maintain fees within the fees thresholds. At least half of the enrolled population has to be high needs</p> <p>Zero fees for children under 13: A subsidy to practice offering zero fees for those under the age of 13</p> <p>A General Medical Services Subsidy exists for treatment where a general practice or an after-hours treatment provider sees a child or adult who is <i>not</i> enrolled in a PHO or cannot access the practice they are enrolled with during business hours or after hours.</p>

	<p>The country is implementing a National Enrolment Service (NES) to provide a ‘single source of truth’ for all national enrolment and identity data including a centralised register with real time patient enrolment status enabling more timely payment calculation for enrolled patients.</p>
United Kingdom	<p>The majority of General Practices are paid on the basis of a national contract. The contract has three components (i) Global sum (ii) Performance related pay (Quality and Outcomes Framework) and (iii) Payment for enhanced services (which may have elements of either FFS, bundled payments and/or performance related payments).</p> <p>The global sum makes up the largest proportion of the revenue and is capitation based per person. The capitation payment is adjusted for age and sex of the patients, rurality, cost of employing staff, the rate of turnover of patients and morbidity.</p> <p>The role of capitated payment is being explored to pay a provider, or group of providers, to cover the majority (or all) of the care provided to a target population, such as patients with multiple long term conditions (LTCs), across different care settings.</p>
United States	<p>The Patient Centered Medical Home (PCMH) is a care delivery concept that is intended to produce greater engagement between the physician practice and its patients, particularly around chronic diseases. The payment models in the US are heterogeneous and varied for PCMHs. Virtually all feature a blend of FFS payments with additional fees that support non-visit related work. Commercial insurers, who pay an enhanced per-member, per-month payment to primary care physicians in addition to FFS, sponsor many PCMHs. Some also pay a care management fee per patient. In addition, there is the potential for additional payments based on the quality of care achieved, shared savings, or both.</p> <p>Following the Patient Protection and Affordable Care Act 2010 and the introduction of ACOs the payment mechanisms have an opportunity to become more diverse. ACOs are groups of providers, with or without an affiliated hospital, who accept joint responsibility for the costs and quality of care for an assigned group of patients. Typically most ACOs have continued under a FFS model, but with eligibility for shared savings calculated against a budget based on historical spending. However, ACOs may move toward more robust risk sharing arrangements with payers, such as full global payments.</p> <p>PCMH are thought to be a foundational element for ACOs because of observed benefits from reduced secondary care utilisation.</p>

In between capitation and episode-based payment is a category that includes the number of episodes per condition. Miller refers to this as ‘*condition adjusted capitation*’ or ‘*comprehensive care payment*’. This is of importance because it is in this area that the definitions in the literature become blurred. In the literature, terms have been used in an inconsistent manner leading to confusion and lack of clarity, particularly with this interim category that is sometimes termed capitation and at other times, bundled payment. Individual funders have developed a range of contracting strategies and this leads to a plethora of terms and a lack of definitional precision. For example, episode-based payment, episode payment, episode-of-care payment, case rate, evidence-based case rate, global bundled payment and global payment are all used to describe bundled payment; however, some authors used these synonyms e.g. global payments to describe capitation. The literature search strategy (Appendix 3: Method - *page 45*) for this paper incorporated the broad range of terms to be inclusive, and during the review process, the definitional focus was on the broader extended definition of bundled payments.

There are theoretical advantages and disadvantages for each of these payment methods and they are illustrated in Figure 1 and summarised in Table 3. These have been synthesised in a number of papers and are discussed later (12, 13).

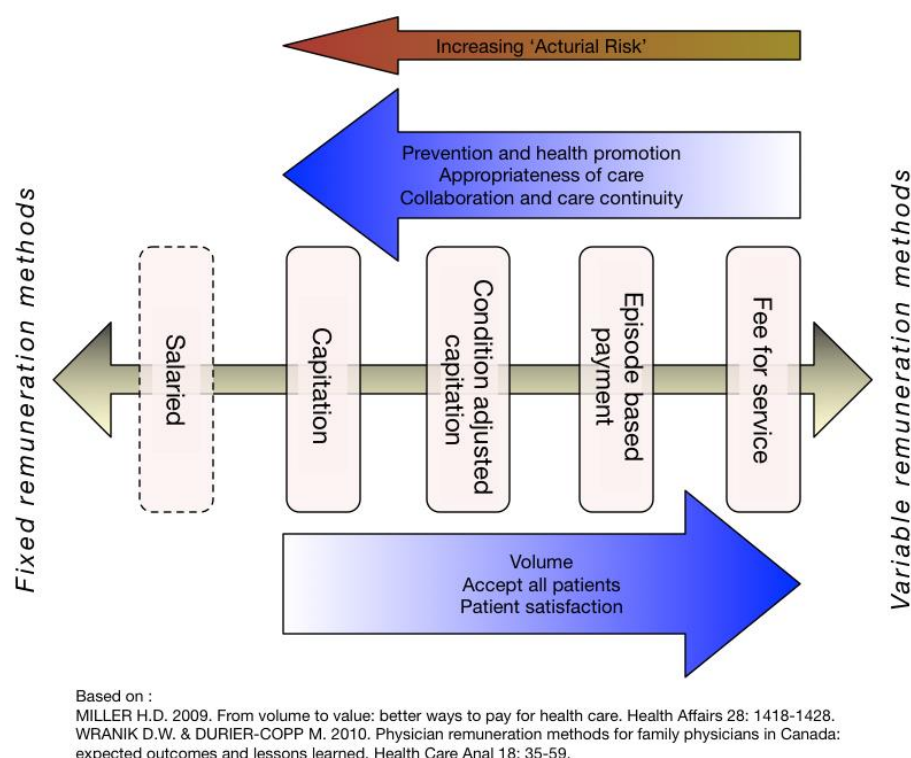


Figure 1: Advantages and Disadvantages of Payment Modalities

FFS has been an approach used in most health care systems. The advantages of FFS are:

- Simplicity
- Per item and easier to manage/administer
- Provides incentives for accessibility

However, it has particular disadvantages. It is increasingly viewed as “*an obstacle to achieving effective, coordinated, and efficient care*”(9). Davis and others argue that it rewards the overuse of services, duplication of services, use of more costly or lucrative services, underuse of less well reimbursed services, and involvement of multiple physicians in the treatment of individual patients. It does not reward preventative care, prevention of hospitalisation, and effective control of chronic conditions or care coordination. It may encourage delivery of unnecessary care and it rewards errors with payment for correction of clinical mistakes. This leads to increased costs; even if cost containment strategies like fee reduction or freeze are contemplated, it may not reduce cost because spending may rise due to increased utilisation (provided that services remain profitable for the provider)(14).

In order to achieve transformational changes in service delivery, such as the location of care or the way patients move around the system, a transformational change in the flow of money is necessary(15). Hence many health systems around

the world are moving towards alternative payment mechanisms. For example, the Dutch system has introduced a voluntary move towards a bundled payment system for certain chronic diseases to address difficulties encountered by smaller practices, and the delivery of comprehensive care and coordination required for those with chronic diseases(16).

The perceived advantages of bundled payments are:

- Removes incentives based on volume of services provided
- Focuses on care coordination and improved outcomes
- Helps to promote quality and efficiency
- Supports patient choice and competition
- Offers an incentive for elimination of unnecessary services and cost reduction
- Offers an incentive for providers to work together

However, there is a theoretical risk with bundled payments that more episodes of care may be provided than are necessary and that it does not act as an incentive to reduce inappropriate care. For example, in a bundled payment for a pathway of care for cataract surgery, the bundled payment incentivises making the pathway efficient and lean through improved coordination, reduction of volume of services within the pathway and improved outcomes. However, it does not incentivise the volume of patients enrolled in the pathway and so may still lead to overtreatment.

It can be difficult to calculate costs for episodes and the cost for each component, and this can lead to difficulties in appropriately allocating payments across providers. There have been concerns that where bundling is condition specific, it may lead to fragmentation in disease specialties and cause difficulties where patients are experiencing multi-morbidity. Therefore, some have argued that the bundling should occur per patient rather than per episode/condition nudging towards capitation as the payment mechanism. There have also been concerns that it presents a financial risk to providers if the patient requires much more care than usual care assumed in the pricing of the bundle (further discussed below).

Capitation provides further incentive for care coordination and flexibility.

However, risks include under provision of services, and cherry picking of patients to avoid those more complex and at higher risk. For example, providers may only choose to accept those patients who are less complex and straightforward because they only get paid a fixed amount. If they choose a patient with a risk of being more 'expensive' then they are penalised financially.

In order to mitigate against the risk presented by each of these methods, different strategies may be used.

- Capping
 - For example, capping the number of services can prevent excess usage under the FFS.
- Risk Management. There are two types of risk that need to be managed:
 - Performance risk. This relates to providers' ability to manage their patients' conditions in a high-quality and efficient manner.
 - A common mechanism used to manage this is Pay for Performance (PfP). It

provides a reward for quality and efficiency, adherence to clinical guidelines, fosters competition amongst providers based on performance, can further incentivise coordinated care and improve outcomes for those with long-term conditions. However, it is susceptible to gaming, and often focuses more on process measures rather than outcome measures. It has to be able to reward practitioners appropriately and proportionately more for patients with a greater degree of complexity, otherwise it becomes a disincentive to care for more complex patients. The challenge is often the measurement system for PfP, particularly in those older patients with complexity and multi-morbidity, when there comes a time adherence to clinical guidelines may have detrimental effects(17).

- Insurance or actuarial risk. This is either when a patient has an illness or other condition requiring care or when service utilisation for that care is much greater than anticipated.
 - Adjusting for case mix
 - . In the more fixed methods of payments (and in PfP) the complexity of patients being looked after can be managed by providing an allowance for case mix. For example, comprehensive care payments in the US adjust for the case mix as a strategy to mitigate against providers avoiding more complex patients. Goroll has presented a model replacing *“encounter-based reimbursement with comprehensive payment for comprehensive care”* for primary care practices establishing themselves as advanced medical homes(18). In this model, payments would include a base payment, a performance-related payment and a transformation payment to work towards an advanced medical home. Although presented as a theoretical model, others have performed modelling to support replacing fee for service payments in a medical home entirely with bundled care-coordination payments and large bonuses(19, 20). They have shown that existing data can support the risk-adjusted bundled payment calculations and performance assessments needed to encourage desired transformations in primary care.
 - Outlier payment policy(21)
 - . Under such a policy if the loss from providing care to a patient exceeds a specified threshold, the provider receives an extra payment.
 - Gain and loss sharing.(21)
 - . In such a policy there is an agreement between the payer and provider to share any gains and losses. For example, in setting a bundled payment target for providers the payer agrees to cover some portion of their spending in excess of this target. In return, providers would share with the payer any savings achieved if spending fell below the target. Such an approach requires a mature commissioning system.
- Combining the primary payment method with another method.
 - Pay for Performance.
 - Combining a payment approach with PfP can mitigate against any inherent disincentives to compromise on quality (as discussed above).
 - Blending with other methods.
 - Blending the different methods into an overall payment model in the right proportions can offer synergies to optimise the benefits and minimise the disadvantages.

Table 3: Advantages and Disadvantages of payment methods

	Capitation	Bundled Payments	Fee-for-Service
Advantages	<ul style="list-style-type: none"> • Incentivises cost containment by providing funders with control over overall expenditure • Incentivises preventative activities • Promotes greater use of skills mix and team based care • Promotes care coordination 	<ul style="list-style-type: none"> • Reduces incentives based on volume of services • Helps promote quality and safety of care • For services within the care bundle incentivises for elimination of inappropriate care and promotes efficiency • Encourages team based care • Facilitates a focus on care coordination 	<ul style="list-style-type: none"> • Greater access to care • Simpler system leading to ease of data collection and payment • Supports geographical variation in health care use and spending • Encourages physician productivity
Disadvantages	<ul style="list-style-type: none"> • May prevent access for those with greatest need (cherry picking), particularly if the capitation payment is too low • Providers may withhold or restrict access to more expensive care • Introduces an additional financial risk for the providers ('insurance' risk) • Incentivises under-provision 	<ul style="list-style-type: none"> • Difficult to define and calculate costs • Difficult to allocate payment across providers appropriately • May encourage fragmentation by working in condition specific pathways • May prevent access for those with greatest need (cherry picking) • May introduce a financial risk for the provider, particularly in relation to performance • Data intensive 	<ul style="list-style-type: none"> • Incentivises volume of care increasing financial risk for payer ('supplier-induced demand') • Does not incentivise outcome (quality) over output • May lead to over-provision; inappropriate care • Does not incentivise prevention nor coordination • Encourages overuse of lucrative services and underuse of less well reimbursed services • Does not incentivise for patient safety

Literature review

The key objective of the literature review was to address the following two questions:

1. What is the evidence for impact of bundled payments, particularly in primary care?
2. What are the enablers, barriers and lessons for implementation in Australian primary care from the experience of other countries?

A summary of all the papers reviewed and their findings is available in Appendix 6: Summary list of papers reviewed

(page 52). The following is a summary and synthesis from the key papers.

The Australian Experience of Different Payment Models

Over a number of years, the Australian health care system has been evolving its funding mechanisms. Previous funding initiatives for general practice include Enhanced Primary Care (EPC), introduced in 1999-2000 offering incentives for GPs to improve the health and quality of life of older Australians, adult Aboriginal and Torres Strait Islander people and people of any age with a chronic or terminal condition(22). Subsequent iterations introduced comprehensive medical assessments for vulnerable populations, multidisciplinary care plans, case conferencing, and home medicines review. It also included funding via Divisions of General Practice to provide access to allied health care for patients with chronic conditions referred by a GP. In 2005 multidisciplinary planning was replaced by MBS rebates for chronic disease management, which included rebates for access to allied health providers for patients with chronic and complex conditions referred by General Practitioners. They have been on a FFS basis. The government has also introduced other measures to create a more blended payment system incorporating PfP incentives. There are two components to this:

- Service Incentive Payments (SIP) - an additional payment for achieving a goal e.g. completion of a cycle of care for asthma or diabetes.
- Practice Incentive Payments (PIP) - a practice-based payment for meeting specific, practice targets (e.g. providing after-hours care or having a quality computerised record system)

The increasing health expenditure trend has led to experimentation with the aim of improving efficiencies and creating a more integrated system of health. *“In Australia’s fragmented system, this took the form of a series of trials, rather than a widespread process of health system reform as occurred in the UK and New Zealand (NZ)”*(23).

None of the trials identified in this review of financial levers used in Australia have used bundled payments. However, the Coordinated Care Trials (CCT) are discussed because pooled funds, a key element of the CCTs, are necessary to allow for more

efficient reallocation of funding across the system. They also provided the opportunity to consider streamlining these funds through an alternative approach (which may include a bundled payment one)(15). The Diabetes Care Project (DCP) is a more recent initiative(24). It had one intervention group that was funded using a blended payment system; one of the components of this was similar to a bundled payment.

Coordinated Care Trials

The CCTs were initiated by the Commonwealth Government. The first round, between 1997-1999, was a series of nine trials across six states and territories. Only one of the trials (SA HealthPlus) based participant inclusion on specific diagnoses, which included respiratory disease, diabetes, cardiovascular disease, stroke and somatisation. There were four Aboriginal coordinated care trials. The interventions varied by trial but all were testing whether coordination of care for people with multiple service needs, utilising individual care plans purchased through funds pooled from existing programs, resulted in improved health and wellbeing within existing resources. In general, the trials did not demonstrate improved health and well-being of the participants. A significant reduction in hospital admissions in the intervention groups compared with the control group was seen in three of the trials, and for most trials an accrued operating deficit was found. The SA Health Plus trial successfully implemented a generic model of coordinated care with improved health outcomes but it was not cost neutral. Authors reporting on it commented *“organised care for chronic illness in Australia requires commitment from state and commonwealth governments to pool funds and information systems that provide population data and decision support. A change in the business processes of general practice will be required”*(25). The EPC items described above were introduced just prior to the final reporting of the CCT. Commentators of the trials described a number of shortcomings of the design but a positive finding was that fundholding allowed the trials to fund strategies, such as quit smoking interventions, that otherwise would not have been possible(26).

The element of relevance for this paper from the CCT trials is the experience of pooling of funds. These could not be any larger in amount than would have been used by the end user if they were not in the trial and essentially provided a ‘capped’ pool, unlike MBS and PBS. The funds were drawn from:

- Commonwealth Medicare Benefits Scheme (MBS)
- Commonwealth Pharmaceutical Benefits Scheme (PBS)
- Joint programs such as the Home and Community Care Program (HACC), and
- State-Territory Hospital funds.

Residential aged care programs were excluded as the funding could not be easily transferred into the pools. The challenge was in the calculation of the pool to ensure it met the needs of participants. It was calculated using historical information over a six-month period prior to commencing care coordination. It compared this with any other available utilisation data to adjust for case-mix and it compared utilisation with the control group on an ongoing basis during the trial. The trial received the funds for each client on a capitation basis and providers then billed the trial. It is not clear from the papers identified for this review

whether different funding mechanisms were used at the provider level, and in particular for general practice. In relation to the funding mechanism, and of relevance to the objectives of this review, it is useful to acknowledge that the trial demonstrated(27):

- funds pooling between governments is possible, and that providers can cooperate at a local level to design and develop a radically new approach to health care in Australia
- the Australian health care system can develop and implement world class information management and care planning systems, and
- major cultural shifts away from the traditional antagonism and rivalry between different players and toward cooperation are possible.

A second round of six CCT were undertaken between 2002-2005, three of which were in Aboriginal communities. The pooled funding in this round was distributed based on a 'risk-based capitation model' created at the end of the first round of trials. The approach for the three Indigenous trials was different to the three general trials because of the very different health and chronic disease profile of Indigenous populations. The overall finding was that pooling funds facilitated flexible purchasing arrangements. However, not all stakeholders were fully prepared to commit to pooled resources; the main reason being the uncertainty, and hence risk, surrounding their estimated funding compared to an unknown potential service utilisation (insurance risk). This evaluation concluded a need for more research on the development of funding models using longitudinal utilisation and cost data at an individual level. The high level of variability and uncertainty in health care utilisation, which *"means that a one-off 'cash-out' or receipt of a health funding budget involves considerable risk to both the purchaser and provider; the management of this risk also requires further research and discussion"*(28). The insurance risk has been identified as a disadvantage and barrier in the implementation of bundled payments and capitation as outlined previously, although, since the CCTs there has been further experience internationally in strategies to circumvent this risk.

Diabetes Care Project

The DCP (24) was established in response to two of the recommendations published by the National Health and Hospital Reform Commission (NHHRC) in 2009. The first recommendation was that chronic disease should be managed in primary care settings through voluntary patient registration in '*health care homes*.' The second recommendation was that the Commonwealth consider innovative funding models that include a quality component to manage population health. It specifically suggested a mix of salary, fee for service, grants, payments for performance and quality, and payments for episodes of care.

The DCP was a randomised cluster-controlled trial with a usual care group and two other groups(29):

- Group 1: an integrated information platform and continuous quality improvement processes within the current funding model.

- Group 2: As for group 1 + flexible funding based on risk stratification + payments for quality + funding for care facilitation.
 - Flexible funding
 - General Practices received an annual payment per person with diabetes enrolled. Practices could determine how to allocate this funding. Each patient was risk stratified into one of five categories. Practices were not entitled to claim additional chronic disease management items, but could claim for standard consultations and other items.
 - Allied health providers were paid directly on an activity basis with a cap. In addition to the usual types of consultation available under MBS, four other types of consultations with allied health were available. The type of consultations was determined by the GP during the care planning process.
 - Quality Improvement Support Payments
 - General Practices were paid retrospectively for achieving improvements in clinical outcomes, processes of care and patient experience.

Findings:

The study showed that in those practices randomised to Group 2:

- The quality of diabetes care improved as measured by intermediate clinical indicators, adherence to recommended clinical processes, and patient satisfaction. The latter included patient perceptions of continuity of care
- They were able to be more innovative and patient-centred in the way they delivered care
- There were no statistically significant changes in affordability
 - The out of pockets costs for patients in the three groups were not statistically different but the authors recommended close monitoring

The improvements in quality, particularly of information recording and intermediate clinical indicators, were attributed to the pay for performance component.

The evaluation concluded that a wider rollout of the funding levels for Group 2 interventions would not be cost effective and would need to be recalibrated. The evaluation made three specific recommendations. These include:

1. A flexible funding model for chronic disease care targeting resources to achieve maximum value. Components recommended include enrolment; a performance related element and funding for care facilitation
2. Development of e-health and quality improvement processes
3. Better integrate primary and secondary care and reduce avoidable hospital costs

The International Literature

A technology assessment by the US Agency for Healthcare Research and Quality undertook a comprehensive review of the effects of bundled payments on spending and quality(30). The assessment identified international and US papers, however none of the papers included in the final review incorporated primary care. The only paper that did was excluded because a full evaluation was not available. The assessment concluded that the introduction of bundled payment was associated with:

1. Reductions in health care spending and utilisation, and
2. Inconsistent and generally small effects on quality measures.

These findings were across all the different bundled payment programs identified by the review. The authors rated the quality of evidence as low, mainly due to concerns about bias and residual confounding effects.

They identified a number of caveats for consideration by policymakers:

1. Future bundled payment programs will be different to those reviewed in this study. (80% of the bundled payment interventions studied were limited to payments to single institutional providers e.g. hospitals, skilled nursing facilities). This limits the ability to extrapolate the findings to newer programs which include multiple providers.
2. They noted that bundled payments have the potential to either adversely affect quality or be used as part of a quality improvement strategy. Hence future bundled payment programs need to have an integral and robust quality monitoring and improvement component.
3. The quality of evaluations of programs was low and further policy change should be subject to more rigorous evaluation.

The project that incorporated primary care, but was excluded from the Technology Assessment, described the implementation of a bundled payment across three sites and was designed to pay for all of the care required to treat a defined clinical episode, particularly those services recommended by clinical guidelines or experts(31). It defined twenty-one medical conditions as part of the bundled payment program, including chronic diseases such as diabetes. The sites experienced significant implementation challenges (discussed in the section on barriers). Despite the challenges, some intermediate benefits were observed. These include:

- participants (health systems and providers) finding it valuable to use as a measurement tool
- enabled the initiation of new care coordination activities
- improved communication amongst stakeholders

Moreover, the authors concluded that their findings did not provide support for discarding bundled payment in favour of alternative payment methods.

The RAND Institute reviewed the success of value based purchasing programs(32). The authors identified three papers in relation to bundled payments. They had applied inclusion criteria that limited them to an examination of bundled payment arrangements to those that included both cost and quality performance components to assess value. The setting of the three studies included hospital, physicians and post-acute care. They found:

1. Clinical quality: Only one of the three studies examined the effect of bundled payments on process measures. The study found that adherence on 40 clinical process measures increased from 59 to 100 percent. However, this was in a

- single integrated organisation and so the transferability to other settings may not be possible.
2. Cost: Two studies measured this and both found a cost reduction. One was of the order of 5 percent whilst the other found a \$USD2,000 reduction in the cost per case over the two-year period.
 3. Unintended consequences: There were none identified, however, the expert panel overseeing the review recommended monitoring for potential unintended consequences. These include the loss of revenue for providers caring for disadvantaged populations, the excessive exclusion of patients when that is an option in the program, access barriers and patient turnover from practices related to providers avoiding more difficult patients, and market concentration and price effects in the context of Accountable Care Organisations.

The Netherlands has introduced bundle payment system for diabetes care, vascular risk management and chronic obstructive pulmonary disease(16). De Bakker *et al's* paper is one of the few that provides insights into the use of bundled care within primary care. In this model of care, the insurers pay a single fee covering all primary care elements for the specified conditions to a '*care group*', which is the principal contracting entity. The care groups consist of multiple health care providers (and are often owned by General Practitioners).

The insurer negotiates the bundle payment level with the care group. The care group can choose to provide the service or may subcontract it to other providers e.g. GPs, allied health. In the latter case it would negotiate payments with the providers. The services to be included in the bundle had been set nationally in disease specific health care standards.

The positive outcomes observed were better collaboration, better process quality (adherence to protocols) and more transparency. However, the effects on intermediate patient outcomes such as blood sugar levels and costs were unknown. A separate discussion paper has stated that there were no improvements(33).

The negative consequences were dominance of the care groups by General Practitioners, large price variations, and the administrative burden. The large price variations were partially explained by three factors(33):

- variation in actual differences in care provided
- lack of experience of purchasers and providers on price setting in the initial period
- varying interpretations of national standards

The insurers perceived the bundled payment as a black box, not knowing what was happening at the patient level. One of the insurers expressed concerns about the lack of clarity and not knowing what services were being paid for, hence concerns about double dipping. However, there was criticism in another publication on the lack of direction from the payer(34). The authors point to other research showing large variations among care groups with regard to price as well as to reported performance information. They expressed concerns about additional administration in the contracts between insurers and care groups, in addition to concerns about the lack of competition.

The care groups reported perspectives were generally positive, particularly the ability to influence care process, to supply health care providers with feedback about their performance relative to the average care group performance and to give insurers information about performance. They were concerned about the administration (e.g. negotiating and managing multiple contracts with different insurers) and the dominant position of the insurers. They experienced challenges in assigning correct payments to providers particularly when the patient had multi-morbidities, and the lack of their ability to shift savings from speciality care to reinvest in primary care. Despite this, a separate analysis showed no differences in quality of care received by those with co-morbidities(35).

The subcontractor perspective was positive with recognition that it improved coordination of care. A separate review of the perspectives of dieticians confirmed their perceptions of an increase in multidisciplinary collaboration, improved efficiency, and greater transparency(36). However, subcontractors had concerns about the dominant position of the care groups and their ability to remodel the care to be provided by different providers. There were concerns about conflicts of interest with high levels of care group ownership amongst GPs. GPs also raised concerns about fragmentation with disease based funding. In addition, the dieticians were concerned about the increased administrative burden, lack of payment for patients with co-morbidity and a risk that dietetic care may be substituted with care provided by other disciplines(36).

A consistent emerging theme from the Netherlands experience relates to the flow of information and administrative burden, suggesting the necessity of effective information systems.

Further implementation of bundled payments for other chronic diseases was being considered in the Netherlands. However, this would make the problem of how to deal with patients with multiple diseases even more complex. The authors speculated that the introduction of bundled payments might turn out to be a useful step in the direction of risk adjusted integrated capitation payment for multidisciplinary provider groups offering primary and specialist care for a defined group of patients.

Appleby *et al* conducted a review of the international literature whilst exploring how payment systems might help to deliver better care in the English National Health Service (NHS). They noted that many countries are dissatisfied with the limitations of activity-based payments for patients with long-term conditions and complex ongoing needs. They cite the following examples of bundled care initiatives:

1. Netherlands - a large-scale initiative to contract doctor-led groups for a year of care for selected chronic conditions (described above).
2. US - pilots of bundled care payments on 'episode treatment groups' that bundle physician, acute hospital, post-acute and ambulatory care costs from referral or admission to recovery for an extended episode of care.
3. Sweden - piloting of extended episode payment for joint replacement, combined with patient choice and provider competition.

They urge caution in the use of bundled payments, and identify defining episodes of care, payment rates, and distribution of incentives across providers as challenging. In their critical analysis of the application of bundled payments to the English NHS they conclude:

1. Uncertainty about its place in the NHS, which has a different context
2. The division in the commissioning structure of primary care and acute care would make it difficult to translate

They comment that bundled payments have stimulated better coordination, improved the quality of data, improved clinical engagement, and improved relationships between payers and providers.

The American Medical Association commissioned an assessment of the effects of implementing new payment models on physicians' practices(37). The alternative funding models included pay of performance, capitation and bundled payments.

The findings included:

- change in organisation structure through merger with other practices or bigger organisations was required to enable them to respond to the structural changes required from different payment models e.g. investment in information technology
- the development of team approaches to care management was encouraged, featuring prominent roles for allied health professionals
- a serious tension could also arise when practices participated in a mix of both FFS and risk-based contracts resulting in conflicting incentives to increase volume under the FFS contract, while reducing costs under the risk-based contract
- there were expanded options for patient access
- investment in data management capabilities is necessary
- there were negligible effects on the aggregate income of individual physicians
- those, particularly in non-leadership positions, perceived the changes with less enthusiasm. They experienced much non-clinical work and felt pressure to practice at the top of their licence

Impact of bundled payments

The greatest evidence for impact of bundled care payments is in relation to cost and efficiency. This is demonstrated in the studies described above as well as others. For example, a review of cardiovascular services (mostly specialist) concluded bundled payment initiatives have demonstrated modest potential to curb health care costs without decreasing quality and potentially even improving it(38). Some studies have suggested substantial health care savings by moving from a FFS model to bundled payments for episodes of care, whether in a stand-alone program or as a component of an overall global-payment model. Other studies have tried to quantify the savings and found them to be in the region of approximately 5 to 10 percent relative to FFS arrangements(32, 39). Some authors have speculated that the savings may be greater with widespread use of bundled payments than studies of individual plans suggest(14). The systematic review suggested it was promising strategy for reducing health care related costs(30). However, less positively, large price variations were also found in one study that were not fully explained by differences in the amount of care provided and at a significant administrative cost(40). Other studies have been able to articulate the reasons for variations in different interpretations of the bundle, differences in care provided and the learning curve amongst payers and providers as new payment mechanisms are implemented(33).

Conceptually, authors have postulated that under a FFS payment structure, if providers use all the services that could benefit the patient, then a reduction in the use of services could result in a reduction in quality when the payment system changes to a bundled payment. On the other hand, if FFS leads to excessive use of services, or the failure to compensate for the time for appropriately coordinating care, or the failure to offer effective services that are not billable, then bundling might improve the quality of care(30). An empirical analysis of hospitals in Italy concluded *“our results should reassure policy makers about the possibility of adopting PPS to improve the efficiency of health systems without eroding quality of care”*(39) (Prospective Payment System (PPS) is a type of bundled payment). The primary care study of bundled payments in the Netherlands found improved adherence to processes of care(16). The DCP in Australia, in the intervention group with a reformed payment mechanism, did observe an improvement in outcome measures but attributed it to the pay for performance component(24). Similarly, Damberg *et al* found a significant improvement in process measures in one of the three studies they reviewed but their inclusion criteria required the value based designed elements to include a cost and quality component(32).

Very few of the papers identified directly measure the effect of bundled payments on improving access, equity of care or patient experience. The DCP observed an improvement in patient satisfaction and continuity of care(24). One study commented that alternative payment models that incentivised containment of total costs of care also increased the importance of offering expanded options for patients to access care from physician practices(37) and the DCP in the intervention group offered additional types of services with allied health(24).

If bundled payments are designed and define the right population then they may potentially improve equity of care. However, there is also concern that they may reduce equity of care as providers may not be willing to look after those with more complex needs and hence this could be an unintended consequence (cherry-picking). It was not observed in the review by Damberg *et al*, although the expert advisory panel for the review recommended bundled care programs should monitor for “*the excessive exclusion of patients when that is an option in the program, access barriers and patient turnover from practices related to providers avoiding more difficult patients*”(32).

Unintended consequences

The potential for unintended consequences include an impact on equity of care which has been discussed above. The Netherlands study reported a number of negative perspectives rather than unintended consequences. Insurers in the initiative felt uncomfortable because they did not have patient level data but rather aggregated data about the episodes of care and therefore saw the initiative as a ‘black box’ with resulting concerns about the possibility of double dipping(16). There were additional administrative costs and some actors felt uncomfortable about the dominance of general practitioners in the care group with potential for conflicts of interest.

Mechanisms of Impact

The impacts include an improvement in quality and cost savings. There appears to be various mechanisms by which this was achieved. The mechanisms include:

- Adherence to protocols (32, 41)
- A shift to team based care(37)
- A greater degree of care coordination(16, 40, 41)
- Reduced waste and errors
- Development of organisation capability - for example a survey commissioned by the American Medical Association sought views of physicians about the alternative payment models. Physicians reported that they were changing the organisations structures of their practices to better equip themselves to respond to the challenges of the payment reforms(37)
- Development and better utilisation of data systems(37) and more transparency and accountability(16)
- Service redesign. For example, Eapen found that using bundled payments for patients admitted with heart failure would lead to a redesign of the program to introduce elements of case management and reduce readmissions(42)

Enablers

The success of any payment reform will ultimately only work if providers respond to the change. This means that any incentive or disincentive caused by a payment reform has to filter down to the provider level; it also means that any risk from the payment reform has to be carefully managed and minimised at the provider level if reform is firstly going to be accepted, and secondly translate into the change in behaviour it is trying to achieve.

An editorial discussed a number of factors that were important enablers(14):

1. The size of the provider group: The optimal size of the provider group is

unknown. It needs to strike balance between being sufficiently small so that financial benefits when they flow through to an individual provider level are sufficient. However, it has to be sufficiently large to ensure the group has the capacity and capability to deliver against the specification of the bundled payment. The review on bundled care described enabling factors as including the capabilities and goals of participating organisations and the degree to which these organisations are integrated, as well as staff and patient characteristics(30). In response to the introduction of bundled payments in the US, providers have responded by changes in their organisation structure through mergers with other practices(37).

2. Distribution of incentives: The contracting for bundled payments may occur with an entity which then subcontracts with the providers e.g. as in the Netherlands example. The incentivisation occurs at the level of the group but as mentioned above it needs to filter down to the provider. The authors in this editorial cite the complex interaction between group level and individual level incentives and identify a need to understand the impact as an important topic for future research.
3. The fair and equitable management of risk is a critical enabler. The strategies for this have been discussed above in the section entitled Funding options for health care.
4. The determination of future payment for the bundled service determines how providers respond. The evidence suggests bundled payments have a potential to result in savings. If as a result of those savings, future payments are reduced or not increased, then there is a risk that providers' motivation to redesign services may be discouraged. A fair and transparent mechanism that creates a win-win scenario needs to be instigated as an enabler and to avoid this potential perverse incentive.

Barriers

A bundled care initiative in the US, which included chronic disease management bundles, encountered significant delays and challenges in implementation to the extent that after three years of preparation to support a bundled payment model, pilot participants still had not executed new payment contracts(31). The experience of that initiative provides a useful construct to explore the barriers.

The challenges faced included:

1. Defining bundles: There needs to be a shared understanding of what is and isn't included in a bundle before it can be operationalised. The technical challenges of defining care bundles and agreeing with clinicians what care should be included and which care costs are potentially avoidable, can take a long time(43).
2. Defining the payment method: There is no one approach to paying for a bundle. The payment will depend on the bundle definition but also whether the risks lie on the side of the payer or purchaser. In this particular initiative the 'technical risk' associated with care provision was to be on the provider side and the 'probability' risk or insurance risk on the side of the payer. In addition, the risk management requires adjustment for case-mix. In order to define a price, payers use existing claims data to calculate bundled care payments. The main

problem is that the actual primary care activity level, or the money spent on providing comprehensive services, cannot be observed directly. This is because existing billing data reflects the state that the reform is seeking to redress: many services that the bundled payment is intended to encourage are often not done, or even if done, are either under compensated or not billable(20).

Whellan *et al* undertook a financial modelling exercise for bundled payment of a heart failure management service(44). They identified in this exercise that the insurers benefited but overall there was net loss on the delivery/provider side.

3. Implementing quality measurement: Administrative and data costs and complexity is higher and requires upfront investment of time and resource(43). In some health systems the existing data systems with appropriate linkages were capable of supporting the analysis required but the challenge was in implementation(45).
4. Determining accountability: Bundled payments will bring together a number of providers potentially across multiple settings. Firstly, the provider organisation needs to know a bundled care payment has been initiated, secondly the clinicians have to collaborate and work together to deliver the care and thirdly, the provider organisation that received the bundled payment has to have a mechanism to remunerate each of the care providers. A useful strategy here may be ‘*virtual bundling*’ as a transitional step(11). In this strategy, the payment is still made separately by the payer to the individual providers but the overall pricing is a ‘bundled payment’ contract.
5. Engaging providers: Providers have to firstly agree to the change in payment structure and then have to engage in working together on a service redesign and new way of working. Successful engagement with clinician stakeholder groups requires their leading role in decision-making; they need to be involved in defining the bundle, in managing care, and in defining the responsibility of each provider involved(46). For example, in the Australian DCP the initial concept required modification to respond to concerns expressed by the Australian Medical Association and Royal Australian College of General Practitioners(24). As Miller identified, providers will need to change their internal processes, methods of coordination and even organisational structures to actually create better care, which takes time(11). A co-design approach can facilitate and prevent problems with engagement as demonstrated by the experience of an orthopaedic practice in the US(47). This case study demonstrated the value of co-design in all the process steps including defining the bundle, selecting patient populations, specifying outcomes, ensuring patient engagement and estimating costs and price settings.
6. Care design: This has been described as a ‘chicken and egg problem’ in driving effective service redesign. Payment bundling without organisational and managerial integration created service delivery and financial risks; but without payment bundling, providers lack the incentive to redesign care(43).

Appleby *et al* in their assessment and applicability of bundled payments for the English NHS were very uncertain about their utility for single disease or conditions. They cited a number of barriers to its implementation in the English context and suggested that bundled payments would need to operate alongside other payment models.

Workshop Findings

A workshop was hosted by AHHA in September 2015 to facilitate discussion on the scope of bundled payments in Australian primary care. Participants were provided with a draft of the literature review prior to the workshop. The workshop agenda and format are detailed in Appendix 3: Method (Workshop) and Appendix 5: Workshop Case Study. The workshop invited participants to:

1. Consider the current funding streams of a patient with a newly diagnosed chronic illness and his subsequent health care journey
2. Explore a balanced perspective of the role of bundled payments in Australian primary care

Current Funding Streams

Participants were invited to participate in an exercise on mapping current funding streams for a patient. The patient's history and journey are described in detail in Appendix 5: Workshop Case Study. Some participants were asked to explore opportunities for bundling in this patient journey.

Participants attempted to map the funding streams. The feedback from this process included the following.

- There were multiple potential funding streams for the same patient. These included:
 - MBS
 - PBS
 - Chronic disease management items numbers within MBS
 - Private Health Insurance
 - Public Hospital Funding (block funding or activity based funding)
 - Patient co-payments or self funding
 - Service Incentive payments for general practices e.g. diabetes cycle of care
 - Practice Incentive payments for general practices
 - Better Access initiative
 - Access to Allied Psychological Services (ATAPS)
- In addition, for some population groups there were additional/different funding sources
 - Aboriginal and Torres Strait Islander e.g. Closing the Gap
 - DVA Gold Card
 - GP Co-ordinated care veterans program (CVC)
 - Populations in rural areas
 - Jurisdictional variation
- Participants raised a number of other issues relevant to quality care and integration. These included:
 - A lack of incentives to bring services to patients building on the medical home concept; instead patients are being referred onto multiple providers leading to fragmentation

- *'some of the hidden costs here are repetition of pathology and imaging that may have already occurred, might even be on the national or eHealth system, the specialist might or might not choose to have access, they might not even indeed have the capability to'*
- *'a cost that we may not see, which is the cost of the communication gap. And people being unnecessarily readmitted to hospital at thousands and thousands of dollars of expense that could have been saved by integrated care earlier on in the piece'*
 - . *'Well and good to be discharged home, but if the discharge summary doesn't make it to the general practitioner within a reasonable time frame we can have an example of what we saw in Queensland in recent months: where a patient was commenced with warfarin, they got sent home, the GP received the discharge letter to be careful about polypharmacy with all the medications, but unfortunately that discharge letter was received by the GP four days after the patient had already died from complications of their medication'*
- The system currently has perverse incentives for cost shifting or regulations that create waste or additional costs
 - *'potential shift of cost to other payers.... in the public system you can get an outpatient clinic or you can come to my clinic down the road and I can see you next week and not in the next three months'*
 - *'What does strike you though is there is a push back in our complexity between the funders e.g. whether our private funders is pushing back to use the BC items first'*
 - *'a classic example in terms of funding drives behavior and certainly not patient focused is tertiary hospitals around the country; when there is an outpatient occasion of service delivered investigations in cardiology and radiology can't be charged to the Commonwealth on the same day. So the patients, you know, hundreds as they are forced to come back on a different day for the test'*
- The process of mapping current funding streams is complex
 - *'is just the complexity of when you came over and mentioned that don't forget this patient might be Aboriginal or might be DVA. I think trying to figure out, you know, what options are available, what payment systems are available for different sections of the population is quite complex'*
 - In talking about allied health care *'we really came out with the multiple, multiplicity of options for funding and providing these types of services. There was a variety of potential co-pays, there is bulk billing, there is private, there is community health, private insurance, coaching even primary health networks providing some of these type of services. And the choice from the patient's perspective is often impacted by conditions like the expected waiting times the cost and the affordability for them. Their previous experience or relationships with the systems and also by their own clinicians, their GP and their relationship and their views'; 'another dependency is how well the GP knows the system itself'*

- Care pathways are currently not patient centred and lack a wider outlook beyond their immediate health need. Participants questioned how the pathway would be different *‘if there was a patient controlled budget; what would they choose to go to and how would that improve the access and service utilisation?’*
- The complexity of the current system carries a significant administrative resource burden
 - *‘what the cost is of administering this and a number of transactions that take place and a number of different parties that are involved in actual transactional cost that is unrelated to the actual delivery of care’*

Three groups of participants were invited to review the patient journey and explore which components of that journey had the potential for bundling. The responses are described below:

- Participants experienced difficulty in identifying which services should or could be bundled - *‘we spent 99% of our time having a debate on how on earth we could bundle this . . . it was quite a challenge we decided to go with the chronic disease and give everything a red dot that’s got something to do with the chronic disease, but boy it was a challenge.’* The ambitious bundling actually extended beyond primary care components and included specialists and allied health components. In doing so they provide an illustration of how bundling brings together the possibility of vertical and horizontal integration. Other groups were more conservative with options for bundling. Their scope for bundling was limited to primary care elements related to the chronic condition, hence focusing more on horizontal integration. However, interestingly this group had the ambition that *‘we would like primary healthcare to be purchasing all of the healthcare from the whole system ultimately but that’s a bit of a way off.’*
- Some groups started to redesign the pathway. For example, one group commented that this process was linear and *‘it shouldn’t be a linear process, it should be a circular holistic process with the person in the center and the care available to them in the right place at the right time’*. A care coordinator should be utilised early on in the journey - *‘care coordination at the front is the answer’*. A much greater emphasis on patient education also needs to be placed at the beginning.
- Participants described that a greater challenge would be effective change management should an alternative payment mechanism be introduced. There would be some providers who benefit and others who do not (*‘the harder bit would be the fact that some people might lose money out of this and some people might actually be more in control of money.... some would capture the commissioning element of it ahead of other specialists or ahead of other parts of the system’*).

In conducting this exercise the participants experienced a pseudo-simulation of the process steps (Figure 2) required in order to progress towards bundled payments (48). They were required to explore current costs in providing care, define the process steps and consider areas for bundling. In doing so, they also started to consider redesign of care; one of the mechanisms by which bundled care improves quality and reduces cost. Participants also began to articulate elements of what health care may look like if funding reform options (page 35) are implemented, particularly options 3 and 4.

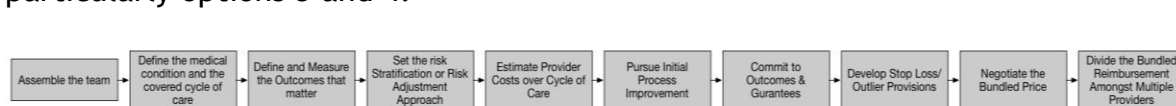


Figure 2: Process steps for implementing bundled payment

Bundled payments in Australia – a balanced perspective

Participants were then asked to participate in an exercise using De Bono's thinking hats. Groups were assigned one of four 'hats' and asked to consider the issues related to 'bundled payments' in Australian Primary Care from the perspective of their given 'hat'. The feedback from this exercise is summarised in Table 4.

Table 4: Bundled payments in Australia - a balanced perspective

'Hat'	Descriptor of Hat	Feedback
The Yellow Hat	The Yellow Hat symbolizes brightness and optimism.	<ul style="list-style-type: none"> • Commonwealth as a large funder has the structure to bundle streams. Private health insurance could similarly bundle streams. • The independent pricing authorities are undertaking an exercise of activity based funding for non-inpatient care. That process could inform the process of bundling. A similar exercise is being conducted for mental health. • Pathways of care for a number of conditions or episodes of care have already been mapped • Providers include large aggregate service providers e.g. state funded community care or corporate general practices which often also provide ancillary services • The introduction of PHNs provides an opportunity to be fundholders and commissioners that pay for care using bundled options • Consumers would benefit from clarity of providers, improved integrations and pathways and improved self support • Potential savings can be reinvested and the financial flows follow patient centred care
The Black Hat	The Black Hat is judgment -- the devil's advocate or why something may not work	<ul style="list-style-type: none"> • Bundling needs to focus on preventions and health promotion otherwise the potential benefits are not optimised • The quality of data is low and not sufficient to calculate the denominator in the value equation • It requires significant knowledge and capacity building both for providers and purchasers • There are risks with respect to cherry picking • There is a balance between bundling to optimise care for the individual or for the population • Removes or reduces choice for consumers • Resistance to change • The change will take time and will require political will if it is to survive political cycles
The Green Hat	The Green Hat focuses on creativity: the possibilities, alternatives and new ideas.	<ul style="list-style-type: none"> • There are opportunities to join up the system using a wide area network connectivity • Bundling care around social determinants of health; hence broadening the scope to deal with the root causes • Opportunities to bundle MBS and PBS is an area that has not been discussed in detail • There are potential opportunities in improving access and so bundled payments could explore costs of transport; tele-health and use of technology • Maximise the potential of coterminous PHN and LHD boundaries • Don't bundle inefficiency e.g. routine script renewals
The Red Hat	The Red Hat signifies feelings, hunches and intuition	<ul style="list-style-type: none"> • That bundled payments presents an opportunity to improve coordination and team work • A longitudinal bundling model would offer the best fit • There were complexities in bundling given the plurality of funders and idiosyncrasies in the system • There needs to be clarity around the utilisation of any savings • Rather than trying to design a perfect model we should pilot, refine and implement

Implications for Australia

The Federal Government's issues paper on the 'Reform of the Federation' presents a number of questions. They include questions on the efficiency, effectiveness and equity of service delivery and fiscal sustainability (Figure 3) as well as others.

How could shared responsibility for health care be better managed to reduce duplication and overlap?

What is the best way to ensure improved coordination of different parts of our health care arrangements?

What are the appropriate incentives for governments to reduce or eliminate cost-shifting?

What is the best way to ensure policy decisions in one area consider the health system as a whole?

How could technical efficiency (achieving more 'outputs' with less 'inputs') of the health sector be improved? How could allocative efficiency (ensuring resources are invested where they are most needed) be improved?

How could changes to roles and responsibilities for health improve outcomes for Indigenous Australians?

Figure 3: Questions on efficiency, effectiveness and equity in service delivery and fiscal sustainability

A separate draft discussion paper suggested a *“better health system would improve incentives for health care providers to focus on prevention and early intervention, assisting people to manage their health effectively. Payments based on improvements in people's health provide clear incentives to reduce costs associated with waste, mistakes and inappropriate care settings. This would include managing chronic conditions before they worsen and require further treatment. More health services would be provided in the community rather than in hospitals”* (49). Specifically, it listed the requirements of the health system (Figure 4) and described five reform options for consideration, drawing on discussions at the stakeholder roundtables and consultation with the States and Territories and the Prime Minister's Expert Advisory Panel:

1. The States and Territories be fully responsible for public hospitals
2. The Commonwealth establishes a hospital benefit
3. The Commonwealth and the States and Territories be jointly responsible for funding individualised care packages for patients with, or at risk of developing, chronic or complex conditions
4. The Commonwealth, States and Territories share responsibility for all health care through Regional Purchasing Agencies
5. The Commonwealth establishes a health purchasing agency

- centred on the patient's health and well-being;
- that is safe, provides the right care, in the right setting, at the right time, and supports prevention and early intervention;
- where consumers are empowered to manage their health and health risks, and to make health care decisions;
- that is fair and supports disadvantaged and vulnerable people and communities;
- that operates effectively, delivers value for money, and eliminates waste;
- with flexibility for innovation, adaptable to meet local circumstances, and encourages continuous improvements in services;
- anticipates and responds to the needs of an ageing population;
- that measures success and aligns incentives with people's health and wellbeing; and
- supported by clear roles and responsibilities so the public can hold governments to account.

Figure 4: Requirements of a health system

The context is unique to Australia, but all developed countries around the world are striving for a health system that meets these requirements (Figure 4), at the lowest possible cost. This objective has been encapsulated as achieving 'value' in health care, where value is defined "*as the health outcomes achieved per dollar spent*"(50). With respect to primary care, Porter *et al* argues that most primary care practices attempt to meet the disparate needs of heterogeneous patients with a single "*one size fits all*" organisational approach. Instead, he recommends that primary care is deconstructed and then reorganised by firstly identifying groups of patients with similar needs, challenges, and ways to best access care. He recommends that this division is not done by segmenting them into condition-specific groups but instead based on similarities in the types of care needed, which reflect patients' conditions and the severity of those conditions. He suggested those needs are met by integrated delivery care teams and suggests that "*a payment system designed around time-based bundled payments, or payment for a total package of services for a defined primary care patient subgroup during a specified period of time, is the approach most aligned with value for patients*"(51).

The limited evidence from the utilisation of bundled care payments in primary care from the Netherlands, US and elements of the Diabetes Care Project in Australia provide evidence that a bundled payment approach can improve quality of care and reduce cost. Those studies did not define the populations as suggested by Porter, however, researchers have suggested that a bundled payment system in primary care can act as a bridge from the current fragmented system to a future scenario of a risk-adjusted capitated payment model and the clinical accountability for the continuum of care for a defined population(16). In the evolution of medical homes in the US the payment structures have had to evolve to support the organisational development necessary to become a fully functional

medical home. The author suggests that a ‘multicomponent bundled payment’ offers the flexibility required through the different phases of development towards a medical home(52).

A King’s Fund paper on making integrated care happen states that there is no best way to make it happen, but does also point to the need to pool resources and be innovative in the use of payment mechanisms(12). Others have stated the need for the payment mechanism to be aligned across the system to achieve health goals(15). Designing the most appropriate payment system requires an understanding of the goals and then the right choice or blend of the different payment methods. Prospective elements can be used to incentivise providers to exercise appropriate economy in the supply of care, while retaining a retrospective element can enable payers to incentivise specified interventions and mitigate against risks of patient selection, which may arise if the epidemiological risk falls on the provider. To maximise overall cost-effectiveness at a system level requires complementary management and contracting levers. Pay for performance can be used to incentivise quality. A risk assessment may be conducted to identify probability of any unintended consequences so mitigating strategies can be put in place. This is consistent with recommendations from Canada suggesting that the best remuneration method for physicians depends on the goals of the health care system, and on external contextual factors.(53)

The key lessons articulated in the English NHS experience of payment by results need to be considered in thinking about the next steps in Australia. Although related to hospital funding, the same principles apply in thinking about the role of bundled payments within the primary care in Australia. These are:

- Payment systems cannot do everything
- One size does not fit all
- Payment systems need to be flexible
- Trade-offs between objectives are inevitable
- Data and research for payment systems must be strengthened

The evidence for bundled payments is not complete, but what there is shows benefits for costs and quality and whilst there are risks, there are also strategies for mitigating those risks. There are a number of predisposing conditions or foundations required to support a payment reform such as bundled payments. These are:

1. There is a growing call and will for payment reform. Discussion papers have been circulated by a number of stakeholders including the recent report from the George Institute(3), PHCAG (5) and the Royal Australian College of General Practitioners (RACGP)(54). RACGP’s consultation paper calls for a funding model to support a high performing primary health system and introduces concepts of case mix or ‘complexity loading’.
2. Bundled payments require funds to be pooled from their current custodians. A constant theme relates to the complexity of Commonwealth and State funding and cost shifting. The Coordinated Care Trials demonstrate that pooling of funds is possible in Australia, although there are risks associated with this. The

review of federalism offers a time-limited opportunity to identify who the custodian(s) of those pooled funds should be. The pooling of funds can become an enabler to vertical and horizontal integration by creating “bundles’ or pathways of care across the health system. This provides an opportunity to reduce duplication and overlap, and facilitates improved co-ordination of different parts of the health system. It by definition eliminates cost shifting, as there is only one entity.

3. The recent structural reforms with the formation of Primary Health Networks, aligned with Local Hospital Networks, provides the meso level facilitators for those conversations around pathways of care. Utilising their structures, e.g. Clinical Councils/Senates and Community Advisory Groups, and their engagement processes, they can facilitate the engagement of clinicians and consumers into a co-design process. The evidence has identified engagement as being critical in the implementation of bundled payments. This group can be responsible for determining the numerator in the value equation for the different population groups in their health economy.
4. High quality data systems that can measure the cost of activity are required for the denominator calculations in the value equation. They also are a necessity to measure clinical and patient centred outcomes on the numerator side of the value equation. This is a critical success factor and needs to be addressed with urgency and priority in the Australian health system, if the required granularity of data is to be available for a payment reform.

Once these foundations are in place, the international experience has offered some key lessons and steps in the implementation of bundled payments(48). However, the first step towards any reform is to embed the foundations described above. These foundations are implementation of ‘bundled payments’ and this in turn is a bridge towards a future capitation model in a transition towards a value based primary health care system.

Australia is not unique in its need to consider payment reform of the health care system. Other countries have already embarked on the journey. In Australia, there are a number of reforms on the agenda at a number of levels and a unique opportunity to introduce a transformational payment reform presents itself. The workshop discussions and outputs provided insights for implementation of bundled payments in the Australian context. As others have pointed out, a payment reform alone will not be sufficient to address the multiple challenges of fiscal sustainability, affordability, accessibility and equity, but it is necessary if the questions and issues raised in the ‘Reform of the Federation’ Health Issues paper are to be addressed.

References

1. Davis K, Stremikis K, Schoen C, Squires D. Mirror, Mirror on the Wall, 2014 Update: How the U.S. Health Care System Compares Internationally. 2014
2. Reform of the Federation White Paper. Roles and Responsibilities in Health. Issues Paper 3. 2014 Available at: https://federation.dpmc.gov.au/sites/default/files/issues-paper/Health_Issues_Paper.pdf. [Accessed: 31/7/2015]
3. Investing in healthier lives: Pathways to healthcare financing reform in Australia. 2015
4. Healthier Medicare. 2015 Available at: <http://www.health.gov.au/internet/main/publishing.nsf/Content/healthiermedicare>. [Accessed: 18/8/2015]
5. Phcag. Better Outcomes for People with Chronic and Complex Health Conditions through Primary Health Care. Discussion Paper. 2015 Available at: <http://www.health.gov.au/internet/main/publishing.nsf/content/primary-phcag-discussion>. [Accessed: 10/8/2015]
6. 2015 Intergenerational Report. Australia in 2055. 2015 Available at: <http://www.treasury.gov.au/PublicationsAndMedia/Publications/2015/2015-Intergenerational-Report>. [Accessed: 15/7/2015]
7. Biggs A. Medicare - Background Brief. 2004 Available at: http://www.aph.gov.au/About_Parliament/Parliamentary_Departments/Parliamentary_Library/Publications_Archive/archive/medicare. [Accessed: 6.9.15]
8. Pearce C, Phillips C, Hall S et al. Following the funding trail: financing, nurses and teamwork in Australian general practice. BMC Health Serv Res. 2011;11:38.
9. Davis K. Paying for care episodes and care coordination. New England Journal of Medicine. 2007;356:1166-1168.
10. Quinn K. The 8 Basic Payment Methods in Health Care. Ann Intern Med. 2015
11. Miller HD. From volume to value: better ways to pay for health care. Health Affairs. 2009;28:1418-1428.
12. Marshall L, Charlesworth A, Hurst J. The NHS payment system: evolving policy and emerging evidence. Nuffield Trust. 2014 Available at: http://www.nuffieldtrust.org.uk/sites/files/nuffield/publication/140220_nhs_payment_research_report.pdf. [Accessed: 1/8/2015]
13. Ham C, Smith J, Eastmure E. Commissioning integrated care in a liberated NHS. 2011 Available at: <http://nuffield.dh.bytemark.co.uk/sites/files/nuffield/commissioning-integrated-care-in-a-liberated-nhs-report-sep11.pdf>.
14. Chernew M. Bundled payment systems: can they be more successful this time. Health services research. 2010;45:1141-1147.
15. Addicott R. Commissioning and contracting for integrated care. London: The King's Fund. 2014
16. De Bakker DH, Struijs JN, Baan CA et al. Early results from adoption of bundled payment for diabetes care in the Netherlands show improvement in care coordination. Health Affairs. 2012;31:426-433.
17. Boyd CM, Darer J, Boulton C, Fried LP, Boulton L, Wu AW. Clinical practice guidelines and quality of care for older patients with multiple comorbid diseases: implications for pay for performance. JAMA. 2005;294:716-724.
18. Goroll AH, Berenson RA, Schoenbaum SC, Gardner LB. Fundamental reform of payment for adult primary care: comprehensive payment for comprehensive care. Journal of General Internal Medicine. 2007;22:410-415.
19. Ash A, Ellis R, Kronman A, Goroll A. Primary Care Financing Matters: A Roadmap for

- Reform. University of Massachusetts Medical School, Department of Quantitative Health Sciences, Worcester, MA Financing and payment. 2010;187
20. Ash AS, Ellis RP. Risk-adjusted payment and performance assessment for primary care. *Medical care*. 2012;50:643.
 21. Sood N, Huckfeldt PJ, Escarce JJ, Grabowski DC, Newhouse JP. Medicare's bundled payment pilot for acute and postacute care: analysis and recommendations on where to begin. *Health Aff (Millwood)*. 2011;30:1708-1717.
 22. McDonald J, Harris MF, Cumming J, Powell Davies G, Burns P. The implementation and impact of different funding initiatives on access to multidisciplinary primary health care and policy implications. *Med J Aust*. 2008;188:S69-72.
 23. Gardner K, Yen L, Banfield M, Gillespie J, Mcrae I, Wells R. From coordinated care trials to Medicare Locals: what difference does changing the policy driver from efficiency to quality make for coordinating care. *International Journal for Quality In Health Care*. 2013;25:50-57.
 24. Anon. Evaluation of the Diabetes Care Project. Available at: [https://www.health.gov.au/internet/main/publishing.nsf/Content/302DF0372F537A43CA257E35000138E8/\\$File/DCP%20Evaluation%20Report.pdf](https://www.health.gov.au/internet/main/publishing.nsf/Content/302DF0372F537A43CA257E35000138E8/$File/DCP%20Evaluation%20Report.pdf). [Accessed: 21/8/2015]
 25. Battersby MW. Health reform through coordinated care: SA HealthPlus. *BMJ: British Medical Journal*. 2005;330:662.
 26. Esterman AJ, Ben-Tovim DI. The Australian coordinated care trials: success or failure. *Medical Journal of Australia*. 2002;177:469-470.
 27. Marcus D. Coordinating Care in an Uncoordinated Health System: The Development and Implementation of Coordinated Care Trials in Australia. *Current Issues Brief* 11 1998-99. 1999 Available at: http://www.aph.gov.au/About_Parliament/Parliamentary_Departments/Parliamentary_Library/Publications_Archive/CIB/cib9899/99CIB11. [Accessed: 23/8/15]
 28. Australian coordinated care trials 2007: part 1 – executive summary - coordination of care and efficiency of Healthcare: lessons from the Second Round of Australian coordinated care trials. Available at: http://apo.org.au/files/Resource/final_cct2.pdf. [Accessed: 23/8/2015]
 29. Leach MJ, Segal L, Esterman A, Armour C, Mcdermott R, Fountaine T. The Diabetes Care Project: an Australian multicentre, cluster randomised controlled trial [study protocol]. *BMC Public Health*. 2013;13:1212.
 30. Bundled Payment: Effects on Health Care Spending and Quality. Closing the Quality Gap: Revisiting the State of the Science. 2012 Available at: <http://www.ahrq.gov/research/findings/evidence-based-reports/gapbundtp.html>.
 31. Hussey PS, Ridgely MS, Rosenthal MB. The PROMETHEUS bundled payment experiment: slow start shows problems in implementing new payment models. *Health Aff (Millwood)*. 2011;30:2116-2124.
 32. Damberg CL, Sorbero ME, Lovejoy SL, Martsolf... GR. Measuring success in health care value-based purchasing programs. 2014 Available at: http://www.rand.org/pubs/research_reports/RR306. [Accessed: 31/7/2015]
 33. Struijs JN, Baan CA. Integrating care through bundled payments— lessons from the Netherlands. *New England Journal of Medicine*. 2011;364:990-991.
 34. Van Dijk C, Raams J, Schut E et al. Integrated care: achieving better coordination of care for the chronically ill: lessons from The Netherlands bundled-payment initiative. *The European Journal of Public Health*. 2013;23:ckt126. 351.
 35. 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. *Int J Integr Care*. 2013;13:e057.

36. 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
37. Friedberg MW, Chen PG, White C, Jung... O. Effects of health care payment models on physician practice in the United States. *RAND* 2015
38. Shih T, Chen LM, Nallamothu BK. Will Bundled Payments Change Health Care? Examining the Evidence Thus Far in Cardiovascular Care. *Circulation*. 2015;131:2151-2158.
39. Cavalieri M, Gitto L, Guccio C. Reimbursement systems and quality of hospital care: an empirical analysis for Italy. *Health Policy*. 2013;111:273-289.
40. Charlesworth A, Davies A, Dixon J. Reforming payment for health care in Europe to achieve better value. London: Nuffield Trust. 2012 Available at: http://www.nuffieldtrust.org.uk/sites/files/nuffield/publication/120823_reforming-payment-for-health-care-in-europev2.pdf. [Accessed: 2/8/15]
41. Fisher ES, McClellan MB, Bertko J et al. Fostering accountable health care: moving forward in Medicare. *Health Affairs*. 2009;28:w219-w231.
42. Eapen ZJ, Reed SD, Curtis LH, Hernandez AF, Peterson ED. Do heart failure disease management programs make financial sense under a bundled payment system. *Am Heart J*. 2011;161:916-922.
43. Appleby J, Harrison T, Hawkins L, Dixon A. Payment by results: how can payment systems help to deliver better care. *kingsfundorguk*. 2012 Available at: <http://www.kingsfund.org.uk/sites/files/kf/john-appleby-payment-by-results-payment-reform-jan13.pdf>. [Accessed: 2/8/15]
44. Whellan DJ, Reed SD, Liao L, Gould SD, O'connor CM, Schulman KA. Financial implications of a model heart failure disease management program for providers, hospital, healthcare systems, and payer perspectives. *Am J Cardiol*. 2007;99:256-260.
45. Sutherland JM, Hellsten E, Yu K. Bundles: an opportunity to align incentives for continuing care in Canada. *Health Policy*. 2012;107:209-217.
46. Evans J. The Current State of Bundled Payments. 2010 Available at: <http://www.ahdbonline.com/issues/2010/july-august-2010-vol-3-no-4/500-article-500>. [Accessed: 5/8/15]
47. Witkowski M, Higgins L, Warner J, Sherman M, Kaplan RS. How to Design a Bundled Payment around Value. *HBR Blog Network* Published October. 2013;3
48. Porter ME, Kaplan RS. How Should We Pay for Health Care. 2014 Available at: [http://www.hbs.edu/faculty/Publication Files/15-041_1af09bde-47f9-4364-bad6-aaac464be909.pdf](http://www.hbs.edu/faculty/Publication%20Files/15-041_1af09bde-47f9-4364-bad6-aaac464be909.pdf). [Accessed: 3/8/15]
49. Reform of the Federation Draft Discussion Paper. 2015 Available at: https://federation.dpmc.gov.au/sites/default/files/publications/reform_of_the_federation_discussion_paper.pdf. [Accessed: 12/9/2015]
50. Porter ME. What is value in health care. *N Engl J Med*. 2010;363:2477-2481.
51. Porter ME, Pabo EA, Lee TH. Redesigning Primary Care: A Strategic Vision To Improve Value By Organizing Around Patients' Needs. *Health Affairs*. 2013;32:516-525.
52. Barr MS. The patient-centered medical home: aligning payment to accelerate construction. *Medical Care Research and Review*. 2010
53. Wranik D, Durier-Copp M. Framework for the design of physician remuneration methods in primary health care. *Soc Work Public Health*. 2011;26:231-259.
54. Consultation paper. Vision for a sustainable health system. 2015 Available at: <http://www.racgp.org.au/download/Documents/advocacy/Consultation-paper-RACGP-Vision-for-a-sustainable-health-system-14-A.pdf>. [Accessed: 26/5/15]

55. Cutler DM, Ghosh K. The potential for cost savings through bundled episode payments. *New England Journal of Medicine*. 2012;366:1075-1077.
56. Rosenthal MB, Frank RG, Buchanan JL, Epstein AM. Transmission of financial incentives to physicians by intermediary organizations in California. *Health Aff (Millwood)*. 2002;21:197-205.
57. Steele JR, Reilly JD. Bundled payments: bundled risk or bundled reward. *Journal of the American College of Radiology*. 2010;7
58. Wranik DW, Durier-Copp M. Physician remuneration methods for family physicians in Canada: expected outcomes and lessons learned. *Health Care Anal*. 2010;18:35-59.

Appendix 1: Definitions

Payment method	Definition
Bundle payment (also known as episode-based payment, episode payment, episode-of-care payment, case rate, evidence-based case rate, global bundled payment, global payment, package pricing, or packaged pricing)	A single payment covering multiple elements of a patient's treatment. It is often for an episode of care, or for a specific condition over a period of time.
Capitation	Lump sum or a fixed regular payment per patient/member of population served by a provider for comprehensive services or particular categories of service regardless of treatment
Fee for Service	Payment for an individual medical service, for example, discrete hospital visits or consultant attendances.
Pay for performance	A financial incentive based on measures of quality. Providers are rewarded for meeting pre-established targets on quality and efficiency. Providers are at risk as payment is dependent on their achievement against targets. This form of payment can be combined with other payment strategies to enhance quality.
Practice Incentive Payment	A practice-based payment for meeting specific, practice targets
Primary Care Activity Level (PCAL)	The expected primary care cost for each patient or population (used in US)
Service Incentive Payment	An additional payment for achieving a goal e.g. completion of a cycle of care for asthma or diabetes.

Appendix 2: Abbreviations

Abbreviation	
ACO	Accountable Care Organisations
APRM	Alternative Provider Remuneration Methods
CCT	Coordinated Care Trials
DCP	Diabetes Care Project
EPC	Enhanced Primary Care
FFS	Fee for service
MBS	Medicare Benefits Schedule
NHHRC	National Health and Hospital Reform Commission
PBS	Pharmaceutical Benefits Schedule
PCAL	Primary Care Activity Level
PCMH	Person centred medical home
PIP	Practice Incentive Payment
PPS	Prospective Payment System
PRM	Physician Remuneration Methods
RACGP	Royal Australian College of General Practitioners
SIP	Service Incentive Payments

Appendix 3: Method

This discussion paper has been produced in two stages:

1. A review of the literature
2. A workshop to discuss the findings and themes, with a particular focus on the meaning within the Australian context.

The final version will be a synthesis of the findings from the literature review and the workshop.

Literature Review

A literature search was conducted using PubMed, Cochrane and Google Scholar. The search strategy used for PubMed and Cochrane is detailed in the table below.

Search Engine	Search Strategy
PubMed (796*)	(((((((((bundl*[Title/Abstract]) OR episode[Title/Abstract]) OR prospective payment[Title/Abstract]) OR warranti*[Title/Abstract]) OR global[Title/Abstract]) AND payment[Title/Abstract]) OR fees[Title/Abstract]) OR incentive*[Title/Abstract]) OR reimburse*[Title/Abstract]) OR fees[Title/Abstract])
Cochrane (4)	(bundl*:ti,ab,kw or "prospective":ti,ab,kw or "global":ti,ab,kw or "episode":ti,ab,kw or "warranty":ti,ab,kw (Word variations have been searched)) AND (payment*:ti,ab,kw and incentive* and fees and reimburse* and finance* (Word variations have been searched))
Google Scholar	Each of the combined terms used in the PubMed search strategy was used in the Google Scholar search engine, with limitations as per those within the PubMed search where the search engine has the facility to enable those limits.

Table 5: Search Strategy

*The following limits were applied

English Language

Studies in last 15 years

Studies from Like Nations

(((((united kingdom[MeSH Terms]) OR australia[MeSH Terms]) OR new zealand[MeSH Terms]) OR canada[MeSH Terms]) OR united states[MeSH Terms]) OR europe[MeSH Terms])

Items with abstracts

Table 6: Limits applied to search strategy

The titles of papers from the literature search were reviewed. The study was included based on the relevance of the title. Where there was uncertainty from the title, the abstract was reviewed. Sixty-one papers from the PubMed search

were selected for a full paper review. Additional papers were identified as follows:

- (i) Use of snowballing techniques
- (ii) Author searches. Where the same author featured in more than one publication identified through the search strategy, then a further search was conducted in the databases using that author's name.
- (iii) A number of policy orientated research organisations have websites that either provide independent reports and publications or host a repository of literatures. The websites of the organisations listed in the table below were perused for appropriate reports and papers.

Organisation Name and Website	Description
RAND Corporation http://www.rand.org/topics/bundled-payment-for-health-services.html http://www.rand.org/health/key-topics/paying-for-care.html	The RAND corporation website has two collections which are relevant to this piece of research. The first collection is a series of papers on bundled payment for health services and the second is on paying for care.
The National Academies Press http://www.nap.edu	The National Academies Press (NAP) was created by the National Academy of Sciences to publish the reports of the National Academies of Sciences, Engineering and Medicine, operating under a charter granted by the Congress of the United States.
The King's Fund http://www.kingsfund.org.uk	The King's Fund is an independent charity working to improve health and health care in England with a vision to make best possible care is available to all. One of the mechanisms it uses to do this is by shaping policy and practice through research and analysis.
Nuffield Trust http://www.nuffieldtrust.org.uk	The Nuffield Trust is an independent source of evidence-based research and policy analysis for improving health care in the UK.
The Health Foundation http://www.health.org.uk	The Health Foundation is an independent UK charity that conducts research and in-depth policy analysis, run improvement programmes to put ideas into practice in the NHS, support and develop leaders and share evidence to encourage wider change.

George Institute

<http://www.georgeinstitute.org>

The George Institute's mission is to improve the health of millions of people worldwide which includes provision of best evidence to guide critical health decisions, targeting global epidemics and focusing on vulnerable populations.

Grattan Institute

<http://grattan.edu.au/home/health/>

The Grattan Institute is an independent think tank offering rigorous and practical Australian public policy thought leadership across seven public policy programs including health.

The Sax Institute

<https://www.saxinstitute.org.au>

The Sax Institute is an Australian not-for-profit organisation that promotes the use of research evidence in health policy.

Table 7: List of organisations whose websites were perused

A total of one hundred and sixty-five (165) references were reviewed, of which thirty-one (31) were relevant to the research questions this review paper is seeking to answer.

The research questions are:

1. What is the evidence of impact of bundled payments, particularly in primary care?
2. What are the enablers, barriers and lessons for implementation in Australia primary care from the experience of other countries?

NVivo software was used to analyse and synthesise the findings based on these two questions.

Workshop

The findings from the literature review were circulated to participants of a Forum on Bundled Care Options for Primary Health, held on 16th September 2015 and hosted by AHHA. The agenda workshop is shown below:

9:00	Introduction
9:15	What's working and what isn't ? - Australia's current state
9:25	The Reform Agenda
9:45	The 'value' goal
10:00	Ways of funding health ?

10:10	A patient perspective - exploring a patient journey.
10:20	Morning Break
10:45	Funding streams along a patient journey and exploring the opportunities for alternatives
11:05	Feedback
11:25	What does the evidence on bundled payments tell us?
11:40	Bundled payments in Australia - a balanced exploration
11:55	Feedback
12:15	Summary, Closing Remarks

Key findings from the workshop were presented, including a background presentation on value in health care and the type of funding mechanisms for health care. Participants (Appendix 4: List of Forum Participants (*page 49*)) were invited to work through a patient case study (Appendix 5: Workshop Case Study) to identify current funding streams for each component of care and which components of that patient's care had the potential to be bundled. Participant's were asked to consider bundled payments in Australia using De Bono's Six Thinking Hats as a tool to seek a balanced perspective (of which only four were used).

The Yellow Hat	The Yellow Hat symbolizes brightness and optimism.
The Black Hat	The Black Hat is judgment -- the devil's advocate or why something may not work
The Green Hat	The Green Hat focuses on creativity: the possibilities, alternatives and new ideas.
The Red Hat	The Red Hat signifies feelings, hunches and intuition

The outputs from the forum were recorded and the discussions audiotaped. The audiotape was transcribed and the transcript incorporated into the synthesis of this document and analysed for themes.

Appendix 4: List of Forum Participants

Aleksandric	Vlad	Capital Health Network
Anderson	Abbe	Brisbane North Primary Health Network
Ball	Jacqui	NSW Ministry of Health
Bates	Paul	Bupa
Beange	Jennifer	Western NSW Primary Health Network
Breadsell	Denise	Queensland Nurses Union
Byron	Jenny	Department of Health
Campbell	Magda	Sydney North Health Network
Coffey	Pauline	Brisbane North Primary Health Network
Cole	Deborah	Dental Health Services Victoria
Croker	Amanda	Amanda Croker Consulting
Davidson	Jill	Shine SA
Dawda	Paresh	Author
De Angelis	Tracey	Brisbane South PHN formerly Medicare Local
Eales	Sandra	Queensland Nurses Union
Eggert	Marlene	Australian College of Nursing
Feidgeon	Nigel	Merri Community Health Services Limited
Ferrier	Denise	Department of Health & Human Services, Vic
Hale - Robertson	Karen	CheckUP
Hales	Lynelle	Sydney North Health Network
Hassed	Vivienne	Dept of Health - Queensland
Healy	Caz	CoHealth
Hobbs	Aiden	CheckUP
Holden	Libby	Abt JTA
Hosking	Kim	Country SA PHN
James	Simon	Brisbane South PHN
Jones	Cristal	Department of Health
Killion	Susan	Australian Healthcare & Hospitals Association
Kleinhans	Shelley	Brisbane North Primary Health Network
Kmet	Walter	WentWest Limited
Kruys	Edwin	RACGP
Lee	Deb	Adelaide PHN
Leigh	Ben	LaTrobe Community Health Service
Liedvogel	Martin	Capital Health Network
Lyndon	Katie	Exercise & Sports Science Australia
Martland	Susan	
McCallum	Jacqueline	Dental Health Services Victoria
McGowan	Russell	Australian Health Care Reform Alliance
McKeown	Emma	Medtronic Australasia Pty Ltd
Nankervis	Richard	Central Coast NSW Medicare Local
Nix	George	Queensland Health
Panzer	Annette	Catholic Health Australia
Parekh	Sanjoti	Abt JTA

Partel	Krister	Australian Healthcare & Hospitals Association
Reay	Lizz	Wentworth Healthcare Limited
Rohde	Sarah	SA Health
Saberi	Vahid	North Coast Primary Health Network
Schmiede	Annette	Bupa
Schwager	Jane	HNECC PHN
Scown	Paul	Consultant
Stewart	Stephen	Dept of Health - Queensland
Sweenet	Sharon	Abt JTA
Thilo	Ayela	Bupa
Thurecht	Linc	Australian Healthcare & Hospitals Association
Todhunter	Liz	Queensland Nurses Union
Trethowan	Jason	Western Victoria Primary Health Network
Veach	Kate	Queensland Nurses Union
Verhoeven	Alison	Australian Healthcare & Hospitals Association
Vlachoulis	Nick	

Appendix 5: Workshop Case Study

Participants were presented a case study with the patient's journey mapped out. The case study was of a 60-year-old gentleman called, Wayne. He develops diabetes and is initially treated with diet and exercise in primary care. He also is found to be hypertensive. He eventually requires medication but when his diabetes remains uncontrolled he is referred to an endocrinologist. He receives further lifestyle interventions, but has to be referred to a cardiologist for chest discomfort. He requires intervention for this and cardiac rehabilitation. He during the course of his journey develops mild-moderate depression and his referred for psychological input and also received smoking cessation treatment.

The map of his journey is available for viewing at http://bit.ly/bp_patientjourney.

Appendix 6: Summary list of papers reviewed

The following is a list of papers that were identified in the literature search, reviewed and used in the final draft of the paper.

Reference Number	SUMMARY		COUNTRY
(12)	This paper identifies the different methods of payment in the NHS together with their advantages and disadvantages. It discusses factors that need to be considered in the design of a payment system and the objectives of a reformed payment system for England.	Review	UK
(14)	This editorial concludes that bundled payments will likely be an important feature of the health care system in the future. The author identifies five key areas: 1. The size of the provider group 2. The distribution of payments to providers and the mechanism used for that. 3. The management of risk and how it is accounted for. 4. The rate at which the payer increases future rates of payment of bundles. 5. In bundled payments if incentives are for the provider to receive a proportion of the savings. How any potential savings are distributed will have any impact.	Editorial	US
(16)	This paper reports the experience from the Netherlands of introducing a bundle payment system for diabetes care, vascular risk management and chronic obstructive pulmonary disease. The insurers pays a single fee covering all primary care elements of the specified conditions to a 'care group', which is the principal contracting entity. The care group consists of multiple health care providers (and often owned by General Practitioners). By way of background the authors describe three weakness of the Dutch system: <ul style="list-style-type: none"> • Primary care has been provided in small practices without the capability to deliver comprehensive care required for those with chronic diseases • A fragmented funding formula paying GPs using a blend of capitation and FFS and allied health with FFS. • The division between generalist and specialist care impedes integrated care, with the problem being compounded by the different payment mechanisms. 		Netherlands

The insurer negotiates the bundle payment level with the care group. The care group can choose to provide the service or subcontract to other providers e.g. GPs, allied health. In the latter case the care group would negotiate payments with the providers. The services included in the bundle had been set nationally in disease specific health care standards.

The positive consequences were better collaboration, better process quality (adherence to protocols), and more transparency. The effects of implementing bundled payment on patient outcomes such as blood sugar levels and costs were unknown.

The negative consequences were dominance of the care groups by general practitioners, large price variations that were only partially explained by differences in the provision of care, and an administrative burden.

The insurers perceived the bundled payment as a black box, not knowing what was happening at the patient level. One of the insurers expressed concerns about the lack of clarity and did not know what services were being paid for, and hence had concerns about double dipping. The authors point to other research showing large variations among care groups with regard to price as well as to reported performance information. They expressed concerns about additional administration in the contracts between them and care groups and concerns about the lack of competition.

The care groups reported perspectives were generally positive and in particular the ability to influence care process, to supply health care providers with feedback about their performance relative to the average care group performance and to give insurers information about performance. They were concerned about the administration and the dominant position of the insurers. They experienced challenges in assigning correct payments to providers particular when the patient had multi morbidity, and the lack of their ability to shift savings from specialty care to reinvest in primary care.

The subcontractor perspective was positive with recognition that it improved coordination of care. However, they had concerns about the dominant position of the care groups and their ability to remodel the care to be provided by different providers. There were concerns about conflicts of interest with high levels of care group ownership amongst GPs. GPs also raised concerns about fragmentation with disease based funding.

Further implementation of bundled payments for other chronic diseases were being considered in the Netherlands. However, this would make the problem of how to deal with patients with multiple diseases even more complex. The authors speculated that the introduction of bundled payment might turn out to be a useful step in the direction of risk adjusted integrated capitation payment for multidisciplinary provider groups offering primary and specialist care for a defined group of patients.

(17)	<p>The authors' objective was to evaluate the applicability of clinical practice guidelines to the care of older individuals with several co-morbid diseases and highlight implications of pay for performance. The review suggested that basing standards for quality of care and pay for performance on existing clinical practice guidelines for the population studies may lead to inappropriate judgment of the care provided to older individuals with complex co-morbidities. This may potentially create a perverse incentives leading to the wrong aspects of care for this population and diminish the quality of their care.</p>	Review	N/A
(18)	<p>This paper presents a framework for payment of primary care practices replacing encounter-based reimbursement with a comprehensive payment for comprehensive care.</p> <p>The model suggests additional investment for additional responsibilities. Payments are directed to practices to include support for the modern systems and teams essential to the delivery of comprehensive, coordinated care. The payment is needs/risk-adjusted and performance-based to ensure optimal allocation of resources and reward desired outcomes. It recommends pilots of the model.</p>	Discussion	US
(19)	<p>The author makes the case for a RiskBased Comprehensive Payment (RBCP) model for PCMH. It is partially capitated, in that the PCMH receives a bundled global payment intended to cover primary care services only; non-primary care services continue to be separately reimbursed.</p> <p>They argue for three payments:</p> <ul style="list-style-type: none"> • Base payment • Bonus incentive payment • Transformation support payment <p>The base payment is risk adjusted to cover the Primary Care Activity Level. The bonus payment is also risk adjusted.</p>	Discussion	US
(20)	<p>A paper describing the development and evaluation of a risk-adjusted Primary Care Activity Level base payment and performance measures using empirical criteria to estimate essentially all the resources needed for care and to determine what constitutes good performance.</p> <p>Calculating a bundled payment for only a particularly relevant subset of spending for primary care, this paper suggest avoids the problem of full capitation imposing unreasonable financial risk on typical primary care practices. The modelling was designed to support replacing fee for service payments in a medical home entirely with bundled care-coordination payments and large bonuses. The modelling was done on claims-based data on 17.4 million commercially insured lives to model bundled payment to support expected primary care activity levels and 9 patient outcomes for performance assessment.</p>	Risk based	US

The authors found that the predicted and apparent costs of providing comprehensive primary care vary more than 100-fold across patients and showed that sophisticated risk adjustment is required to adequately distinguish across such huge differences.

They demonstrated the utility of claims-based risk adjustment across diverse provider specialties, health plan types, payers, age, sex, and various outcomes and in distinct datasets.

The authors strongly recommend that any measure should be risk adjusted unless it is shown that patient factors cannot predict it.

The authors concluded that existing data can support the risk-adjusted bundled payment calculations and performance assessments need to encourage desired transformations in primary care.

(21)

This paper provides an analysis and recommendations on hospital based bundled payment models designed to bundle pre, inpatient, and post care. It identifies advantages and disadvantages:

US

Advantages:

- Payment bundling has the potential to reduce costs without compromising outcomes
- The entity has to provide the service delivery costs e.g. coordination, medication reconciliation. It received the cost net of the treatment cost and so can in effect commission the most cost effective provider

Disadvantages:

- Incentives to skimp on care are inherent in any fixed-episode payment system because there is no payment for additional services
- Increase in financial risk (but this can be mitigated against)
 - Insurance against outliers
 - Gain or loss sharing
 - Combining with pay for performance
- Limitation in choice of provider (if the entity being paid the bundled payment is commissioning services from its providers than it's likely to limit the number and this may limit the choice)

Implementation challenges:

- Choosing conditions: The authors suggest two key considerations.
 - Financial risk
 - Potential to reduce cost with compromising outcomes
- Length of an episode of care

(24)	<p>This is an evaluation report of Diabetes Care Project (DCP), a randomised cluster-controlled trial with a usual care group and two other groups:</p> <p>Group 1: an integrated information platform and continuous quality improvement processes within the current funding model.</p> <p>Group 2: As for group 1 + flexible funding based on risk stratification + payments for quality + funding for care facilitation.</p> <p>Findings: The study showed that those practices within Group 2 had:</p> <ul style="list-style-type: none"> • Improved the quality of diabetes care as measured by intermediate clinical indicators, adherence to recommended clinical processes and patient satisfaction. The latter included patient perceptions of continuity of care. • Were able to be more innovative and patient-centred in the way they delivered care • No statistically significant changes in affordability <p>The improvements in quality, particularly of information recording and intermediate clinical indicators were attributed to the pay for performance component.</p> <p>The evaluation concluded that a wider rollout of the funding mechanism for Group 2 interventions would not be cost effective.</p>	Research Paper	Australia
(25)	<p>This paper reported on the CCT in Australia conducted by SA HealthPlus. The summary of the paper reports the following four items:</p> <ul style="list-style-type: none"> • Barriers to coordinated care for chronic illness in Australia include multiple sources of funding, and general practice that focuses on acute care, with doctors working individually, not in teams • Definitions of managed care, coordinated care, and disease management models have not been agreed • SA HealthPlus successfully implemented a generic model of coordinated care with improved health outcomes but savings that were not sufficient to pay for all coordination costs • Self management capacity is a necessary component of assessment in determining allocation to coordinated care for chronic conditions 	Research Paper	Australia
(30)	<p>This technology assessment was a comprehensive review of the effects of bundled payments on spending and quality.</p>	Technology Assessment/ Review	US

The assessment search identified international and US papers, however, none of the papers included in the final review incorporated primary care. The only one paper that did was excluded because full evaluation results were not available.

The assessment concluded that the introduction of bundled payment was associated with (1) reductions in health care spending and utilisation, and (2) inconsistent and generally small effects on quality measures.

These findings were across all the variations of bundled payment programs identified by the review, but the authors rated the quality of evidence as low due mainly to concerns about bias and residual confounding.

They identified a number of caveats for consideration by policymakers:

1. Future bundled payment programs will be different to those reviewed in this study (80% of the bundled payment interventions studied were limited to payments to single institutional providers (e.g., hospitals, skilled nursing facilities). This limited the ability to extrapolate to newer programs that include multiple providers)
2. They note that bundled payment have the potential to either adversely affect quality or be used as part of a quality improvement strategy. Hence future bundled payment programs need to have an integral and robust quality monitoring and improvement component.
3. The quality of evaluation was low and that further policy change should be subject to rigours evaluation.

(31)	PROMETHEUS was designed to pay for all of the care required to treat a defined clinical episode, particularly those services recommended by clinical guidelines or experts. It defined 21 medical conditions to be included including chronic diseases such as diabetes. The sites experienced significant implementation challenges. Despite the challenges some intermediate benefits were observed. These include participants finding it valuable to use a measurement tool, initiation of new care coordination activities and improved communication amongst stakeholder.	Review	US
(32)	This was a paper from the RAND Institute that reviewed the success of value based purchasing programs. In the review the authors had identified three papers in relation to bundled payments. They had applied inclusion criteria that limited them to an examination of bundled payment arrangements to those that included both cost and quality performance components to assess value. The setting of the three studies included Hospital/physicians/post-acute care. They found:	Review	US

	<ol style="list-style-type: none"> 1. Clinical quality: Only one of the three studies examined the effect of bundled payments on process measures. The study found that adherence on 40 clinical process measures increased. However, this was in a single integrated organisation and so the transferability to other settings may not be possible. 2. Cost: Two studies measured this and both found a cost reduction. One was of the order of 5 percent whilst the other found a \$USD2000 reduction in the cost per case over the two-year period. 3. Unintended consequences: There were none identified. However, the expert panel overseeing the review recommended monitoring of potential unintended consequences. These potentially include the loss of revenue for providers caring for disadvantaged populations, the excessive exclusion of patients when that is an option in the program, access barriers and patient turnover from practices related to providers avoiding more difficult patients, and market concentration and price effects in the context of Accountable Care Organisations. 		
(33)	<p>This paper discussed the implications of the Netherlands experience in the US contexts identifying five key lessons:</p> <ul style="list-style-type: none"> • Reimbursement of care groups varied widely <ul style="list-style-type: none"> - Partially explained by variation in actual differences in care provided - Partially explained by inexperience of care providers and payers in bundled payment design - Partially explained by varying interpretation of national standards • Unanimous reporting of improvement in care processes • Improvement in transparency of care (but requires ongoing information in technology as an enabler) • Too early to conclude on quality or cost <ul style="list-style-type: none"> - No improvement in intermediate outcome measures e.g. HbA1c but high starting point • Care groups in a powerful position and with a preferred provider network limited choice for patients. 	Discussion paper	Netherlands
(34)	<p>This paper reviewed the Dutch experience with bundle payments in chronic care. The full paper could not be sourced, however, given the relevance of the Dutch experience to this project the abstract was maintained in the literature search. It report small but largely variable effect on quality of care of patients with diabetes. This included lower proportion of patients treated in hospital, but with no corresponding decrease in hospital costs, however there was an additional investment cost for primary care. The transparency system did not function well, with lack of steering on double payments, and a concerns about the monopolistic position of care groups. Patients were unaware of their involvement and very little difference was observed in individual care plans. The authors concluded that it was too early for a final assessment but commented care groups needed to fulfil higher requirements with respect to preconditions and patient involvement.</p>	Research paper	Netherlands
(35)	<p>This study evaluated quality of care for diabetes patients with and without co-morbidity enrolled in diabetes disease management programmes provided by care groups. They found no differences in quality of care in diabetic patients with or without co-morbidities.</p>	Research paper	Netherlands

(36)	<p>This paper presented the perspective of dietician in the Netherlands bundled care experience of patients with diabetes.</p> <p>The findings showed the advantages and disadvantages:</p> <p>Advantages:</p> <ul style="list-style-type: none"> • increase in multidisciplinary collaboration (65%) • more efficiency in primary health care (41%) and • greater transparency of health care quality (24%) <p>Disadvantages:</p> <ul style="list-style-type: none"> • increase in administrative tasks (60%) • lack of payment for patients with co- or multi-morbidity (41%), and • that dietetic care was substituted by other disciplines (32%) 	Research paper	Netherlands
(37)	<p>This survey reports findings from research on physicians' attitude to alternative payment models including bundled payments. Interviewees reported:</p> <ul style="list-style-type: none"> • change in organisation structure through merger with other practices or bigger organisations to enable them to respond to the structural changes required from different payment models e.g. Investment in information technology • encouraged the development of team approaches to care management, featuring prominent roles for allied health professionals • a serious tension could also arise when practices participated in a mix of both FFS and risk-based contracts resulting in conflicting incentives—to increase volume under the FFS contract while reducing costs under the risk-based contract • Expanded options for patient access • Investment in data management capabilities • negligible effects on the aggregate income of individual physicians • Those particularly in non-leadership positions perceived the changes with less enthusiasm. They experience great non-clinical work and felt pressure to practice at the top of their licence. <p>The authors recommended that:</p> <ul style="list-style-type: none"> • Practices need support and guidance • Addressing concerns about operational details could improve their effectiveness • Practices need data and resource to manage and analyse that data • Aligning key aspect of different payment models would allow practices to respond constructively 	Research	US

(38)	The authors reviewed the impact of bundled care for cardiovascular services (mostly specialist services). They conclude bundled payment initiatives thus far have demonstrated modest potential to curb health care costs without decreasing health care quality and potentially even improving it. They cite the recurring theme around challenges in program implementation.		US
(39)	This paper reports an empirical analysis of hospitals in Italy and concludes that those in regions where PPS are used more widely correlate with higher quality of care.	Research paper	Italy
(40)	<p>This paper from the Nuffield Trust provides a snapshot of policy focus in Europe to reform payment systems for health in order to improve efficiency and quality.</p> <p>Payment by case-mix adjusted bundle payments is well established in hospital care. It has had impact with increasing activity and reducing length of stay but not for co-ordination of care beyond hospital settings or control of overall cost. The payment mechanism is being combined with pay for performance or caps are being introduced limit total costs.</p> <p>The payment system for doctors outside of hospitals is a blend of fee for service and capitation. The authors comment on findings from other research that an over reliance on fee for service is likely to increase activity or that capitation will reduce efficiency. They suggest the need for a balanced blend of payment systems.</p> <p>They comment on the health system striving to achieve better value and the development of episode-based payment to cover a pathway of care for patients (together with a pay for performance element) being a promising element towards value-based contracting. However, they note that such payment systems can only develop if there is good quality data on activity, cost and outcomes: in most countries in Europe such data are weakest for some of the ambulatory and primary care based interventions, which are key components of the effective management of patients with chronic disease. To achieve greater value in health care requires dealing with a complex interaction of a number of factors: professional and public culture, regulatory systems, legislation and governance.</p> <p>They note that while payment mechanisms can help to overcome some of these challenges, they are only a part of wider change needed. Establishing DRG-style case-mix groupings for ambulatory and primary care-based interventions would be an important next step, as would the development of a robust set of measures of outcomes, and greater challenge of variations.</p>	Research Report	Europe

(42)	<p>This paper researched whether bundled payments for heart failure for patients hospitalised reduced readmissions. The found that proposed bundled payments would provide a sufficient incentive to implement disease management programs that would reduce the risk of readmission and hence improve quality and cost.</p>	Research	US
(43)	<p>A paper on payment by results in the English NHS. It identifies some key lessons regarding payment system. These key lessons include:</p> <ul style="list-style-type: none"> • Payment systems cannot do everything • One size does not fit all • Payment systems need to be flexible • Trade-offs between objectives are inevitable • Data and research for payment systems must be strengthened <p>The paper also reviewed the international experience of paying for health care. It notes that many countries are dissatisfied with the limitations of activity-based payments for patients with long term conditions and complex ongoing needs. It cites the following examples of bundled care initiatives:</p> <ol style="list-style-type: none"> 1. Netherlands - a large-scale initiative to contract doctor led groups for a year of care for selected chronic conditions. 2. US - pilots of bundled care payments on ‘episode treatment groups’ that bundle physician, acute hospital, post-acute and ambulatory care costs from referral or admission to recovery for an extended episode of care. 3. Sweden - piloting of extended episode payment for joint replacement, combined with patient choice and provider competition. <p>They express the exercise of caution as defining episodes of care, and payment rates, and distribution of incentives across providers is challenging.</p> <p>The paper conducts a critical analysis of the application of bundled payments to the English NHS and concludes:</p> <ol style="list-style-type: none"> 1. It is uncertain about its place in the NHS which has a different context 2. The structure of commissioning primary care and acute is care is divided which would make it difficult to translate <p>They comment that bundled payments have stimulated better co-ordination, improved the quality of data, improved clinical engagement, and relationships between payers and providers.</p>	Review	UK

(44)	This study undertook financial modelling to understand the impact on insurers, delivery systems and providers of introduced a heart failure management service. The findings demonstrated that there would be a benefit for insurers, and that monies would shift to different components of the system, resulting in greater loss to one component with gains in other components. Overall, it showed net loss to the delivery/provider side. It provides indirect evidence to illustrate the complexity of costing a service or bundle of care.	Research paper	US
(45)	This paper presented the author's exercise in linking existing data sets in Ontario to explore the feasibility of implementing bundled payments in that system. The author demonstrated it was possible hip and knee replacements but implementation issues are significant.	Research and discussion paper	Canada
(47)	<p>The paper presented a successful process to co-design a bundled payment approach between orthopaedic providers and payers in US. They defined process steps as:</p> <ul style="list-style-type: none"> • Defining the bundle • Selecting the patient population including taking into account risk adjustment based on case mix • Specifying evidence based outcomes and guarantees • Ensuring patient engagement • Estimating costs • Setting the price <p>The output from this case study description has yet to be implemented.</p>	Case Study	US
(53)	The article argues that the optimal choice of PRM depends on the goals of the health care system, and on external contextual factors. Fee for service payments are best when the goals are quantity of care and risk acceptance. Capitation is best when the goals are collaboration between providers and delivery of preventive services and health promotion. Salaries are best when population density is low, and the goal is to recruit physicians to rural and remote areas. Blended payment models are recommended for the achievement of multiple goals.		Canada
(55)	The authors of this paper conducted an analysis to estimate cost savings for episodes of care that were bundled. They looked at an elderly population across 306 hospital referral regions and a total of 245 different types of episodes. They compared estimated cost saving with episode-based to patient-based bundled payments (capitation). The conclusion was that it is possible to achieve very substantial health care savings by moving from a fee for service model to bundled payments for episodes of care, whether in a stand-alone program or as a component of an overall global-payment model.	Research	US

(56)	<p>This survey of 153 intermediary entities in California traced the cascade of financial incentives from health plans through physician organizations to primary care physicians. Although the physician organizations received the vast majority (84 percent) of their revenues through capitation contracts, most of the financial risk related to utilisation and costs was retained at the group level. Capitation of primary care physicians was common in independent practice associations (IPAs), but payments typically were restricted to primary care services. Thirteen percent of medical groups and 19 percent of IPAs provided bonuses or withholds based on utilization or cost performance, which averaged 10 percent of base compensation. With a single exception, all respondents indicated that individual physicians rather than subgroups or “risk pools” were the basis of bonus or withhold calculations. Depending on the way physician organisations predominantly paid primary care providers an average of 9-21 percent.</p>		US
(57)	<p>The authors review the history of bundled payments, the current demonstration sites, and the opinions of those radiologists involved and attempt to outline a plan for hospital-based practices to prepare for this possible scenario.</p>	Discussion Paper	US
(58)	<p>This paper reported on qualitative interviews from 27 stakeholders in the Canadian Health System on reasons for, expectations of, as well as achievement of APRM for family doctors in Canada. The main reasons identified included:</p> <ul style="list-style-type: none"> • Recruitment and retention in rural and remote areas • Desire to increase collaboration, care continuity, prevention and health promotion. <p>Blended payments were described as having a positive effect on the collaboration, care continuity, prevention and health promotion. A salaried structure helped recruitment and retention but raised concerns about reduced physician productivity.</p>	Research	Canada