



OECD Health Working Papers No. 154

Innovative providers'  
payment models  
for promoting value-based  
health systems: Start small,  
prove value, and scale up

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<https://dx.doi.org/10.1787/627fe490-en>

Unclassified

English - Or. English

31 March 2023

**DIRECTORATE FOR EMPLOYMENT, LABOUR AND SOCIAL AFFAIRS  
HEALTH COMMITTEE**

**Cancels & replaces the same document of 29 March 2023**

**Health Working Papers**

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**Luca Lindner and Luca Lorenzoni\***

JEL Classification: H51, I11 and I18

Authorised for publication by Stefano Scarpetta, Director, Directorate for Employment, Labour and Social Affairs

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**JT03515594**

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# Acknowledgements

The authors would like to thank the participants in the December 2022 OECD Health Committee for their inputs and feedback on a previous version of the paper. The authors would also like to acknowledge comments received from Eliana Barrenho, Francesca Colombo, Frederico Guanais, Philip Haywood, Mark Pearson and Eric Sutherland from the Organisation for Economic Co-operation and Development (OECD) Directorate for Employment, Labour and Social Affairs, Andrea Uhrhammer from the OECD Directorate for Public Governance, and from Ricarda Milstein (University of Hamburg).

The authors are grateful to Takumi Akama and Isabelle Vallard for their assistance.

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# Abstract

Innovative providers' payment models represent an important policy lever that could be used to promote value-based health systems. By bundling services across the continuum of care or to target acute events or chronic conditions, innovative payment models set financial incentives for providers to increase efficiency in service delivery, improve health outcomes and enhance patient experience with care. This paper offers insights on value-based payment models, a type of innovative payment model implemented in several OECD countries and reviews the publicly available evidence on the impact of those payment models on value. Innovative payment models tend to be exceptional and small-scale compared to activity-based payment models and have been extensively piloted in the United States while implementation and evaluation in other countries is limited. The publicly available empirical evidence points to modest efficiency and quality gains from value-based payment models. Impact on healthcare spending, outcomes and patient experience varies across programmes. Given the significant variation in the key features of value-based payment models and the context-specific issues they address, those models do not offer a one-size-fits-all solution. This paper outlines several intervention points that policy makers need to consider when designing and implementing value-based payment models to maximise their positive outcome.

# Resumé

Les modèles de paiement novateurs des prestataires représentent un levier politique important, susceptible d'être utilisé pour promouvoir des systèmes de santé fondés sur la valeur. En regroupant les services dans l'ensemble du continuum des soins ou en ciblant les événements aigus ou les maladies chroniques, les modèles de paiement novateurs mettent en place des incitations financières pour permettre aux prestataires d'accroître l'efficacité des services fournis, d'améliorer les résultats en matière de santé et l'expérience des patients en matière de soins. Ce document offre une vue d'ensemble des systèmes de paiement fondés sur la valeur, un type de paiement novateur mis en œuvre dans plusieurs pays de l'OCDE, et examine les données probantes accessibles au public concernant l'effet de ces modèles sur la valeur. Ces modèles novateurs restent encore exceptionnels et sont développés à petite échelle par comparaison avec les modèles de paiement à l'activité, et ils font l'objet de nombreux projets pilotes aux États-Unis, alors que leur mise en œuvre et leur évaluation sont limitées dans les autres pays. Les données empiriques accessibles au public indiquent que les modèles de paiement fondés sur la valeur génèrent des gains d'efficacité et de qualité modestes. Les répercussions sur les dépenses de santé, les résultats et l'expérience des patients varie considérablement entre les programmes. Étant donné que les principales caractéristiques des systèmes de paiement fondés sur la valeur et les problèmes auxquels ils répondent en fonction de la situation varient considérablement, ces modèles n'offrent pas une solution unique. Ce document décrit plusieurs points d'intervention que les décideurs politiques doivent prendre en considération lors de la conception et mise en œuvre des modèles de paiement fondés sur la valeur pour maximiser leurs résultats positifs.

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# In Brief

## Key findings

Innovative payment models change incentives for how providers deliver care. A large part of those models shifts financial risk from payers to providers, hold providers accountable for the cost and quality of care they deliver and could thereby promote value in health systems. Value-based payment models, a type of innovative payment models, target acute events (episode-based bundled payments), chronic conditions (bundled payments for chronic care management) or the continuum of care (comprehensive capitation payments) also across different sectors (for instance, health and social care). Those payment models are expected to improve value through economies of scope and scale (in particular comprehensive capitation payment models), and a higher degree of co-ordination and integration across settings and services.

To date, the limited public available empirical evidence suggests that the success of value-based payment models is mixed. In particular, episode-based bundled payments for surgical care led to resource savings and improved outcomes, while the same impact on quality and spending is not observed for episode-based bundled payments for medical care. Evidence on the impact of value-based payment models on care coordination and integration is missing or only qualitative.

This paper finds that a large portion of value-based payment models has been implemented in the United States. It finds also a significant variation in key features of those models, including the target population, the conditions covered, provider participation (mandatory or voluntary) and whether payments are prospective or retrospective. It notices that value-based payment models are usually context-specific small-scale initiatives. Given this variation, cross-national learning is crucial for identifying successful transferable models and best practices.

Based on country experiences reviewed in this paper, it is suggested that the implementation of value-based payment models needs to be aligned with governance and workforce policies, data collection and analysis, and performance monitoring and reporting. For example,

- the regulatory and legislative context should support the creation of new entities for the coordination of care across providers;
- changes in care delivery may require new roles and responsibilities in care, such as coordinating nurses; and
- adequate IT infrastructure is necessary to streamline data collection and data sharing among providers and payers, and to enable quality measurement and performance monitoring and evaluation.

This paper also highlights that policy makers have several intervention points when designing context-specific and tailored innovative payment models:

- engage with physicians' groups and other providers from the very beginning
- engage patients and their families, and the civil society in the design and delivery of care to best meet their needs
- commit to payment reform that span extended periods
- set fair prices and incorporate quality adjustment into the payment

- design risk mitigation strategies for providers

Finally, this paper emphasises the need for rigorous evaluation of the impact of value-based payment models on enhancing efficiency in service delivery and on improving health outcomes and patient experience with care, also through better care coordination and integration across settings and services. This will also allow the scaling up of small-scale projects of proved value.

# 1 Introduction

1. Countries have had upward pressures on health spending due to several “mega-trends”, such as population ageing and the increasing prevalence of chronic conditions, with recent economic and health crises putting additional stress on the already overburdened health sector. Despite the growing amount of GDP spent on health in many OECD countries, fragmentation of care remains a challenge and many patients still do not receive the care they need when they need it (OECD, 2021<sup>[1]</sup>). The macroeconomic context is tight, the issue of how to tackle waste and improve value for money hence become even more relevant, and more targeted investments are needed both from an economic and patient perspective. In light of the tight financial situation and changing care needs, a number of OECD countries are revisiting the ways in which they pay for healthcare and accelerating efforts to explore innovative payment models to promote value-based health systems.

2. “Innovative payment models” is an umbrella term for different efforts to redirect financial flows in the health system, which ranges from performance-based add-on payments to large-scale comprehensive capitation payment models (OECD, 2016<sup>[2]</sup>). In this paper, we focus on innovative payment models that are designed to enhance value in health systems, also referred to as value-based payment models. Value-based payment models bundle payments across defined episodes of care, chronic conditions, or patient populations to rein in healthcare spending while delivering high-quality patient-centred and coordinated care.

3. These models usually set a fixed price that shifts some of the financial risk of care delivery from payers to providers. Providers are expected to reduce unnecessary care and enhance efficiency by better coordinating their work with other providers and through economies of scale and scope. This is crucial as prior OECD work found that setting the right financial incentives is an important lever for reducing wasteful spending in healthcare. In order to address the rising cost of healthcare, the OECD (2017<sup>[3]</sup>) recommends that:

Policy makers should create an environment that rewards provision of the right services rather than their quantity – for example, by moving towards payment systems that promote value for patients across the stages of care delivery. [...] To reduce the incidence of unnecessary health care services and wasteful failures in co-ordination, a handful of payers, most notably in the United States but also in Sweden, Portugal and the Netherlands, have moved towards bundled or population-based payments, with some promising results.

4. The need for restructuring payment flows in healthcare has also been raised in the context of moving towards more people-centred health systems. Since value-based payment models bundle payments across providers, they are expected to increase coordination and thereby lead to more seamless, patient-centred care pathways. Changes in providers’ payment may, therefore, reduce the fragmentation of delivery systems, which has been identified as a major cause for inadequate and unnecessary care that is costly and does not sufficiently consider patient perspectives. As a recent OECD (2021<sup>[1]</sup>) report finds

In addition to the implications of fragmentation on overall efficiency and outcomes, poor integration within the health system makes navigating care and services difficult for the people who need them. Better integrated care among patients with chronic conditions has been found to improve well-being and quality of life, while

helping to improve self-management of care. Yet operations within the health system remain too fragmented, too often, with poor co-ordination of care around patients, and frequent fragmentation between health sectors, such as primary and hospital care.

5. Changing providers' payments models towards value-based models is thus part of a more general shift in how value in health systems is understood. The dominant value-for-money approach has been complemented by one that also considers value from the perspective of patients, families and societies. Smith et al. (2020<sup>[4]</sup>) underline the need of understanding value from a health system perspective, arguing that:

*The development of concepts such as value-based health care or patient responsiveness are two examples among many of the efforts at creating value in the health system. Yet, these various initiatives have usually approached the notion of value from the viewpoints of a limited range of actors in the health system and/or have focused on certain dimensions of value. These limited perspectives inhibit progress towards maximizing the total value that could be achieved by the health system.*

6. Value-based payment models thus come with many promises such as reducing healthcare spending while at the same time improving outcomes and patient experience with care and, especially in comprehensive capitation payment models, improve population health. As such, value-based payment models have the potential to enhance value in health systems from multiple perspectives, namely the patient (outcome and experience), the provider (experience), the system (cost) and the population (outcome, possibly embedding equity).
7. A well-functioning budget system to ensure that funds are allocated to the most valued spending areas could be considered as a complement to pursuing innovative payment models.

## Most OECD countries use fee-for-service and capitation to pay providers

8. In most OECD countries, providers are paid for the activity they perform (OECD, 2016<sup>[2]</sup>; OECD, 2016<sup>[5]</sup>), either per unit of service (fee-for-service) or per case of hospitalisation (Diagnosis-related groups). Fee-for-service (FFS) schemes pay providers based on the distinct services that they provide. Payments are typically based on a schedule that lists the prices for individual services, with the definition of services based on established classification codes. In comparison to FFS, DRGs bundle all goods and services provided during a hospitalization into one joint payment. As such, they represent a first step of bundling payments. However, FFS and DRGs still set an incentive for the overprovision of care. FFS payments incentivize providers to increase the number of services, whereas DRGs set an incentive to increase the number of patients treated, leading to higher activity and higher expenditures<sup>1</sup>. Both schemes can result in excessive expenditure growth - mainly due to the provision of low-value care - if not combined with strict budgeting mechanisms (OECD, 2016<sup>[2]</sup>).

9. Traditional payment systems contribute to care fragmentation as fee schedules do not provide any inherent incentive for providers to coordinate care and generate many billable transactions that can result in high administrative costs for health professionals. In addition to that, FFS and DRG payment schemes do not provide incentives to improve quality of care as providers are paid for the services they deliver, irrespective of the results obtained.

10. In the OECD Health System Characteristics Survey from 2016, OECD member countries reported that FFS was the most commonly used payment scheme in primary care (23 countries) and outpatient

<sup>1</sup> To control the inflationary effects of DRG-based payment, some OECD countries have introduced a tapering scale of rates for DRG-based payment above a defined volume of production. The main reason given to justify this mechanism is that economies of scale can be achieved within the hospital production system (de Lagasnerie G, 2015<sup>[109]</sup>)

care (22 countries) (OECD, 2016<sup>[5]</sup>). The use of capitation in primary care (22 countries) is also common across OECD countries (Figure 1.1). Often, different types of payment are combined, resulting in blended payments (OECD, 2016<sup>[2]</sup>). In ten countries, a pay-for-performance scheme (see Box 1.1) was used to pay providers in primary care and/or outpatient specialists, indicating a trend towards value-based payment models (Figure 1.1).

### Box 1.1. Pay-for-performance

Pay-for-performance (P4P) payments are adjustments to payment that providers receive for reaching certain quality benchmarks or other performance measures. P4P payments exist next to other payment models, such as FFS and DRGs and are intended to reward providers for improving quality of care, patient experience, and/or efficiency. Since P4P payments are added to other payment models, they do not require significant changes in financial flows or governance and thus constitute a relatively simple way to link payment to value. P4P elements are present in most of the innovative payment models to ensure that changes in care delivery benefit the patient by improving or maintaining the quality of care, health outcomes and / or patient experience.

P4P schemes do not constitute payment models in themselves but should be understood as quality-promoting elements that can be added to any kind of payment system. The financial incentive set by P4P programmes in the inpatient sector usually represent less than 1 % of hospital's total revenue, as a review of P4P in the inpatient sector finds (Milstein and Schreyoegg, 2016<sup>[6]</sup>). Due to that, they are unlikely to unfold their effect on promoting value, and countries have started piloting and implementing innovative payment models that consider a greater redistribution of financial flows across settings and services through bundling payments (value-based models). A discussion of these more comprehensive innovative payment models, many of which include P4P components, will constitute the focus of the remaining sections of this paper.

Figure 1.1. Providers' payment for primary care and outpatient specialists across OECD countries

22		23		22	
Australia	Australia	Australia	Australia	Australia	Australia
Belgium	Austria	Austria	Austria	Austria	Austria
Canada	Belgium	Belgium	Belgium	Belgium	Belgium
Chile	Canada	Canada	Canada	Canada	Canada
Czech Republic	Chile	Chile	Chile	Chile	Chile
Denmark	Czech Republic	Czech Republic	Czech Republic	Czech Republic	Czech Republic
Estonia	Denmark	Denmark	Denmark	Estonia	Estonia
Ireland	Estonia	Estonia	Estonia	Finland	Finland
Israel	France	France	France	France	France
Italy	Germany	Germany	Germany	Germany	Germany
Latvia	Iceland	Iceland	Iceland	Greece	Greece
Lithuania	Ireland	Ireland	Ireland	Iceland	Iceland
Mexico	Japan	10	Australia	Italy	10
Netherlands	Latvia	Australia	Czech Republic	Japan	Canada
Norway	Lithuania	Czech Republic	Finland	Latvia	Chile
Poland	Luxembourg	Estonia	Germany	Luxembourg	Denmark
Portugal	Netherlands	France	Iceland	Mexico	Ireland
Slovenia	Norway	Latvia	Israel	Norway	Israel
Spain	Poland	Lithuania	Mexico	Poland	Mexico
Sweden	Slovenia	Netherlands	Portugal	Slovenia	Norway
Switzerland	Sweden	Portugal	Spain	Spain	Portugal
	Switzerland	Spain	Türkiye	Sweden	Spain
					2
					France
					4
					Canada
					France
					Lithuania
					Poland

UK (England)	UK (England)	UK (England)	Costa Rica	Switzerland	Türkiye	Portugal	UK (England)
Capitation	Fee-for-service	Pay-for-performance	Global budget	Fee-for-service	Pay-for-performance	Global budget	Other
Primary care				Outpatient specialists			

Note: n=32, multiple responses possible

Source: Authors' compilation based on country responses to the OECD Health Systems Characteristics Survey (OECD, 2016<sup>[5]</sup>).

11. DRG-like payments (14 countries) and prospective global budgets (13 countries) were the most common form of reimbursement of acute care across OECD countries. Moreover, 14 countries reported that primary care physicians can get quality-related bonuses. Bonuses for specialists exist in eight countries (Figure 1.2).

**Figure 1.2. Providers' payment for acute care and bonus payments across OECD countries**

14				14	
Australia	13			Australia	
Austria	Canada			Canada	
Belgium	Chile			Chile	
Czech Republic	Denmark			Czech Republic	
Finland	Iceland			Estonia	
France	Ireland			France	8
Germany	Latvia			Latvia	Chile
Greece	Luxembourg			Lithuania	France
Italy	Mexico			Mexico	Japan
Lithuania	Norway			Netherlands	Netherlands
Poland	Portugal			Poland	Norway
Slovenia	Spain			Portugal	Poland
Switzerland	Sweden	2		Spain	Spain
UK (England)	Türkiye	Israel *	1	UK (England)	UK (England)
		Japan	Costa Rica		
Payment per case (DRG-like)	Prospective global budget	Payment based on procedure or service	Line-item budgets	Primary care	Specialists
Acute care				Bonus payments	

Note: n=32, multiple replies possible, Bonus payments: Countries reporting that providers can get a bonus payment for achieving targets related to the quality of care. \* In Israel, in-patient medical services are paid on a per diem basis.

Source: Authors' compilation based on country responses to the OECD Health Systems Characteristics Survey (OECD, 2016<sup>[5]</sup>).

12. In light of ongoing health system transformations and the changing needs of an aging population, OECD countries are re-assessing the ways in which providers are paid and whether traditional payment models are aligned with the policy objectives of improving quality of care, better co-ordinating and integrating care delivery across settings and services, containing health expenditures and rewarding health promotion and disease prevention. As a result, some countries have moved beyond traditional payment to value-based payment models.

13. The Covid-19 pandemic has further increased countries' awareness of the need to foster health system resilience. In many countries, traditional payment mechanisms were not able to financially sustain providers through the pandemic and many short-time alternative payments have introduced. As country experiences during the Covid-19 pandemic indicate, adapting providers' payment models can also contribute to health systems resilience (see Box 1.2). The influence of providers' payment models on health system resilience is another dimension that countries should take into account when re-assessing their financial flows.

### Box 1.2. Providers' payment models and health systems resilience

The outbreak of the COVID-19 pandemic has demonstrated the vulnerability of healthcare systems to external shocks and underlined the need to revisit providers' payment systems. The pandemic led to severe distortions in the delivery of care. Some providers recorded sudden drops of patient visits, e.g., for screening and prevention, and elective surgeries, whereas others faced surges such as Intensive Care Units. This led to financial stress for providers and put healthcare systems under pressure to reorganise the delivery of care, and to increase capacities, where needed. Countries have operated with an array of support mechanisms to respond to the health crisis, such as add-on payments, relief funds, and changes of the entire payment system (Waitzberg et al., 2021<sup>[7]</sup>). England, for example, has suspended its traditional payment scheme, which pays hospitals for the activity they perform, and moved to block grants with a guaranteed minimum income to provide financial stability to providers (NHS England and NHS Improvement, 2020<sup>[8]</sup>). Other countries, such as Germany and the United States, have introduced add-on payments to compensate providers for losses incurred (Waitzberg et al., 2021<sup>[7]</sup>). It is unclear whether these financial support mechanisms are sufficient to absorb the shock of the COVID19 pandemic, and whether they sufficiently account for differences in the way providers were affected, with smaller and rural providers being more vulnerable to financial shocks (Khullar, Bond and Schpero, 2020<sup>[9]</sup>; Cutler, Nikpay and Huckman, 2020<sup>[10]</sup>).

Traditional payment systems offer only limited resilience. The impact of the pandemic on providers was particularly severe in countries that pay providers for the activity they perform, and where financial support mechanisms did not sufficiently alleviate the impact of the pandemic (Waitzberg et al., 2021<sup>[7]</sup>). Activity-dependent payment systems might incentivise providers to quickly adapt new ways to delivery care, such as telemedicine, and to increase their activity after the pandemic to make up for losses (Ringel, Predmore and Damberg, 2021<sup>[11]</sup>; Waitzberg et al., 2021<sup>[7]</sup>); however, they give providers less flexibility to adapt to shocks and to invest in better resilience compared to payment systems that are activity-independent (Ringel, Predmore and Damberg, 2021<sup>[11]</sup>).

# 2 Value-based payment models as a driver of health system transformation

## Promoting value through innovative payment models

14. Providers payment models can be designed to set incentives for the provision of healthcare based on value rather than volume. Value in health systems is commonly defined as “maximum health benefit at minimum cost”, where “better value translates into a combination of improved health outcomes and processes of care (clinical quality), better patient experience, and reduced costs of care” (Conrad, 2015<sup>[12]</sup>). Value-based healthcare thus encompasses efforts to reduce low-value services and increase efficiency in care provision, to improve the quality of care and patients experience, and to foster better coordination of providers across healthcare sectors (Wise et al., 2022<sup>[13]</sup>). Innovative provider payment models can contribute to promote value-based health systems by setting the right incentives for individual providers or care organisations to provide more cost-effective care. Models that are designed to promote value are also referred to as value-based payment models.

15. Value-based payment models seek to enhance value in health systems mainly in three ways. First, they shift financial accountability and some of the financial risk to providers, thereby rewarding more cost-effective treatment decisions. Instead of being paid based on the volume of services provided, in value-based payment models, providers receive a fixed payment for a care episode, a chronic condition or the comprehensive care provided to a patient. Under this model, providers are at risk of incurring losses if the expenditure sustained to provide care exceed the set price but may also be able to share in savings if they are able to keep costs below the threshold. Depending on the design of value-based payment models, providers bear different levels of financial accountability and risk.

16. Second, value-based payment models usually bundle payments across providers, which fosters cooperation among providers. The comprehensiveness of bundled payments varies significantly across models and can range from specific acute care episodes to comprehensive capitation payments across institutional boundaries (e.g primary care, hospital care). Depending on the size and time window of a bundled payment, providers from one or more sectors are rewarded for better coordinating their services, for instance to prevent duplication of efforts or avoidable hospital readmissions. Depending on the scope of a payment model, different levels of care coordination or integration can be expected (Stokes et al., 2018<sup>[14]</sup>). While bundled payments that cover providers from multiple care sectors ‘by default’ incentivise better coordination of care, this is not the case in payment models that only focus on one provider group. In these payment models, care integration may be promoted by other means, such as a better data infrastructure or the development of new professional roles.

17. Third, value-based payment models usually include a quality component that links payment to provider performance on several pre-defined benchmarks. This is to reward providers for delivering high-



quality care and also serves as a safeguard against the under provision of care, which may be indirectly incentivised through innovative payment models that provide incentives to rein in expenditure.

18. The theoretical framework for the incentives set by innovative payment models rests on fields like agency theory in microeconomies and behavioural economics (Conrad, 2015<sup>[12]</sup>). Value-based payment models are expected to have a positive effect, as they require, reward or penalise certain provider behaviour. For instance, making providers benefit from reduction in healthcare spending or improvements in quality of care is likely to encourage them to adapt their treatment and referral choices accordingly. The underlying assumption of these models is thus that “the individual provider's objective is to maximize a combination of net income (minus the opportunity cost of physician effort) and patient health benefit, both of which are influenced by the quantity and quality of service” (Conrad, 2015<sup>[12]</sup>).

19. Designing a payment model is a complex task as payment mechanism, governance structure, scope and scale of models vary depending on their anticipated impact, the healthcare system a model is implemented in and the expected behaviour of the different types of providers involved. As full information to design a model will never be available, stakeholders may just aim for a “second best” option to influence providers’ decisions in a way that leads to better value without introducing major bias, or to correct some of the biases that can be involved in the very traditional methods of payments such as fixed budget, capitation or fee for service.

20. Developing innovative payment models will also require addressing a wide range of operational challenges, such as identifying the optimal care pathway. In this context, decisions on financing the provision of more cost-effective care could be informed by the most up-to-date, solid, reliable, scientific evidence (Sackett D L, 1996<sup>[15]</sup>). Conditions for bundling care and payment can be chosen because of their well-established evidence-based pathways and greater need for process efficiency, resulting in greater scope for rewards to providers.

## **There is great variety in the design and governance of value-based payment models**

21. There is large variation in innovative payment models for value-based health systems. Value-based payment models vary in terms of their payment mechanism, the governance structure, the role of quality adjustments as well as the number of providers and patients covered. Some are implemented in addition to existing reimbursement schemes such as fee-for-service or capitation, while others require the restructuring of the entire payment flow. Value-based payment models commonly target acute events (episode-based bundled payments), care for chronic conditions (bundled payments for chronic disease management) or the total of care provided to patients (comprehensive capitation payments<sup>2</sup>) also across sectors – such as healthcare and social care. Value-based payment models have been also designed and implemented for hospitals and introduced for family doctors (Box 2.1).

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<sup>2</sup> Those models are also referred to as “Population-based payment models”.

### Box 2.1. Value-based payment models for hospitals and primary care

The Netherlands piloted a five-year hospital global budget with shared savings. In 2015, two hospitals – Bernhoven and Beatrix – shifted to a multi-year contract with insurers to reduce inappropriate care without a risk of a decline in revenue. Both hospitals reduced volumes and increased efficiency (**Remers et al., 2022<sup>[16]</sup>**). However, recently one of the hospitals got in financial troubles as the actual reduction in fixed costs lagged on volume reduction.

Canada (British Columbia) has recently announced that it will be introducing a new payment model for family physicians (<https://news.gov.bc.ca/releases/2022HLTH0212-001619>). It will move away from fee-for-service to better recognize full-service provision to primary care to patients. The new model will take into account factors like the time a doctor spends with a patient, the number of patients a doctor sees in a day, the complexity of the issues the patient is facing, and administrative costs paid by family doctors.

Some state Medicaid programmes in the United States have also implemented innovative payment models for primary care (Colorado) and for hospitals (Pennsylvania) (Center for Health Care Strategies, 2022<sup>[17]</sup>). In the United States, value-based payments for primary care health centers are also taking shape and are likely to continue to evolve (Tobey, 2022<sup>[18]</sup>).

### ***Episode-based bundled payments***

22. Episode-based bundled payments pay providers for pre-defined episodes of care for specific procedures or conditions in a lump-sum payment instead of distinct payments for each of the services delivered. The periods covered by a bundled payment vary depending on the treatment or condition addressed and can range from a few weeks to up to a year (Lorenzoni, Bunyan and Milstein, 2022<sup>[19]</sup>).

23. Episode-based bundled payments incentivise providers to delivering care in a more cost-effective manner by better aligning inpatient and outpatient services. This is expected to reduce the volume of services provided per bundled episode (Wise et al., 2022<sup>[13]</sup>). Episode-based bundled payments can further financially penalise providers in case patients require additional services or need to be readmitted to the hospital after their treatment. Some payment models may also include explicit quality or coordination components that reward or penalise providers for complying to guidelines or reaching certain benchmarks (OECD, 2016<sup>[2]</sup>).

24. Since episode-based payments are narrowly defined in scope and time, their impact on the degree of integration will mostly be limited to the specific context for which the bundle has been designed. No large-scale changes in the delivery system should be expected (Stokes et al., 2018<sup>[14]</sup>). Better linkage and coordination across providers caring for patients with certain conditions can still lead to reductions in spending and improvements in care outcomes and patient experience, albeit only for the specific care episodes the bundle is designed for. Overall, the impact of episode-based payment models will differ depending on the level of financial pooling, the number of patients covered, the period of care covered as well as the conditions and sectors included in a bundle.

25. Setting the right incentives through episode-based bundled payments is a complex task that requires the finetuning of several components of a payment scheme. This leads to significant variation across the design of bundled payments. For instance, countries differ on whether they use one joint price per bundle, or more. For example, Norway offers two different bundled payments for hip replacements depending on co-morbidities (with or without complex co-morbidities). In France, four different tariffs for hip replacements based on hospital ownership (public hospitals formerly under global budget scheme versus private hospitals formerly paid on a fee-for-service basis) and expected care profiles have been set. Countries also adjust prices to reflect differences in costs not directly captured by the payment model.

France, for instance, adjusts tariffs based on 9 to 12 different criteria, such as age, co-morbidities, socio-economic characteristics, and convalescent care after surgery.

### ***Bundled payments for chronic care management***

26. Bundled payments for chronic disease management set a payment for all care provided to patients with well-defined recoverable (e.g., cancer, diabetes) or long-term (e.g., multiple sclerosis, lupus) chronic conditions. They are thus similar to episode-based bundles in that they bundle multiple services into a single payment. In contrast to episode-based bundled payments for acute care, however, the services covered in chronic care bundles are not defined by a treatment or care episode but include the services required to care for a patient with one or multiple chronic conditions. This usually includes check-ups, specialist appointments and diagnostic tests (OECD, 2016<sup>[2]</sup>). While episode-based bundled payments have a start and a finish, bundled payments for chronic care management normally repeat for an individual patient. In the interest of realising equitable outcomes, payments are usually risk-adjusted based on pre-existing conditions of individuals.

27. Since chronic care is usually provided across the care continuum, “bundled payments for chronic conditions give shared incentives to providers across the chronic care pathway and look to encourage a longer-term emphasis on continued care, rather than one-off episodes or interventions” (OECD, 2016<sup>[2]</sup>). Coordination across treating providers and longitudinal monitoring of the patient are far easier in a value-based or bundled care model for chronic disease management.

28. The financial and quality incentives of bundled payments for chronic care are similar to those for acute care. Since providers receive a fixed amount per chronic care patient, they are incentivised to reduce the duplication of efforts and are likely to choose more cost-effective treatment options, when possible, for instance by preventing unnecessary visits to specialists or hospital stays. Improving quality of care and patients’ health is further rewarded as this will likely result in less complications and less services.

### ***Comprehensive capitation payments***

29. Comprehensive capitation payment models are not linked to specific conditions or episodes of care but cover the total care provided to the patient population covered in a programme (Wise et al., 2022<sup>[13]</sup>). In that, they are virtually bundling all services delivered to patients across institutional boundaries such as primary care and hospital care into a single payment. In practice, in those models most of the strategic purchasing functions (World Health Organization, 2022<sup>[20]</sup>) are delegated from the payer to the entity responsible to deliver comprehensive care for the enrolled population.

30. In comprehensive care models, providers or provider organisations are accountable for the cost and quality of all healthcare services delivered to the respective population and are rewarded for reining in spending while improving or maintaining quality of care. These models often include P4P elements to reward the efficient provision of high-quality care. Since comprehensive capitation models cover all health needs of the covered patient population, they are the least fragmented type of innovative payment models and are expected to increase the integration of care across multiple sectors (Wise et al., 2022<sup>[13]</sup>; Stokes et al., 2018<sup>[14]</sup>) (OECD, 2021<sup>[1]</sup>). Payments are usually made to provider networks or entities that coordinate the financial flows of the payment model, which may be co-owned by providers (OECD, 2016<sup>[2]</sup>).

31. The implementation of comprehensive capitation payment models usually comes with the aim to change significantly incentives for providers: “Instead of paying providers, money follows the patients across providers; and instead of paying for treatment of episodes of one disease, a more holistic view of the well-being of the population is taken” (OECD, 2016<sup>[2]</sup>). Since the provider groups and populations covered are larger, comprehensive capitation payment models may lead to system-wide changes in delivery systems, especially if the payment scheme is accompanied by the implementation of a strong health data infrastructure and active efforts to foster care integration. Moreover, comprehensive capitation

payments are wider in scope and thus also allow for the inclusion of preventive programmes into the bundle and can address health concerns in a more comprehensive manner than bundled payments. This payment model also enables providers to “hire care managers and social workers to help coordinate patients’ healthcare and respond to their health-related social needs” (Centers for Medicare & Medicaid Services, 2023<sup>[21]</sup>).

32. **Shared savings contracts** are a type of comprehensive capitation payment<sup>3</sup>. Under shared savings contracts, providers or providers organisations receive a share of savings in healthcare spending that is realised for the enrolled population. Shared savings models can be implemented as incremental to existing payment systems, for instance built on FFS architecture. In these cases, actual healthcare expenditure for the respective patient population is compared to a predefined benchmark, usually representing expected healthcare expenditure, to determine savings, which are then shared between providers and payers. Providers are thus rewarded for reining in health spending, for instance through better coordination and improvements in care quality and population health. As Hayen et al. (2015<sup>[22]</sup>) argue, in shared savings models “providers are [...] motivated to change their configuration to one that supports substitution of specialist care, coordination across silos, prevention and self-management, as payments are determined with respect to the care continuum”.

33. Comprehensive capitation payments and shared savings contracts can be combined, as is the case in many of the Accountable Care Originations (ACOs) in the United States. In ACOs provider groups receive capitation payments for the covered population and are collectively accountable for the quality and cost of healthcare provided. In upside-only, or one-sided risk arrangements, ACOs who successfully deliver quality care at a lower cost may be eligible to receive an additional payment. Some risk arrangements include both upside and downside risk, also known as “two-sided” risk. In such arrangements, ACOs who deliver quality care at a lower cost may be eligible to receive an additional payment, while participants who increase overall spending may owe a payment. Further, a payment model may have different participation options, or tracks, that allow ACOs to assume varying levels of financial risk that suit their capabilities and experience.

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<sup>3</sup> Shared savings contracts may also be linked to hospital global budget (see Box 2.1) and other payment mechanisms.

# 3 Implementation of value-based payment models in selected OECD countries

34. While innovative payment models are largely discussed in the literature and expected to have a value-promoting impact on health systems, OECD data shows that only few OECD countries have implemented them (see Figure 3.1). Findings from the 2018 OECD Policy Survey on the Future of Primary Care show that only six OECD countries (Australia, Belgium, Canada, France, Italy and the Netherlands) have implemented episode-based bundled payments in a primary care setting while three countries (France, Germany and the United States) reported the use of comprehensive capitation payment models (OECD, 2020<sup>[23]</sup>).

Figure 3.1. Bundled payments and comprehensive capitation payments in primary care

6	
Australia	
Belgium	
Canada	
France	
Italy	
Netherlands	
Bundled payments	
	3
	France
	Germany
	United States
	Comprehensive capitation payments

Source: Authors' compilation based on (OECD, 2020<sup>[23]</sup>).

35. Building up on prior OECD (2016<sup>[21]</sup>) work on providers' payment models, this section provides an overview of selected episode-based bundled payments, bundled payments for chronic care management and comprehensive capitation payment models implemented in OECD countries.

36. We chose programmes that are well-documented and for which evidence on the impact on spending, quality of care and patient experience with care is available. We also describe some value-based payment models for which no evidence is available yet to provide examples from a wider range of countries and capture recent developments in the design and implementation of value-based payment models. The available evidence is discussed in the next section. The programmes discussed are implemented in Australia, Canada, France, the Netherlands and the United States.

## Episode-based bundled payments

37. The Centers for Medicare and Medicaid Services (CMS) Innovation Center (see Box 3.1) in the United States has experimented with four bundled episode-based payment models, the Bundled Payments for Care Improvement (BPCI) models. Providers participate in those innovative payment models on a voluntary basis. The four models of the BPCI programme differ in the number of conditions covered, the degree of bundling and the calculation of prices, with Model 1 being closest to the status quo, and Model 4 representing the most comprehensive change to how services are normally paid for. Models also differ in the way prices are set. Models 1-3 paid providers retrospectively, whereas Model 4 paid them prospectively. Models 2 and 3 used “reconciliation payments”.

### Box 3.1. The CMS Innovation Center in the United States

The CMS Innovation Center was established by Congress in 2010 as part of the Patient Protection and Affordable Care Act (ACA). It was created to test payment and delivery models aimed at reducing federal and state health insurance program cost and improve or maintain the quality of care for Medicare, Medicaid and Children’s Health Insurance Program (CHIP) beneficiaries (Center for Medicare and Medicaid Innovation, 2021<sup>[24]</sup>). The Congress gave the Innovation Center unique authorities to test and expand models. Namely, the CMS Innovation Center can waive requirements in Medicare and, to a more limited extent, Medicaid. This waiver authority allows the Center to test promising payment and delivery systems changes. If models are deemed successful in that they reduce or do not increase federal health expenditures while maintaining or improving quality for beneficiaries, and certain other requirements are met, the ACA gave the Secretary of the US Department of Health and Human Services the authority to expand the duration and scope of the model.

The law also provided a dedicated appropriation for testing models: USD 10 billion from fiscal year 2011 through 2019. The Center uses a combination of staff (617 at end-September 2017) and contractors to test models (<https://www.gao.gov/assets/700/691721.pdf>). Since its inception, the Center has launched more than 50 innovative models—targeting specific health conditions, care episodes, provider types, and communities. From 2018 to 2020, an estimated 528,000 providers, serving more than 27.8 million Medicare, Medicaid, and CHIP beneficiaries, participated in these models (Center for Medicare and Medicaid Innovation, 2021<sup>[24]</sup>).

38. In BPCI models 2 and 3, providers were still paid on a fee-for-service basis. In addition to that, CMS set a target price and compared the total provider costs for the respective episodes of care against this target price. Providers whose costs were higher than the target price, had to make repayments to CMS. In Model 4, CMS made a single, prospectively determined bundled payment to the hospital that encompassed all services furnished by the hospital, physicians and other practitioners during the episode of care, which lasted the entire inpatient stay. Physicians and other practitioners were paid by the hospital out of the bundled payment.

39. The CMS Innovation Center currently runs the BPCI Advanced model. Providers receive a single retrospective bundled payment for 32 clinical episodes (29 inpatient and three outpatient clinical episodes), which begins at inpatient stay or outpatient procedure for 90 days starting on the day of discharge or the completion of the outpatient procedure. Payment is tied to performance on quality measures, and payments based on target prices are provided in advance. Retrospective reconciliation is done with actual Medicare FFS expenditures for a clinical episode, which results in a positive or a negative balance based on the target price and adjusted for quality. Positive balances are returned to the participating facilities, and negative balances must be repaid.

40. Besides BPCI and BPCI Advanced, the US CMS Innovation Center has introduced a model for specific conditions, the CMS mandatory Comprehensive Care for Joint Replacement (CJR) model. In contrast to the BPCI programmes, the CJR model is mandatory<sup>4</sup>.

41. In the CJR model, episodes cover the inpatient stay (beginning with the admission) to up to 90 days post-discharge for two types of joint replacement – hip and knee. The payment system is similar to Model 2 and 3 of the BPCI programme. All providers and suppliers are paid under the usual payment system rules and procedures of the Medicare programme. At the end of a performance year, total actual spending for the episode is compared to the Medicare target episode price for the responsible hospital. Depending on the participating hospital's performance on quality and expenditures, the hospital may receive an additional payment from Medicare or be required to repay Medicare for a portion of the episode spending.

42. In the CJR model, the United States awards smaller discounts for hospitals with better quality outcomes. Quality of care is assessed based on indicators: two quality measures – the total hip arthroplasty and/or total knee arthroplasty complications measure and the Hospital Consumer Assessment of Healthcare Providers and Systems survey measure - as well as the successful submission of patient reported outcome data. Depending on whether a hospital is eligible for a reconciliation amount or responsible for a repayment to Medicare, the effective discount varies by the performance year and the participant hospital's quality category. Participant hospitals with composite quality scores that place them in the "Good" or "Excellent" quality categories will either receive a higher reconciliation payment or have less repayment responsibility at reconciliation due to their quality performance. In other words, the change in effective (or applicable) discount percentage experienced at reconciliation will provide a potential benefit to hospitals (Centers for Medicare & Medicaid Services, 2021<sup>[25]</sup>).

43. In the Netherlands, health insurers and maternity care providers may engage in bundled payments for maternity care since 2017. Up until 2022, bundled payment contracts were possible for small-scale projects on an experimental basis. Under the bundled payment scheme, insurers pay a single fee to a principal contracting entity — the integrated maternity care organisation (IMCO) — to cover a full range of maternity care services for a pregnancy. An IMCO is a newly created legal entity in the healthcare system, formed by multiple care providers such as community midwife practices, gynaecologists, and postpartum maternity care organisations. By signing a contract, the IMCO assumes both clinical and financial responsibility for care delivered to women by the organisations participating in the IMCO. For the various components of maternity care, the IMCO either delivers services itself or subcontracts other care providers (Lambooi et al., 2020<sup>[26]</sup>).

44. Table 3.1 provides an overview of the main features of the episode based bundled payment models for acute care described above.

**Table 3.1. Key elements of selected episode-based bundled payment models for acute care**

Element	Country						
	United States						Netherlands
Name	Bundled payment for care improvement (BPCI)				BPCI Advanced	Comprehensive Care for Joint Replacement (CJR) (*)	Integrated Maternity Care Organization (IMCO)
	Model 1	Model 2	Model 3	Model 4			
Level	Country	Country	Country	Country	Country	Country	Region
Period	2013-2016	2013 - 2018	2013 – 2018	2018 - 2024	2018 - 2025	Since 2013	Since 2017

<sup>4</sup> In 2021, the CJR model was extended for additional three years and would only apply to participant hospitals located in the 34 mandatory metropolitan statistical areas (MSAs) for whom participation has been mandatory since the beginning of the model in 2016 (United States Government Federal Register, 2021<sup>[110]</sup>).



Size	23 hospitals (as of 2013)	423 hospitals and 272 primary care groups	873 skilled nursing facilities and 117 home health agencies	23 hospitals	280 organisations (as of February 2023)	324 hospitals	8 organisations
Dominant sector	Inpatient	Inpatient	Inpatient	inpatient	Inpatient	Inpatient	Inpatient and midwifery
Conditions	All DRGs	Selected DRGs	Selected DRGs	Selected DRGs	34 Conditions	Hip replacement and knee replacement	Maternity care
Bundling		Hospital plus post-acute period	Post-acute period only	Hospital and readmissions	Inpatient stay plus 90 days	Inpatient stay plus up to 90 days post-discharge	Full range of maternity care services
Timing	Retrospective (with payment reconciliation)	Retrospective (with payment reconciliation)	Retrospective (with payment reconciliation)	Prospective	Retrospective (one risk track)	Retrospective (with payment reconciliation)	Prospective
Participation	Voluntary	Voluntary	Voluntary	Voluntary	Voluntary	Mandatory	Voluntary
Payment adjusted for quality	Yes	Yes	Yes	Yes	Yes	Yes	-

Note: \* Mandatory until 2019/20

Source: Centers for Medicare and Medicaid Services (<https://innovation.cms.gov/innovation-models/>); (Lambooj et al., 2020<sup>[26]</sup>).

45. Following the United States CMS experience, Norway has introduced bundled payments (tjenesteforløp) for six conditions from 2019 and 2020: hip replacement, skin conditions, dialysis, rheumatologic conditions, gastrointestinal disorders and neurological conditions (Helsedirektoratet, 2019<sup>[27]</sup>) (Helsedirektoratet, 2021<sup>[28]</sup>). Episode-based bundled payments span one month or one year and cover all costs including inpatient, outpatient costs and home treatments (Mjåset et al., 2020<sup>[29]</sup>). Prices are set by the Norwegian Directorate of Health based on DRGs and outpatient tariffs data gathered from providers (Helsedirektoratet, 2021<sup>[28]</sup>).

46. France has piloted bundled payments (*épisodes de soins*) for hip replacement, knee replacements and colon cancer since 2018 as part of a larger effort to develop and test new ways of paying providers (Ministère des solidarités et de la santé, 2018<sup>[30]</sup>). Payments cover disease-related services from 45 days prior to the surgery to 90 or 180 days after the intervention depending on the condition (Ministère des affaires sociales et de la santé and Assurance Maladie, 2019<sup>[31]</sup>). Payments consist of one of four base tariffs, depending on where the surgery takes place, and 9-12 adjustment parameters, including age, comorbidities, and socio-economic status among others. Payments are issued to care groups consisting of in- and outpatient providers. The actual costs of care groups are benchmarked against expected costs. Provider groups whose costs range above the expected costs incur losses, while provider groups whose costs range below make profits. Profits have to be shared among providers, with minimum shares being defined. Losses are borne entirely by the leading provider, generally a hospital. Quality of care is assessed using a points-based score of up to 100 points for process and outcome measures, such as type of discharge, complication rates, and patient-reported experiences. The project is rolled out in three phases. In its final phase, providers can receive a penalty of up to 3%, and a bonus of up to 10% of total payment (Ministère des affaires sociales et de la santé and Assurance Maladie, 2019<sup>[31]</sup>).

47. In early 2015, the Ministry of Health and Long-Term Care (MOHLTC) of the Canadian province of Ontario launched an Integrated Funding Model (IFM) initiative (Embudenya, Gutberg and Wodchis, 2021<sup>[32]</sup>). The goal of the IFM initiative was to test innovative approaches to integrate care and funding over a patient's episode of care beginning in acute care and including post-discharge home or community care. Six pilot projects were selected by the MOHLTC. Three projects covered 60 days of bundled care for



chronic obstructive pulmonary disease and congestive heart failure, one project targeted 60 days of bundled care for urinary tract infection and cellulitis, one project targeted stroke (104-day bundle) and one project focused on cardiac surgery (30-day bundle). All projects identified an inpatient hospitalization as the index event (the urinary tract infection and cellulitis project also allowed the index event to be an emergency department visit) (Walker et al., 2019<sup>[33]</sup>). Around 7000 patients were enrolled between October 2015 and March 2018. Programmes were given a single pre-specified payment set as the provincial average acute and post-acute cost for each specified condition in the year prior to implementation. All acute inpatient care and post-acute nursing, rehabilitation and personal support care services were included, whereas physician payments and medications were not included as financed through separate MOHLTC programmes.

48. Since the bundled payments for acute and chronic care cover multiple conditions and thus care pathways, large differences are reported in the design of a bundle even within a programme (see Table 3.2).

**Table 3.2. Key elements of selected bundled payment programmes for acute and chronic episodes**

Element	Country		
	Norway	France	Canada
Name	Tjenesteforløp	Épisodes de soins	Integrated Funding Model (IFM), six pilot projects
Level	Country	Country	Province (Ontario)
Period	Since 2020	Since 2018	2015 -2019
Size	-	43 provider institutions	-
Dominant sector	Inpatient and outpatient	Inpatient	Inpatient and outpatient
Conditions	Hip replacement, knee replacement, skin conditions, dialysis, rheumatologic conditions, gastrointestinal disorders and neurological conditions	Hip replacement, knee replacement, colon cancer	COPD, congestive heart failure, urinary tract infection, cellulitis, stroke, cardiac surgery
Bundling	Bundles include inpatient, outpatient costs and home treatments	Payments issued to care groups for disease-related services in the respective timeframe	acute inpatient care, post-acute nursing, rehabilitation, personal support care services
Timing	1 month to 1 year	45 days pre – to 90/180 days post surgery	30 to 104 days
Participation	Mandatory	Voluntary	Voluntary
Payment adjusted for quality	-	Yes	No

Source: Authors' compilation.

## Bundled payments for chronic disease management

49. The Oncology Care Model (OCM) managed by CMS (United States) differed from other bundled payment programmes by paying a monthly rate of USD 160 per beneficiary to providers. In exchange, providers had to maintain defined structures and perform certain services, such as 24/7 patient access to an appropriate clinician who has real-time access to the patient's medical records, core functions of patient navigation, and a documented Care Plan for every patient based on recommendations of the Institute of Medicine. Providers could qualify for additional, pay-for-performance-related payments (Centers for Medicare & Medicaid Services, 2021<sup>[34]</sup>). OCM adjusted performance-based payments for each performance period based on a range of quality measures. Participant performance across those quality measures was measured by achievements relative to benchmarks.

50. In 2010, the Netherlands introduced bundled payments (Ketenzorg) for three chronic conditions to improve the integration of care and reduce healthcare expenditure following three years of experimentation

(Struijs et al., 2012<sup>[35]</sup>; Karimi et al., 2021<sup>[36]</sup>). The programme covers Diabetes Mellitus Type 2, COPD/Asthma, and Vascular Risk Management. Health insurance funds pay a joint price for a bundle of care in annual intervals to a group of providers (Zorggroep, “care group”), which consist predominantly of General Practitioners (GPs) (Struijs et al., 2012<sup>[35]</sup>; Karimi et al., 2021<sup>[36]</sup>). Care groups and insurance funds negotiate the content and reimbursement of bundled payments (Segment 2A) and can negotiate additional payments for management and infrastructure (Nederlandse Zorgautoriteit, 2020<sup>[37]</sup>). Prices are calculated annually, and care groups are paid a fixed price of up to EUR 27 (Vascular Risk Management), EUR 51 (COPD/Asthma) and EUR 65 (Diabetes Mellitus Type 2) per patient and quarter to cover costs associated mainly with care organisation and management, information technology and GP care (Nederlandse Zorgautoriteit, 2021<sup>[38]</sup>).

51. In addition to Diabetes Mellitus Type 2, COPD/Asthma and Vascular Risk Management, providers and insurance funds can experiment with bundled payments for additional conditions, such as depression, elderly care, and pharmaceuticals. Insurance funds and providers can negotiate financial incentives for meeting predefined outcome indicators (Segment 3). However, insurance funds and providers make limited use of this opportunity (Struijs et al., 2012<sup>[35]</sup>).

52. The Australian Health Care Home (HCH) trial was implemented by the Government from 1 October 2017 to 30 June 2021. It aimed at providing co-ordinated care, management and support for people with chronic and complex health conditions [intention]. A HCH is a general practice that coordinates a person’s care with support from other workers within and outside the practice, such as nurses and specialists. Based on practices’ electronic records, individuals with at least one chronic condition and at high risk of hospitalisation in the next 12 months are selected as participants and assigned to one of three complexity tiers. HCHs receive monthly bundled payments for providing care to participants. Payments related to patients’ chronic conditions were based on participant’s risk profile and vary between AUD 609 (the lowest level of patient complexity) and AUD 1851 (the highest level of patient complexity) per annum<sup>5</sup>.

53. Services covered in the bundle include shared care plan development (all participants must have a shared care plan), regular reviews, comprehensive health assessment, making referral to allied health providers or specialists, tele-health services and monitoring, standard consultations related to an enrolled patient’s chronic and complex conditions and after-hours advice and care. Services provided by allied health, specialists, pathology and radiology providers are not included in the bundle and are funded through FFS (Australian Government Department of Health, 2020<sup>[39]</sup>). At the end of the trial, 106 practices were participating in the project, while 121 practices had withdrawn from the project (withdrawal rate of 53%). Practices received a one-off grant of AUD 11 000 to implement HCH.

54. There is some variation in the design of bundled payments for chronic care, depending on the conditions and patient population covered (see Table 3.3). Country outside the US tend to set prices prospectively and see GPs or GPs groups held responsibility for the care provided.

**Table 3.3. Key elements of selected bundled payment models for chronic disease management**

Element	Country		
	<i>United States</i>	<i>Netherlands</i>	<i>Australia</i>
Name	Oncology Care Model	Ketenzorg	Australian Health Care Home
Level	Country	Country	Country
Period	2016-2022	Since 2009	2017 – 2021
Size	126 practices	-	11 332 patients
Dominant sector	Outpatient	Outpatient (GPs)	Outpatient (GPs)
Conditions	Chemotherapy or radiation treatment	Diabetes Type 2, COPD/Asthma,	Chronic conditions

<sup>5</sup> The payments were indexed annually from 2018. The figures in the text are the 2020 prices.

	for cancer	Vascular Risk Management	
Bundling	monthly rate per beneficiary participating	Health insurance funds pay a joint price for a bundle of care in annual intervals to a group of providers	monthly bundled payments per beneficiary participating
Timing	Retrospective (with payment reconciliation)	Prospective	Prospective
Participation	Voluntary	Voluntary	Voluntary
Payment adjusted for quality	Optional*	Optional**	No

Note: \*Providers can qualify for additional, pay-for-performance-related payments, \*\*Insurance funds and providers can negotiate on financial incentives for meeting predefined outcome indicators (Segment 3). However, insurance funds and providers make limited use of this opportunity  
Source: Authors' compilation.

## Comprehensive capitation payment models

55. In comprehensive capitation payment models, networks of providers are accountable for the cost and quality of care provided to a population group. A network of providers generally receives a fixed payment per beneficiary or receives a share of savings realised for the covered population. Payments are typically adjusted for age, sex, and health status to account for differences in costs. Comprehensive capitation programmes often come with a set of target indicators and quality benchmarks to further incentivise providers to offer timely and high-quality care. Depending on the programme, comprehensive capitation payment models offer providers flexibility on how and where to spend their financial resources and reward them for providing care in more cost-effective and coordinated ways.

56. Many comprehensive capitation payment models have been designed and implemented in the United States, with ACOs ranking among the most prominent examples.

57. ACOs are part of the Medicare Shared Savings Program (MSSP), which was established by the Patient Protection and Affordable Care Act of 2010 and is a permanent part of the Medicare programme. As of January 2020, the United States had 517 MSSP ACOs with 11.2 million assigned beneficiaries (<https://www.cms.gov/files/document/covid-ifc-2-medicare-shared-savings-program.pdf>). The ACO model is designed to reward providers financially for working together, sharing information and co-ordinating care, especially for high-risk and high-cost chronically ill patients. ACOs agree to be held accountable for the quality, cost and experience with care of an assigned Medicare FFS beneficiary population and must provide care to at least 5 000 beneficiaries. Providers in ACOs generally continue to be paid their normal FFS rates by Medicare and have the opportunity to earn additional bonus payments if actual total spending for the ACO's assigned beneficiaries is lower than the set target spending at the end of the year.

58. The MSSP offers different participation options (tracks) that allow ACOs to assume various levels of risk. An ACO that has chosen to enter a two-sided risk arrangement<sup>6</sup> is also at risk of losses if actual total spending for its assigned beneficiaries is greater than the spending target. To determine the target spending for an ACO's assigned beneficiaries during the performance year (the "benchmark"), CMS computes the total spending for beneficiaries who would have been assigned to the ACO during a baseline period (Medicare Payment Advisory Commission, 2020<sup>[40]</sup>). Gains and losses are quality-adjusted. Higher quality translates into greater shares of savings, or smaller share of additional costs for ACOs in a two-sided risk arrangement. ACOs must report quality data to CMS after the close of every performance year to be eligible to share in any earned shared savings and to avoid sharing losses at the maximum level.

<sup>6</sup> Under this model, the ACO experiences a profit or loss depending on whether the actual health care cost for the population is less or more than the budgeted amount, respectively. The ACOs in this model typically takes on full risk for the total cost of care, though the ACO and the payer can agree to share risk.

59. The Next Generation ACO Model allows provider groups to assume higher levels of financial risk and reward than the Shared Savings Program. It started in 2016 and counted 41 ACOs in 2020. The goal of the model is to test whether those higher levels of financial risk and reward for ACOs, coupled with tools to support better patient engagement and care management, can improve health outcomes and lower expenditures for Original Medicare FFS beneficiaries.

60. Building on lessons learned from initiatives involving Medicare ACOs, such as the Medicare Shared Savings Program and the Next Generation ACO Model, in the United States CMS developed the Global and Professional Direct Contracting (GPDC) Model (Centers for Medicare & Medicaid Services, 2021<sup>[41]</sup>). <sup>7</sup> GPDC was implemented from 2021 to 2022 to create opportunities for a broad range of organisations to participate in testing the next evolution of risk-sharing arrangements to produce value and high-quality healthcare. Under GPDC, Direct Contracting Entities (DCEs), which are similar to ACOs, received a capitated payment to provide care for defined population based on the risk arrangement option and capitation payment mechanism selected by the DCE.

61. There were three types of DCEs with different characteristics and operational parameters: standard DCEs, new entrant DCEs, and high needs population DCEs, which serve Medicare FFS beneficiaries with complex needs (Centers for Medicare & Medicaid Services, 2021<sup>[41]</sup>). The Medicare GPDC Model includes the assessment of quality performance during each performance year (PY) using five quality measures (RTI International, 2021<sup>[42]</sup>). In each performance year, 5% of a DCE's financial benchmark (the Quality Withhold) was to be held "at risk" and could be earned back, in part or full, subject to the DCE's performance on the quality measures.

62. The United States also implements comprehensive capitation payment models with an explicit focus on the elderly. The Program of All-Inclusive Care for the Elderly (PACE) attempts to help nursing home eligible seniors avoid institutional care by providing them with a mix of co-ordinated acute and long-term care services in the community. It was established as a permanent Medicare and Medicaid benefit by the Balanced Budget Act of 1997. Enrolment in PACE is voluntary and PACE is optional for states. Individuals, who are 55 or older, certified by their state of residence as being eligible for nursing homes, and live in the service area of a PACE programme, are eligible to enrol in PACE. PACE programmes are centred around the adult day health centre, where participants receive medical and social services and an interdisciplinary team comprising physicians, nurse practitioners, social workers, nutritionists, therapists, personal care attendant, and drivers. In November 2021, 30 states had PACE programmes with close to 52 500 individuals participating (Integrated Care and Resource Center, 2022<sup>[43]</sup>).

63. PACE organizations receive two capitation payments per month for their dually eligible enrollees (individuals enrolled in both Medicare and Medicaid) and assume full financial risk for all the healthcare services that beneficiaries use. The Medicare portion of the capitated payment is derived from a formula that reflects the high frailty level of PACE beneficiaries. The Medicaid payment is negotiated between the PACE provider and the state's Medicaid agency.

64. Table 3.4 provides an overview of the key feature of comprehensive capitation payments models designed and implemented in the United States.

**Table 3.4. Key elements of selected comprehensive capitation payment models in the United States**

Element	Accountable Care Organizations (ACO)	Global and Professional Direct Contracting (GPDC)	Program of All-Inclusive Care for the Elderly (PACE)
Region	Nationwide	Nationwide	Nationwide
Size	517 organisations (Medicare Shared)	99 organisations	30 states with close to 52 500

<sup>7</sup> The GPDC Model has been redesigned and renamed *The ACO Realizing Equity, Access and Community Health (ACO REACH) Model* at the end of 2022.

	Savings Program)		individuals
Period	Since 2010	Since 2022	Since 1997
Dominant sector	Outpatient and inpatient	Depends*	Acute and long-term care services in the community
Conditions/ Services	All healthcare provided to the covered population	All healthcare provided to the covered population	Medical and social services delivered to elderly patients in adult day health centres
Bundling	Providers are paid FFS but receive bonus payments based on savings and quality measures of ACO	Direct Contracting Entities receive a capitated payment and bonus payments based on savings and quality measures	Organizations receive two capitation payments per month (one by Medicare and one by Medicaid) with full financial risk
Participation	Voluntary	Voluntary	Voluntary
Payment adjusted for quality	Yes	Yes	No

Note: \* Total Care Capitation: all Medicare Part A & B services. Primary Care Capitation (PCC): primary care Part A & B services. Advanced Payment Option, subset of services to beneficiaries not covered by PCC (RTI International, 2021<sup>[44]</sup>).

Source: Authors' compilation.

65. Comprehensive capitation programmes have also been implemented in several European countries, including France, Germany and the Netherlands.

66. France introduced the Expérimentation d'une incitation à une prise en charge partagée (IPEP) and the Expérimentation d'un paiement en équipe de professionnels de santé en ville (PEPS) in 2019, which are population-base payment models based on ACOs in the United States. The IPEP refers to additional payments to standard delivery of care. A group of providers, which has to serve at least 5 000 inhabitants, receive additional, quality adjusted payments (Ministère des affaires sociales et de la santé and Assurance Maladie, 2019<sup>[31]</sup>). Payments are adjusted based on patient characteristics, such as age, gender, socio-economic status, and geographic characteristics, such as access to health providers and the deprivation of a given region. Gains are assessed by comparing the national average expenditures and the actual expenditures of the provider group. The provider group receives 50 % of these gains (if any). The IPEP piloted in 2019 with 18 groups and is voluntary. They received additional support of EUR 10 000 to EUR 30 000 to set up the project.

67. Besides IPEP, France also introduced the PEPS in 2019. Within the PEPS model the traditional provider payment scheme is replaced with an annual budget for a group of providers (Ministère des solidarités et de la santé, 2021<sup>[45]</sup>). A group must consist of at least three GPs and one nurse, who treat at least 250 patients. The global budget is adjusted based on three parameters. First, it is risk-adjusted based on patient characteristics, such as age, gender and chronic diseases. Second, it is activity-adjusted and reduced if activities fall below 85 % of the national median and augmented if it exceeds 115 % of the national median. Third, it is adjusted based on the economic level of a given region. If the degree of deprivation exceeds the national average, the budget is augmented by up to 20 % (based on the difference between the region and the national average). To date, the programme has been developed for three patient populations: patients with Diabetes Mellitus Type 1 and 2, patients aged 50 to 64 who have been diagnosed with a neurodegenerative disease, and patients irrespective of specific conditions. The PEPS started in 2019 with 21 participating groups and received support of EUR 12 000 to set up the programme.

68. The population-based integrated care project Healthy Kinzigtal (HK, Gesundes Kinzigtal in German) in the Southwestern province Baden-Wuerttemberg in Germany was implemented in 2005 (Groene and Hildebrandt, 2021<sup>[46]</sup>). At the core of the project is a shared-savings contract between two statutory insurance companies and the care management company Healthy Kinzigtal Ltd. (HK Ltd.), the majority of which is owned by a local physician network. The shared savings contract does not replace, but complement, existing reimbursements structures and providers continue to be paid on a fee-for-service basis. Under the shared-savings contract, savings in healthcare spending for the population covered by

the two insurance companies is shared equally between the insurers and HK Ltd., which can reinvest the profits into the programme. The amount of savings is calculated against the expected health cost of the population, which is based on a risk-adjusted projection and provided to insurance companies by the German central healthcare fund. Since 2007, the project has been able to sustain itself through realised healthcare savings (Hildebrandt et al., 2010<sup>[47]</sup>).

69. HK Ltd. acts as the integrator and coordinates care across GPs, specialists, and hospitals, monitors the project, and provides the information infrastructure and expertise to support data exchange across providers. The population covered by the programme encompasses all persons insured with the two insurers, which are about 33,000 people. Of these, 10,500 people have actively signed up for the HK programme (Groene and Hildebrandt, 2021<sup>[46]</sup>). Measures to improve the integration of care include the introduction of a system-wide electronic health record, better alignment of health, social and long-term care as well as reimbursing providers for supporting their patients in reaching their health goals, e.g., losing weight, in regular meetings. These interventions are expected to increase the cost-effectiveness of healthcare, for instance by reducing the duplication of tests, and improve population health, thereby lowering healthcare spending.

70. In the Netherlands, some insurance companies have adopted innovative payment models to incentivise GPs to contain costs while improving care outcomes and quality. One example is the one-sided shared-savings model implemented by the insurer Menzis, which was introduced as a pilot in 2014 and runs continuously since then, albeit in a slightly adapted form. In the Menzis model, a primary care organisation is accountable for the quality and cost of care that patients enrolled in their practices receive across all sectors of care, thus including services in specialist and hospital care (Hayen et al., 2021<sup>[48]</sup>). Out of all practices managed by the primary care organisation, eight participate in the programme providing primary care to around 10 000 patients. Since GPs act as gatekeepers to specialist services in the Dutch healthcare system, the model is expected to incentivise better treatment and referral decisions also beyond primary care.

71. Under the shared savings contract, the primary care organisation receives a share of the savings in healthcare spending for the patients enrolled in their practices, which is adjusted. Savings are determined based on several quality measures and an expenditure benchmark. The shared-savings contract thus does not replace existing volume-based payment model but is introduced as complementary to existing reimbursement structures. Like other GPs in the Netherlands, the GPs enrolled in the shared-savings programme have access to performance data based on which they can evaluate and adapt their behaviour. Further aggregated data on hospital use and treatments can be requested from health insurance companies.

72. While the IPEP and the PEPS programmes were initiated by the French government, the German and Dutch programmes were launched by or in cooperation with health insurers. As Table 3.5 indicates, comprehensive capitation payments do not necessarily replace existing payment models and can complement activity-based payment models such as fee-for-service.

**Table 3.5. Key elements of selected comprehensive capitation payment models in Europe**

Element	Country			
	France		Germany	Netherlands
Name	Incitation à une prise en charge partagée (IPEP)	Expérimentation d'un paiement en équipe de professionnels de santé en ville (PEPS)	Gesundes Kinzigtal	Menzis Shared Savings Programme
Level	Country	Country	Local (Kinzigtal region in Southwest Germany)	Local (City of Enschede)
Size	18 organisations	15 organisations	2 insurers, 33 000 beneficiaries	8 GPs, 10 000 beneficiaries



Period	Since 2019	Since 2019	Since 2005	Since 2014
Dominant sector	Outpatient and inpatient	Outpatient and inpatient	Outpatient and inpatient	Outpatient (General Practitioners)
Conditions/ Services	All healthcare provided to the covered population	Depends*	All healthcare provided to the covered population	All healthcare provided to the covered population
Bundling	Providers are paid FFS but the group of providers receives additional, quality adjusted payments based on savings	Traditional reimbursement is replaced by an annual adjusted budget for a group of providers	Providers are paid FFS but receive a share of savings in spending for the covered population	General Practitioners are paid FFS but receive a share of savings in spending for patients enrolled in their practice
Participation	Voluntary	Voluntary	Voluntary	Voluntary
Payment adjusted for quality	Yes	Yes	Yes	Yes

Note: \* The programme has been developed for three patient populations: patients with Diabetes Mellitus Type 1 and 2, patients aged 50 to 64 who have been diagnosed with a neurodegenerative disease, and patients irrespective of specific conditions. FFS: fee-for-service.

Source: Authors' compilation.

73. We observe a great variety in the value-based payment models reviewed in this paper. Many programmes are pilots at local level and only cover a limited number of patients or conditions. There are substantial differences between payment model design regarding target population, conditions and services covered, timeframe of a bundle or payment, types of providers involved and the specific mechanism through which they are paid. Only few value-based payment models fully replace existing payment systems, while some, such as shared savings contracts, can be implemented in addition to traditional activity-based payment schemes. In most countries, bundled payments have been more common than comprehensive capitation payment models, partially because they require less changes in payment flows and delivery systems compared to models that target comprehensive care provided across boundaries.

# 4 The impact of value-based payment models on quality of care and spending is mixed

74. The following section reports available evidence on the impact of value-based payment models on quality of care, healthcare spending and patient experience with care.

75. Value-based payment models are expected to lead to better care coordination and integration across providers and sectors. However, rigorous evidence on the impact of value-based payments on care coordination and integration is missing or only qualitative, and studies are not of high quality (Rocks S, 2020<sup>[49]</sup>). This also reflects the challenge of identifying comparable and sound metrics to assess the degree of care coordination and integration (Suter, 2017<sup>[50]</sup>). None of the evaluations we identified included evidence of the impact of a shift to value-based payment models on care integration or coordination.

## Episode-based bundled payments

76. Overall, evidence on the impact of the US BPCI models is mixed. While BPCI programmes did not have a negative impact on the quality of care, it also did not lead to clear reductions in spending. Studies find that the BPCI model reduced the use of unnecessary post-acute care, but did not have an impact on unplanned readmissions, emergency department visits, and mortality, or a worsening of the functional status of beneficiaries (Centers for Medicare & Medicaid Services, 2022<sup>[51]</sup>).

77. For the BPCI for acute myocardial infarction, congestive heart failure, COPD and pneumonia, hospital participation was associated with a decrease in total spending. This resulted largely from a substitution of skilled nursing facilities stays with home health services (Rolnick et al., 2020<sup>[52]</sup>). However, for those bundles (and for sepsis), hospital participation was not associated with significant changes in length of stay, hospital readmission or mortality (Joynt Maddox et al., 2018<sup>[53]</sup>). Evaluations are mixed for other conditions, ranging from no cost savings to cost increases for spine surgery (Jubelt et al., 2017<sup>[54]</sup>; Malik et al., 2019<sup>[55]</sup>; Martin et al., 2018<sup>[56]</sup>). To date, it remains inconclusive whether the BPCI programme realises gross savings. Models 2 and 3 indicate cost reductions. However, Medicare incurred losses from the BPCI, after accounting for reconciliation payments and Medicare's decision to eliminate the repayment responsibility for participants, resulting in losses of 1.3% and 3.2 % for Model 3 (Centers for Medicare & Medicaid Services, 2021<sup>[57]</sup>).

78. An evaluation of Model Year 1 and 2 (2018 and 2019) found that the US BPCI-Advanced reduced spending for surgical episodes, but increased spending for medical episodes, resulting in a non-significant overall net loss (Lewin Group, 2022<sup>[58]</sup>). Savings were primarily realised through a reduction in post-acute care. BPCI-Advanced had a slight positive impact on quality of care, reducing readmissions for surgical episodes by 4.1% within the 90-period following a procedure. Limited or no impact on mortality was found. Post-acute care use was reduced both in medical and surgical care, most likely due to a shift of care into a home care setting. Other evaluations of the BPCI Advanced model, including an analysis of hospital



claims data from January 2019 to September 2019 (Joynt Maddox et al., 2021<sup>[59]</sup>), identified small net savings (Lewin Group, 2021<sup>[60]</sup>).

79. The Comprehensive Care for Joint Replacement (CJR) model in the United States did not lead to significant increases in readmissions, emergency conditions and mortality (Haas et al., 2019<sup>[61]</sup>; Barnett et al., 2019<sup>[62]</sup>; Finkelstein et al., 2018<sup>[63]</sup>; Li et al., 2021<sup>[64]</sup>) but was associated with a decrease in certain complications (Lewin Group, 2020<sup>[65]</sup>). Evaluations of the CJR programme model identified net savings, which were largely attributed to reductions in post-acute care (Haas et al., 2019<sup>[61]</sup>; Barnett et al., 2019<sup>[62]</sup>; Agarwal et al., 2020<sup>[66]</sup>; Lewin Group, 2021<sup>[60]</sup>). During the first three years of the model, the total amount of savings realised by mandatory CJR hospitals amounted to roughly 2 % compared to baseline payments (approximately USD 61.6 million) (Lewin Group, 2020<sup>[67]</sup>).

80. The Dutch Integrated Maternity Care Organisations (IMCO) model did not have any impact on health outcomes. A small increase in outpatient deliveries and a small increase in hospital deliveries was observed. The growth in overall maternity care spending for participating providers was lower compared to the control group (Struijs et al., 2020<sup>[68]</sup>). Furthermore, given that the traditional payment model and the integrated payment model coexist, an increase in the administrative burden for providers involved was reported (Remers et al., 2022<sup>[16]</sup>).

81. The Canada (Ontario) Integrated Funding Model pilot initiative had overall positive results based on the goals established by the Ministry of Health and Long-term Care of Ontario, which are shorter length of hospital stay, reduced emergency department visits and readmissions, lower average total costs and positive patient and caregiver experience. Much of the positive results of this initiative are attributable to the two largest projects, the Hamilton Niagara Haldimand Brant chronic obstructive pulmonary disease project and the congestive heart failure project and the Mississauga Halton cardiac surgery project (Walker, Hall and Wodchis, 2019<sup>[69]</sup>). Based on the evaluation of the programme, it was recommended “to go fast for surgery and go slow with medical conditions” (Walker, Hall and Wodchis, 2019<sup>[69]</sup>).

82. Table 4.1 summarises changes in overall spending, quality of care and patient experience with care for the bundled-payment models reviewed in this paper.

**Table 4.1. Impact of episode-based bundled payment models on spending, quality of care and patient experience with care**

Country	Programme	Spending	Quality of care	Patient experience	Source
United States	BPCI	-/+*	=		(Centers for Medicare & Medicaid Services, 2022 <sup>[51]</sup> )
	BPCI-Advanced	-/+**	+/=		(Lewin Group, 2022 <sup>[58]</sup> )
	CJR	+	+/=		(Lewin Group, 2020 <sup>[67]</sup> ; Haas et al., 2019 <sup>[61]</sup> )
Netherlands	Integrated Maternity Care Organization (IMCO)	+	=		(Struijs et al., 2020 <sup>[68]</sup> )
Canada	Integrated Funding Model (IFM), six pilot projects	+	+	+	(Walker, Hall and Wodchis, 2019 <sup>[69]</sup> )

Note: “+” indicates favourable outcomes for the innovative payment model, “-” indicates unfavourable outcomes and “=” indicates no significant changes. Only programmes where evidence is available are included. \*Variation between conditions covered \*\*Net savings for surgical care, net losses for medical care

Source: Authors’ compilation

## Bundled payments for chronic disease management

83. Evaluations of the Oncology Care Model (OCM) in the United States found no significant changes in care outcomes and patient experience and an increase in net spending (Centers for Medicare & Medicaid Services, 2022<sup>[51]</sup>). The OCM led to a more cost-conscious use of supportive care drugs to prevent nausea, neutropenia, and cancer-related bone fractures, but did not spur driving value-oriented chemotherapy or radiation treatment. Healthcare service utilization remains largely unchanged. There was no significant impact of the programme on hospice use, but a decline in the proportion of patient with inpatient hospitalisations and Intensive Care Unit admissions in the last 30 days of life by 1.5% and 2.1 %, respectively (Brooks et al., 2019<sup>[70]</sup>).

84. Episode-based bundled payments for Diabetes Mellitus Type 2, COPD/Asthma, and Vascular Risk Management were introduced in 2010 in the Netherlands. An evaluation of hospital claims data from 2008 to 2015 identified an unfavourable economic impact of the programme. Episode-based bundled payments were associated with higher costs compared to standard delivery of care, with a particularly high increase in spending for patients with multimorbidity (Karimi et al., 2021<sup>[36]</sup>).

85. In 2019, total expenditures for bundled care programmes amounted to EUR 496 million. Expenditures for Diabetes Mellitus Type 2, COPD/Asthma, and Vascular Risk Management represented 73 % (EUR 360 million). Pay-for-performance elements amounted to only EUR 0.9 million, representing a sharp drop from EUR 9 million in 2015 (Zorginstituut Nederland, 2021<sup>[71]</sup>).

86. The Australian Health Care Home Trial took place between 1 October 2017 and 30 June 2021 and targeted patients with chronic conditions. Practices received bundled payments for each patient to cover all services related to chronic care. At the end of the trial, 106 practices were participating in the project, while 121 practices had withdrawn from the project (withdrawal rate of 53%). At the end of the trial, 7,742 patients were enrolled, which is 68% of initially enrolled patients. An evaluation of the programme did not find any improvements in patient experience and health outcomes, while spending increased (Health Policy Analysis, 2022<sup>[72]</sup>). Several reasons are given to explain these findings, including a lack of structural change in practices due to low numbers of participating patients.

87. Table 4.2 summarises changes in overall spending, quality of care and patient experience with care for the bundled payments for chronic disease management models reviewed in this paper.

**Table 4.2. Impact of bundled payments for chronic disease management models on spending, quality of care and patient experience with care**

Country	Programme	Spending	Quality of care	Patient experience	Source
United States	Oncology Care Model	-	=	=	(Centers for Medicare & Medicaid Services, 2022 <sup>[51]</sup> )
Netherlands	Ketenzorg	-			(Karimi et al., 2021 <sup>[36]</sup> )
Australia	Australian Health Care Home Trial	-	=	=	(Health Policy Analysis, 2022 <sup>[72]</sup> )

Note: "+" indicates favourable outcomes for the innovative payment model, "-" indicates unfavourable outcomes and "=" indicates no significant changes. Only programmes where evidence is available are included.

Source: Authors' compilation

## Comprehensive capitation payments

88. Assessments of ACOs in the United States are heterogeneous, but largely find no changes in spending or modest improvements (Rutledge et al., 2019<sup>[73]</sup>; Kaufman et al., 2019<sup>[74]</sup>; Wilson et al., 2020<sup>[75]</sup>). After 3 years of the Medicare Shared Savings programme, participation by physician groups was associated with savings, whereas hospital-integrated ACOs did not produce savings (McWilliams et al., 2018<sup>[76]</sup>). Reports indicate that ACOs achieved a lower spending growth of about one to two percentage points compared to standard delivery of care (Medicare Payment Advisory Commission, 2019<sup>[77]</sup>; Medicare Payment Advisory Commission, 2021<sup>[78]</sup>). However, these results might not hold once bonus payments and cost of new technology and infrastructure are taken into account (Kaufman et al., 2019<sup>[74]</sup>). There is also some evidence that ACOs have reduced the use of low-value care and generated savings in use of post-acute care (Schwartz et al., 2015<sup>[79]</sup>).

89. Evaluations of the impact of comprehensive capitation payment models on quality of care in the United States range from mixed to positive results. A comprehensive review of available evidence on ACO's performance found no significant improvements in patient experience, but small positive changes in selected quality metrics (Wilson et al., 2020<sup>[75]</sup>). Participation in both ACOs (comprehensive care model) and BPCI (episode-based model), compared with participation in BPCI model only, was associated with lower readmissions for medical and surgical episodes, and with lower institutional post-acute care spending for medical episode only (Navathe et al., 2021<sup>[80]</sup>).

90. The PACE model in the United States was associated with reductions in the risk of hospitalization but findings for other outcomes, such as nursing facility use and mortality, were mixed (Arku et al., 2022<sup>[81]</sup>). A CMS evaluation of the impact of the PACE model in nine states of "beneficiaries who entered PACE in 1999 or 2000 found little effect on Medicare expenditure relative to expenditure that would have prevailed in the absence of PACE" (Foster et al., 2007<sup>[82]</sup>). Medicaid expenditure per person was estimated to be higher for patients enrolled in the PACE compared to a control group, pointing to a negative impact of healthcare spending. These findings are in line with other studies on the economic impact of PACE (Wieland et al., 2012<sup>[83]</sup>).

91. The evidence of the impact of the HK model in Germany on quality of care is mixed. A first longitudinal study with a non-randomised control group found improvements in healthcare quality in six out of 18 indicators and no significant difference for the other 12 indicators (Schubert et al., 2016<sup>[84]</sup>). A more recent comprehensive evaluation found no significant changes in quality of care for 88 out of 101 indicators, and an improvement for six indicators while seven indicators developed unfavourably (Schubert et al., 2021<sup>[85]</sup>).

92. Internal evaluations of the Healthy Kinzigtal Ltd. (HK Ltd.) show that healthcare spending for the covered population has consistently remained below expected levels. In 2012, the annual savings by the HK Ltd. amounted to EUR 4.56 million, which is 6,6% below expected cost (Hildebrandt et al., 2015<sup>[86]</sup>). In 2013, the annual savings amounted to EUR 5.5 million (US\$5.8 million) (Groene, Pfaff and Hildebrandt, 2018<sup>[87]</sup>). In 2019, the annual savings amounted to EUR 6.7 million, which is 7% less than the German average (Siemens Healthineers, 2022<sup>[88]</sup>).

93. A survey on patient satisfaction with care provided by the HK model was conducted in 2013, 2015, 2017 and 2021. The limited public availability of the results from the first, third and fourth survey constitutes a challenge to a comprehensive analysis of HK's impact on patient satisfaction over time. While studies point to an overall positive impact of HK on patient satisfaction with care and their health-related behaviour, limitations remain regarding their methodology and the public availability of results

94. An evaluation of the Menzis shared savings programme in the Netherlands found small yet not significant improvements in quality of care and a reduction in spending in the first year of implementation

(Hayen et al., 2021<sup>[48]</sup>). The study followed a difference-in-differences design with a control group of 22 GPs and 25,560 patients. Quality of care was measured based on a survey on patient satisfaction, the quality of chronic care delivery for diabetes and COPD and GP's prescription policies. While small changes in quality of care have been observed, these are not significant and for chronic care and prescription behaviour the results are mixed with some indicators improving and others declining. Overall, this suggests that performance has remained constant in the first year of the programme. The study further analysed individual quarterly spending and enrolment and found a 2% reduction in per capita spending among the GPs enrolled in the programme. Five out of seven GPs were found to have made savings, while spending increased for the other two, albeit not significantly (Hayen et al., 2021<sup>[48]</sup>).

95. Table 4.3 summarises changes in overall spending, quality of care and patient experience with care for the comprehensive capitation payment models reviewed in this paper.

**Table 4.3. Impact of comprehensive capitation payment models on spending, quality of care and patient experience with care**

Country	Programme	Spending	Quality of care	Patient experience	Source
United States	ACOs	+/-	+/-	=	(Wilson et al., 2020 <sup>[75]</sup> ; Kaufman et al., 2019 <sup>[74]</sup> )
	PACE	=/-	+/-		(Arku et al., 2022 <sup>[81]</sup> ; Foster et al., 2007 <sup>[82]</sup> )
Germany	Healthy Kinzigtal	+	=	=	(Schubert et al., 2016 <sup>[84]</sup> ; Schubert et al., 2021 <sup>[89]</sup> ; Hildebrandt et al., 2015 <sup>[86]</sup> ; Siegel et al., 2016 <sup>[90]</sup> )
Netherlands	Menzis Shared Savings Model	+	=	=	(Hayen et al., 2021 <sup>[48]</sup> )

Note: "+" indicates favourable outcomes for the innovative payment model, "-" indicates unfavourable outcomes and "=" indicates no significant changes. Only programmes where evidence is available are included.

Source: Authors' compilation

96. The publicly available empirical evidence points to inconsistent and modest efficiency and quality gains from value-based payment models. In particular, bundled payments for chronic disease management offer promise but fail to meet expectations.

# 5 Understanding under which conditions value-based providers' payment models could work

## 5.1 Innovation in provider payment models needs to be aligned with key features of national healthcare systems

97. Innovative providers' payment models should be seen in the context of wider actions to promote value-based health systems. For maximal effect, those models need to be accompanied by, and aligned with other key features of national health systems. This section describes several pre-conditions to facilitate the successful shift towards a value-based providers' payment model.

### High-level support and alignment with health system characteristics is crucial to enable and sustain the implementation of value-based payment models

98. There are significant differences across countries' healthcare systems, including responsibilities for health financing and purchasing mechanisms, which need to be taken into account when designing and implementing payment models. Most innovative payment models have been designed and implemented in the United States. While the many projects initiated in the United States provide useful insights, their results may not be directly transferable to countries with different health system features and financing responsibilities across payers and sectors. A payment model that works well in one country might be ill-suited for another setting. A paper on the introduction of bundled payments in Norway noted, for instance, that the lack of competition in the Norwegian single-payer system may constitute a challenge for the implementation of value-based payment models as "service providers have more incentives to prove their value and compete on the basis of cost and quality in multi-payer systems, like in the Netherlands" (Mjåset et al., 2020<sup>[29]</sup>).

99. As incentives for providers in value-based payment models differ depending on the setting in which they are implemented, it is important to design models in line with the features of the given health system. Furthermore, evaluations and comparisons need to carefully consider the context of implementation of each model.

100. The national context also determines the entity that designs and implement value-based payment models. In countries with residence-based health coverage such initiatives are often taken by the government, whereas in countries with contributory health coverage, changes in payment models are more likely to be launched by statutory and private insurance companies or provider networks (Remers et al., 2022<sup>[16]</sup>). In the Dutch healthcare system of managed competition, for instance, insurers have considerable freedom in contracting providers and determining how to pay them. As Remers et al. (2022<sup>[16]</sup>) note, "[t]he decentralised nature of the Dutch system naturally aligns with a bottom-up implementation approach" and

thus encourages insurers to experiment with novel payment models. In other cases, initiatives for changing provider payment are taken by national or regional governments, as is the case for the bundled payment models implemented in Norway, France, Canada (Ontario), but also in the Netherlands. In most cases, however, new payment models are designed and sustained through a combination of local initiative and governmental support (Stokes et al., 2018<sup>[14]</sup>).

101. There are multiple ways in which national governments can enable and support the move towards value-based care. The most fundamental one is providing a legislative and regulatory basis that allows for experimenting with new delivery systems and payment models, and thereby enable, for instance, new entities to coordinate care across settings and services and new roles and responsibilities of medical professionals. Since the 1990s, many countries have adapted their legislation and policies to allow for more flexibility in payment models. Germany, for instance, implemented several legislative changes since the 2000s that fostered “more competition for care concepts between health insurances, more options for the insured and more leeway for players in the various sectors of healthcare” (Amelung, Hildebrandt and Wolf, 2012<sup>[91]</sup>). This regulatory framework paved the way for the implementation of comprehensive capitation shared savings models like the one implemented in the Healthy Kinzigtal (Pimperl et al., 2017<sup>[92]</sup>). In the United States, the Affordable Care Act of 2010 also included reforms of the healthcare delivery system which facilitated and promoted the implementation of innovative payment models, most prominently through the CMS Innovation Center (see Box 3.1).

102. Another important aspect of high-level support for innovative payment models is providing the funding needed to design and run such projects. The specific modes of financial support vary across countries and are also dependent on the role that national governments play. As Nolte and Woldmann (2021<sup>[93]</sup>) find, “[t]argeted payments have been used where tiers of government have direct control over delivery, while more decentralized systems have tended to use start-up grants to support the development of new approaches”. The Dutch government financially supported the episode-based bundled payment programme for maternity care and the organisation of Integrated Maternity Care Organization (IMCO) or “Integrale Geboortezorg Organisatie” (IGO). The Ministry of Health granted each IMCO a budget of EUR 200 000 to build the infrastructure and skills needed to coordinate care across multiple providers (Michel and Or, 2021<sup>[94]</sup>).

103. In France, the government and the statutory health insurance have supported disease-specific provider networks since the 1990s. The funding, which amounted to EUR 650 million between 2000 and 2005 supported the financing of infrastructure, operational cost and the delivery of new services to improve the integration and continuity of care for patients with chronic diseases (Nolte and Woldmann, 2021<sup>[93]</sup>). The population-based payment models IPEP and PEPS, which were implanted in 2019 have also received significant financial support from the French government. The United States financially support the implementation and testing of new care delivery and payment systems through the CMS Innovation Center (see Box 3.1), which receives USD 10 billion funding every 10 years from the Affordable Care Act to lead the change towards a value-based healthcare and payment system (Micklos, Pierce-Wrobel and Traylor, 2020<sup>[95]</sup>).

104. Creating an appropriate legislative environment and providing financial support represent important high-level policy levers for national or subnational governments to promote a change to value-based payment models.

## **A hybrid approach is needed to align local and national objectives and incentives**

105. While high-level efforts provide the legislative basis and often the initial financial investments that enable the change to value-based payment models, the local context, and the likely impact of a programme on the ground are equally important. To successfully implement a value-based payment model, it is crucial that certain prerequisites are in place on the macro as well as on the local or micro level, and that objectives

are well-aligned. The implementation of value-based payment models requires an approach that considers both country-level and sub-national or local perspectives, which has been described as a hybrid approach (Wodchis et al., 2020<sup>[96]</sup>). While national policy makers play a crucial role in guiding changes in health systems on a larger scale, new approaches to care delivery and payment these also play out the day-to-day working practice of providers. To ensure that innovative payment models are effective and sustainable, policy makers need to understand the situation "on the ground" and include clinicians and local stakeholders in decision-making processes and in the design and implementation of value-based payment models. Furthermore, as evidence shows, giving providers a certain level of accountability and autonomy not only allows them to deliver interventions that are specifically targeting local needs but can also increase providers' motivation and engagement and their identification with and support of innovative care projects (Pimperl et al., 2017<sup>[92]</sup>).

### ***Clinicians, other providers and patients' engagement is key to foster sustainable change***

106. Successfully engaging clinicians is facilitated when clinicians are included in the model development. This ensures that their concerns are addressed, trust is fostered and that clinicians are involved in the preparation of an engagement strategy.

107. Moreover, the participation and motivation of clinicians and other providers is central for implementing changes to care delivery, including the establishing of new entities or care networks. Clinicians and other providers should thus be involved in the design of innovative payment models and the care pathways or bundles on which basis payments are set. Engaging with physicians' groups and other stakeholders from the very beginning is an important component of implementing innovative payment models, especially if they include the bundling of care.

108. Provider engagement is particularly important to motivate providers to participate in voluntary programmes, which applies to most innovative payment systems reviewed in this paper. In these cases, interested and eligible providers can choose to participate in the model if they expect a benefit and leave it when they do not find it appropriate anymore. When participation is voluntary, providers are likely to only join a model when they see a potential opportunity for financial gain, as evidence from the United States shows (United States Government Accountability Office, 2018<sup>[97]</sup>). A common success factor found in many international examples of innovative payment models, particularly in voluntary ones, is strong physician leadership and involvement (Groene and Hildebrandt, 2021<sup>[46]</sup>; Bourgeois, Morize and Fournier, 2021<sup>[98]</sup>). The involvement of other providers besides those leading the project as well as patients is also important if countries are striving towards an integrated patient-centred health system.

109. It is further important to give providers the necessary skills and resources to understand the model through which they are paid and to improve outcome. An evaluation of the Australian healthcare home trial further underlines the importance of granting providers sufficient time to "define and implement their model of care before enrolling patients" (Health Policy Analysis, 2022<sup>[72]</sup>). A lack of adequate time and support for providers in the preparatory phase as well as during the implementation period led to frustration among providers and a high withdrawal rate. A high participation and satisfaction rate among providers can further be achieved through appropriate incentives or penalties, which includes risk sharing and the aligning the incentives of providers and payers with agreed-on quality objectives (Conrad, 2015<sup>[12]</sup>). Clinical governance structures that include payer and provider representatives as well as information technology systems that deliver information to providers in a timely manner are also important ways to engage physicians. Overall, it is crucial that payment models are aligned with the interests of participating providers to foster sustainable and successful implementation.

110. Engaging with patients, their families and the civil society may also be an important strategy to enhance the success of innovative payment models (McClellan, 2017<sup>[99]</sup>) (Anderson G, 2023<sup>[100]</sup>). To this aim, models should be designed to include the use of mechanisms and tools to actually and effectively engage patients, their families and the civil society. This will in turn facilitate a widespread recognition that



care needs to be better organised. Furthermore, systems and processes to support effective communication with patients, carers and families, between multidisciplinary teams and clinicians and across health service organisations should be set up and maintained.

### ***Changes in payment models need to include strong and transparent governance structures***

111. Value-based payment models come with significant changes in the way that providers are paid, shift accountability from payers to providers, and often require establishing – and providing financial compensation for – new ways of collecting and sharing data. As such changes can cause significant uncertainty among providers, strong and transparent governance structures need to be in place. This is especially important since the implementation of innovative payment mechanism often involves the creation of new entities in charge of managing and distributing budgets as well as coordinating participating providers. In payment models with lump-sum compensation for a bundle of services or comprehensive capitation, it needs to be carefully defined which entity is best suited to hold and distribute funds across care sectors and providers. As Conrad (2015<sup>[12]</sup>) argues, the financial flows between newly established coordinating entities and individual providers need to be clearly defined and well-aligned with the general objectives of the programme. While the coordinating entity is important for the functioning of a programme, setting up new institutions requires changes in the existing delivery system and payment, which can be difficult to achieve in practice. A report on the implementation of the *Épisodes de soins* models in France notes that identifying the profiles needed to manage the coordination of care was a priority area in the implementation of the programme (Jaouannet, Lansac and Reberga, 2020<sup>[101]</sup>).

112. In comprehensive capitation models, large organisations are needed to manage funds for all healthcare services provided to the covered population. Those organisations should have the capacity to allocate revenues to the different providers that care for the individual/patient and to measure the performance of providers to determine how savings are distributed (Groene, Pfaff and Hildebrandt, 2018<sup>[87]</sup>; Michel and Or, 2021<sup>[94]</sup>). Setting up new entities for the coordination of care across provider networks, and equipping providers with the means and skills to participate in a such a programme, is a complex task that requires time and resources. The work of the coordinating entity is crucial for the success of a programme as it facilitates continuity of care and cooperation among providers. Experience from the German comprehensive capitation programme in the Kinzigtal region suggests that having a locally based “integrator”, or coordinating entity, has been a positive contributing factor. It is argued that this entity should be “a regionally based organisation [...] which is familiar with local (health) services issues, plans and delivers local intervention and maintains the communications with all stakeholders and needs to be supported by an organisation capable of providing investments, engaging in negotiations with high-level decisionmakers, and of providing advanced health data analytics” (Groene and Hildebrandt, 2021<sup>[46]</sup>). In the case of the Healthy Kinzigtal, the start-up funding provided by the contracted insurers facilitated the setting up of such an integrating entity.

113. Most value-based payment models are implemented at local, regional or subnational level and cover only small populations over limited periods of time. Since care integration requires a change in the organisation, delivery and payment on a structural level, this may be problematic. For instance, if only few patients cared for by a provider are enrolled in an integrated care programme, it is likely that no significant changes will be made to the overall workflows and data practices (Health Policy Analysis, 2020<sup>[102]</sup>). Likewise, if a patient is part of a bundled payment scheme for a single intervention, this will not affect his or her overall care experience and health behaviour. As the case in Germany has shown, however, integrated care projects can also benefit from a limited regional scope, as this allows providers and coordinators to design a model better suited to fulfil population needs (Pimperl et al., 2017<sup>[92]</sup>). When designing and implementing value-based payment models, policy makers thus must strike a balance between adequate scope and duration to enable substantive changes in care coordination and delivery and sufficient local focus of projects to account for differences in the local context.



114. While national governments have the financial means and regulatory leverage to implement large-scale changes on a system level, local networks and providers have knowledge about what works and is needed on the ground. A cooperation between stakeholders is thus important to ensure that efforts and incentives on the macro and micro level are well-aligned (Groene and Hildebrandt, 2021<sup>[46]</sup>; Conrad, 2015<sup>[12]</sup>). As Wodchis (Wodchis et al., 2020<sup>[96]</sup>) notes, “a hybrid top-down and bottom-up approach[...] could be particularly useful in dealing with the complexities of bringing together sectors that traditionally have been siloed”. Successful models are thus usually those that use a combined top-down (i.e., by central governments) and bottom-up (i.e., on the local or institutional level) approach, with well-aligned objectives across the different levels.

***Data infrastructures are needed to design, monitor and evaluate value-based payment models***

115. Most value-based payment models are pilots that test the impact of new forms of care delivery and related payment to providers on value in health systems. To understand the effect of these models and to ensure that they do not result in unintended consequences, continuous monitoring and rigorous evaluations are crucial. Since designing, pricing, monitoring and assessing care bundles or comprehensive capitation models requires detailed data from multiple sources, information technology investments may be required to ensure that comprehensive sets of data are shared in a timely manner. The availability of electronic health records that can be easily shared across providers has been a component of all the successful payment models reviewed in this paper. The use of these systems has been integral in facilitating care coordination between stakeholders and the exchange of information, as well as enabling the automation of processes to minimise administrative burden.

116. Value-based payment models should be also designed and implemented with an eye toward rigorous evaluation, such as deploying new models initially in a limited range of organizations or regions using difference-in-difference approaches to facilitate the use of control groups for evaluation. Furthermore, to evaluate a model a baseline should be measured first across key dimensions to avoid implementing the model and the metrics at the same time.

117. The availability of meaningful data and analytics to providers will increase operational transparency, improving feedback about performance and enabling participants to use data to make informed decisions and drive results (Center for Medicare and Medicaid Innovation, 2021<sup>[24]</sup>). Transparency can help supporting partnership between payers and providers. In particular, transparency and accuracy in cost estimates are central to setting a fair price for a service bundle that will help to ensure providers' engagement.

118. The US CMS Innovation Center demonstrates the importance of having an objective and scientifically credible organisation evaluate new payment models to inform policymakers' decisions on whether a model should be scaled up or discontinued. The basic paradigm reflected in the United States CMS Innovation Center's authorizing statute is that models should be “tested” on a temporary basis before being expanded into larger, permanent programmes (Medicare Payment Advisory Commission, 2021<sup>[103]</sup>). The CMS Innovation Center is permitted to modify or terminate a model during its implementation period if it fails to provide the expected positive impact on spending and / or care quality. The CMS Innovation Center's general practice has been to operate a model for about five years and then either abandon the approach or relaunch a revised version of the model under a new name. This allows the CMS Innovation Center to introduce second-generation models to continue operating, and apply lessons learned from a model that has hit the five-year mark but has not been deemed fit for expansion. It also allows CMMI to identify flaws with a model that can subsequently be addressed to produce a more successful model.

119. This approach to evaluation is also adopted in other national contexts where innovative payment models are tested. France, for instance, rolls out its programmes EDS, IPEP and PEPS in three phases to refine the programme and monitor its effects (Jaouannet, Lansac and Reberga, 2020<sup>[101]</sup>). In each phase,

providers participate on a voluntary basis and can opt out after each of the three phases. The evaluation of all programmes is mandatory to understand the impact of the programme relative to standard delivery of care. Pilot testing of value-based payment models further allows identifying flaws with a model that can subsequently be addressed or to identify whether some bundles are more successful than others, as has been the case in the bundled payments programme in Canada, Ontario (Walker et al., 2019<sup>[33]</sup>; Walker, Hall and Wodchis, 2019<sup>[69]</sup>).

120. Evaluations of value-based payment models should further take potential spill over effects into account and extend their scope to unintended consequences of a switch to a new model. Moreover, evaluations should move beyond expenditure and quality and target care co-ordination and integration and equity. Based on experiences in pilot programmes, like the Australian Health Care Home Trial, it is recommended to allocate sufficient time for implementing and evaluating value-based payment models as they take time to unfold their effects (Health Policy Analysis, 2020<sup>[102]</sup>; Groene and Hildebrandt, 2021<sup>[46]</sup>).

121. Since it is crucial to understand their impact, the assessment of value-based payment models should be embedded into the design and implementation process, with independent evaluations carried out on a continuous and systematic basis. To show the whole picture, it is recommended to report findings from economic evaluations measuring cost savings in relation to changes in outcome.

## 5.2 Key intervention points in the design of value-based payment models

122. Given the significant variation observed in the key features of value-based payment models and the substantial investment needed to design and implement a change in providers' payment, cross-national learning is crucial for the successful design and implementation of value-based payment models. Based on the country experiences reviewed in this paper, policy makers have several intervention points when designing context-specific and tailored models. The following key intervention points can guide this process.

- *Engage with clinicians and other providers from the very beginning.* Successfully engaging clinicians is facilitated when clinicians are included in the model development. This ensures that their concerns are addressed, trust is fostered and that clinicians are involved in the preparation of an engagement strategy. Furthermore, the participation and motivation of clinicians and other providers is key to implementing changes to care delivery, including the establishment of new entities or care networks. Clinicians and other providers should thus be involved in the design of innovative payment models and the care pathways or bundles on which basis payments are set.
- *Engage patients and their families, and the civil society in the design and delivery of care to best meet their needs.* Involving patients, their families and their advocates in the process better assures that new models or approaches will have the intended effects of enhancing patient experience with care and improving outcomes. This will in turn facilitate a widespread recognition that care needs to be better organised
- *Commit to payment reform that span extended periods.* Pilot testing of the value-based payment models allows identifying flaws with a model that can subsequently be addressed to produce a more successful model. Sufficient time should be allowed for detailed design and adaptation of service delivery and provider business model to complex value-based payment models. Moreover, innovative payment models may take time to unfold their effects (Health Policy Analysis, 2020<sup>[102]</sup>).
- *Set fair prices.* Programmes must balance prices that are financially attractive to providers, while avoiding wasteful spending. If the price is too low, this may result in limited provider buy-in because providers face losses as financial risks are shifted to providers. At the other hand, prices that are higher than actual costs, might result in a waste of financial resources. Many programmes are benchmarked against average costs of the standard provision of care, and/or historic cost data.

This can offer a starting point. When implementing value-based payment models, payers and providers can choose two main strategies regarding the payment flow, namely a prospectively established price that is paid as one payment to the accountable entity, or upfront FFS-based payments to individual providers within the episode with a retrospective reconciliation period. Whichever option chosen, a fair price should be “marked by impartiality and honesty: free from self-interest, prejudice, or favouritism” (Edmond, 2021<sup>[104]</sup>).

- *Incorporate quality adjustment into the payment.* Collecting data on quality should be an integral part of the payment design. This allows to adjust prices based on appropriate quality metrics to improve value-based purchasing. The exact measures employed depend on the clinical conditions and the services bundled. Measures should assess important aspects of quality based on scientific evidence, such as medical guidelines, and should be available also for the comparison groups (Conrad, 2015<sup>[12]</sup>).
- *Design risk mitigation strategies.* It is important not to expose providers to risks that they cannot control – that is excessive financial risk. There are several approaches to mitigating excessive risk. High-risk and/or high-cost patients can be excluded from the bundled payment model and services paid on a FFS basis. Characteristics of high and low-cost bundles can be identified prospectively (before the bundle commenced) and the tariff or risk adjusted accordingly, for example a patient with a greater number of comorbidities prior to surgery may have a higher tariff than with no comorbidities. As an example, the CMS-Hierarchical Condition Categories prospective risk adjustment model is used in the US GPDC model to measure the beneficiary’s risk of using healthcare goods and services and adjust capitated payments to providers based on risk. Measurement of enrollee risks is achieved by models that predict expenditures based on enrollee demographic characteristics, medical diagnoses, and other individual information (RTI International, 2021<sup>[105]</sup>). However, risk adjustment tools are susceptible to changes in coding practices to increase risk scores (Chernew et al., 2021<sup>[106]</sup>). Financial risk can also be adjusted retrospectively after the bundle has commenced, for example a higher payment may be applied if the patient required specialist treatment, such as an Intensive Care Unit stay. Bundled payment models may include risk corridors, either a one-sided or two-sided risk sharing arrangement between payers and providers. In one-sided risk arrangements, participants are eligible to receive a bonus payment from the payer if the actual expenditures are less than the target price that has been set. Under two-sided risk (which also includes the participant taking on downside risk in addition to one-sided risk), the participant may also be required to pay back the payer if actual expenditures are greater than the pre-determined target price.
- *For episode-based bundled payments, choose conditions and duration carefully.* The agreement on specifications on best practice care is essential to engage physicians with a focus on improving patient care, enable risk-management, set the duration of care, determine and monitor quality indicators and set appropriate payment levels. Effective bundled care and payments have ranged from short-term procedural episodes to ongoing funding models (e.g., the PACE programme and ACOs). Short-term bundles related to specific procedures with an inpatient hospitalization as the index event tend to have more clearly defined care pathways, providers and timeframes, which implies more easily measurable outcomes. This leads to a better ability to set appropriate prices and hold the appropriate practitioners accountable for care. Regardless of the length of the bundle, it is important that a bundle captures all necessary patient care related to the condition, procedure or population. The definition of episodes covered by a payment should match the duration of treatment for a specific condition. Longer episode durations can put greater financial risk on providers since they will be more accountable for patient outcomes and the quality of care further into the future from the episode event. For longer term bundles for specific chronic conditions, it is particularly difficult to ensure all related care and ongoing patient costs are included in one bundled payment. If all care is not included, the resulting incomplete bundles can reinforce fragmented care for patients with multiple chronic conditions and create incentives to shift care and costs to

providers outside of the care bundle. The most suitable opportunities to improve care by bundling services occurs when within-provider variation for similar patients is low, reflecting the capability of providers to ensure consistent care for patients with similar conditions, but between-provider variation for similar patients is high, suggesting opportunities for better alignment with best practice care and improved efficiencies across providers. Criteria to select conditions may relate to very standardised treatment pathways informed by evidence-based medicine, high volume of cases, to large fraction of spending those cases account for, and to large observed variation in spending per case.

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