Chapter 3

Bundled health care provider payments

"Bundled" payments for health care, where several services relevant to a condition or intervention are grouped together for payment, are being used in several OECD countries. Bundled payments go beyond DRG payments, and aim to encourage cost savings and quality improvements for acute episodes of care such as elective surgical interventions and care for chronic conditions such as diabetes.

This chapter studies the policy impact of bundled payment in several OECD countries, including England (United Kingdom), Sweden, Portugal, the Netherlands, Denmark and the United States. The payment reform is assessed, with a particular focus on health care spending and quality. The discussion considers the policy goals, design of the payment reform, implementation process, and conditions for implementation, including IT requirements and stakeholder involvement.

3.1. Overview

"Bundled" payments for health care, where several services relevant to a condition or an intervention are grouped together for payment, are being used in several OECD countries. In this chapter the term bundled payments refers to innovations that group activities into a single tariff that go beyond simple DRG payments. They aim to encourage cost savings and quality improvements for acute episodes of care such as elective surgical interventions and care for chronic conditions such as diabetes.

Single payments for acute care episodes that bundle inpatient activities are not new. These DRG-type payments, which cover inpatient activities, have now been used for at least two decades in some OECD countries (see Chapter 1). They typically calculate tariffs based on average costs of care provision. Other more recent experiments in the United States have widened the scope of bundled payment, to include activities that occur before and after admission. In others, such as England and Sweden, quality is incorporated in the bundled payments through "best practice tariffs" or paying for outcomes, including surgical interventions for hip, knee and spine.

Chronic conditions, too, are being paid for through bundled payments, and push the scope of bundled payments beyond the inpatient sector. A policy focus on chronic conditions in part reflects a broader health policy objective of improving co-ordination of care. Indeed, patients with chronic conditions typically require the involvement of more than one health care provider. Separate payment systems for each provider reinforce fragmentation across the care pathway. 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.

This chapter considers these recent approaches to bundled payments, for episodic care and for chronic conditions, taking several case studies from OECD countries including England, Sweden, Portugal, the Netherlands, Denmark and the United States. All examples presented in the chapter have been rolled out or at least piloted. The only exception is the bundled payment for Parkinson's disease in the Netherlands which is currently still in a planning phase. The chapter starts by describing the key characteristics of these payment reforms, and then assesses their impact, including conditions for implementation. Finally, the discussion sets out key building blocks to implement a bundled payment followed by concluding remarks.

3.2. Episode-based payments incentivising best practice or improvement of patient outcomes

Bundled payments have a number of characteristics (see Table 3.1). The basket of services covered and the patient population targeted are essential features. Bundled payments can draw on historical cost data to inform the tariff. Increasingly, bundled payments are being linked to quality requirements which must be met to receive the full payment. Bundled payments also tend to introduce an additional degree of financial risk for providers, as they may end up providing more services than the bundle has allowed for.

Table 3.1 Predominant criteria for setting bundled payments

	Episode-based bundled payments	Bundled payments for patients with a chronic condition
Range of services covered (bundled payments cover a set of services possibly across more than one setting)	Inpatient activities (e.g. elective surgery), pre and post intervention visits for a set period of time	Care related to the chronic condition such as check-ups, specialist appointments, diagnostic tests
Patient population	A certain level of poor functionality tends to be required to receive the intervention such as patients needing surgery (excluding high-risk patients)	Patient with the relevant condition
Setting the bundled payment tariff	Typically a defined budget to cover a set of services that might draw on historical costs. Recently some countries may use clinical guidelines to define "best practice" and inform tariff setting. Tariff may incorporate a "warranty" component.	A defined budget to cover a set of services that might draw on historical costs and/or best practice as defined in clinical guidelines
Financial risk	Providers bear risk to provide more services than what is covered for some patients. In addition providers might be exposed to some financial penalties if the budget is reduced when they do not meet specific criteria (e.g. quality targets)	Providers bear risk to provide more services than what is covered for some patients. In addition providers might be exposed to some financial penalties if the budget is reduced when they do not meet specific criteria (e.g. quality targets)
Financial rewards	Some forms of bundled payments include rewards for co-operation between providers or for meeting certain quality targets such as patient reported outcome measures	Some forms of bundled payments include rewards for cooperation between providers or for meeting certain quality targets such as reporting on certain intermediate or process indicators (e.g. reporting and registering HbA1c levels for diabetes)

Source: Authors' compilation.

Bundled payments aim to address all or some of the following policy objectives: improving co-ordination, quality; or productive efficiency. While DRG-type bundled payments incentivise technical efficiency, they can undermine quality. They expose purchasers to the financial risk of expensive follow-up care uncovered by the DRG payment in case of low quality treatment. More recently, the extension of bundled payments to pre- and post-patient care and the inclusion of evidence guideline-based pricing are responses to these concerns. Some countries have taken this one step further and are at various stages of developing payments partly conditioned on outcome measures to assure high quality care.

Bundled payment initiatives in the United States

While early initiatives on bundled payments in the United States began about 25 years ago, this section presents some recent efforts arising from the public and private sector.

ProvenCare bundled payment

In the private sector, the Geisinger Health System, a large integrated health care delivery system located in Central and North-Eastern Pennsylvania implemented a bundled payment system called ProvenCare in 2006 for coronary artery bypass graft surgery (CABG) (Casale et al., 2007; Paulus et al., 2008). While the aim was part of Geisinger's broader approach that emphasised quality improvement programmes, this initiative also

aimed to test whether an evidence-based approach could be implemented successfully. All three hospitals part of the Geisinger Health System participated and lasted from 2006 to 2007.

The payment included services related to pre-operative care, hospital surgery, and post-discharge care (e.g. follow-up care, smoking cessation counselling, cardiac rehabilitation). This included rehospitalisations related to post-operative complications within 90 days of surgery.

The Geisinger Health System offered a bundled payment to the participating hospitals. The bundled payment also included an allowance referred to as a "warranty." This warranty was calculated using historical data and was set at 50% of the mean cost of post-operative readmissions.

The ProvenCare programme intended to reengineer its care processes to better reflect the recent changes to CABG guidelines that the American Heart Association had recently updated. Twenty guidelines were adopted and translated into 40 elements of care. These changes established standardised protocols of care.

Successful adherence to ProvenCare processes was included as one component of the surgeon's individual compensation, but not clinical outcomes to minimise any reluctance to care for high-risk patients (Casale et al., 2007). Geisinger has since added the following diagnoses to ProvenCare: elective coronary angioplasty (PCI); bariatric surgery for obesity; perinatal care; and treatment for chronic conditions (Lee et al. 2012; Delbanco, 2014).

PROMETHEUS bundled payment

In 2008, the PROMETHEUS (Provider Payment Reform for Outcomes, Margins, Evidence, Transparency, Hassle Reduction, Excellence, Understandability, and Sustainability) bundled payment model was designed to cover either an episode of care or services for a patient with a chronic condition for 21 defined clinical episodes, including for instance hip replacement and diabetes (Hussey et al., 2011). PROMETHEUS was managed and implemented by the Health Care Incentives Improvement Institute, a non-profit organisation. Payers, including health plans and self-insured employers, and health care delivery organisations at three sites volunteered to participate in the pilot and its evaluation (Hussey et al., 2011).

The general aim was to decrease health care spending while improving quality by creating a financial incentive for providers to eliminate services that were clinically ineffective or duplicative (Hussey et al., 2011). The bundled payment model was considered a "road test" to assess the effectiveness of bundled payments.

The bundled payment model intended to cover all the care required to treat a defined clinical episode. Services recommended by clinical guidelines or experts were used to inform the bundled payment, referred to as "evidence-informed case rates". The model provided the pilot sites a methodology to help set the bundled payment amount using information on historical cost and utilisation patterns, including avoidable complications. The methodology sought to ensure that the costs of avoidable complications would not be greater than the bundled payment and also intended to help providers and payers negotiate rates.

Acute care episodes Medicare demonstration

A 2009 bundled payment Medicare demonstration focussed on acute care episodes (ACE) for 37 inpatient cardiac and orthopaedic procedures. The demonstration intended to improve the quality of care, increase collaboration among providers, and reduce Medicare payments for acute care services by using market mechanisms (IMPAQ International, 2013). Five hospital sites participated. The demonstration period lasted from 2009 to 2012.

The bundled payment covered the Part A and Part B services[1] provided to Medicare FFS beneficiaries during an inpatient stay for cardiac valve and other major cardiothoracic valve, cardiac defibrillator implant, CABG, cardiac pacemaker implant or revision, percutaneous coronary intervention, and hip or knee replacement or revision (IMPAQ International, 2013).

Each site could negotiate its own discounts from Medicare. For example, one hospital site absorbed a discount of 8.25% while its physicians received full Medicare payments; in another site, both the hospital and physicians accepted discounts of 4.4% (Calsyn et al., 2014). The ACE demonstration centered on: enhanced co-ordination of care, cost-control incentives, adoption of standardised clinical protocols, and quality improvement activities (IMPAQ International, 2013). In addition, the demonstration introduced two other features that differed from the 1991 Medicare demonstration (Nelson, 2012): first it allowed for shared savings with patients where CMS shared up to 50% of the Medicare savings in the form of payments (up to a certain limit) to offset patients' Medicare cost-sharing obligations. Second, gainsharing was allowed between hospitals and doctors; they were eligible to receive a share of the savings for implementing improvements in efficiency and quality (IMPAQ International, 2013).

Integrated Healthcare Association (IHA) demonstration

In 2010, the Integrated Healthcare Association (IHA) participated in a bundled payment demonstration in California for orthopaedic surgery. The demonstration aimed to test whether bundled payment was an effective method of payment for orthopaedic surgery for commercially insured Californians younger than age 65 (Ridgely et al., 2014). A three-year grant of USD 2.9 million from the Agency for Healthcare Research and Quality provided the funding to test and evaluate the demonstration. Initially, six of California's largest health plans, eight hospitals, and an independent practice association planned to participate for the three-year duration of the demonstration.

Two episodes of care were defined: total knee replacement and total hip replacement. The services were to include facility, professional and medical implant device charges for the inpatient stay; a 90-day post-surgical warranty for related complications and readmissions. Prices were to be negotiated between the health plans and the hospitals.

Payment reform in England

Best Practice Tariffs in hospitals

A 2008 review of the National Health Service (NHS) in England found a substantial amount of non-compliance with best practice for hospital services (Darzi, 2008). As a result, a policy commitment was made to set some tariffs that financially incentivise providers to provide care compliant with best practice − referred to as Best Practice Tariffs (BPTs). The aim of this approach was to encourage the payment of services that followed clinical guidelines and to discourage variation in practice that did not follow best

practice. This method of pricing was an extension to the existing system of pricing in England referred to as Healthcare Resource Group (HRG) that reflected average cost.

BPTs have different objectives, such as changing the setting of care (e.g. inpatient to day-case or day-case to outpatient setting), streamlining the pathway of care or increasing the provision of high-quality care based on best available evidence (Van de Voorde et al., 2013). The reform to the payment system is intended to encourage care that is evidence-based, focus on day cases, and reduce the number of outpatient appointments following surgery (Gershlick, 2016a).

The BPTs target hospital activities according to the following criteria: high potential impact (e.g. volume, significant unexplained variation in practice, or significant impact of best practice on outcomes); strong evidence on best practice and clinical consensus on characteristics of best practice (Van de Voorde et al., 2013). In 2010, BPTs applied to all providers of NHS-funded care, including both NHS and independent providers, for hospital admissions related to: hip fracture, stroke, cholecystectomy, and cataract surgery.

The BPTs can be higher or lower than HRG tariffs based on national average costs. The price differential between best practice and usual care is calculated to ensure that the anticipated costs of undertaking best practice are reimbursed, while creating an incentive for providers to shift from usual care to best practice. For example, the BPT for stroke is designed as a base tariff paid for all stroke patients irrespective of performance, and extra performance payments are paid out for a) rapid brain imaging, b) treating the patient in an acute stroke unit, and c) alteplase.

Coverage of BPT has steadily increased from four in 2010 to more than 50 procedures. The tariffs are set centrally and until 2016/17 were under the authority of Monitor (the pricing authority of the NHS) and now under the authority of NHS Improvement, which leaves very little room in principle for local price negotiation between providers and commissioners although there are some non-mandatory BPTs.

Bundled payment for maternity care

A completely new bundled approach was established to pay for maternity care. The maternity pathway payment approach was introduced to address two main issues arising from the previous episode-based payment system in England (Department of Health, 2016). First, organisations were paid for each inpatient admission, hospital visit, ultrasound scan, caesarean sections so the more clinical interventions were performed, the more a hospital received. The financial incentive to do more clinical interventions likely led to unnecessary care that was not appropriate and encouraged overuse. Furthermore, this may have been counter to some patients' interests who benefit most from fewer clinical interventions, closer to home. Second, NHS organisations described and recorded ante-natal and post-natal non-delivery activities in different ways, despite changes implemented every year to attempt to resolve these problems. The new payment system brought together types of care that were previously funded in different ways: FFS for certain activities such as scans, hospital visits, episode-based tariffs which were used for inpatient care (e.g. natural delivery, caesarean section) while community ante-natal and post-natal care and some other elements were funded through block contracts, designed locally that were not covered by mandatory national prices.

The objective of the new system was to allocate resources more efficiently while keeping the budget constant. The policy aim was to encourage efficient outcome-focussed care. The total level of payment was therefore set on the basis of the total reported costs of current maternity care for the three stages, ante-natal, delivery and post-natal care. For

payment purposes, the pathway was split into three stages: ante-natal, delivery and post-natal care per women, with supplementary payments for specific complications. Payments were adjusted for medical needs but did not depend on delivery method (caesarean or vaginal birth).

Women choose their lead provider for each stage of the pathway. Clinical Commissioning Groups are responsible for purchasing the care and pay once for each of the three stages. This could mean three separate payments to the same lead provider or three payments to different lead providers. Where a woman chooses or is referred to another provider for an element of their care, the second provider invoices the first provider. Published business rules provide transparent instructions on what to do if a woman changes residential address and therefore commissioner during their pregnancy.

A maternity minimum dataset was established to collect information related to the new payment system. The policy applied to all organisation and was first trialled (shadow year) in 2012 and then mandated in the national tariffs in 2013 but no assessment has yet been published (Department of Health, 2016).

Moving to a value-based system in Sweden

Sweden has introduced bundled payments to replace existing payment systems. This was first initiated in Stockholm county in 2009 to respond to specific concerns regarding waiting times and the lack of quality control for hip and knee surgery. The overall health system policy focus shifted towards patient centeredness to ensure the best possible health for the population, based on available resources and more attractive work environments for health professionals in Sweden.

A working group was established with representatives of the county's public and private orthopaedic providers. These discussions led to an agreement to create a bundled payment for hip and knee surgery. All major hospitals (6), of which one was private and three private specialised centres, participated.

The bundle (referred to as OrthoChoice) included a pre-operative visit, the operation itself (including the prosthesis), inpatient care, all physician fees, and related costs (e.g. personnel costs, drugs, tests, imaging), and a follow-up visit within two years (Porter et al., 2014a). The bundle included an expected inpatient stay of six days including physical therapy and included a warranty that held providers financially liable for complications related to the surgery, such as infection or need for revision or reoperation for up to five years. For any complication a provider believed was not related to the operation or post-operative care, he/she could request an impartial expert review. Explicit criteria were used to select a homogenous group of patients with specific clinical conditions, excluding complicated patients. The bundle was not adjusted for shorter or longer hospitalisations and outpatient rehabilitation was not included.

Historical cost data and the national register data on the cost of addressing complications were used to inform the bundle payment rate. This was not a straightforward task as the cost data reported by provider varied by as much as two-fold across counties. A unique price was finally set at SEK 56 300 (USD 8 728). Payments to private providers were 6% higher to cover VAT, yielding SEK 59 678 (Porter et al., 2014a). Providers were required to maintain a reporting rate of 98% to the national quality register to receive the full payment. The national quality registers in Sweden collect individual patient data on medical diagnoses, interventions performed, and some outcomes (Porter et al., 2014a). Delivery of care changed including benchmarking and standardising care, new manuals and

checklists; the mandatory accreditation of providers by county, and extra post-operative visits to help with recovery.

Following the pilot for hip and knee replacement, a new pilot for spine surgery was launched in 2013 developed in collaboration with the Stockholm County Council, the Swedish Society of Spinal Surgeons and the Ivbar Institute.

In 2013, Sweden established a nationwide collaboration (SVEUS). This collaboration aimed to establish a new analysis platform for Swedish health care to support continuous clinical improvement, research and steering including reimbursement. The focus was to enable monitoring of value (case-mix adjusted outcomes and cost). The stakeholders include the Ministry of Health and Social Affairs, Ivbar Institute, county councils, the Karolinska Institute, and health professionals. The Ministry of Health and Social Affairs, together with the counties, funded the five-year pilot that began in 2013 (EUR 8 million) in eight priority areas: spine surgery, osteoarthritis, obstetric care, bariatric surgery, stroke, diabetes, osteoporosis, and breast cancer. The monitoring platform was set up by the participating counties jointly but payment systems were implemented separately by each county council/region, according to their requirements. Projects are scheduled for completion in 2017.

3.3. Payments are used to improve the quality of care for chronic conditions

A number of countries have established evidence-based guidelines and comprehensive care strategies to enhance health outcomes for chronic patients by overcoming care fragmentation in the delivery of care. For example, the Netherlands started to experiment with bundled payments for common chronic diseases such as diabetes, cardiovascular diseases and COPD in 2007. Taking this a step further, innovative payment models target high-cost chronic conditions for which a smaller number of patients are affected as seen in Portugal and the Netherlands.

Bundled payments for chronic conditions in Portugal

In Portugal, hospital outpatient services were reimbursed by FFS for medical consultations and for day-centre episodes without considering patient diagnosis (demand side) or resource consumption (supply side). This system placed upward pressure on volume of services, encouraged overprovision of medical consultations and day centre appointments (which yielded a higher tariff than medical consultations). Hospitals treating a large number of patients diagnosed with high-cost chronic conditions incurred financial losses. This possibly led to cherry-picking strategies and suboptimal quality of care. There were also potentially difficulties in accessing state-of-the art health care (e.g. innovative treatments), and few hospitals were offering comprehensive care for chronic conditions such as cancer, forcing patients to visit different hospitals or hospital settings to access care. Additionally, statistical data were scarce and data on quality of care were anecdotal (Lourenço, 2016).

To address these problems, and shift policy focus towards more patient-oriented care and comprehensive disease management programmes, the Portuguese National Health Service introduced a bundled payment for patients with selected chronic conditions beginning in 2007. Tariffs were set to follow clinical guidelines for high-cost conditions that require medical consultations and other outpatient services (e.g. hospital day care, hospital drug costs, diagnostic and therapeutic exams).

A one-year pilot was run first for patients with HIV/AIDS. The payment model was first applied to hospitals with more than 400 patients and then extended to all hospitals treating HIV/AIDS patients. The bundled payment covered all outpatient treatment provided to HIV/AIDS patients who had not yet been treated with antiretroviral therapy, including, ancillary diagnostic and therapeutic exams.

The bundled tariff was determined according to clinical guidelines for patient follow up, including a number of medical appointments, diagnostic exams, and therapeutic regimen. The list of services included was endorsed by patient associations and medical doctor representatives.

The payment consisted of a monthly tariff per capita to cover all services. To receive the payment, hospitals were required to: 1) provide required reporting (e.g. report on the percentage of patients that comply with treatment; percentage of patients with controlled infection levels); 2) report on undetectable viral load after 24 weeks of treatment; 3) provide at least two medical appointments, two viral loads and two contacts with the pharmacist per year. If the costs were below the bundled payment, hospitals kept the savings. If the costs were above the payment, the hospitals were responsible for covering the financial loss. A specific Electronic Health Record was developed to support patient treatment and additional funding was provided for implementation and set up costs in hospitals. Since 2009, the payment model was extended to all hospitals and in 2012 it was extended to all patients with HIV/AIDS including those already on antiretroviral drugs. The tariff was adjusted to reflect the average costs incurred by hospitals.

Following a positive assessment of this initiative, the government used the following criteria to extend the initiative to other high-cost conditions: a) high ambulatory treatment cost; b) existence of clinical guidelines and clinical pathways; c) availability of data to enable costing and pricing. The high-cost conditions include multiple sclerosis, pulmonary hypertension, lysosomal storage diseases, familial amyloid polyneuropathy and selected oncological diseases (i.e. breast cancer, cervix cancer, colon-rectal cancer). For example in the case of oncology diseases, the payment model emphasises patient-centered care and includes all care during 24 months (inpatient such as surgery) and different outpatient services (radiotherapy, chemotherapy, ancillary exams). These high-cost conditions are under evaluation by the Ministry of Health and independent groups but results are not yet available. In 2014, close to 10% of the overall hospital funding from the central government was channelled through this new payment model (Lourenço, 2016).

Bundled payment in the Netherlands

Diabetes bundled payments

In 2007, the Netherlands implemented bundled payments for select chronic conditions (type 2 diabetes, COPD and cardiovascular disease risk management) with the aim of improving the delivery of care for patients with chronic conditions.

The bundled payment for type 2 diabetic patients defines a single payment per patient for all standard diabetic care. Participation of providers and payers is voluntary. The bundled payment is made to care groups. These care groups are legal entities established as part of the reform, largely comprised of GPs. Care groups either provide the required care services themselves or in most cases sub-contract to health professionals to deliver them. The service elements included in the bundled payment have been defined on a national level by the National Diabetes Foundation and were agreed between associations of providers and patients and refer to primary care only. They are fully covered by mandatory insurance without additional payments for patients. In general, the contract between insurer

and care groups contains the same service components. There are few differences between services recommended by the National Diabetes Foundation and those included in the bundled payment activities for the ten analysed care groups, mainly referring to services which are not precisely defined in the national standards (Table 3.2) (Struijs et al., 2012a).

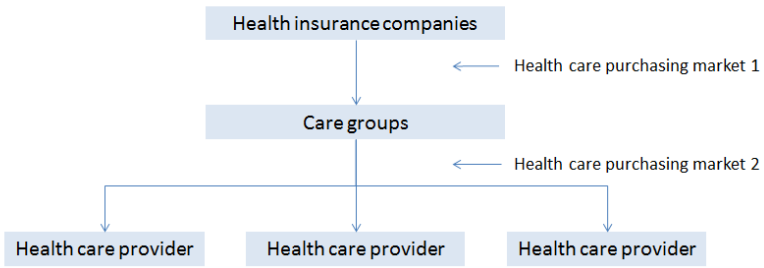
Table 3.2. Diabetes bundled payment in sample of care groups compared with National Diabetes Foundation recommendations, the Netherlands

	NDF care standard	Provided by care groups
Diagnostic phase		
Formal diagnosis	No	None
Initial risk assessment	Yes	All
Treatment and standard check-ups		
12-month check-ups	Yes	All
3-month check-ups	Yes	All
Obtaining fundus images	Yes	All
Evaluating fundus images	Yes	All
Foot examinations	Yes	All
Supplementary foot exams	Unclear	All
Foot care	No	None
Laboratory testing	Yes	Most
Smoking cessation support	Yes	None
Exercise counselling	Yes	All
Supervised exercising	No	None
Dietary counselling	Yes	All
Prescribing medicines	No	Some
Insulin initiation	No	All
Insulin adjustment	No	All
Psychosocial care	No	None
Medical aids	No	None
Additional GP consultations (diabetes-related)	Unclear	All
Additional GP consultations (non-related)	No	None
Specialist advice	Yes	All

Source: Adapted from Struijs et al. (2012a).

Tariffs and activities were negotiated between health insurers and care groups. In the case that care groups sub-contract other health professionals, the price for treatment was negotiated between the care group and the individual provider (Figure 3.1). The method of payment for services provided by sub-contractors was also negotiable with care groups – such as FFS, a fixed rate, or salary.

Figure 3.1. Schematic approaches to bundled payment in the Netherlands



Source: Struijs et al. (2012a).

Without waiting for the findings of an evaluation of this approach, the Dutch Parliament voted in September 2009 to institutionalise the process for both type 2 diabetes and cardiovascular risk management, starting in January 2010, and for COPD, starting in July 2010 (Struijs et al., 2010). In 2010, there were 100 care groups in the Netherlands consisting of an average of 46 general practitioners who delivered care to an average of 3 149 diabetes patients each with about 19 insurers having contracts per care group (Struijs et al., 2012b).

Tackling Parkinson's disease through delivery reform

Care for patients with Parkinson's disease was characterised by high costs, sub-optimal care and dissatisfied patients. Being a relatively rare disease, provider expertise to treat this condition was low, and there were little incentives – or means – for the individual provider to improve delivery of care (Vlaanderen et al., 2016). In 2004, ParkinsonNet (PN), an academic non-profit initiative led by Radboud University Medical Centre (UMC) and the Dutch association of neurologists was piloted as a regional network. The aim was first to deliver patient-centered care more efficiently without any changes to how providers were paid.

The programme was later expanded to cover the entire country via regional networks composed of a multidisciplinary group of 19 types of health professionals (geriatricians, neurologists, occupational therapist, etc.), for treatment in primary, secondary and tertiary care. Providers have to meet certain quality standards to join a regional network including treating a minimum number of patients. The providers work more closely according to the scientific guidelines. The ParkinsonNet Coordination & Innovation Centre (C&I centre) oversees training and ensuring appropriate distribution of providers and a regional co-ordinator manages the local network (Vlaanderen et al., 2016).

Patients can visit PN and non-PN providers. However, some insurance companies recently decided to contract only PN members for the care for Parkinson's disease, creating financial disincentives for patients visiting non-PN providers. The Dutch association of health insurance companies (Zorgverzekeraars Nederland, ZN) financed 50% of ParkinsonNet with providers' membership fees financing the rest. The annual costs to maintain and co-ordinate the network of ParkinsonNet are EUR 1.5 million.

The next phase is to introduce a bundled payment to further improve the delivery of care. In the new payment model, insurers will pay a population-based budget to the PN networks. The budget will be based on the expected Parkinson's disease-related health care cost of the insured population for both primary and secondary care. A shared savings model will be permitted in which the savings will be divided between insurers and providers with no restriction on how the providers spend these savings. A portion of the payment will be linked to health care outcomes.

Further details of the payment model have yet to be finalised. It is not yet known how the budget exactly will be calculated, and how it will be managed, or when the outcome-based payments will be incorporated. Second, it is also not clear how the regional networks will divide the budgets between the professions and the individual providers, who will be responsible when the budgets are exceeded, and how the financial consequences will be divided between insurers and providers (Vlaanderen et al., 2016).

Bundled payment for diabetes in Denmark

In Denmark, the government introduced a new bundled payment policy in 2007 that targeted diabetes. The aim of the policy was to ensure the quality of diabetic care provided

in general practice with a shift towards more integrated care where GPs could play a pivotal role in care co-ordination (Rudkjøbing et al., 2015). General practitioners could voluntarily choose to participate in the new payment policy.

The bundled payment included an annual consultation and the co-ordination of specialist services such as eye care, endocrinology, and podiatry. To receive the payment, GPs were required to report key data from the electronic health record system, which generated reports for each practice, based on quality indicators (Rudkjøbing et al., 2015). They were also required to use a specific IT system and would be entitled to a related one-off payment of approximately EUR 1 000 to use it. The bundled tariff rate was negotiated between representatives from stakeholder groups in the regions and the municipalities and the Ministry of Finance. The annual tariff was set at EUR 156 for each diabetic patient following an annual extensive consultation with the GP. This payment would replace the existing capitation and FFS payment of EUR 17 per consultation for GPs who opted to participate in the new payment policy. The new payment policy was based on redistribution under the negotiated fixed financial level of activity for the whole population of GPs, so there was no "new" money but rather funding was shifted from other areas (Rudkjøbing et al., 2015).

Crossing health and social care boundaries for patients with long-term care needs in the United Kingdom (England)

In 2012, a pilot programme that covered the costs of health and social care relating to a person's long-term care (LTC) needs in a 12-month period was launched (Gershlick, 2016b). The aim was to deliver integrated health and social care for people who need support from multiple providers based on need rather than diagnosis. NHS England believes the model has the potential to change the payment system for up to 20 or 25% of the total health and social care budget in England. The policy focus was to shift some accountability to providers through risk sharing agreements between those who provide and those who purchase the care (Gershlick, 2016b).

The services cover primary care, acute care, and community care. This required aligning the funding flows and incentives with people's needs, rather than paying just for episodes of care. The pilot programme started in 2012 with seven early implementers. The bundled payment will be annually risk adjusted based on need. The programme has developed provisional estimate of local per-patient tariffs. "Shadow testing" was expected in 2014/15, with full implementation in 2015/16.

3.4. Key characteristics of payment reforms towards bundled payments

A summary of the information just presented according to key characteristics is found in Table 3.3 for the Netherlands, Portugal, Sweden, United Kingdom (England), and United States which highlights some of the main differences across programmes. For example, some bundled payment covers episodes of care such as hip replacement or common chronic conditions (e.g. diabetes) while others focus on high cost less prevalent conditions such as HIV/AIDS (Portugal) or Parkinson's disease (the Netherlands). Bundled payment is used in some countries for both episodes-of-care and chronic conditions (e.g. Sweden, England, United States). The basket of services provided may cover more than one setting such as primary care, and secondary care or focus on one setting. An assessment of these policy reforms is presented in the next section.

Table 3.3. Key characteristics of payment reform in selected OECD countries

Type and name of payment reform	United States Bundled payment for acute care episodes cardiac and orthopedic care (ACE)	United States Bundled payment for a select number of activities and conditions (PROMETHEUS)	England Best practice tariffs in hospitals (BPT)	England Maternity care pathway	England Bundled payment for patients with long-term care needs (Year of Care)	Sweden Bundled payment for an episode of care (SVEUS)	Portugal Bundled payment for select chronic conditions	Netherlands Bundled payment for Parkinson's Disease (ParkinsonNet)	Netherlands Bundled payment for diabetes, vascular risk management, COPD)
Basket of services	37 inpatient cardiac and orthopaedic procedures	Select activities that can cover primary and secondary care	50 clinical areas of hospital activities (e.g. stroke, hip fracture, cataract surgery)	Ante-natal, delivery and post-natal care	Primary care, acute care and community care	Spine surgery and follow-up care for two years	Outpatient treatment, diagnostic, therapeutic exams	Primary care, secondary care, tertiary care	Primary care and select specialist care
Patient population (conditions/episode)	Patients requiring an inpatient stay for select cardiac or orthopaedic procedures	Patients with a select episode of care (e.g. hip replacement) or a chronic condition (e.g diabetes)	Patients requiring select hospital services (e.g. stroke, hip fracture, cataract surgery)	Pregnant women	Patients requiring long-term care needs	Patients requiring spine surgery	HIV/AIDS and other select high-cost chronic rare conditons	Parkinson's disease	Type 2 diabetic patients, vascular risk management and COPD
Providers involved	Hospitals and physicians belonging to a facility in each participating site	Three pilot sites where two focussed on chronic conditions and the third focussed on procedures	Public hospitals	Public hospitals and midwifery teams, and birth centres	Multiple providers that offer health and social care services	Public hospitals	Public hospitals	17 types of health professionals	Care groups of providers typically managed by GPs that include other health professionals (e.g. nurses)

Source: Authors' compilation.

3.5. Assessment of payment reforms

This section assesses the payment reforms in select countries according to two main criteria: whether intended policy objectives were met (such as achieving quality gains and/or savings) and the conditions for implementation that either encouraged or hindered implementation.

In a number of cases, cost savings were made, and typically when quality of care (e.g. reduced readmission rates, patient satisfaction) was measured no deterioration was observable across available indicators of quality. In other cases some improvements in quality occurred following the payment reform, although sometimes at a higher cost (Table 3.4). While bundled payments show quality improvements, and generate savings, the gains depend on the condition or episode targeted. Typically, the introduction of bundled payment was part of a larger reform. Stakeholder support led to improved protocols of care, pilots were successful. Tariffs tend to draw on historical costs, sometimes with normative adjustments aiming to reflect clinical guidelines or adjustments to incorporate treatment outcome information. However there are challenges including tariff setting can be complex, bundled payments shift some financial risk onto the provider, and increase the administrative burden.

Table 3.4. Assessment of bundle payment reform in select OECD countries

	United States	United States	England	England	England	Sweden	Portugal	Netherlands	Netherlands
Type and name of payment reform	Bundled payment for acute care episodes cardiac and orthopedic care (ACE)	Bundled payment for a select number of chronic conditions (PROMETHEUS)	Best practice tariffs in hospitals (BPT)	Maternity care pathway	Bundled payment for patients with long-term care needs	Bundled payment for an episode of care (SVEUS)	Bundled payment for select chronic conditions	Bundled payment for Parkinson's disease (ParkinsonNet)	Bundled payment for diabetes (select chronic conditions)
Assessment of policy impact									
Achievement in terms of policy objective :									
Quality	+	Various issues delayed implementation	+/-	Evaluation not yet available	Evaluation not yet available	+	+	+ (Before payment reform)	+
Savings	+	Various issues delayed implementation		Reduction in caesarean section rate but savings evaluation not yet available	Evaluation not yet available	+	+	+ (Before payment reform)	-
Unintended consequences		Various issues delayed implementation						Competition concern	
Conditions for implementation									
Payment reform embedded in larger policy reform	+	+	+	+	+	+	+	-	+
Stakeholder participation in policy development (e.g. actively consulted in establishment of law/scheme)	+	+	+	+	+	+	+	+	+
Payer participation	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	Voluntary	Voluntary
Provider participation	Voluntary	Voluntary	Mandatory	Mandatory	Mandatory	Voluntary	Voluntary	Voluntary	Voluntary
Administrative burden		+	+	+	Not yet known			+	+
Data collection and use	New and existing data	New and existing data	Existing data	New and existing data	New and existing data	Existing data	EHR established	New and existing data	New and existing data
How are tariffs set?	Bundle of Medicare Part A and Medicare Part B services and negotiated at each site	PROMETHEUS developed a platform to assist in setting tariffs using evidenced-based rates	Tariff reflects best practice extends current system of average costs	Total costs of antenatal, delivery and postnatal care	Annually risk-adjusted capitated funding model based on need.	Tariffs set to reflect clinical guidelines and can include follow-up, warranty payment and outcome information	According to clinical guidelines such as follow up, number of medical appointments, diagnostic exams, and therapeutic regimen	Capitated payment currently being piloted	Negotiated between care groups and insurers while subcontractors negotiate their own payments
Independent evaluation of reform	+	+	+			+	+	+	+

Source: Authors' compilation.

Achieving policy objectives

In a number of cases, initiatives for bundled payments for acute care episodes and chronic conditions saw improvements in the quality of care, while for other experimentations quality levels were maintained at a lower cost of provision. The deterioration of quality was also reported in one instance. Most initiatives in acute care succeeded in reducing costs per treatment. The potential to generate savings appears less clear for bundled payments than for chronic conditions. In the Netherlands, bundled payments for diabetes patients led to cost increases.

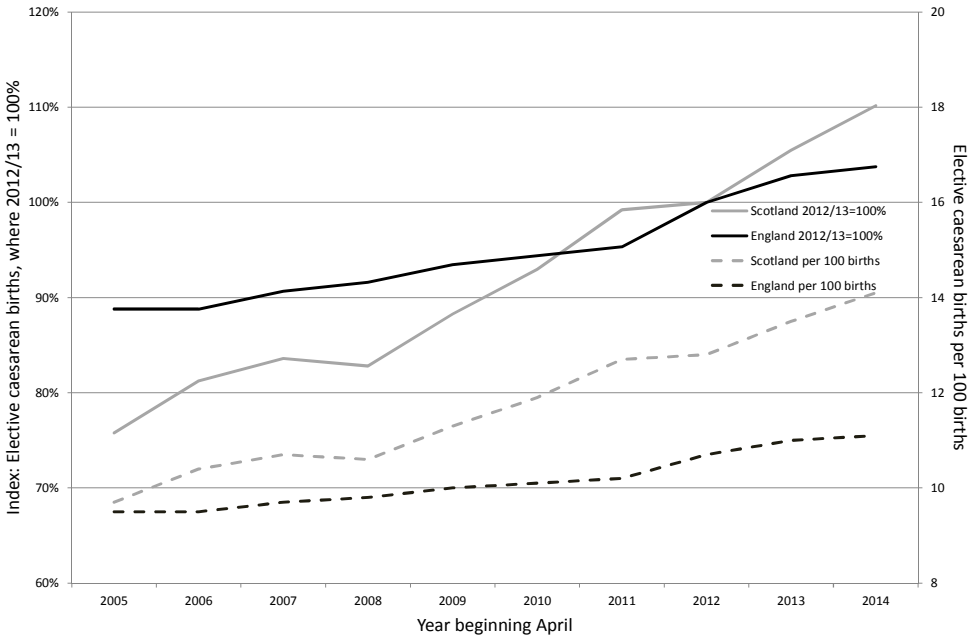
The three-year ACE demonstration saved Medicare USD 319 per episode of care for a total of approximately USD 4 million in net savings for 12 501 episodes of care. But one negative quality result was reported: there was a reduction in the use of internal mammary artery grafts in patients undergoing coronary artery bypass graft (CABG) surgery because there was an incentive to reduce cost (operating room time). Surgeons may have moved away from a technically more complex approach, but one that has been shown to improve outcomes (IMPAQ International, 2013). The short duration of the demonstration, however, may have made it difficult to observe quality improvements (IMPAQ International, 2013). Apart from that, other detrimental impacts on quality were not observed: sicker patients were not excluded, nor were there increased transfers to post-acute facilities. The proposed financial incentives for patients (shared savings) did not appear to influence patient choice of hospital which remained driven by reputation or referral by their primary care physician. Stakeholders suggested extending incentives to primary care physicians or referring physicians—who directly influence where a beneficiary receives health care (IMPAQ International, 2013; Calsyn et al., 2014).

The Geisinger ProvenCare bundled payment for CABG, showed positive results. A study using clinical outcome data on consecutive elective CABG patients seen in the 12 months pre-intervention were compared with a post-intervention group (Berry et al., 2009). Initially, 59% of patients received the required standards of care and by the end of the study, compliance reached 100%. Clinical outcomes showed improved trends in eight out of nine measured areas (e.g., patient readmissions to intensive care units decreased from 2.9% to 0.9% and blood products usage decreased from 23.4% to 16.2%). Operative mortality decreased to zero. ProvenCare also achieved a 10% reduction in readmissions, shorter average length of stay, and reduced hospital charges.

BPTs in England, which were an extension to existing HRGs, show good results for certain conditions but less clear for others. For hip fractures, for example, patients treated under the BPT were more likely to receive surgery within 48 hours after admission which was a condition of payment and a lower mortality rate was recorded for them (Marshal et al., 2014). On the other hand, no beneficial impact of the stroke BPT on national quality and outcome indicators was found but this was partly due to improvements already achieved nationally through additional activities to improve the quality of stroke care (McDonald et al., 2012).

With regards to the payment for maternity care in England, recent data show that compared with Scotland which did not introduce the bundled payment, there has been a levelled trend in caesarean sections suggesting a possible reduction in the overprovision of caesarean sections (Figure 3.2) (Department of Health, 2016).

Figure 3.2. Elective caesarean births in England and Scotland before and after April 2013, United Kingdom



Source: Health and Social Care Information Centre, Scottish Morbidity Record 02 (SMR02), ISD Scotland.

In Sweden, the Stockholm pilot for hip and knee surgery showed a reduction in waiting times, costs (20%) and complications (26%) (Porter et al., 2014b). The recent pilot of spine surgery also showed reductions in average length of stay and cost per patient, as well as a reduction in complications from surgery (Wohlin et al., 2016).

In Portugal, the first set of results of the implementation of a bundled payment showed that the average cost for treating HIV/AIDS patients decreased while the quality of care was maintained as measured by patient adherence to medication, controlled infection levels, and compliance of providers with the treatment guidelines (Lourenço, 2016).

In the Netherlands, the bundled payment for diabetes showed improvements in quality but costs increased. An evaluation showed that most process indicators showed improvements (HbA1c, BMI checked and blood pressure checked; improvements in kidney function and cholesterol tests) (Struijs et al., 2012a). The number of annual eye tests declined due to changes in contracts to biannual tests. Most of the patient outcome measures showed modest improvement (meeting blood pressure and cholesterol targets), but HbA1c level rose slightly due to longer diabetes duration and no change in BMI. Composite process indicators showed improvement but not consistently across all care groups (Struijs et al., 2012a). Despite a reduction in the use of specialist care (25%), costs increased by EUR 288 for diabetes patients enrolled in the bundled payment scheme. The reasons are unclear and may be due to delaying the use of specialist care which could have resulted in more costly care, or the most expensive procedures (Hasaart, 2011). There is no evidence that diabetic patients with and without co-morbidities received different levels of care (de Bruin et al., 2013). Patients were satisfied with their care but were not necessarily aware that they were part of the scheme for diabetes care (Struijs et al., 2012b).

Unintended consequences

Diverging interests and financial risk impede implementation

Some initiatives encountered problems with implementation. In the IHA Bundled Episode Payment and Gainsharing Demonstration in California for orthopaedic surgery, an agreement was difficult to reach on bundle definitions. Payers were interested in defining large bundles while providers wanted to define narrow ones focussed on low-risk patients. Health plans wanted to negotiate lower prices and to set payments that would be less than FFS while hospitals wanted a higher level payment than under FFS and were concerned about taking on financial risk. In the end, the definition of the bundled payment was narrow (e.g. excluded obese patients, post-acute and rehabilitation services), which did not make it economically viable. Exposure to financial risk resulted in a couple of the largest payers exiting the demonstration before it began. With no mechanism to attract patients (e.g. lower out-of-pocket payments to participate) hospitals were less keen to participate. The low level of participation raised problems to implement the payment scheme: there were only 35 surgeries carried out in the health plans and 111 in ambulatory surgery centers, which made evaluation impossible (Ridgely et al., 2014).

Similarly, the PROMETHEUS bundled payment model initiated in 2008 has not been implemented so far for lack of agreement on the setting of prices and in particular accounting for potentially avoidable complications and the sharing of the related financial risk (Hussey et al., 2011).

In Denmark, the bundled payment policy for diabetic care had a slow start after its introduction in 2007. Participation among GPs varied in the five Danish regions with an average of 30% by 2012, ranging from around 20% in the Central Region to 40% in the Capital Region (Rudkjøbing et al., 2015). While the participating practices covered about a third of the Danish patient population, only about 10% of all diabetic patients were treated in the participating practices. Take up was higher among younger physicians. Among those that joined the policy, other attractive features included a more systematic approach to treatment and opportunity for documentation and research (Thorsen, 2008). For older physicians, a barrier to take up the policy was time to retirement as it was not seen to be worthwhile to switch to the bundled payment policy (Thorsen, 2008).

The financial incentive of the bundled payment, however, contributed to the slow take up. The amount was not risk-adjusted and may have discouraged GPs to join particularly for those with a patient population that was difficult to manage. A feasibility study conducted in 2007 before the implementation of the policy suggested that for quite sick diabetic patients, the financial incentive might not be sufficient and act as a barrier for GPs to join (Thorsen, 2007). A qualitative study carried out one year after the policy was implemented found that some GPs were not incentivised by the amount of the bundled payment to join (Thorsen, 2008). The funding for the policy was a redistribution of existing resources which might have discouraged GPs to join as some perceived that participating in the new policy would mean taking away money from other GPs. In addition, the EUR 1 000 offered to GPs to implement the required IT system was not seen to be sufficient for some GPs (Thorsen, 2008). Lastly, the feasibility study revealed a worry among GPs about increased external control and monitoring of quality (Thorsen, 2007).

The low success in participation of the payment policy led the government to abandon it in 2014. However, the data capture system has been detached from the diabetes fee and has now been extended to all patient groups.

Competition concerns in the Netherlands

For Parkinson's disease, it remains to be seen whether the new payment model will be at odds with competition laws applicable to the Dutch health system: namely whether the Parkinson provider networks can be considered as monopolies limiting competition among providers in the treatment of patients with Parkinson's disease. Within the regional network, the majority of the patients would be treated by PN providers, leaving little competition between PN providers and non-PN providers (Vlaanderen et al., 2016).

3.6. Conditions for implementing payment reform

Stakeholder support necessary

The positive results of some of the bundling initiatives with regards to quality and spending control in part owe to stakeholder engagement and support. Continued support by all actors can be challenging as it may require balancing opposing interests, in particular between purchaser and provider. In the Medicare demonstration, the discounted payment rates were negotiated for the ACE demonstration but the discount varied by site. A large part of the savings came from negotiating lower prices for medical devices. Hospitals and physicians were allowed to share in savings but they had to meet quality and monitoring requirements (Calsyn et al., 2014).

There was also provider support in both England and Sweden and patients support for the changes in Sweden. In England, clinical stakeholders were involved in informing the BPTs. In Sweden, researchers from several universities in relevant disciplines such as medicine and health economics were involved to inform the pricing of services. A wide group of stakeholders were involved including health professionals, and local authorities. SVEUS's national steering group set targets, scope, organisation and budget and monitored development. The work was carried out as 12 subprojects led by a participating county council. The subgroups contained representatives from participating county councils, relevant national specialist associations, national quality registries, patient associations and Ivbar Institute.

In Portugal, the payment reform was led by the Central Administration for the Health System, involving different stakeholders according to the condition analysed (Lourenço, 2016). Wide stakeholder engagement was a catalyst for implementation. The main partner for the development of the payment reform was the Directorate General of Health, the entity responsible for issuing clinical guidelines. Clinical experts, providers and, in some cases patients associations, were also engaged in the development of the payment reform. Experts from academic institutions were invited to participate on monitoring and evaluation. However, there was some resistance among providers that were not selected as pilot or reference centres.

In the Netherlands, the move towards bundled payment for Parkinson's disease would have not been possible without strong stakeholder involvement and support. In fact, the creation of PN as a bottom-up approach was entirely driven by providers supported by patients and some health insurers. In this context, the move towards a bundled payment is the end result of restructuring of care processes and not the first step.

Improvements in protocols and standardisation of care

Bundled payment led in most countries to organisational changes in the delivery of care. Health care providers intensified their collaboration – within and across settings – and a greater standardisation of care was achieved. Generally, this was facilitated/accompanied by the development of guidelines which increased transparency in the bundled payment, the monitoring of cost and quality including feedback loops to providers.

In Sweden, the bundled payments for OrthoChoice and the payment for spine surgery in the national collaboration led to improving the process in the accreditation of providers. The professional associations played a key role to develop new manuals and checklists along with the other stakeholders (e.g. local authorities) to standardise practise and establish benchmarks (Ivbar Institute, 2015).

In the ACE demonstration in the United States, physicians and hospitals were involved in co-ordinating care and strengthened their relationship by regularly discussing methods to improve the quality of care. Hospitals provided physicians with report cards (relating to quality and their costs). Standardised protocols of care were agreed upon. Quality measures were tracked, allowing physicians and staff to more efficiently monitor and improve patient outcomes. The demonstration also encouraged hospitals and doctors to discuss and identify high quality and cost-effective devices which allowed hospitals to negotiate lower prices from medical sellers (Calsyn et al., 2014).

In the bundled payment system of ProvenCare in the United States, surgeons reviewed specific guidelines for CABG surgery and developed 19 clinically applicable recommendations. Measureable process elements were developed based on these recommendations (Berry et al., 2009). As a result, the programme established best practices for CABG patients; created a multidisciplinary team to ensure that these best practices were part of the everyday workflow; and implemented a feedback system to allow space for adapting the process of care as needed that drew on real-time reporting.

For diabetes care in the Netherlands, delivery was more structured and based on protocols. The benefit packages that insurers offered for diabetes care became more uniform across care groups over time. This was in part due to the increasing expertise among health care insurance companies and care groups. An evaluation conducted in 2010 showed that services generally included the recommended 12-month and three-month check-ups, and the annual eye and foot examinations (Struijs et al., 2010). In eight of the nine contracts studied in the 2010 evaluation, laboratory examinations, exercise and diet counselling, and specialist consultations were included. Differences in the range of services covered by individual contracts were observed for services which were not precisely defined in national standards such as foot care, and additional diabetes-related GP consultations, prescription medicines, insulin initiation and adjustment (Struijs et al., 2010; Struijs et al., 2012a).

Care standardisation is also an important element of the Parkinson networks in the Netherlands, even if they predate the introduction of the bundled payment. Members of the network are required to meet a number of minimal standards such a treating a minimum number of patients per year or the regular attendance of multi-disciplinary team meetings to discuss cases and stimulate collaboration (Vlaanderen et al., 2016).

Changing roles of health providers

In some countries the introduction of bundled payments has not only sought to incentivise better co-ordination between health care professionals within and across settings, but also resulted in a shift of tasks across providers and even changes in the scope of practice and responsibilities of selected heath care professions.

In the Netherlands, payment reform encouraged a reallocation of tasks in diabetes care. In primary care, practice nurses took on a more central role and carried most if not all the regular check-ups in GP practices, though it was reported this shift had already begun before the payment reform (Struijis et al., 2012a). More insulin-dependent patients without complications were treated in general practices. Eye examinations were conducted outside the settings of ophthalmologists such as by optometrists or general practice laboratories. There was concern among some providers that task reallocation may have a negative impact on GP practices (losing patient contact and expertise) or practice nurses may not be sufficiently trained. Practice nurses, however, devoted more time to patients and GPs had more time for other patients.

Pilot experiments proved successful

The move towards bundled payments has been frequently tested by countries for a smaller number of settings before being rolled out on a greater scale. This helped to verify whether changes in the payments system had the desired effects and allowed for adjusting incentives before general implementation.

In Portugal and the Netherlands, pilot experiments were established first which led to successful implementation nationwide. Portugal began a one-year pilot payment for HIV/AIDs in selected hospitals before expanding it nationwide two years later. In the Netherlands, evaluations of the diabetes pilot were built into the policy process when the pilot was expanded nationwide in 2009 (Struijs et al., 2010; Struijs and Baan, 2011). The bundled payment for hip and knee surgery in Sweden laid the groundwork for a national collaboration to reform payment systems there.

Before the payment reform, in the Netherlands for patients with Parkinson's disease, there was a reduction in costs for patients treated in ParkinsonNet and care improved health outcomes in terms of prevention of falls and hip fractures, reduced rehabilitation time, and reduced use of nursing homes (Beersen et al., 2011; Bloem and Munneke, 2014; Munneke et al., 2010; Nijkrake et al., 2010; Vlaanderen et al., 2016). Ultimately, the Parkinson networks aim to explore possibilities to sign outcome-based bundled payment contracts with health insurers incorporating a range of primary care and secondary care activities. As an intermediate step, a "lighter version" which uses budget allocation based on capitation for hospital care was piloted in 2014 (Vlaanderen et al., 2016). This version includes all costs for diagnostics, treatments and follow-up visits in one tariff but distinguishes between three categories of Parkinson patients based on how long they have been diagnosed with the disease.

The NHS England pilot for patients with long-term conditions is still in the early phase of implementation, but there has been development of a whole-population analysis approach which can support the development of a national funding framework, guidance on collecting the evidence required to demonstrate the effectiveness of earlier discharges from acute care, and the provision of an initial estimate of local per-patient tariffs (Gershlick, 2016b).

Bundled payments can lead to administrative burden

Moving towards bundled payment to pay health care providers can entail a certain level of additional administrative work, both for payers and providers. To set tariffs, costs for separate activities within the bundled payment need to be identified. In case the payment incorporates quality metrics, process or outcome indicators need to be measured and reported. There may be issues around exchange of information between providers if a bundled payment reflects evidence-based treatment across providers. Finally, modifications to existing billing practice may require additional guidelines if more than one provider is involved.

In England, despite provider support towards BPT payments, the changes were challenging to implement and difficult to understand for providers. The Audit Commission recommended making price setting simpler and clearer with a more transparent explanation of the BPT payment models that should be reported alongside public reporting of quality of care. Providers should also better understand the clinical guidelines attached to each BPT and commissioners should ensure completeness and accuracy of the tariff to trigger BPT payments.

Even though providers responded positively to the payment reform towards a bundled payment for maternity care in England, there was an administrative burden relating to invoicing providers for their services (Department of Health, 2016). The complexity of information did not allow for the flow of confidential data, which made it difficult for finance departments to determine the lead provider for invoicing purposes. Commissioners receive aggregated data and so were unable to identify patients correctly leaving the risk of paying twice for the same care.

For diabetes care in the Netherlands, there was poor IT integration between GP systems and care groups systems as not all providers could access the care groups system, requiring data to be entered twice into both systems. The quality of the data reporting among care group was mixed and required standardisation as health insurance companies were also not always satisfied about the quality of the accountability information they received from care groups (Struijis et al., 2012a). In a survey of providers, daily routines for shared care were still sub-optimal and facilities such as registration systems should be improved to further optimise communication and exchange of information (Raaijmakers et al., 2013).

The PROMETHEUS bundled payment developed a series of support tools for the participating pilot sites including an accounting tool that analysed insurance claims to identify services that were part of the bundle; and an analytic software that pilot sites could use to analyse their historical claims data for cost and utilisation patterns in bundles of care (Hussey et al., 2011). But the accounting tool was difficult to implement alongside existing insurance claims information and no site was able to modify its claims processing methods to identify bundled services.

In the IHA demonstration, the lack of software initially contributed to a delay in implementation. The participating health plans decided to reimburse services manually which increased administrative burden. Once software became available it was too late to test this solution as low volume hampered the pilot's viability for proper evaluation (Ridgely et al., 2014).

New data collection systems established

In some cases, the introduction of bundled payment required the collection of new data. In Portugal, new data systems had to be established, including an electronic health record. Similarly in the Netherlands, care groups in the diabetes bundled payment were increasingly using integrated information systems. All hospitals were required to collect a select number of indicators for Parkinson's disease.

The policy in Denmark led to improvements in reporting due to the required IT system that GPs had to use. Indeed quality improvements and especially the data capture systems were for some considered more important than the financial consideration when deciding on whether to join the payment policy (Thorsen, 2008).

In Sweden, embedding monitoring systems was part of the reform. Relevant monitoring measures were defined for each patient group, along with guidance on how they will be measured and monitored. The aim of the monitoring systems was to allow for rapid feedback as well as identification of anomalies and comparisons between different care providers and county councils (Ivbar Institute, 2015).

In the PROMETHEUS initiative, the pilot sites were able to improve their existing data systems and changed the way their electronic health records were used. This allowed pilot sites to rethink how to improve delivery and made them recognise data needs for measurement of quality and cost (Hussey et al., 2011).

Differing approaches to setting tariffs

The way that payments are designed and tariffs set is of vital importance for providers and payers. Different approaches have been followed by countries to set the tariffs of the bundles including identifying and pricing all services that constitute best practice along an evidence-based pathway which increases transparency and incorporating outcome measures. The extent to which bundled tariffs refer to one single payment or are made up of several payments also differs.

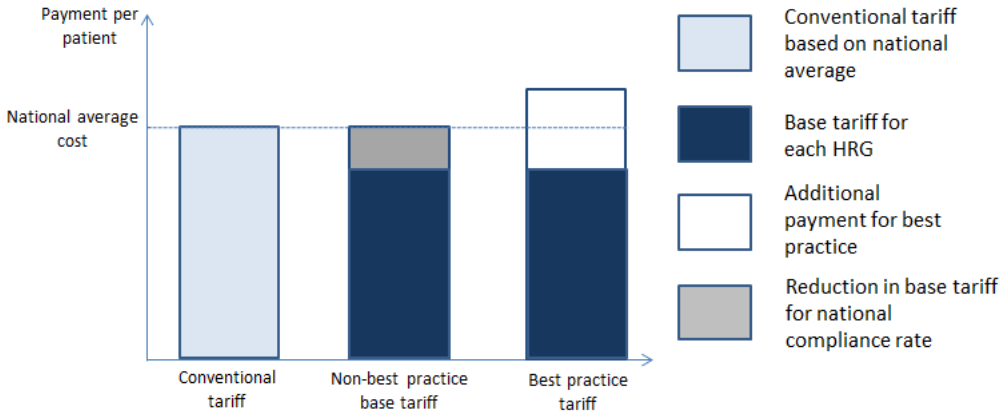
In England, the pricing for some models under the BPT includes a "base price" and a "BPT component", while for other models a completely new tariff was established. Although every procedure that shifts into the appropriate setting attracts a higher payment, the base payment is lower than or equal to a tariff set for the conventional way of providing care, i.e. based on the national average of reported costs across both settings (Gershlick, 2016a). Different approaches were used to set tariffs depending on the condition. The general relationship between standard or conventional tariffs, the base price and the BPT component is depicted in Figure 3.3.

For cataract surgery, establishing the value of the national tariff first involved breaking down the new, streamlined cataract pathway into existing HRG units – from initial assessment through to surgery (as a day patient) in hospital and then follow-up in the outpatient setting. The overall tariff for this new pathway was essentially the sum of the average national costs for each element of the pathway (Department of Health, 2010).

The base price or non-BPT has in some cases been reduced to become punitive, in order to incentivise use of the best practice guidelines. BPTs can be higher or lower than national average costs, and are paid if best practice guidelines for treatment are followed. The BPT for fragility hip fracture is made up of a base tariff and a conditional payment, payable if a number of characteristics are achieved (e.g. time to

surgery within 36 hours from arrival in an emergency department, or time of diagnosis of an admitted patient, fracture prevention assessments (falls and bone health, etc.); two Abbreviated Mental Tests (AMT) performed; and all the scores recorded in the National Hip Fracture Database (NHFD) with the first test carried out prior to surgery and the second after the stay (Van de Voorde et al., 2013). The Audit Commission's analysis for hip fracture shows that over time the base (non-BPT) tariff for hip fracture has decreased (and so has become punitive, in order to incentivise BPT uptake), whilst the BPT component price has grown. There were differences in the uptake of BPTs, which may be attributable to the different payment structure for each BPT (Gershlick, 2016a).

Figure 3.3. Pricing best practice tariffs, England (United Kingdom)



Source: Department of Health (2010).

In Sweden, the bundled payment for spine surgery includes a payment from intervention up to two years follow-up. It includes a warranty payment that pays upfront for potential complications and follow-up care (Bergauser Pont, 2014). Historical costs were used to inform price setting of the bundled payment rate. The tariff was comprised of several payments with up to 10% of the reimbursement being related to how functional the patient was one year after the surgery.

In the Netherlands, the bundled payment (which did not include a performance component) for diabetic patients defines a single annual payment per patient for all standard diabetic care. In 2010, the rates charged under the bundled payment contracts varied widely, from EUR 258 to EUR 474 per patient per year (Struijs et al., 2010). In 2011, fees started to converge, from EUR 381 to EUR 459 (Struijs et al., 2012a). The price differences were explained in part by actual differences in the care provided.

Outcomes gaining importance

Sweden's five-year pilot for hip and knee replacement incorporates health outcomes as part of the bundled payment. For spine surgery, the reform replaces the existing payment of global budget and DRG with a bundled payment where 10% of the payment is related to patient's functionality post-surgery. This is an innovative approach because a patient reported outcome measure is used to assess the extent to which the surgery succeeded in reducing back pain. The seven other conditions that are

currently under development intend to use outcome measures in the payment. Sweden's well-developed quality registers are drawn on to inform how payments will be updated to better reflect value.

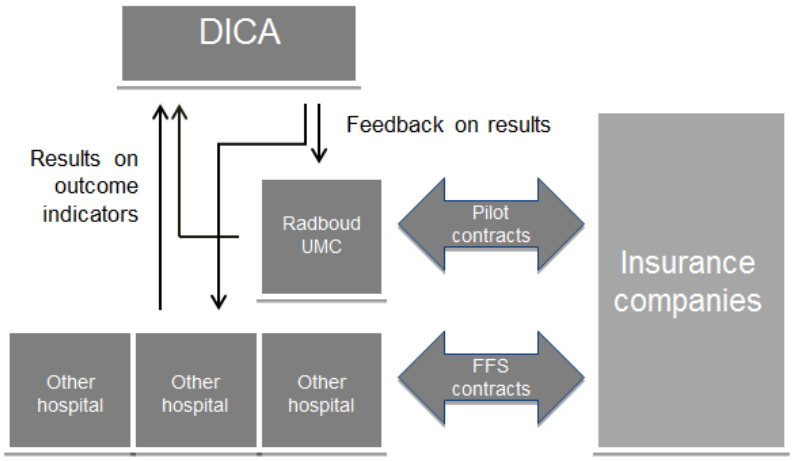
The initiatives in Sweden are closely related to the work conducted by the International Consortium for Health Outcomes Measurement (ICHOM) which was recently established as a non-profit organisation. Patients and physicians are involved in identifying outcomes which could lead themselves to robust measurement and comparisons (referred to as Standardised Sets of Outcomes). The Standard Sets of Outcomes can be used for different purposes in health systems: engaging with patients and discuss treatment options, systematically measuring outcomes; and using outcome information to purchase on value. Sets of Outcomes have been defined for twelve conditions including coronary artery disease, and low back pain. Components of the outcomes can include acute complications, patient-reported outcomes, disease reoccurrence in the case of back pain. By 2017, ICHOM aims to have published 50 Standard Sets covering more than 50% of the global disease burden (ICHOM, 2015).

The increased focus on outcomes in a number of bundled payment initiatives is not only related to tariff setting. It is still necessary to monitor outcomes when payments are bundled to ensure that providers do not cut corners. Early bundled payment contracts for diabetes care in the Netherlands contained only limited provisions for justifying the content and quality of care to health insurance companies but these provisions became increasingly important in newer contracts. Contracts now specify the obligations of the care group to provide the insurer with performance indicators for both processes (for example, the percentage of patients who had foot examinations in the previous twelve months) and outcomes (for example, the percentage of patients whose blood sugar levels are under control) (de Bakker et al., 2012).

In this respect, knowledge on the ways to best monitor quality is also evolving. A recent suggestion for diabetes care in the Netherlands recommends that indicators could better account for process along with outcomes to monitor quality (Struijs et al., 2012a). One approach would be to combine the information on process and outcome indicators into "linked indicators" where for example the percentage of patients having HbA1c levels above a certain threshold (outcome variable) and having undergone fewer than four standard diabetic check-ups in the past 12 months (process variable) could shed light on specific aspects of the quality of care (Voorham et al., 2008; Sidorenkov et al., 2011; Struijs et al., 2012a).

For Parkinson's disease in the Netherlands, a quality measuring effort preceded the payment reform (Figure 3.4). An agreed list of indicators applicable to care provided in outpatient hospital clinics was implemented in the neurology department of a select number of Dutch hospitals in 2014. In 2015, reporting on this indicator set became mandatory in all hospitals in the Netherlands.

Figure 3.4. Pilot for quality measurement for Parkinson's disease, the Netherlands



Source: Vlaanderen et al. (2016).

3.7. Building blocks for designing bundled payment

The case studies presented in this chapter reflect different approaches to bundled payment, in particular i) including pre or post-operative activities into care episodes; ii) incorporating quality elements into tariffs or reflecting costs of evidence-based care; and iii) defining single tariffs for chronic conditions. Each approach comes with specific challenges. Additionally, the limited evidence so far does not allow for a final verdict whether innovative bundled payments will drive up health system performance. Nevertheless, as set out below, there are some key lessons to draw from the country examples on the design and implementation of a bundled payment model. Policy attention should focus on conditions for implementation: the basket of services, setting tariffs, quality, stakeholder involvement, IT systems, and accountability.

Basket of services

The decision to include or exclude activities in bundled tariffs needs to be based on clear, transparent criteria. This also applies to the selection of the patient population the bundled payment should be applied for and whether high-risk patients are included. Episode-based bundled payments have clearer end points which may make monitoring easier. For chronic conditions, multiple bundle payments for patients with co-morbidities will have implications for how to handle their interaction. As the number of bundled payments increase for patients with multiple co-morbidities, alternative payment models may need to be considered.

Tariffs

Setting tariffs require historical data but it is important to be mindful of the bundled tariff level compared to previous levels. Where clear clinical guidelines exist, they can inform tariff setting as well as contribute to standardising protocols and mitigate payer concerns regarding transparency of a bundled payment approach.

Quality

Collecting data on quality should be built into the payment design – even if quality measures are not directly related to tariffs, they are still valuable for reporting purposes. Knowledge on ways to monitor quality is evolving – including data on outcomes. Data collection not only lays the foundation for monitoring, evaluation, and feedback but also brings about wider health systems changes for delivery with a more patient-centered approach.

Stakeholders

Irrespective of whether the move towards bundled payment is provider, purchaser or policy led, it is necessary for there to be shared joint aims and motivation among key stakeholders to achieve buy-in, particularly for mitigating diverging financial interests.

IT systems

IT system capability and adaptability to record bundled payment information is necessary. Ideally, making use of existing data and reporting requirements as much as possible is a good starting point to minimise administrative burden. It is necessary to mitigate administrative burden with data entry including the need for additional resources if a new system is implemented for staff training, and IT system compatibility with the bundled payment model, particularly for billing purposes.

Accountability

Monitoring, evaluation and feedback loops for reporting should be encouraged. Assessment of the impact of bundles payment should be embedded into the process with independent evaluation carried out on a systematic basis.

3.8. Conclusion

Bundled payments for acute care episodes that go beyond DRG, and for chronic conditions, are increasingly popular in a number of OECD countries. Initially including additional pre- or post-operative activities but limited to the inpatient sector, more sophisticated recent innovations foresee bundled payments that follow the patient across settings. Starting with bypass surgery in the early 1990s, the scope of inpatient care episodes for which bundled payment is applied has widened to include now a number of different clinical areas, in particular cardiac or orthopaedic procedures such as knee and hip replacement or spine surgery. Another recent trend is to set the tariffs of the bundled payment on the basis of best practice along an evidence-based pathway which increases transparency instead of simply reflecting the average costs of care provision. For chronic conditions, a small number of countries have started to implement bundled payments for either high prevalence conditions such as diabetes or low prevalence but high cost conditions such as HIV and Parkinson's disease.

Bundled payments based on best practice or adjusted according to quality indicators show some promise to achieve quality gains as illustrated in the country examples both for episodes-of-care and chronic conditions. The (limited) evidence presented in this chapter suggests that bundled payment appears to work better for improving quality in some areas than in others. For acute conditions, a number of

initiatives have seen reductions in readmission rates, complications and improved mortality figures for hip and knee replacement and bypass surgery. For other procedures, such as stroke, experimentations have not shown any quality improvements. In the case of chronic conditions, better performance and higher patient satisfaction have been detected in the Netherlands for diabetes and Parkinson's disease and better adherence to medication and treatment protocol were associated with the bundled payments for HIV.

With regards to costs, a number of bundled payment initiatives have generated savings for payers. In the United States for example, Medicare as well as private sector innovations were able to reduce costs for bypass surgeries and hip and knee replacements, mainly achieved by reductions in average length of stay and reduced number of readmissions. For bundled payments for chronic conditions, average treatment costs for HIV were reduced in Portugal through better adherence to treatment plans but costs increased in the case of diabetes patients after the introduction bundled payments in the Netherlands which may be partly be driven by delaying required specialist care – not included in the bundled tariffs.

Whether the bundled payment will generate savings or even work also depends on local market conditions. It may work in places where providers have options to choose who they work with, or where it is mandatory, or where they are provider led or policy led. For example, differences in the participation of payers and providers have not been a deterrent in countries such as Portugal, England and the Netherlands. In Portugal and the Netherlands, provider participation was voluntary but mandatory in England. Payer participation was mandatory in England and Portugal but voluntary for insurers in the Netherlands. Payment reform was part of broader reforms in England and Portugal but this was not the case in the Netherlands, where changing the delivery of care was led by health professionals. More generally, this is a lesson for care networks and on how to operate in addition to policy considerations for bundled payment reform.

Bundled payments shift some of the financial risk of service delivery onto providers. This needs to be taken into account when identifying the clinical areas where bundled payments should be implemented, the services that should be covered by the bundled payment, the price of the tariffs and whether high-risk patients should be excluded from this payment scheme. The greater exposure to financial risk for providers is also a reason that negotiations about bundled payments between payers and providers can be challenging.

On the other hand, payers have concerns around transparency of payments when services are bundled. At any rate, very clear guidance is needed on defining bundles and for the services to be covered by bundled pricing arrangements. This seems to be less problematic for episodes-of-care which have clearer start and end points than for chronic conditions.

Evidence-based approaches can help support the development of services part of a bundle that draw on clinical guidelines to develop standardised sets of care and increase transparency, particularly when efforts focus on stakeholder engagement throughout implementation. In the initiatives analysed, providers mainly accepted and supported the introduction of bundled payments. Patients supported the eventual accompanying changes in the care delivery process but may not necessarily have been aware of the change in the mode of payment.

As is the case for other payment reforms, the introduction of bundled payments may present a trade-off between decisions based on clinical guidance and the provider's financial incentives if the bundled payments tariffs translate into reduced provider income as compared to the payment under the previous regime. Financial incentives for the more expensive hip replacement procedure led to greater uptake in England than in Scotland where financial incentives were not in place (Papanicolas and McGuire, 2015). Appropriateness criteria could also help guide bundle definitions to better support clinical decisions (Weeks et al., 2013).

There are further practical issues with bundled payments that need consideration. Bundled payments require sophisticated IT systems that can identify all services that are included in the bundled tariff. If claims data are not able to clearly identify services part of the bundle, this payment mechanism has its drawbacks. This was the motivation behind the CMS in the United States recently changing the rules of bundled payment to remove payment for post-operative visits from surgical packages. This was in part because the number of visits seemed to fall short of what was recommended. The removal from the package will allow for better monitoring of post-operative activity but it is unclear how surgeons will respond (e.g. more surgeries or see patients more often after surgery) (Mulcahy et al., 2015).

The CMS demonstrations of bundled payment models (part of the wider health reforms in the United States) are currently underway and so evaluations are not yet available. In the most comprehensive bundled payment model, there are important considerations related to volume and treatment. One study suggests that there are differences in spending growth for certain episodes suggesting that individual updates to payment rates for each episode may be appropriate but as the number of episodes expands, though, more systematic approaches to updating payment rates will likely be required (Rosen et al., 2013).

Policy makers should consider support tools needed to implement new payment methods alongside existing IT systems including software compatibility but also for staff so they are appropriately prepared and trained. They should also consider better systems for monitoring of payments.

In a number of countries, increased administrative burden related to bundled payments were reported. Some of the increased burden was related to collecting quality-related information as part of the introduction of bundled payments. Particularly in the case of bundled payments for chronic conditions, additional administrative problems can arise for patients with co-morbidities. For these patients health providers may have to manage the billing of services according to more than one pricing system. Clear standards for record keeping and reporting would help mitigate some of the issues raised in the country examples. That said, for the treatment of multi-morbid patients, bundled payments geared towards only chronic condition may be of limited success and alternative more comprehensive payment models may be more effective such as population-based payments (see Chapter 4).

Bundled payments can profit from the increased popularity of patient outcome measurement in a number of countries. These measures show potential to better inform and incentivise payments in some areas of health care delivery. Wider system effects may better align health policy priorities with payment policies in the long run towards more patient-centered care with greater emphasis on evidence-based guidelines and using outcomes to inform price setting and payment.

Note

1. Medicare Part A covers mainly inpatient hospital stays and limited rehabilitative care whereas Part B covers physician and nursing care, hospital outpatient services and other services such as diagnostics and laboratory tests.

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