

Price setting and price regulation in health care

Lessons for advancing Universal Health Coverage

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**Price setting and price regulation in health care:
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Sarah L Barber, Luca Lorenzoni, Paul Ong

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Price setting and price regulation in health care: Lessons for advancing Universal Health Coverage

Foreword and Acknowledgments	vii
Glossary and Abbreviations	viii
Executive summary	x

Contents

1. Why pricing is important	1
1.1. How does pricing fit within the commitments for Universal Health Coverage?	2
1.2. Why intervene in pricing?	3
1.3. Relevance to low- and middle-income settings	4
2. Comparison of case studies	8
2.1. Demographics and health resources	9
2.2. Health care coverage	10
2.3. Health system characteristics	13
3. Payment methods	15
3.1. The base for payments	16
3.2. Primary care and outpatient specialists	20
3.3. Inpatient care	22
3.4. Long-term care	23
4. Process by which price is determined	28
4.1. Individual negotiations	29
4.2. Collective negotiations	30
4.3. Unilateral price setting	31
4.4. Process of price setting by base for payment	33
5. Technical process of setting the price per unit of payment	39
5.1. Costing methods	40
5.2. Process of collecting information	43
5.3. From cost submission to price setting for hospital services	46
5.4. Changing the cost structure	47
6. Aligning pricing with overall policy goals	49
6.1. Adjustments and add-ons to ensure payment adequacy and fairness	50
6.2. Expenditure control mechanisms	52
6.3. Balance billing limitations and financial protection	54
6.4. Bundled payments	57
6.5. Incentives for quality	58

7. Infrastructure for costing and pricing	60
7.1. Institutional entities	61
7.2. Formal stakeholder consultation	64
7.3. Investments in data collection	65
7.4. Information disclosure	68
8. Best practices for low- and middle-income settings	71
8.1. Investing in data infrastructure	72
8.2. Building institutional capacities	73
8.3. Planning sequenced implementation	74
8.4. Establishing prices that approximate the most efficient way of delivering care	76
8.5. Using prices as instruments to promote value for health spending	77
8.6. Strengthening the national role in setting prices	77
8.7. Establishing systems of ongoing revision, monitoring and evaluation	78
References	79
Annexes: Case studies	
Australia: Jane Hall, Maryam Naghsh Nejad, Kees Van Gool and Michael Woods	
England: Sue Nowak and Alberto Marino	
France: Zeynep Or and Coralie Gandré	
Germany: Jonas Schreyögg and Ricarda Milstein	
Japan: Naoki Ikegami	
Malaysia: Chiu Wan Ng	
Republic of Korea: Soonman Kwon	
Thailand: Viroj Tangcharoensathien, Walaiporn Patcharanarumol, Taweeri Greetong, Waraporn Suwanwela, Nantawan Kesthom, Shaheda Viriyathorn, Nattadhanai Rajatanavin, Woranan Witthayapipopsakul	
United States of America and Maryland: Luca Lorenzoni	

Foreword and Acknowledgments

Under international commitments to Universal Health Coverage, the Member States of the World Health Organization are obligated to strengthen their financing systems to ensure that all people have access to health services and are protected against financial hardship in paying for these services. While payment methods have received a great deal of attention among policy-makers and practitioners, less attention has been paid to price setting and how it can also contribute to broader system objectives. However, if prices are set too high or too low, they can easily overshadow the incentives in payment mechanisms.

The objectives of this study are to describe experiences in price setting and how pricing has been used to attain better coverage, quality, financial protection, and health outcomes. It builds on newly commissioned case studies and lessons learned in calculating prices, negotiating with providers, and monitoring changes. Recognizing that no single model is applicable to all settings, the study aimed to generate best practices and identify areas for future research, particularly in low- and middle-income settings.

The World Health Organization (WHO) and the Organisation for Economic Co-operation and Development (OECD) have been collaborating since 2014 to study health care pricing policies. The research was guided by Sarah L. Barber, Paul Ong, and Tomas Roubal from WHO, and Luca Lorenzoni from OECD, who established the scope and framework for the analysis in consultation with global and regional experts. We thank the authors of the case studies for their research and useful comments on the summary. These authors include Jane Hall, Maryam Naghsh Nejad, Kees Van Gool and Michael Woods (Australia); Sue Nowak and Alberto Marino (England); Zeynep Or and Coralie Gandré (France); Jonas Schreyögg and Ricarda Milstein (Germany); Naoki Ikegami (Japan); Chiu Wan Ng (Malaysia); Soonman Kwon (Republic of Korea); and Viroj Tangcharoensathien, Walaiporn Patcharanarumol, Taweetri Greetong, Waraporn Suwanwela, Nantawan Kesthom, Shaheda Viriyathorn, Nattadhanai Rajatanavin, and Woranan Witthayapipopsakul (Thailand). Professor Naoki Ikegami assisted with the review of the case studies. Jain Nishant, Indo-German Social Security Programme, wrote the text box for India. The case studies were discussed with the research teams, and the outline for this study was developed at a meeting in Yokohama, Japan, in January 2019. At this meeting, WHO experts provided support and guidance, including Peter Cowley, Jon Cylus, Tamas Evetovits, Tomas Roubal, and Liviu Vedrasco. Lluís Torres Vinals provided useful comments; Tessa Edejer and Xu Ke provided statistical review. This document was produced with the financial assistance of the Kobe Group, and the Yokohama meeting was supported by Kanagawa Prefecture, Japan.

Glossary and Abbreviations

Term	Abbreviation	Definition
Balance billing	-	When a health care provider bills a patient for a price beyond what is reimbursable from the patient's health insurance.
Base for payment	-	The base or unit of activity on which prices are set. Common base for payments are fee-for-service, diagnosis related groups, per diem, and capitation, for example.
Base rate	-	The standardized payment amount that a provider receives for covered services. The rate could be adjusted by differences in the cost of living or other factors.
Bundled payment	-	A single payment covering a bundle of distinct goods and services required for the treatment of a given medical condition based on clinical practice guidelines.
Capitation (also per capita payment)	CAP	Prospective fixed lump-sum payment per person enrolled for care with a provider within a given period (typically one year) covering a defined set of services, independent of whether the services are provided.
Charge	-	The amount that a provider sets for services before applying any discounts. The charge can be different from the amount paid.
Coinsurance	-	Percentage that the insurer pays after the individual deductible is exceeded, with the intention of joint risk sharing between the insured individual and the insurer.
Copayment	-	Fixed payment paid by an individual for health care services at the point of seeking care, which is not covered by insurance, regardless of the kind of services provided during the visit.
Contributory health coverage	-	Coverage paid through employee payroll contributions with employer cost sharing.
Cost	-	(For the provider), the total amount incurred in providing a service, including procedures, therapies, and medications. The actual cost is typically lower than the price paid.
Cost based reimbursement	-	Retrospective payments to health care providers based on the cost of care provided to patients and allowable covered costs.
Cost centre	-	A defined entity to which direct costs are assigned and indirect costs are allocated (i.e., organizational or management unit).
Cost object (also cost objective)	-	A defined entity for which cost information is sought (i.e., patient, service, department).
Diagnosis Related Group payment (also case-based payment)	DRG	Payment paid to hospitals per admission or discharge, whereby patients are classified into groups (DRGs) based on diagnosis and procedures.

Term	Abbreviation	Definition
Extra billing	-	Billing for services or drugs that are not included in the benefits package. This differs from balance billing, where the amount billed for covered service is higher than the regulated price.
Fee-for-service	FFS	Fixed payment for each unit of service without regard to outcomes. It is typically paid retrospectively by billing for each individual service or patient contact.
Global budget	-	Prospective lump-sum payment to a health care provider to cover aggregate costs over a specific period for a set of services independent of the actual volume provided.
Line-item budget	-	Fixed payment to a health care provider to cover specific input costs (i.e., personnel, utilities, medicines, supplies, etc.) for a specific period.
Long-term care	LTC	Activities undertaken to ensure that people can maintain levels of functional ability consistent with basic rights, fundamental freedoms, and human dignity.
Multiple payer system	-	A system in which multiple entities set prices to pay health care providers.
Pay for performance (also results based financing)	P4P	Payments to health care providers for meeting specific performance targets, such as process quality or efficiency measures, or penalties for poor outcomes, such as medical errors or avoidable readmissions.
Payment for procedure or service	-	Fixed payment for each unit of service or procedure, whereby adjustments to prices may reflect substantial additional work as measured by increased intensity, time, technical difficulty of the procedure, severity of the patient condition, or physical and mental effort required.
Per diem	-	Fixed amount per day for inpatient stay, which may vary by department, patient, clinical characteristics, or other factors.
Price (also fee, rate, tariff)	-	Financial amount that a purchaser (i.e., health insurer) or individual pays to a provider to deliver a service.
Price discrimination	-	Occurs when an identical service is sold to different consumers at different prices.
Price schedule (also fee schedule)	-	Detailed list of prices for all providers and hospitals, usually by a coding system, i.e., Healthcare Common Procedure Coding System in the United States of America, by diagnosis-related groups (DRGs).
Residence based coverage	-	Coverage based on legal residence financed with general tax revenues.
Resource based relative value	RBRV	A unit of measure that indicates the value of procedures conducted by physicians, midlevel and other health care providers.
Single payer system	-	A system in which one entity (the single payer) set prices to pay health care providers. The payer is typically government.
United States of America	USA	Abbreviation of the official World Health Organization member state name for the United States of America.
Universal Health Coverage	UHC	Commitment made by United Nations Member States to extend coverage to needed health care services for the whole population, without people suffering from high health care payments or poverty because of getting the health care that they need.
User fee (also user charges, cost-sharing)	-	Payment made by a patient to access a service or facility.
Voluntary Health Insurance	VHI	Insurance plans where the decision to join and the payment of a premium is voluntary. Coverage may be complementary or supplementary to the basic (primary) benefit package or duplicate it.

Sources: Cashin, 2015; OECD, 2016; WHO, 2017; Le Grand and Bartlett, 1993; authors.

Executive summary

This study was carried out to support countries in meeting international commitments towards Universal Health Coverage. It aims to gather experiences in price setting and regulation, generate best practices, and identify areas for future research. There is a special focus on the implications for middle-income settings, which represent more than 70% of the world's population. The share of public spending on health in these settings doubled between 2000 and 2016. This increase in public spending has been accompanied by new ways of financing, organizing, and delivering health care. A key question is how to make use of all health resources – from both private and public sources – to attain health-related goals.

Health care is far from being a classic market for goods and services. Individuals are usually represented by a purchasing agent (i.e., health insurers) instead of operating by themselves, and do not have complete information. This makes people less sensitive to prices. However, prices provide important signals to health care providers, given that they determine the level of financial resources to deliver health care services.

Provider payment systems consist of one or more payment methods and their supporting systems such as contracting and reporting mechanisms, which are used to create economic signals and incentives that influence behaviour. Any payment method has three dimensions: the base upon which prices are defined and set; the level of payment per unit of the chosen base; and the administrative and economic process by which that price level is determined. This study focuses on these key dimensions.

Among the case studies reported, the base for payment for primary care is primarily fee-for-service and capitation; fee-for-service is typically used in outpatient settings; and diagnosis related groups are commonly used in hospital settings.¹ Increasingly, payment methods have been combined with specific performance-based rewards or penalties; they have also been combined across providers to facilitate a more coordinated and flexible approach to care. All payment models have strengths and weaknesses; therefore, the impact of each depends not only on the method chosen but also the price paid. The price not only ensures that the costs of delivering services are covered, but also provides incentives for health care providers. Price adjustments are typically made to ensure coverage and access, for example, to health care providers in rural and remote areas; those treating disproportionately high numbers of low-income or high-cost patients to ensure coverage and quality; and for facilities providing medical education. Prices are also adjusted to attain broader health-related goals.

1 In this study, we use the term "base for payment" for the unit of activity upon which prices are set (i.e., fee-for-service, diagnosis related groups, per diem, and capitation). This differs from the "base rate" or the standardized payment that a hospital receives for covered services.

The price not only ensures that the costs of delivering services are covered. Price adjustments are made to ensure coverage and access, for example, to health care providers in rural and remote areas.

The study generates lessons learned in price setting, particularly for low- and middle-income settings. They include:

Investing in data infrastructure. In setting the level of payment, the ways of calculating prices are linked with the strength of data collection systems about input costs, output volumes, and outcomes. Low- and middle-income settings can initiate payment reforms while also building critical capacities in health information systems and data collection. Where data are limited, information can be used from available sources while also investing in data infrastructure.

Building institutional capacities. In several settings, specialized institutions have been established to separate the technical task of determining costs from the more political exercise of negotiating how much to pay for services. In some cases, such institutions commission or collect data to estimate the cost of providing services upon which prices are then based. Whether an independent entity or designated institution, characteristics of successful systems include political independence, formal systems of communication with stakeholders, and freedom from conflicts of interest. Given finite resources for health, price regulatory systems can be used to promote greater efficiency and attain value for health spending for resources from both public and private sources.

Planning sequenced implementation. Particularly for settings that employ line-item budgets, substantial long-term planning is needed to change payment systems, estimate costs, and use prices and payment systems to reach policy goals. For any payment reform, the starting point is developing a classification system of the services that are currently being delivered. Given that the strength of health systems can affect the speed and quality of implementation of reforms, continued investments in broader capacities should receive greater attention including, for example, clinical guidelines, regulatory frameworks, and strengthening professional associations.

Establishing prices that approximate the most efficient way of delivering care. Prices should approximate the cost of delivering services in the most efficient way that enables quality and health outcomes. This minimizes incentives for inappropriate and low value care and enables accurate budget projections. Costing exercises can be useful if they reveal information about the underlying cost structure of service delivery and enable the development of alternative scenarios about models of service delivery that offer high levels of efficiency and quality.

Using prices as instruments to promote value for health spending. Pricing is not only about covering costs but also providing the right incentives. Pricing, payment systems, and their regulatory frameworks can be powerful tools to drive broader health system goals. For example, in some settings, balance billing is prohibited, and patients are fully reimbursed for covered services to ensure affordability and access.

Strengthening the national role in setting prices. To align prices with policy goals, a strong national role is required. While the methods for price setting vary, we conclude that unilateral price setting by a regulator eliminates price discrimination and performs better in controlling growth in health care costs. In contrast, individual negotiations between buyers and sellers are the weakest along these same parameters. Both collective negotiations and unilateral administrative price setting also have the potential to improve quality better than individual negotiations.

Establishing systems of ongoing revision, monitoring and evaluation. Flexibility is needed to adjust to the evolution of pricing and payment methods, factors outside of the control of providers and changes in market structure. Many experiments are underway to adjust prices to achieve broader health policy goals, such as better coverage, quality, financial protection, and health outcomes. It is not always clear whether the price set will result in the intended provider behaviours – or unintended consequences will occur. Yet, few of these initiatives have been fully evaluated for impact. This limits the lessons learned both within and across countries. More systematic testing and evaluation is critical to inform about the impact of such initiatives and determine the feasibility of scale-up within a given setting, and replicability elsewhere.

Policies about pricing and purchasing health care services are grounded in institutional history and the level of resources for health. As such, there is no ideal price level or payment mechanism. Each country has implemented approaches that help address broader system objectives within a given setting. Ultimately, it is these objectives that guide policy choices. Lessons from other settings should be viewed considering their feasibility and responsiveness to unique contexts.

1/

Why pricing is important

1.1 How does pricing fit within the commitments for Universal Health Coverage?

In 2015, United Nations member states reiterated their commitment to universal health coverage (UHC) so that all people have access to quality health care without exposure to financial hardship (WHO, 2019a). Implementing UHC reflects three dimensions of coverage: who is covered, what services are covered, and how much will be paid. In this report, we focus on the price of health services but omit the prices of pharmaceuticals and health insurance. Pharmaceutical prices are covered in detail elsewhere (OECD, 2018; WHO, 2015a).

Pricing health services is a key component in purchasing the benefits package (the covered services) within the overall financing system (Evetovits, 2019). Pricing and payment methods are important instruments in purchasing that provide incentives for health care providers to deliver quality care. A second instrument is contracting, in which the conditions for the payment of services are defined, and prices can be used as signals to providers. A third is performance monitoring. Where health care providers are rewarded based on the outcomes they achieve, these payments also must be priced correctly to provide the right incentives.

If the price set is too high or too low, it can easily overshadow the incentives in payment mechanisms. Prices should reflect actual costs and take into consideration broader health system goals and health outcomes. If not, unintended negative consequences could arise. In example, if prices are set too low for capitation payments, this could result in low quality care, provider selection of healthier patients, or referral of complex cases that require a higher intensity of services to another service provider. Where the FFS payment is low, providers may try to compensate by increasing volume and providing additional (unnecessary) services. If prices are not fair, service quality, efficiency, and sustainability also suffer. In some settings, low prices that do not sufficiently reward health care providers are blamed for informal fees to patients, in which the financial burden falls on individuals and society.

In the case of balance billing, health care providers are permitted to bill patients at prices higher than the regulated rates, and the difference is paid by the patient. Under balance billing, services could be underprovided where patients are unable to pay – even though the services are part of the benefits package and valued by communities and societies. In this case, the government's commitment to deliver on UHC would shift some of the financial burden to individuals.

1.2 Why intervene in pricing?

To attain their commitments to UHC, governments are obligated to take reasonable regulatory and other measures, within available resources, to achieve the progressive realization of the right to health care. This is particularly important in health care markets, which are characterized by such failures as information asymmetry, lack of information on prices and quality that preclude consumer choice, adverse selection, and moral hazard (Arrow, 1963).

For most commodities, pricing is determined based on supply and demand. Unlike other commodities, payers and consumers of health care usually know far less than the “seller” (i.e., the health care provider), who advises about which treatments or medicines are the best options – while concurrently having a financial interest in the ultimate decision on what option to use. For many commodities, consumers assess the price and value of goods; in health, insurance insulates consumers from the full price. Given that accurate comparable information about prices and technical quality are frequently unavailable, the value of health services is difficult to assess. At the same time, demand for acute care and hospital services provided in times of health need is less responsive to price. Information asymmetry is also present in health insurance markets, since insurers do not know what health conditions consumers have – thus leading health insurance companies (where unregulated) to implement policies to reduce their risks of accepting high risk patients.

Important externalities exist in health, implying that investments have broad benefits for communities and the public. Successfully treating someone with tuberculosis, for example, benefits not only the patient but also the community in which s/he lives. In this instance, price setting (among other tools) can be used to ensure adequate funding for public health goods, such as uncompensated hospital care that benefit communities; thus, prices should reflect the value of services to individuals and society. This is particularly important given that hospitals are, in many cases, obligated to serve all patients with medical need regardless of ability to pay.

As such, health markets differ from conventional markets in several key ways (Clarke, 2016). Consumer purchasing power is either centralized in a single purchasing agency or allocated to users in the form of vouchers rather than cash. This change in consumer purchasing power makes consumers less sensitive to price signals. Non-profit organizations compete for public contracts, sometimes in competition with for-profit organizations. Consumers are represented in the market by agents instead of operating by themselves. In addition, the price signals that connect purchasers and providers operate in a rather different way, as prices are not formed directly by the interplay of demand and supply, but rather are administered, collectively negotiated or individually negotiated.

Many OECD countries have established price schedules enabling them to purchase services from the private sector.

Controlling the growth of health care spending while maintaining or increasing access is a major policy priority of most governments. Generally, health care spending increases at rates higher than general inflation. This is a function of both volumes of care and prices. In the USA, high prices alone are estimated to account for half or more of the growth in health care spending (Martin et al., 2014). Wide price variation can be seen both across countries and within the same country across regions and facilities (Cooper et al., 2018). Increases in both prices and volumes can be attributed to the adoption of new technologies, increases in income, insurance design and demographics. The demand for health and social services are expected to increase with population ageing (European Commission, 2018). In this context, price setting serves as an instrument to reduce or increase volumes of certain services or treatment modalities to control costs (Anderson et al., 2003; Anderson, Hussey and Petrosen, 2019).

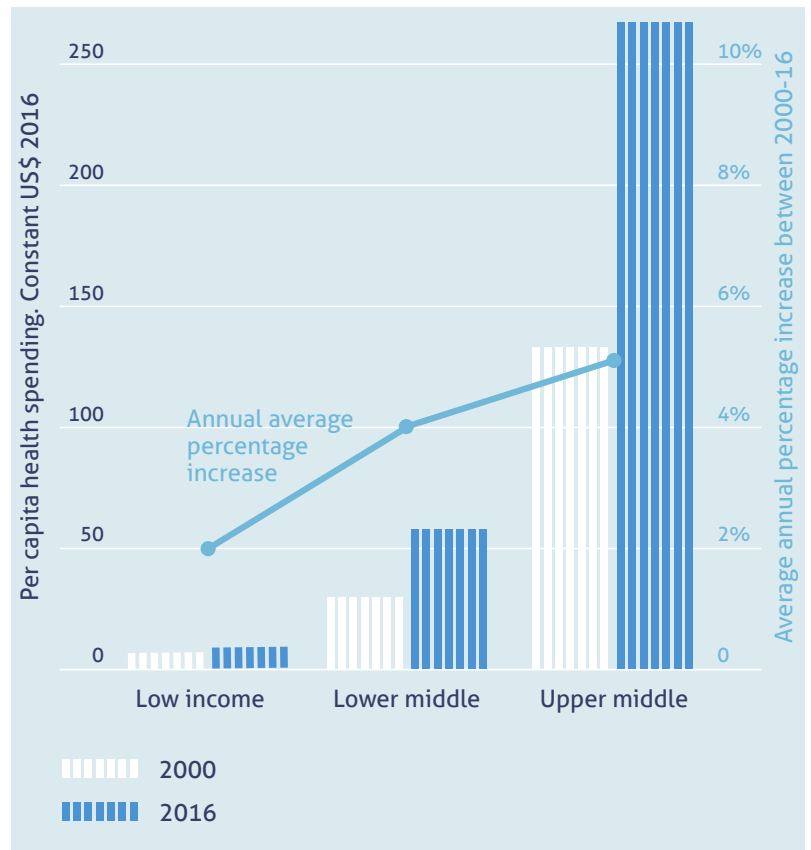
The progressive realization of UHC implies that all countries strive to extend or ensure coverage while facing technological progress, ageing populations, and increasing expectations for good quality health care. Rising health care spending has pressured policy-makers to maximize all available health resources towards meeting these expectations. Governments frequently draw on the private sector to promote sustainability, optimal use of resources, and increased choice of care. In doing so, policy-makers face the challenge of harnessing resources and efficiency gains while addressing the market failures and equity concerns associated with the private financing of health care. Many OECD countries have established price schedules enabling them to draw on private sector facilities to expand access to care. This is used to purchase services from the private sector, provide benchmarks for private insurers, and negotiate with private insurers and facilities. These experiences may be informative for low- and middle-income settings.

1.3 Relevance to low- and middle-income settings

Low- and middle-income countries represent a diverse group of nations. The 34 poorest countries in the world differ greatly from high-income countries. Low-income countries focus on extending access to basic services and, in some cases, rely on external funding for health (WHO, 2018). Experimentation in financing health services is also being done as a part of donor contributions. Health systems challenges in middle-income countries are similar to those in high-income settings. Middle-income countries with a gross national income between US\$1006 and \$12,235 per capita represent more than 70% of the world's population and a large share of the disease burden (World Bank, 2019). Increases in public spending on health² are

² For ease of reading, we refer in this paper to spending by government and compulsory health insurance as "public" spending on health.

Figure 1
Per capita public spending on health, 2000-16, constant US\$ 2016, low- and middle-income countries



Source: WHO, 2018.

occurring across all countries (WHO, 2018), whereby spending on health rises with per capita income. However, the share of public spending on health doubled between 2000 and 2016 in middle-income countries (Figure 1).

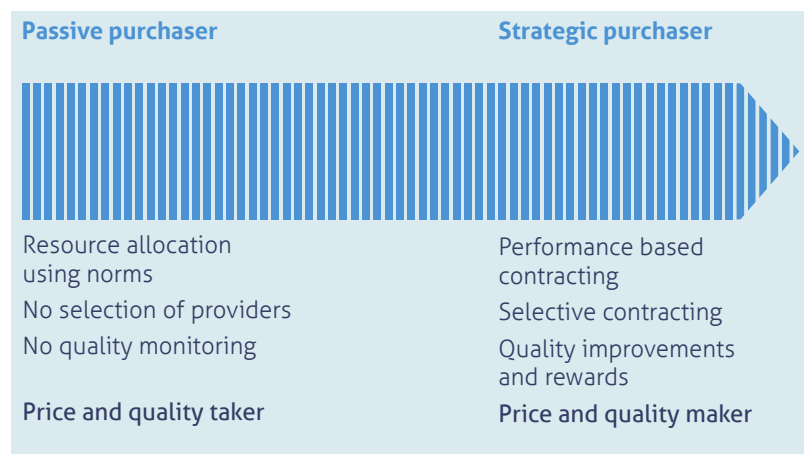
Within the increase in public spending on health, countries are striving to establish well-functioning health systems towards attaining UHC. In doing so, they are paying more attention to value for public spending on health, and the decisions about how to channel funding and organize services to respond to people's needs. This is particularly true for inpatient services and curative outpatient care, which accounts for 70% of total public spending on health on average globally (WHO, 2018). As health systems mature, policies take on greater importance in ensuring financial protection. Policy decisions about the services covered, payments to providers, and the conditions for these payments become the determining factors in driving patient costs –and far overwhelm any individual care-seeking behaviours (Getzen, 2006).

In response to these opportunities, many countries are introducing new ways to finance, organize, and deliver health care. Understanding the methods for price setting takes on a higher level of importance where systems are rapidly changing to account for increasing levels of resources and changing

patient needs. To more strongly align payment with the costs that health care providers incur in delivery different types of services, countries are modifying the basis for payment for health care providers from line-item budgets to alternatives such as FFS, per diem, and diagnosis related groups (DRGs), and determining how to price these services. Substantial numbers of low- and middle-income countries have already established DRG-based payment systems to pay for acute inpatient care (Mathauer and Wittenbecher, 2013). Such a move enables countries to take an active strategic approach in defining what services are purchased and paid for, and how to link payments with quality and performance. Further this move allows purchasers to shift from being a “price and quality taker” to a “price and quality maker” (Figure 2).

In some low- and middle-income settings, a large share of health care utilization is in the private health care sector, which can range from unregulated pharmacies to specialized tertiary care hospitals. A key question is how to make use of all health resources – from both private and public sources – to attain health-related goals. In middle-income settings, high prices in the private sector can undermine UHC objectives by draining resources from the public sector where most of the population accesses services (Barber et al., 2018). Where prices and premiums are unaffordable for most people, the private sector does not contribute to improving population health commensurate with its share of resources. Accordingly, governments are obligated to address high prices because of their implications for equal access to health services.

Figure 2
Moving from passive to strategic purchasing



Source: Evetovits, 2019.

Middle-income countries are home to 73% of the world's poor. This underscores the importance of protection from catastrophic health spending and promoting equitable access to services.

Some aspects of health systems in low- and middle-income countries should be considered when implementing changes in financing systems. There are higher rates of poverty; middle-income countries are home to 73% of the world's poor (World Bank, 2019), which underscores the importance of protection from catastrophic health spending and promoting equitable access to services. These settings tend to have less robust regulatory environments for controlling quality in health care facilities (public and private) and medical products, and less advanced professional associations (Clarke, 2016). In settings with weaker professional associations, changes in the base for payment to capitation has resulted in an under-provision of services (Mills et al., 2000). Some level of hospital autonomy is needed to ensure that hospitals have decision-making authority to respond to incentives for efficiency. Moreover, purchasing arrangements assume a level of managerial capacity, including financial management, systems of information about health, utilization, and expenditures, and the ability to enforce contracts. Experience from high-income countries shows that DRG-based payments are complex and require careful monitoring of care quality as well as volumes. Systems are needed to monitor and adjust prices to align with system-wide objectives. These institutional factors affect the speed in which changes in purchasing can be implemented. However, the process of change is both incremental and dynamic – and many countries implement changes in financing while also building critical capacities in health systems during implementation (Mathauer and Wittenbecher, 2013).

2/

Comparison of case studies

2.1 Demographics and health resources

Context and institutions are key factors in determining the choice of payment systems. A range of middle and high-income settings were selected for the study (Figure 3). Seven are OECD member states. Thailand and Malaysia are both upper middle-income countries. In three of these countries, more than one quarter of the population is 60 years or older (Japan, Germany, and France). In three other settings (Maryland, Thailand, and Malaysia), the population is relatively young.

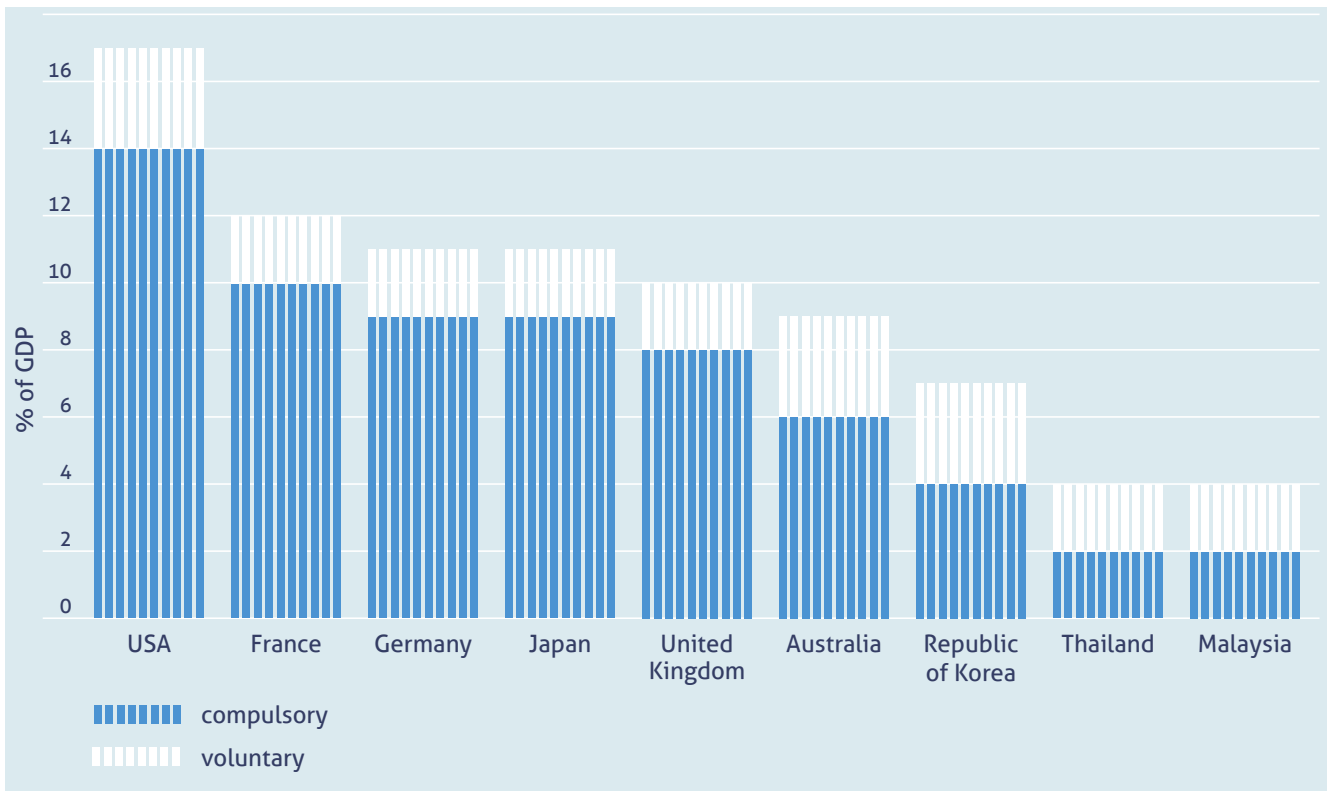
Figure 3
Characteristics of case study settings

Setting	Population 2015	% of population >=60 years	GDP per capita, US\$ 2016	Inputs per 1000 population		
				Physicians	Nurses and midwives	Hospital beds
Australia	23,799,556	21	54,069	3.5	12.4	3.8
England	55,670,000	23	31,200	2.8	8.4	2.6
France	64,457,201	26	36,826	3.2	10.6	6.5
Germany	81,707,789	28	42,456	4.2	13.8	8.3
Japan	127,974,958	33	38,640	2.4	11.2	13.4
Malaysia	30,723,155	10	9,508	1.5	4.1	1.9
Republic of Korea	50,593,662	20	27,785	2.3	6.9	11.5
Thailand	68,657,600	17	5,911	0.5	2.3	2.1
Maryland, USA	6,042,718	15	55,404	2.6	NA	2.5

Sources: UN, 2017, 2019; United States Census Bureau, 2019; World Bank, 2019.

Wealth is correlated with the level of inputs to the health sector. Decisions about the allocation of resources is subject to aggregate constraints, whereby the first step is determined by the total resources available (Getzen, 2006). The total amount of resources for health varies widely across these settings. Current health expenditure as a share of GDP ranges from 17% in the USA to less than 4% in Malaysia and Thailand (Figure 4). The source of most spending in all settings is compulsory (i.e., set aside by the government for certain health programs or initiatives), except for Malaysia, where public compulsory and private voluntary expenditures are reported as equal shares.

Figure 4
Current health expenditures as a share of Gross Domestic Product (GDP), 2016 or most recent year



Source: WHO, 2019b. Note: Compulsory or mandatory refers to the mode of participation, whereby coverage of the population is automatic or universal, and participation is mandatory by law including social health insurance or compulsory private health insurance. Voluntary refers to coverage obtained at the discretion of individuals or firms, including voluntary private health insurance. Spending on capital items is not included.

2.2 Health care coverage

The nine settings included in the study each represent variations in the main source of health care coverage. Australia, Malaysia, England, and Thailand’s Universal Coverage Scheme have systems of health coverage based on residence or citizenship. The other settings have employment-based contributory health coverage and vary by the number of payers. In the Republic of Korea, there is a single payer system, whereas in France and Japan, multiple payers exist with automatic (compulsory) affiliation. In Germany and the USA, multiple payers exist with choice of affiliation (Figure 5).

Figure 5
Main source of health care coverage for case study settings

Main source of basic health care coverage		Country
Citizen entitlement		Australia, Malaysia, Thailand (UCS, CSMBS), England
Employment-based coverage	Single payer	Republic of Korea, Thailand (SHI)
	Multiple payers with automatic affiliation	France, Japan
	Multiple payers with choice	Germany, USA

Sources: Paris, Devaux and Wei, 2010; Jongudomsuk et al., 2015. Note: UCS: Universal Coverage Scheme; CSMBS: Civil Servant Medical Benefits Scheme; SHI: Social Health Insurance.

Among the settings studied here, voluntary health insurance (VHI) plays different roles (Figure 6). VHI can generate additional financial resources for the health care system. It should be noted that private funding is not equal to private provision, and private insurance can pay for covered services. At the same time, it can contribute to cost escalation, given that many cost-control measures used in the public sector – such as price regulation and global budgets – are not typically employed in the private sector.

In France, Germany, Republic of Korea and Japan, private insurers focus on covering the gap between public reimbursements and actual fees, as well as providing access to additional services (complementary insurance). In Germany, a share of the population opts out of the public social insurance program and obtains care from private insurers. In Japan, VHI developed as a supplement to life insurance and offers additional income in the case of illness (The Commonwealth Fund, 2019). In Australia, Malaysia, and Thailand, VHI also provides coverage for additional services. In the United Kingdom, people can purchase VHI to reimburse care in a private facility, which may offer quicker access for elective services (supplementary insurance).

Figure 6
Spending on private voluntary health insurance, population and services covered, categorized by insurance role

Setting	% of total health spending	% of population covered	Services covered
A. Complementary: covers user fees			
France	13	95	Covers copayments for services included in the social insurance basket based on regulated prices; varying coverage of extra billing and extra services. Deductibles cannot be covered.
Germany	9	27	Outpatient care, per diem cash benefits for hospitalization.
Republic of Korea	7	>70	Copayment for public insurance and payment for uninsured services.
B. Complementary: covers additional services			
Germany	8.9	27	Dental and eye care, more extensive ranges of services not covered by social health insurance; in addition to full coverage for self-employed.
United Kingdom	3.4	5	Dental care, complementary and alternative medicines, more rapid and convenient access to care, especially for elective hospital procedures.
Japan	2	88.5	Copayments; lump-sum payments when insured persons are hospitalized or diagnosed with cancer or another specified chronic disease, or through payment of daily amounts during hospitalization over a defined period.
USA	50	14.6	Persons eligible for public benefits, i.e., Medicare can purchase VHI for additional coverage including long-term care; spending figures also include primary care for people covered through employers.
C. Supplementary: amenities, choice, faster access			
United Kingdom	3.4	9	Faster access, choice of private provider and of specialist acting in a private capacity, better amenities.
Australia	9	47 (hospital) 56 (general treatment)	Choice of providers (particularly in hospitals), faster access for nonemergency services, and rebates for selected services.
Malaysia	10	NA	Private hospital access, faster access.
Thailand	7	24	Exclusion of prior conditions and older persons; private hospital and faster access although more expensive.

Sources: Sagan and Thomas, 2016; Commonwealth Fund, 2019; case studies (see annexes).

The extent of government regulation of private health insurance varies. Factors contributing to stronger regulation include the presence of private insurers, insurance policies about access, and level of premiums. Experience suggests that price setting for the private sector alone can create incentives for providers to shift care to other providers that are not subject to regulation. This can inhibit greater coverage, efficiency, and health outcomes (Kumar et al., 2014). Experience from France shows that the private insurance market can be effectively regulated with financial incentives (i.e., fiscal rebates) to reduce patient selection and price escalation.

2.3 Health system characteristics

Price setting and systems of purchasing are dependent on key features of health systems that vary considerably across settings. For example, the OECD countries in this study have robust regulatory systems. This affects the degree of competition among purchasers and providers and choice of payment and price negotiation methods. The strength of professional associations affects systems of education and self-regulation. Strong professional associations enable formal systems of representation for price negotiations. In addition, market concentration is an important determinant of negotiating power, as seen in the USA, which can affect prices.

Figure 7
Mechanisms to nudge values towards Universal Health Coverage

Mechanism	Instrument	Rationale
Command and Control	Health Law	Prohibition on unlicensed care
Command and Control	Minimum Facility Requirements	Indicator of Accreditation
Command and Control	Clinical guidelines and standards	Standard of care usually not complete
Command and Control	Issuance of license	Can be based on geographical location and needs
Command and Control	Accreditation	Done by professional body and tie to health insurance payment eligibility
Financial Incentives (including price control)	Funding to private general practitioners, hospitals, labs, pharmacies, etc.	Will need mechanism to monitor if service is of good quality
Self Regulation	Professional subcommittee function	Professional associations provide training, empowerment, etc.

Source: Cowley, 2019.

Figure 7 illustrates key instruments used across the WHO Western Pacific Region, and places price regulation within the broader context of attaining the goal of UHC. The capacity of the health purchaser is a key determinant of the choice of payment methods, given that complex systems require higher capacity to collect and analyse information, and ensure standards of quality care. In some low- and middle-income settings, health laws may be weak or poorly enforced, which can result in technically substandard care. Formal systems of accreditation, which are assumed for high-income countries, may not exist or operate as focused accreditation for specific services or categories of facilities. The foundation for payment systems, particularly for bundled payments, is clinical care pathways that may not be implemented in all settings. The absence of these mechanisms limits choices; however, these supporting policies and instruments can be developed over time.

Weak information systems are particularly challenging in many countries. Mills (2011) analysed the impact of weak information systems on financing in four low- and middle-income countries (Ghana, Zimbabwe, India, and Sri Lanka). She reported poorly developed cost accounting systems in hospitals, limited data to cost public services, and lack of information about private facilities and activities. These factors represent capacities that affect the speed of implementation of payment mechanisms.

3/

Payment methods

Price setting is central to establishing sound payment systems for health and hospital services. Factors contributing to determining price levels include the total amount of public money spent on health, service delivery costs, wages for specialists and other health workers, as well as the burden of disease and its complexity. This paper focuses on the subset of settings described in the nine case studies to assess how price setting is integrated into provider payment systems.

Reinhardt (2006, 2011, 2012a) identified three main dimensions of payment methods for health care:

- The base or *unit of activity* upon which prices are defined and set.
- The level of the payment or *price per unit* of the chosen base.
- The *administrative and economic process* by which that price level is determined.

Each of these dimensions is important in aligning payment systems with the goals that health systems are trying to achieve and balancing the interests and financial risk taken by patients, health providers, payers, and communities. This section focuses on the base for payment, or the unit of activity upon which prices are defined and set.

3.1 The base for payments

Building on existing studies (Berenson et al., 2016, Miller, 2007), the base for payments are described by the main category of payment and the extent to which they contribute to (or detract from) broader health systems objectives (Figure 8).

Budget-based line item and global payments are typical in many low- and middle-income settings, but these are gradually being replaced by other methods (Mathauer and Wittenbecher, 2013). This is because such methods are not strongly aligned with the costs that health care providers may incur in delivering different types of services; as such, they may provide incentives for under-provision of needed care. Line item budgets specify detailed amounts for each line item (i.e., personnel, medicines, supplies, etc.) based on the previous year's budget allocation. The advantages of line-item budgets are predictability and control. At the same time, they are not linked to the type and volume of services provided, nor do they provide any incentives for efficiency or quality. Global budgeting has replaced line-item budgeting in many settings that rely on regulation to control health spending. A global budget provides fixed funding for a specific population group and offers more flexibility in allocating resources. Like line-item budgets, global budgets are commonly based on prior years' allocations, although capitation and other methods can be used (Berensen et al., 2016; Miller, 2007).

Figure 8
Main categories of base for payments, and whether they could contribute to (+) or detract from (-) health system objectives

Base for payment	Health system outcomes						
	Increasing utilization (number of cases)	Increasing volume (number of services)	Controlling expenditures	Promoting efficiency	Promoting quality of care	Administrative ease	Transparency
Budget							
Line item budget	-	-	+	-	unclear	+	+
Global budget	-	-	+	unclear	unclear	+	-
Activity based							
Fee-for-service	+	+	-	-	unclear	+	+
Per diem	+	+	-	-	unclear	+	-
Diagnosis Related Groups (DRG)	+	-	unclear	+	unclear	-	+
Population based							
Capitation	-	-	+	+	unclear	+	-
Consolidated							
Bundled episode	unclear	+	unclear	+	unclear	-	-
Global capitation	-	-	+	unclear	unclear	+	-
Incremental							
Pay for performance	+	+	unclear	unclear	unclear	-	+

Sources: Geissler et al., 2011; Berenson et al., 2016; authors.

Payment methods directly linked to activities include FFS, per diem, and DRGs. These approaches require a well-defined planned episode of care and strong evidence that such care will achieve the desired outcomes. FFS is typically based on a schedule that lists the prices for individual services, with the definition of services based on established classification codes, such as the Current Procedural Terminology.³ Fees are developed using relative weights or relative value units. One example is the resource-based relative value scale (RBRVS). The RBRVS was initially developed in the 1990s for the Medicare program in the USA and is now commonly used in other settings. It assigns a relative value to every physician procedure or service based on two main variables: the relative amount of physician time, level of skill, training, and intensity in providing a given service, and the costs of maintaining a practice including rent, equipment, supplies, and non-physician staff costs. The relative value is multiplied by a fixed conversion

³ The Current Procedural Terminology is a numeric coding system used primarily to identify medical services and procedures furnished by physicians and other health care professionals (AMA, 2019).

A growing number of provider payment mechanisms are emerging that explicitly seek to align payment incentives with health system objectives. Ongoing evaluations are essential.

factor (the base rate) to determine the price. The limitations in RBRVS include values inflated for specialist payment services and insufficiently valuing time and effort required to manage patients with complex conditions and multi-morbidities (Berenson and Goodson, 2016).

The FFS method rewards activity. It tends to result in an over-provision of services because of the incentives for volume regardless of patient need. Per diem payments offer a fixed amount per day of hospital or residential care regardless of care provided or costs incurred. In many settings, per diem payments are adjusted for case mix or estimated for each hospital ward or specialty. They are administratively simple but provide incentives for longer lengths of stay. In contrast, DRGs provide strong incentives for reducing length of stay. DRG payments group patients with similar clinical characteristics, use cost information to determine weights based on average treatment costs, and apply a conversion factor to generate a price for each DRG. In comparison with FFS, DRGs help to contain costs by bundling all goods and services provided during hospitalization into one unit (base) for payment (Annear and Huntington, 2015). In many settings, DRGs have replaced global budgets in order to reward hospital activity (Berenson et al., 2016). A key drawback is administrative complexity.

Capitation is a population-based payment, whereby a fixed payment is made prospectively for a defined benefits package per person for a period, regardless of the services provided. Capitation typically adjust for age and gender but not for health status. Primary care capitation generally requires a system in which a gatekeeper or a medical home provides routine care and approves referrals to other health care providers. With a fixed amount, the doctor has a financial incentive to reduce unnecessary care and thus control costs. At the same time, there is an incentive for an under-provision of care and referring complex patients to other health care providers.

The level of aggregation of the services included in the price is a factor in determining the level of financial risk sharing between the payer and provider. FFS payments are the most highly disaggregated (the least bundled) and the global budget is the most aggregated (the most bundled). In the case of FFS payments, health care providers can bill more individual services to cover their costs. Therefore, risk sharing is in favor of the providers, and the payers bear the financial risk. In the case of global budgets and capitation payments, the price is highly aggregated. For example, a capitation payment could be expected to cover many kinds of services for a given person over the course of a year. In this case, the health care providers receive one payment regardless of the services provided.

Therefore, the payer faces limited financial risks linked to the type and amount of services provided, because there is certainty about the expenditure per person covered.

Figure 9
Predominant base for payment for primary care, by type of provider

Setting	Remuneration of provider setting					Remuneration of physicians	
	FFS	P4P	Global budget	Cap	Other	Salary	FFS
A. Private practice group							
Australia	X			X			X
Japan	X		X			X	
USA	X						X
B. Private solo practices							
France	X	X		X	X	X	X
Germany				X	X		X
England				X		X	
Republic of Korea	X	X					X
Thailand (SHI)	X					X	
Thailand (UHC)				X		X	
C. Public clinics							
Thailand				X		X	
Malaysia			X			X	

Sources: case studies (see annexes). Note: FFS: fee-for-service; P4P: pay for performance; Cap: capitation; SHI: Social health insurance; UCS: Universal Coverage Scheme. Primary care and outpatient specialists are not differentiated in Japan or the Republic of Korea. In England, block contracts are still the predominant payment mechanism for the community sector and mental health sector. In Thailand, SHI FFS refers to subcontractors; for UHC and public clinics, capitation is inclusive of salaries.

Integrated approaches attempt to combine payments across sectors to facilitate a more coordinated and flexible approach to care. Such integration can balance the objectives of maximizing beneficial incentives and minimizing potential unintended consequences of different methods (Cashin, 2015). Several kinds of consolidated base for payments exist, such as bundled episode payments and global capitation. A bundled payment methodology involves combining, or blending, the payments for physicians, hospitals, and other health care provider services into a single amount. Bundled episode payments provide a single amount for all services that cover care provided over one episode from beginning to end.

Extending the definition of an episode beyond discharge to follow-up care has been done to motivate health care providers to improve care coordination, communication, reduce costs, and ultimately improve quality of care in addition to lowering costs and utilization. Unintended consequences may include incentives for more cases and procedures that may not be clinically warranted to make up for lost revenues and the under-provision of patient care. Further, administrative costs may be high, not all procedures can be bundled together into one package, and risk-adjustment is needed for high-cost, high-need patients. Evidence about bundled payments is quite limited and the impact to date is mixed (Bertko and Effros, 2011; Delbanco, 2018).

Under global capitation, one payment is made to an integrated health system that is responsible for delivering the primary and referral service package to a relatively large defined population. Payments are typically adjusted for age, sex, and health status. The provider has an incentive for efficiency and cost control, and the payment method promotes integrated care and coordination. However, similar to bundled payments, the needs of high-cost, high-need patients may not be sufficiently covered.

Traditional ways of paying health care providers – such as FFS and capitation – do not explicitly reward providers for delivering better quality care. A growing number of new provider payment mechanisms are therefore emerging that explicitly seek to align payment incentives with health system objectives by rewarding the achievement of targeted performance measures. Mixed impact of these incentives has been reported, however, and ongoing evaluations are essential (Eijkenaar et al., 2013). Studies have not consistently found associations between the amount of the incentive payments and behavioural change (Scott, Lui and Yong, 2018).

3.2 Primary care and outpatient specialists

The most common means of purchasing primary care services is through capitation and FFS; and outpatient services are commonly purchased through FFS, in which health care providers are reimbursed for the activities that they carry out (Figures 9 and 10). FFS schedules are used in France, Japan, Australia, Republic of Korea, the Thai Social Health Insurance scheme, and the USA. In Germany, physicians (especially general practitioners) receive a capitation or lump-sum payment per patient. In countries such as Germany and the USA, the schedule may vary by payer or region.

To counter the disadvantages of FFS (such as lack of incentives for quality and incentives for volume), it can be combined with other mechanisms to promote efficiency and cost control. FFS has been combined with pay for performance (P4P) in France and the Republic of Korea, and capitation in Australia, France, and England. Under Medicaid in the USA, states commonly

make incentive payments to physicians, including those practicing at academic health centres, those participating in primary care coordination and management, home health care; and pay for performance initiatives.

Figure 10
Predominant base for payment for outpatient specialist care, by type of provider

Setting	Remuneration of provider setting					Remuneration of physicians	
	FFS	P4P	Global budget	Cap	Other	Salary	FFS
A. Private practice group							
Australia	X						X
Japan	X		X			X	
USA	X	X			X		X
B. Private solo practices							
France	X				X		X
Germany				X	X		X
England	X					X	
Republic of Korea	X	X					X
Thailand (SHI)				X		X	
C. Outpatient department of public hospitals							
Australia					X		X
Thailand (UCS)				X	X	X	
Malaysia			X			X	

Source: case studies (see annexes). Note: FFS: fee-for-service; P4P: pay for performance; Cap: capitation; SHI: Social health insurance, UCH: Universal coverage scheme. In Thailand, capitation payments are inclusive of salary. In Japan, payment is made to the facility and not to individual physicians.

In England capitation payments are used for primary care, and FFS is applied for outpatient specialists. It can be noted that the general practitioner funding formula for capitation payments in England do adjust for morbidity and mortality. In Malaysian public facilities, global budget is used for both primary care and outpatient specialists, whereby a prospective lump-sum payment is made to health care providers to coverage aggregate costs. In Thailand, the Universal Coverage Scheme that provides care for most of the population uses capitation as base for payment for primary and outpatient specialist care, with the capitation payment inclusive of salary. Malaysia remunerates physicians in the public sector through salary payments. In France, an increasing number of general practitioners working in primary care practice are salaried.

3.3 Inpatient care

In many settings, inpatient payment methods in public hospitals employ DRGs as the base for payment (Figure 11). Implementing DRGs requires classifying health care services and patient case-mix from the most to least complex and assigning prices to them. The financial incentives in the DRG payment have provided strong incentives for changing hospital behaviours.

Figure 11
Predominant base for payment for acute inpatient hospital services, by type of provider

Setting	Public hospitals	Private non-profit	Private for profit
Australia	DRG	Procedure/service	Procedure/service
England	DRG	Procedure/service	Procedure/service
France	DRG, bundled payments for public health services, P4P	DRG, bundled payments for public health services, P4P	DRG, P4P
Germany	DRG	DRG	DRG
Japan	Case-weighted per diem (non-acute); Diagnosis procedure combination (acute); FFS (Outpatient)	Case-weighted per diem (non-acute); Diagnosis procedure combination (acute); FFS (Outpatient)	Case-weighted per diem (non-acute); Diagnosis procedure combination (acute); FFS (Outpatient)
Malaysia	Global budget	FFS	FFS
Republic of Korea	FFS	FFS	FFS
Thailand (UCS)	DRG, global budget, central reimbursement	DRG, global budget, central reimbursement	DRG, global budget, central reimbursement
USA (public)	DRG, per diem	DRG, per diem	DRG, per diem

Source: case studies (see annexes). Note: DRG: Diagnosis Related Group; FFS: fee-for-service; P4P: pay for performance.

The Republic of Korea primarily uses FFS for both public and private hospitals, with limited use of DRGs. Malaysia also uses FFS in private hospitals. Japan uses diagnosis procedure combination for acute care and case-weighted per diem for non-acute care in both public and private hospitals, which can be combined with FFS. By bundling together hospital and physician payments into one unit, Japan addresses the problem of volume and substitution (Ikegami and Anderson, 2012). Other predominant base for payments include combinations such as DRGs, bundled payments for public health services and P4P in France; DRGs, global budget, central reimbursement in Thailand; and global budget in Malaysian public hospitals. In settings that use global budgets, prices are similarly estimated for budget allocations.

3.4 Long-term care

The demand for long-term care (LTC) services is increasing, as well as its importance in health care and social spending (de la Maisonneuve and Martins, 2014; WHO, 2017). This is related to the size and growth of older population groups, many of whom require not only medical care but also assistance with activities in daily living, such as washing, dressing, cleaning and cooking. LTC encompasses both kinds of support in most settings. The base for payment method varies by setting and categories of facility (Figure 12). For most of the settings in this study, assessments are in place that restrict access to government benefits and determine the financial amount for which beneficiaries are eligible. The common thread is the adjustment of the payment level based on level of the complexity of the health condition, physical functioning and medical needs.

In Australia, the federal government subsidizes non-medical care and support for older persons. The subsidies are held by consumers (for home care) or providers (for long-term residential care). Older persons contribute to the cost of their care and accommodation based on means testing, and government subsidies are available for those with low incomes and assets. Annual and lifetime caps are in place to limit the level of means-tested care fees that residents pay. In Australia, the level of funding to the provider is determined by the Aged Care Financing Instrument (ACFI), which consists of 12 sets of questions about care needs and two diagnosis sections. Australia established in 1997 the position of the Aged Care Pricing Commissioner. The Commissioner is an independent statutory office holder who reports to the Minister. The Commissioner's role is to increase the level of transparency in the pricing of residential aged care services and ensure that aged care recipients are charged appropriately through approval of prices beyond the maximum set by the federal government. In addition, the Aged Care Financing Authority (ACFA) is a committee of experts who provide independent advice to the government on funding and financing issues.

Figure 12
Payment methods for long-term care and the basis of adjustment for health need

Setting	Facility type	Payment method	Basis of adjustment for health need
Australia	Nursing home	A means tested medical care fee is applied based on the Aged Care Financing Instrument (ACFI) to determine need. Payments are covered by residents with government subsidies, including a basic daily fee for residential services (covered by residents), accommodation fees (paid by residents and government), and fees for any additional services (paid by residents).	The ACFI consists of 12 sets of questions and two diagnostics sections to determine the overall care profiles and the average cost per stay per person.
England	Nursing home	All costs are covered for those with long term conditions determined as eligible for National Health Service (NHS) Continuing Health Care. A weekly contribution is made for those who don't meet these requirements but require some nursing care (£158.16 per week). Other nursing home costs are means tested. For those on very low incomes, the local authority pays.	The NHS Continuing Health Care assessment measures breathing, nutrition, continence, skin, mobility, communication, cognition, behaviour and other dimensions.
France	Long term residential care	All facilities (private or public) are paid for under the care package, including long-term care. The case-based payment is adjusted for patient need based on scores using the iso-weighted care group (GPMS). Accommodation is paid by the patients.	GMPS measures 238 condition-profiles by evaluating 50 clinical conditions and 12 profiles of care. For each condition-profile, eight resource groups are delineated. These groups define the social care plan, based on an assessment of the dependency calculated using the Gerontology Autonomy and Iso-Resource Groups model, which measures activities in daily living.
	Home care	Health care prices are fixed by the social health insurance fund with fees for services. Prices for social care services are unregulated. Reference prices are used to calculate subsidies (based on the level of autonomy).	
Germany	Outpatient and home care	Care is covered by compulsory long-term care (LTC) insurance. All outpatients receive a monthly lump sum for short-term inpatient care, semi-inpatient services at night, or services to support relatives. Additional monthly contributions are provided if all services are done at home, for professional outpatient services, and for inpatient services.	Financial contributions by LTC insurance depends on the enrollee's need for nursing care. Patient needs are evaluated based on an assessment of physical, medical, cognitive and psychological needs, and the person's ability to live independently and social interactions. Patients are graded on a scale from 0 to 100 and allocated to one of five stages.
	Nursing home	Nursing care charges are negotiated individually between a nursing home, welfare organisations and the LTC funds, whose enrollees contribute at least 5% of the nursing home's days. Patients in nursing homes contribute to nursing home costs in five different ways: fixed copayment; payment for housing, utilities, and meals; investment costs; training levy set by the state; and other additional services.	
Japan	Health facility for elders	Case based payments are adjusted for patient needs, and financed from compulsory LTC insurance. The maximum cash entitlement is determined by functional capacity, and ranges from \$50 to \$350 per month. Beneficiaries must pay coinsurance ranging from 10% to 30% based on household income. Compulsory LTC insurance covers home helper visits and visiting nurse services; day care; loan of wheelchairs; care provided prior to going to health facilities; and LTC medical facilities.	Seven eligibility levels are based on functional capacity.

Setting	Facility type	Payment method	Basis of adjustment for health need
Republic of Korea	Long term care hospitals	A per-diem case-based payment is determined by medical need. Public LTC insurance is provided. The benefits package includes home and institutional care; home-visit care; nursing; bathing; and assistive devices such as wheelchair, walker, and bath chair, etc. for home care services; aged care facilities; and housing for institutional services. The benefits ceiling per month for residential care depends on five different functional levels determined by a health needs assessment.	Five different functional levels.
USA (Medicare)	Skilled nursing facilities	A predetermined per diem payment is paid based on patient needs. The payment is expected to cover all operating and capital costs, with high-cost, low-probability ancillary services (i.e., magnetic resonance imaging and radiation therapy) paid separately. Adjustments are made for geographic differences in labour costs and case mix. In 2019, the Patient Drive Payment Model (PDPM) will be used that classifies residents into a separate group for each case-mix adjusted component and each has their own case-mix indexes and per diem rates.	The PDPM uses five case-mix adjusted components: physical therapy, occupational therapy, speech-language pathology, non-therapy ancillary, and nursing. Each resident is classified into one group for each component.
Thailand	Home visit	Fixed fee per patient.	-

Source: case studies (see annexes). Note: LTC: Long-term care; P4P: pay for performance; NHS: National Health Service.

In England, all costs are covered for those with long-term conditions assessed as eligible based on a Continuing Health Care assessment, measuring basic physical and cognitive functioning, whether at home or in long-term residential care. A weekly contribution is made for those who don't meet these requirements in residential care but who require some nursing care. All nursing home costs are means tested. Non-medical care costs for low-income patients are covered by the local authority.

In France, nursing home facilities, whether private or public, are funded by case-based payments. There is a three-part tariff comprised of a care package paid by social health insurance, a long-term care (or dependency) bundle paid by the local authorities, and an accommodation fee paid by the patient. The care package for each patient is calculated based on the iso-weighted care group (GPMS) scores, which generate 238 condition-profiles corresponding with the average care needs and dependency level of people living in the facility. The average level of resources required for the 238 profiles was defined by specialists and reported as points per cost item. The dependency level is determined by the Gerontology Autonomy and iso-resource Groups. This instrument uses ten variables measuring physical and mental capacities and seven variables for domestic and social activities (i.e., cooking, household tasks, mobility). For people living at home, medical and social care services are provided and paid for separately. Health care is financed under regulated health insurance prices. Social care

In Japan, LTC insurance is compulsory for everyone 40 years and older. The fees have been revised to align with policy goals.

services are provided by other public and private entities, and prices are not regulated. However, reference prices are used by the government to calculate the amount of the subsidies, and these reference rates vary by local authority (*département*) (from 13 EUR to 24 EUR per hour).

In Germany, LTC insurance is compulsory, and financial contributions vary based on the need for nursing care. Evaluations of patient need are based on physical, medical, cognitive and psychological assessments, and the ability to live independently. These assessments are graded on a scale from 0 to 100, which is divided into five stages of need. All people who receive care in an outpatient setting receive a monthly lump-sum contribution for short-term inpatient care, semi-inpatient services at night or for services that support relatives. In addition, they receive a monthly contribution of between EUR 316 to 901, if services are entirely provided by the family and relatives at home; EUR 689 to EUR 1995 for professional outpatient services; and EUR 700 to EUR 2005 for inpatient services.

For nursing homes, prices are calculated on a per diem basis. If the monthly sum of nursing care charges is higher than the monthly lump-sum payment, residents pay the difference irrespective of their level of need. Nursing care charges are negotiated individually between a nursing home, welfare organizations and LTC funds, whose enrollees contribute at least 5% of the nursing home's nursing days. During these negotiations, nursing homes explain any increase in fees. Nursing home cost data are benchmarked based on size, and those with costs in the lower one-third are deemed cost-efficient. Patients contribute to nursing care charges by paying a fixed copayment based on the monthly average of nursing care charges, after deducting monthly LTC contributions and divided by the number of residents. Patients also cover costs for housing, utilities, and meals; investment costs of nursing homes (i.e., building, equipment and maintenance); a training levy; and additional costs, such as wellness services, superior housing and individual meal plans.

In Japan, LTC insurance is compulsory for everyone 40 years of age and older. Benefits are restricted to services, and the maximum cash equivalent is determined by seven eligibility levels. The levels are based on functional capacity and range from about US\$50 to \$350 per month. Beneficiaries must pay coinsurance, ranging from 10% to 30% based on household income level. The fee schedule has the same structure as that of the health insurance. The fees and conditions of billing have been revised to align with policy goals. For example, bonus payments for home care agencies are given to employ more experienced workers. The fee schedule is revised every three years, and the base rates differ according to geographic adjustments (with Tokyo as the highest at 11.4% above the base rate).

The Republic of Korea introduced public insurance for LTC, managed by the National Health Insurance Service. The benefits package includes home and institutional care, home-visits for activities in daily living; assistive devices; aged care facilities and institutional services. The benefits ceiling for residential care depends on the need assessment. The payment for residential LTC facilities is per diem adjusted for case mix using a health assessment of five functional levels of the beneficiary. The fee is determined by the insurance service, with no negotiation of fees with providers, based on an analysis of provider activity and cost data.

Starting in 2019, the Medicare program in the USA will apply per diem case-mix adjusted payments for nursing homes using the Patient-Driven Payment Model (PDPM). Five case-mix adjusted components are used: Physical Therapy (PT), Occupational Therapy (OT), Speech-Language Pathology (SLP), Non-Therapy Ancillary (NTA), and nursing. Each resident is classified into one group for each of the five components, mainly based on the primary diagnosis clinical category, and function and cognitive levels. A resident may be assigned to one of 16 PT groups, 16 OT groups, 12 SLP groups, 6 NTA groups, and 25 nursing groups. Each component has their own associated case-mix index and per diem rate. Additionally, the PDPM applies per diem payment adjustments to three components (PT, OT, and NTA) to account for variations in resource use. The adjusted PT, OT, and NTA per diem rates are then added together with the unadjusted SLP, nursing component rates and the non-case-mix component to determine the full per diem rate for a given resident.

4/

Process by which price is determined

Once the base for payment is established, there is an administrative process or negotiation by which prices are determined. These processes can be grouped into three main methods:

- Individual negotiations between providers and payers.
- Negotiation between associations of providers and payers.
- Unilateral administrative price setting.

In this section, we review each in turn, discuss implementation issues, and then present practical examples.

4.1 Individual negotiations

Under individual negotiations, prices are agreed upon through negotiations between individual health insurers or self-paying patients and individual providers of health care services. Transaction prices are the result of many discrete negotiations often unknown to final consumers and to the public, and the results may be treated as commercially sensitive (Reinhardt, 2006). In the USA, this is changing with recent pressures to increase price transparency and promote consumer sensitivity to prices (CMS, 2018).

There are several key features of individual negotiations. Like the negotiation of any good, prices reflect the parties' respective bargaining positions. Those parties with stronger market power, for example, will have stronger bargaining power. Under individual negotiations, a concentration of purchasers and providers will have stronger bargaining power. In theory, if an insurer covers a large share of the population, beneficiaries can be guided to use "in-network" providers with which it contracts. Under such a system, providers may agree to accept relatively lower rates from the insurer to ensure patient volume and capture guaranteed revenue. The use of macro-level budgeting tools in some countries limits expenditure growth even under individual price setting methods (Shut and Verkevisser, 2017). However, in practice, providers with good reputations or brands, specialized services, or those representing the largest or sole provider in the region have strong leverage to demand higher rates from insurers and can control price changes over time (Berenson et al., 2015; Baker et al., 2014).

Under individual negotiations, there will be price discrimination, in which identical services can be purchased by different payers at different prices. The US private health care market commonly reports variations in prices for the same services that bear little relation to the cost of providing services, its quality or patient severity. Published reports across the USA (i.e., Massachusetts, New York, Rhode Island, Vermont, and New Hampshire) cite wide provider price variation and conclude that high prices are correlated with a provider's

position within the health care market, defined by size, competitive position and/or brand (Commonwealth of Massachusetts, 2017). For example, Massachusetts reported differentials of 2.5 to 3.4 between the hospitals with the highest and lowest prices for the same set of services (ibid).

In addition, administrative costs are high because of expenditures on health insurance marketing and administration, and on billing activities. These administrative costs represent a loss to society, whereby large sums of money are dedicated to administrative procedures that do not promote health and welfare.

4.2 Collective negotiations

Under collective negotiations, associations of payers (i.e., health insurers) negotiate with associations of hospitals doctors or other health providers. The outcome of these negotiations would typically be a uniform fee schedule that would apply to all payers and providers. In some settings, overall growth in health care spending is constrained by using macro-economic metrics, i.e., economic growth rates, expected payroll increases, inflation rates, increases in health care utilization, and population growth and ageing (Reinhardt 2012b).

There are wide differences in the objects and levels of negotiation. Frequently negotiations take place when determining payment levels to health care professionals, where the objective is to ensure an optimum income. For physician services, among countries in this study, price negotiation takes place at central level between third party payers and insurers (Japan, Republic of Korea, France), at local level on point value following central level negotiations on resource based relative value scales (Germany), or at central level for capitation payments (England). In some settings, negotiations can take place at local level for prices (i.e., Canada, New Zealand), or capitation payments (Sweden) (Paris, Devaux and Wei, 2010).

There are several key features of collective negotiations. Price discrimination present in individual negotiations is eliminated, given that an identical service is purchased at the same price. Collective negotiations also face much lower administrative costs in comparison with individual negotiations, given that substantially fewer resources must be dedicated to billing and marketing. At the same time, the level of conflict among the different stakeholder groups participating in the negotiation may increase as the space and the scope of negotiations widens.

4.3 Unilateral price setting

The third method of determining price levels is unilateral administrative price setting by a regulator. When prices are administered, a form of *non-price yardstick competition* rewards a given firm depending on its standing vis-a-vis benchmarking (Shleifer, 1985).⁴ Setting national prices based on average costs through yardstick competition gives incentives to higher-cost providers to improve efficiency and reduce cost.⁵ Providers with below-average costs have incentives to keep prices below the average to retain the marginal difference.

Like collective negotiations, the unilateral administrative method eliminates price discrimination, given that a fixed price is established. In comparison with individual negotiations, unilateral administrative price setting incurs lower administrative costs by insurers and health systems, but additional relatively smaller regulatory expenses may apply (Anderson and Herring, 2014). Prices for hospital services are often set unilaterally and may include add-on payments to ensure broader public health goals such as equity and access. A unilateral, administrative price-setting system requires information including cost, volume, and outcome given that prices are usually cost-based (average, marginal) or normative (efficient). Adjustment factors are used by the provider or by service to account for features that impact the cost of production. Examples of such loadings include hospital type or size, location, patient complexity and teaching activities.⁶

Where prices are regulated, providers compete on volume and service quality rather than price to attract consumers. As such, pressures to reduce costs could result in efficiency gains rather than reduced quality. In Maryland, the all-payer approach resulted in closing smaller facilities and high-cost hospitals, resulting in efficiency gains and improvements in patient flows (Murray and Berenson 2015).⁷ The Medicare and Maryland unilateral price setting approaches have been combined with quality incentives that promote evidence-based clinical guidelines and provide incentives for reducing hospital readmissions and nosocomial infections. As a result, quality improvements were reported (Calikoglu, Murray, and Feeney 2012). Studies conducted in the USA generally conclude that price setting by a regulator also improved hospital financial stability (Murray and Berenson, 2015; Murray 2009).

Unilateral price setting eliminates price discrimination. Prices for hospital services are often set unilaterally and may include add-on payments to ensure equity and access.

4 This benchmark (or shadow firm) may be set by averaging the choice among other firms in the group. Each firm is thus forced to compete with its shadow firm. If firms are identical or if heterogeneity is accounted for correctly and completely, the equilibrium outcome is efficient.

5 Strictly speaking, collective negotiations and agreements prices may also follow a form of yardstick competition.

6 These loadings may also apply to collective negotiations/agreements.

7 The all-payer approach refers to a hospital payment system in which all payers (both public and private) pay the same rates.

Fixed price systems allow transferring the treatment risk from the insurer to the provider (Kumar et al., 2014). For instance, if the patient requires a certain treatment that is only partially covered by the fixed price, the provider must bear the additional cost. Under unilateral systems, formal consultations can ensure that health care providers are consulted in determining the prices for which they are compensated and that the decision-making is perceived as fair and transparent to all parties.

Figure 13
Methods of determining price levels by base for payment and how they may contribute to health systems objectives

Method for determining price levels	Controlling price levels	Avoiding price discrimination	Improving quality	Expanding choice	Increasing price transparency/information	Reducing administrative costs
Individual negotiations	0	0	?	+	0	0
Collective negotiations	+	+	?	+	+	+
Unilateral administrative	++	++	?	+	+	+

Source: Authors. 0: little/no impact; +: positive impact; ++: strong positive impact; ?: inconsistent evidence.

Each of these three methods can be described in terms of how they may contribute to broad health systems goals (Figure 13). In the late 1960s and early 1970s in the USA, at least 30 states had implemented approaches to either review or directly regulate hospital rates and budgets (McDonough, 1997). This allows a comparison of the methods of price setting. Where properly structured and evaluated, unilateral price setting by a regulator performed better in reducing cost growth and/or improving access in comparison with market-based systems (Anderson, 1991, Atkinson, 2009; Sommers, White and Ginsburg, 2012; Murray and Berenson, 2015). Robinson and Luft (1988) estimate that, between 1982 and 1986, state rate setting approaches by regulators reduced growth in hospital expenditures by as much as 16.3% in Massachusetts and 15.4% in Maryland, in comparison with a control group of hospitals in 43 states.

Using 2011 insurance claims data covering 38% of people with employer-sponsored health insurance in the USA, Cooper et al. (2018) compared hospital prices, negotiated rates (conducted through individual negotiations), and Medicare reimbursements (set unilaterally) for a series of risk-adjusted conditions. For inpatient care on average, the negotiated price was US\$ 14,020; the full hospital price was 207% of the negotiated price, and Medicare payments were 45% of the negotiated price. Ironically, those with the least bargaining power and ability to pay (self-payers and the uninsured) are subject to paying the full charges (Tompkins et al., 2006; Anderson, 2007). Similar patterns were reported for hip and knee replacements,

where the Medicare payments were 55% of the negotiated price. Selden et al (2015) report that private insurance payments rates in 2012 were 75% greater than Medicare payments, and suggested that this gap has increased over time.

From an international perspective, the comparative price level index for hospital services is lower in France where 83% of revenues are controlled under regulated prices as compared with the USA (Lorenzoni and Koechlin, 2017). Sizable differences in total health spending in the USA compared with the OECD median are attributed in part to the way in which prices are set in the private health care sector (Anderson et al., 2003; Anderson, Hussey and Petrosyan, 2019). In the hospital sector, competition for quality is more likely to occur in markets with fixed prices, although evidence is mixed (Allen, Fichera and Sutton, 2016; Anderson, 1991; Gaynor, Moreno-Serra and Propper, 2013; Gaynor and Town, 2011).

Based on the evidence available in comparing the three methods, unilateral price setting eliminates price discrimination and has performed better in controlling the growth of health care costs. Both collective negotiations and unilateral administrative price setting have the potential to improve quality better than individual negotiations.

4.4 Process of price setting by base for payment

Using the base for payment as the starting point, Figure 14 illustrates the relationships between the base for payment and the three administrative and economic processes by which the price level is determined. Using this framework, we can identify examples from the case studies and elsewhere to illustrate the process of price setting.

Figure 14
Method of determining price levels by base for payment

Method of determining price level	Base for payment			
	FFS	Per case	Capitation	Per diem
Individual negotiations between providers and payers	A	B	C	D
Collective negotiations between associations of providers and payers	E	F	G	H
Unilateral administrative price setting	I	J	K	L

Sources: Adapted from Reinhardt, 2012b. Note: FFS: fee-for-service.

Individual negotiations between providers and payers (A-D)

Private insurers in the USA utilize government (Medicare) payment rates as a starting point for individual negotiations. As such, Medicare has significant influence over the prices that private insurers pay.

Private health care in the USA is theoretically a conventional market with individual negotiations for FFS payment to outpatient clinics and hospitals, and per diem payment for inpatient services (Figure 15). However, both hospital and insurer markets have become so concentrated that consumer choice is often very limited, and physician markets are also becoming more consolidated. Significant premium increases and the profits of the health insurance industry in recent years suggest that little, if any, of the benefits of insurer bargaining power are being passed to consumers (Gaynor and Town, 2011). On average, prices in the private health care market have been reported as approximately 50% higher than average hospital costs; they are frequently 50% or more of Medicare payment rates (Cooper et al., 2018; Medicare Payment Advisory Commission 2018).

It should be noted that private insurers in the USA utilize government (Medicare) payment rates and relative values as a starting point for their individual price negotiations. As such Medicare has significant influence over the prices that private insurers pay (Clemens and Gottlieb, 2016). Prices for private hospitals in Thailand are also negotiated individually for certain services.

In Germany's LTC system, agreements are made between the state associations of LTC funds (both public and private) and state associations of nursing home providers. The provision of care is supervised by the respective state authority (the Ministry of Social Affairs or Ministry of Health). Prices are negotiated individually between nursing homes and LTC funds. Nursing homes that wish to provide care reimbursable under these agreements can negotiate a contract with sickness funds to provide nursing care for their enrollees. This applies to both social health and public health insurance funds. In return, nursing homes must adhere to quality criteria, such as staffing ratios. Per diem payments are made for nursing care (a lump-sum payment from LTC funds), and patient copayments cover housing and meals, infrastructure, training and additional services.

While the Netherlands is not included in the report, an example of price setting is included for completeness. In the Netherlands, health insurers can negotiate contracts with individual hospitals for many services (the "B-segment") (Kroneman et al., 2016; Shut and Verkevisser, 2017). Some insurers negotiate a lump-sum budget while others negotiate on price and/or volume for individual treatments. Furthermore, health insurers negotiate with multidisciplinary groups for a single bundled payment for diabetes, chronic obstructive pulmonary disease, and asthma. In turn, care groups negotiate with general practitioners about the share of the total price that will be paid for their services. For the remainder of hospital production (the "A-segment"), including more complex cases, prices are unilaterally set by the Dutch health authority.

Collective negotiations between associations of providers and payers (E-H)

In the Republic of Korea, the National Health Insurance Policy Deliberation Committee determines the scope of the benefits package and the level of cost sharing. The National Health Insurance Corporation and provider representatives then negotiate the prices and payment conditions annually. All provider associations contract with the insurance corporation, although the terms of the contracts may differ. The RBRV, or the value of procedures carried out by health care providers, is established centrally, and negotiations are done on point value for blended FFS and case-based payments in public hospitals.

In Japan, FFS payments are negotiated at central level with medical associations and third-party payers for outpatient and primary care. A Diagnosis Procedure Combination (DPC) per diem payment system is used to pay for over half of beds for acute hospital care. At the same time, FFS continues to be used for surgical procedures, endoscopic examinations, rehabilitation therapy, devices, and pharmaceuticals given on the day of surgery. The per diem rate differs according to four groups, reflecting variations in the length of stay, and weighted by different coefficients. For example, efficiency coefficients reward hospitals with shorter lengths of stay after adjusting for case-mix. The complexity coefficient rewards hospitals that have more complex patients. Hospitals have reacted to the incentives in the DPC payment by transferring services to outpatient departments where they could be billed using FFS or discharging patients earlier so that they would receive higher per diem payments. On the positive side, incentives for quality increased leading to more extensive use of clinical treatment guidelines.

In Germany, the cost weights for federal base prices are negotiated centrally; the DRG base rates for states are then negotiated between sickness funds and hospitals within a given range to set prices. Subsequently, at local level, budget negotiations take place between individual hospitals and larger sickness funds. For hospital inpatients, the social health insurance (SHI) state associations contract all hospitals that have an agreement with the state (the majority of all hospitals). In the public health insurance (PHI) system, patients can access all hospitals and claim reimbursement from their PHI fund. Hospitals are reimbursed almost exclusively based on DRGs. Prices are mostly calculated at the federal level. States can deviate from the overall price level within a predefined range. The budget of a hospital is negotiated between an individual hospital and the SHI and PHI funds.

In the outpatient sector in Germany, state associations of SHI funds have closed collective agreements with their state's associations of SHI physicians (KV) and consequently contract all physicians who are licensed by the KV. Physicians are reimbursed by the SHI funds and must adhere to location restrictions and quality controls by their KV. Physicians are

reimbursed by a mixture of FFS and lump sum payments. Like the inpatient sector, prices are set at the federal level and tailored to specificities at the state level. In contrast to the inpatient sector, services are budgeted. SHI funds pay an aggregate budget to their state's KV, and the KV distributes the budget among its SHI physicians. Services to PHI patients are reimbursed differently, albeit by a FFS system. Patients can receive services from all physicians who hold a medical licensure to practice and claim reimbursement by the PHI fund depending on their health plan. As opposed to the SHI system, services are not budgeted. It can be noted that there is no quality control or supervision.

In France, primary and outpatient specialist services are currently funded on a negotiated FFS basis, although this may change in the foreseeable future with the introduction of a pay-for-performance scheme and bundled payments. The fees are set through formal negotiations between the unions of statutory health insurance funds (UNCAM), the government, and unions of health professionals. This leads to a collective national agreement or a contract that aims to regulate the cost and activity of the ambulatory sector.

In England, primary care services are primarily funded through capitation payments for four primary care contractor groups (medical, dental, eye health and pharmacy). The capitated funding is based on each practice's registered list size with a fixed, nationally agreed price per patient, and the actual amount paid is calculated practice-by-practice. Price negotiations are carried out between National Health Service (NHS) England and the General Practitioners Committee of the British Medical Association on the General Medical Services contract. For secondary care, national tariffs are centrally calculated based on cost information submitted by providers. There is a statutory consultation on the methodology used to determine the prices and any changes to the payment rules, and scope of the tariff. Should an objection threshold be breached, the methodology is reviewed. An informal consultation takes place in advance on key proposals, and adjustments made as required before the statutory consultation. Expert clinical groups review the draft prices, and manual adjustments can be made.

Thailand uses capitation payments for primary health care centres and DRG payments for hospitals through collective negotiations. Working group members for negotiations include both public and private providers, who review and negotiate unit costs and concur with the utilization rates. The final figures are constrained by annual fiscal capacity, which is a political decision based on the costs required for service provision for Universal Coverage Scheme members in a given year. The Universal Coverage Scheme sets the global budget for the maximum total payment for inpatient services, while the other two schemes (Social Health Insurance and Civil Servant Medical Benefits Schemes) do not use global budgeting.

Figure 15
Method of determining price levels by base for payment, by setting

Method of determining price level	Base payment			
	FFS	Per case	Capitation	Per diem
Individual negotiations between providers and payers	USA (private health care): outpatient clinics, hospitals Thailand: private for-profit hospitals for certain conditions	The Netherlands: hospitals. B-segment activity The Netherlands: GPs. (Bundled payments for diabetes, COPD and asthma)		USA (private health care): inpatient services Germany: nursing care
Collective negotiations between associations of providers and payers	Japan, Republic of Korea, France: outpatient and primary care Republic of Korea: hospitals (blended fee-for-service and case-based payments) England: outpatient care Germany: outpatient care (FFS+ lump sum)	Germany: hospitals for local rates (after DRG weights are set unilaterally) England: hospitals France: acute care hospitals Thailand: hospitals	England: primary care (medical, dental, eye health and pharmacy) Thailand: primary health care	Japan: hospitals (diagnosis procedure combination+ fee-for-service)
Unilateral administrative price setting	USA (Medicare, Medicaid): primary care Australia: outpatient and primary care The Netherlands: general practitioner payments	USA (Medicare): hospital inpatient and outpatient care, and ambulatory surgical centres Maryland (preferred providers): hospital inpatient and outpatient care Germany: hospitals (DRG-weights) Australia and France: public hospitals and private patients in public hospitals The Netherlands: hospitals. A-segment activity (more complex cases)	USA (Medicaid): managed care	USA (Medicare and Medicaid): skilled nursing facilities

Source: case studies (see annexes), authors. Note: GP: general practitioners; OP: outpatient; COPD: chronic obstructive pulmonary disease; FFS: fee-for-service; G-DRG: German Diagnosis Related Group.

Unilateral administrative price setting (I-L)

In Australia, general practitioners are paid by fee-for-service based on the Medicare Benefits Schedule. Patients are entitled to a rebate from eligible providers, and the MBS rebate acts as a floor price for fees.

In the USA, where hospital market consolidation has resulted in higher prices, unilateral price setting has been used to control spending growth and avoid inequalities in the Medicare program for preferred providers and in the state of Maryland. Medicare fees are set centrally, and prices administered for the entire country. The Medicare program establishes prices per case (DRGs) for hospitals and pays hospitals a bundled payment to cover the resources needed based on the estimated costs incurred by a hospital with average efficiency in managing that case. The Medicare and Medicaid programs also unilaterally set the per diem fees for skilled nursing facilities, which is adjusted for patient case mix. Since 2014, Maryland operates an all-payer system for both inpatient and outpatient care at hospitals, with price levels determined by a commission of stakeholders.

In Australia, general practitioners are paid by FFS based on the Medicare Benefits Schedule (MBS) determined by the government. When the MBS list was first introduced, the fees were based on the Australian Medical Association's (AMA) list of "most common fees" charged. At that time, the AMA fees reflected a market-based price based on a practice costs and patient willingness to pay. At present the MBS fees for primary care consultations have been indexed to the wage-price index and the consumer price index. Patients are entitled to a rebate for treatment from eligible providers, and the MBS rebate acts as a floor price for fees. If the fee charged is equal to the MBS rebate, the patient faces no co-payment.

Funding of Australian hospitals reflects federal-state financial relationships and public and private interests. State governments own and operate public hospitals but are reliant on financial transfers from the federal government for financing. Until 2011, specific bilateral agreements for public hospital funding were negotiated every five years. After 2011, under the National Health Reform Agreement, the federal government provided shares of federal funding based on the growth in public hospital activity (measured by DRG weights) and hospital costs based on the national efficient price. Federal government funding was paid directly to the local hospital network. States and territories covered the funding balance, and thus they were designated as the system managers with the responsibility for managing volume growth. In France, hospital prices are set unilaterally by the Minister of Health.

In comparison, prices are set by the Dutch health care authority based on FFS for general practitioners, whereby the maximum price for FFS payments is established, accounting for 75-80% of general practitioner earnings. The Dutch authority also establishes per case price setting for hospitals for more complex cases.

5/

Technical process of setting the price per unit of payment

From a societal perspective, the price is the amount that must be paid to elicit from providers the supply of health care services that the society wishes to have and is willing to pay for. In determining the tools and processes for price setting, several common objectives can guide the process (Waters and Hussey, 2004). These include ensuring that:

- Prices accurately reflect the actual costs of delivering a given service.
- Health care providers are reimbursed fairly.
- The pricing structure supports broader health system goals, i.e., coverage, quality, financial protection, and health outcomes.

When setting prices at an appropriate level, elements that should be factored in include the unit costs of providing services, economies of scale and scope, high entry and capital costs, and marginal benefits of quality. To estimate unit costs, purchasers use different costing methodologies to structure the information collection systems and verification.

5.1 Costing methods

Price levels that are too low or too high create incentives for over- or under-utilization. This gives an incentive for purchasers to estimate prices that reflect the actual costs of the given service across a set of providers. There are different kinds of costing such as activity-based costing, average costing, standard costing, economic methods, and others. The methodology chosen is based on the context and information needs. For example, cost accounting methods use accounting principles to classify and measure all costs incurred in carrying out an activity. For provider payment purposes, decisions usually require total or average cost information – and thus cost accounting methods are typically applied (Cashin, 2015).

The cost accounting approach follows a process (Cashin, 2015). The total resources used by a cost centre are identified and measured. The cost of resources used directly by all cost centres are calculated and the costs are assigned to each individual cost centre. The cost of resources used indirectly by all cost centres is generated, and a share is allocated to each cost centre based on the centre's estimated use of resources. From this information, average unit costs are generated based on units of service (i.e., discharged patients, bed-days, or outpatient visits).

Two kinds of cost accounting methods are used most frequently to inform provider payment rate setting: gross costing and micro-costing. The choice depends on the level of accuracy needed, scope of the exercise, and cost objects (i.e., patient, service, hospital department, or unit from which costs are sought).

Price levels that are too low or too high create incentives for over- or under-utilization.

Gross costing first calculates the total costs of the service at the organizational, provider, or departmental level, then disaggregates the total costs to the cost centres (departments or units to which costs are assigned), depending on the richness of the available data and the homogeneity of the services provided. This method is also called the average costing approach or departmental costing, and it represents a top-down approach resulting in average costs per category.

In micro-costing, all relevant components are defined at the most detailed level. This approach records resource utilization at the level of the patient or individual service, and aggregates patient or service utilization data to identify the types of resources used and measure their utilization to calculate the costs of specific services. Micro-costing results in patient specific costs. It can be either retrospective (through collection of existing data from medical records) or prospective (through medical record review or specific studies such as direct observation).

Micro-costing exercises face methodological challenges, given that it is not possible to develop detailed costing for each service or patient. Aggregating cost estimates for individual services typically leads to heavily inflated total cost estimates that almost always exceed available resources and prove difficult in matching funding flows with service priorities. The top-down approach (gross costing) uses the total facility cost, disaggregates the expenditures to cost centres (departments or units to which costs are assigned), and divides the department by the number of patients to generate the cost per patient visit or discharge. Top-down exercises are retrospective given that they rely on data from existing financial accounts documenting aggregate resource use. Either top-down or micro-costing can be used for different base for payments. The common thread across both is the allocation of costs to cost centres. Accuracy relies on the correct allocation of direct costs (medicines and supplies) and indirect costs (administrative and support activities) (Özaltın and Cashin, 2014).

Activity-Based Costing or Funding (ABC or ABF) is an approach used to calculate the unit costs of health services in the USA; subsequently it was applied in other countries (Waters and Hussey, 2004; Özaltın and Cashin, 2014). Instead of allocating indirect costs in proportion to the volume of units or to direct costs, ABC assigns indirect costs based on the main activities within an organization. It seeks to define the principal activities of the individuals who work within the organization, and then traces costs first to these activities and then from the activities to products and services. Allocation of personnel time among the activities is used for indirect costs. This method aims to develop more accurate measures of indirect costs, by attributing support costs based on the actual consumption measured by time allocation. Where data on personnel time are absent, another approach is to apply top-down costing to allocate costs derived from line-item budgets across inpatient departments.

Figure 16
Process of data collection for hospital costs

Setting	Scope	Grouping	Costs excluded	Source of information	Frequency of revision	Share of revenue controlled under fee schedule
Australia	Inpatient care, sub-acute, emergency and outpatient services	Expenditures are grouped across five services: admitted acute, emergency, non-admitted, sub-acute and non-acute. The National Efficient Price is based on the average cost of an admission. Case mix is adjusted by the National Weighted Activity Unit.	Federal programs paid directly (i.e., highly specialised medicines, blood supply)	All public hospitals participate. A separate system of data collection is undertaken from 91 (out of 630) private hospitals on a voluntary basis	Every 1-2 years	70
England	Acute inpatient and outpatient care excluding psychiatric services, emergency care and rehabilitation	>2800 Healthcare Resource Groups costed for treatments with similar cost implications for a given condition from admissions to discharge. Average cost per HRG is generated. Costs for outpatient appointments and procedures collected on the same basis.	Education and research	All 232 National Health Service providers in England (80 NHS trusts and 152 NHS foundation trusts)	Annually	47
France	Acute inpatient and outpatient care excluding psychiatric services, emergency care, rehabilitation	2,680 GHM (Groupe Homogène de Malades) are generated, with four levels of case severity applied to most groups, using information on length of stay (LOS), secondary diagnoses and age.	Education, research and expensive medicines	135 hospitals (voluntary participation)	Annually	83
Germany	Medical treatment, nursing care, pharmaceuticals and therapeutic devices, board and accommodation, and excluding intensive and emergency care	1,292 DRGs and 205 add-on payments are generated based on patient diagnoses, procedures, length of stay, ventilation hours, age, gender, birthweight, medical unit and type of discharge. Each DRG can be split into up to five subcategories depending on patient severity. Cost weights are generated to reflect the average expenditures of a sample of hospitals.	Nursing costs, education, research, expensive medicines, capital costs and interest, allowance for bad debts, taxes, charges and insurance	Approximately 300 hospitals (voluntary participation)	Annually	90
Japan	Inpatient and outpatient services, pharmaceutical and medical devices	The global revision rate (global budget for expenditures) is established, prices for pharmaceuticals and devices revised, and service fees revised. Physician and hospital services are classified into 14 categories. Instead of detailed cost studies, the focus is on revenues and expenditures of clinical departments to decide which departments should be expanded or reduced.	Normal delivery, preventive services such as health screening, education and research	Revenues and expenditures are collected from Health Economic Survey of facilities. Volume is collected from the National Claims Database	Every 2 years for service fees, annually for pharmaceuticals	90

Setting	Scope	Grouping	Costs excluded	Source of information	Frequency of revision	Share of revenue controlled under fee schedule
Republic of Korea	Inpatient and outpatient services	Bottom-up approach with micro-costing is conducted. Diagnosis related groupings are applied to 6 disease categories.	Education and research	Participating providers	Annual	90
Thailand (UCS)	All operating costs for inpatient and outpatient services, including staffing, medicines, diagnostics, and capital depreciation costs	Cost centre approach is used, in which simultaneous equation modeling is applied to allocate indirect costs from transient cost centres to absorbing cost centres (outpatient, patients), generating a unit cost per admission.	Public health programs administered directly by national government, education and research	Initially 20 and now 900 public hospitals	Periodically	74
USA (Medicare)	Inpatient and outpatient services	Medicare severity diagnosis related groups are generated for patients with similar clinical problems. Each has a relative weight that reflects the expected cost of inpatient treatment for the group.	Education and research	Participating providers	Annually	40

Sources: case studies (see annexes). Note: DRG: Diagnosis related group; NHS: National Health Service; UCS: Universal Coverage Scheme in Thailand. Information for Thailand covers hospitals and other settings.

5.2 Process of collecting information

The process of data collection for hospital activity and costs varies widely across settings in terms of the scope of the exercise, grouping of clinical conditions, definition of costs for inclusion and exclusion, and sample size and frequency of data collection (Figure 16).

In Australia, substantial investments have been made in clinical costing systems that monitor hospital activity. The National Hospital Cost Data Collection is conducted by the national regulatory authority (IHPA) through the states and territories. This is the main data collection mechanism used to develop the National Efficient Price (NEP). It is an annual and voluntary collection of public hospital data that undergoes validation, quality assurance checks, and reporting to allow benchmarking. For Round 21 (2016-2017), cost data were submitted from 451 hospitals (65% of total hospitals) across all jurisdictions. The NEP is revised annually and based on cost and activity data from three years prior (as an example, the 2019-2020 pricing model is based on 2016-2017 data).

In England, all NHS providers are required to report their costs annually to NHS Improvement, based on a set of mandatory costing standards. Funding for hospital-based care follows the patient, with the aim of enabling competition for patients based on quality rather than price. Costs are submitted for more than 2800 Healthcare Resource Groups, which forms the reference cost collection. In 2009, a voluntary patient-level information and costing system (PLICS) was piloted, which determines the cost of each medical case informed by the actual medical records and services provided (micro-costing approach). The 2018/19 cost collection from acute providers will be based solely on PLICS, and these data will be used to determine prices in the future.

In France, a national cost study for the public sector was introduced in 1995, with 35 public hospitals participating on a voluntary basis. Until 2006, the French hospital cost database covered only public hospitals (40 hospitals representing 3% of total public hospitals). Since 2006, cost information has been collected annually from a sample of voluntarily participating private hospitals. In 2018, the cost study covered 135 hospitals, of which 52 are private-for-profit. The cost study includes acute inpatient and outpatient care and excludes psychiatric services, emergency care, and rehabilitation. Costs are calculated at the level of the patient episode. They are allocated primarily based on the length of stay (for inpatients) and a relative cost index that reflects the cost of the treatment process (for technical cost centres such as laboratories or imaging). The costs for public hospitals cover all expenditures linked to the stay (including medical personnel, and all the tests and procedures provided and overheads). Those for the private sector exclude medical fees to doctors (who are paid on a FFS basis) and the cost of biological and imaging tests, which are billed separately.

The guiding principle for the provision of health care services in Germany is transparency and efficiency. Costing is based on individual patient episodes and on actual resource utilization. Some 1,292 DRGs and 205 add-on payments are generated based on patient diagnosis, procedures, length of stay, and other key factors. Each DRG can be split into up to five subcategories depending on patient severity.

In Japan, a fee schedule establishes the payment rates for every covered service. First, the global revision rate is established. Subsequently a line-by-line revision of the fee schedule is undertaken, based on the global budget constraint and changes in volume and prices. The fee schedule groups physician and hospital service items into one of 14 categories. The 2018 version lists about 4,000 items and conditions of billing, and separate manuals are prepared for the Diagnosis and Procedure Combination, the Japanese version of the DRG. Data are used from the Health Economic Survey of Healthcare Facilities, and information available from the National Claims Database that compiles all provider claims. Revisions are undertaken every two years for service fees and annually for pharmaceuticals.

In Thailand, under the Universal Coverage Scheme, a cost centre approach is applied, in which simultaneous equation modeling is used to allocate direct costs to absorbing cost centres.

In the Republic of Korea, the bottom-up approach cost accounting model is used based on information submitted from providers about the provision of insured services. Providers participate voluntarily, only a small number of hospitals participate, and the sample changes each year. This results in controversy over the representativeness of cost data. Adjustments are made for different levels of providers to account for differences in input costs, including add-on payments of 15% for physician clinics, 20% for hospitals, 25% for general hospitals, and 30% for tertiary hospitals. Other adjustments are made to provide incentives to reduce the length of stay for LTC. Sophisticated monitoring and review systems are in place.

In Thailand, under the Universal Coverage Scheme, a cost centre approach is applied, in which simultaneous equation modeling is used to allocate indirect costs to absorbing cost centres (i.e., patients), generating a unit cost per admission. Data collection efforts started with 20 public hospitals and now includes 900 hospitals; data are collected about all operating costs for outpatient and inpatient services. The cost per outpatient visit equal to expenditure is divided by total outputs, where the numerator is the total annual operating expenditure and the denominator is the total annual outpatient visits plus total hospital admissions, weighted by a factor of 16 for districts and 19 for provincial hospitals. The weight is generated from conventional costing studies, which are adjusted from time to time.

In the USA, prices are established for DRGs for the Medicare program primarily based on data about charges from individual cost centres and costs obtained from participating accredited providers (approximately 88% of hospitals and 40% of all health care providers). The acute inpatient prospective payment system pays per discharge rates based on two national base for payment rates covering operating and capital expenses, adjusted for patient condition and treatment strategy. From these data, the cost per charge unit can be generated for cost- and charge-based weights. The final cost depends on the cost and the hospital's ratio of cost to charges. The DRG weights are recalibrated annually, without affecting overall payments, based on standardized costs for all cases in each grouping. Wage adjustments are based on market conditions among other factors.

Under the Maryland all-payer model, an annual global budget is established and agreed upon with each hospital, adjusted for hospital cost inflation, changes in demographics and market share, rising costs of new outpatient drugs and other factors. The model guarantees a fixed revenue annually regardless of the services provided, given that the hospital agrees on service commitments to the community. Rates are then set for services billed so that total payments for expected utilization match the global budget. This provides hospitals with the incentive not to exceed their budget.

5.3 From cost submission to price setting for hospital services

Australia established a national system of activity-based funding for funding hospitals in the public sector to determine a national efficient price by collecting information on each patient episode from all public hospitals. Activity is measured by DRG weights, and the costing of each DRG is based on cost data for a representative number of patient episodes. The cost of each patient episode is calculated from actual data about the treatment process. A reference cost is first derived by rebasing average cost to exclude changes in case mix between years. Then, an annual indexation rate is used to inflate the reference cost over three years based on an annual scaling factor modeled using the prior five years of cost data. Prices are also adjusted for variations in the cost of delivering health services including to remote regions, among other factors.

In England, there is a three-year lag between hospitals submitting cost data and these data being converted into prices. The average cost is estimated for each healthcare resource group (HRG), by admission type across all hospitals. Several adjustments are made that impact on the actual amounts received by a provider. A market forces factor is used to compensate for unavoidable cost differences in providing health care driven by geographical variations in the costs of land, labour and buildings. The delay between the collection of cost data and price calculation results in changes in wages, prices and other inputs over which providers have limited control; as such, an inflationary adjustment (cost uplift) is made to each healthcare resource group. This inflationary adjustment is offset by a deflating efficiency requirement. For 2018-2019, for example, the average inflationary adjustment was 2.1%, and the deflating efficiency requirement is -2%. In addition, top-up payments are made to providers offering highly specialized services, which are not adequately reimbursed through the HRG design. For prices traditionally calculated on average reference costs, there are a number of "best practice tariffs" that are structured and priced to encourage fast adoption of best practice.

In France, the hospital technical agency updates the reference prices annually based on information from the hospital cost database, and controls and supervises the cost accounts of all hospitals participating voluntarily. There is always a time lag of two years between the year of the data and the year of the application of prices in hospitals. For example, hospital costs data from 2013, 2014, and 2015 were averaged over the same three years to calculate reference costs in 2016, to set prices for hospital services in 2017. Prices are set at the national level based on average reference costs by case-mix patient groups (GHM) calculated separately for public and private hospitals. Therefore, there are two different sets of tariffs: one for public (including private non-profit) hospitals and one for private

The value in costing studies is in demonstrating information about the underlying cost structure. A good costing exercise can help identify the costs of different service delivery configurations.

for-profit hospitals. The tariffs for public hospitals cover all the costs linked to a stay (including medical personnel), whereas those for the private sector do not cover doctors' fees or biological and imaging tests, which are billed separately.

In Germany, the regulatory authority calculates cost weights by DRG annually. They reflect the average expenditures of a sample of 300 hospitals, which participate on a voluntary basis. These data include patient-level data on the major diagnosis and other diagnoses, clinical interventions (i.e., medical procedures), patient characteristics (specifically age, gender, and weight of newborn children), cause of hospital admission and discharge, as well as accompanying cost data as measured by workforce and technical resources and pharmaceuticals. Based on that information, cases are assigned to DRGs, and cost weights are set for each DRG. There is a two-year lag between hospitals submitting cost data and these data being converted into relative weights and prices. The catalogue of cost weights is approved, and the growth rate of the federal base rate is negotiated annually by the associations for statutory health insurance, private health insurance providers, and hospital federation. The three negotiating parties are obliged to mandate the regulatory authority to calculate the federal base rate. These calculations are based on the state base rates, the total expenditures, and the case mix of the preceding year. The growth rate of the federal base rate is based on two parameters: the average change rate of contributions by SHI enrollees and the average change rate of hospital costs. The latter is calculated annually by the German Federal Statistical Office. If the change rate in contributions is higher than the cost increase, this rate is chosen automatically. If costs increase at a higher rate, the three negotiating parties (representing statutory health insurance, private health insurance providers, and hospitals) determine an increase in the rate, which must fall within the range between both rates.

5.4 **Changing the cost structure**

Cost accounting exercises have limitations. They result in an estimate of the average cost of service production under the assumption that cost and production functions for health services are fixed. They reflect how efficiently services are being produced, existing prices, and the level of capacity and utilization at one point in time. However, the unit costs reflect one point on a cost curve that is unobserved. Therefore, the "true" costs cannot be known. What may be observed is an estimate of unit cost at one point along a function.

That point also embodies how efficiently services are being produced, existing prices, and the level of capacity utilization. Point estimates will not provide any certainty about the "right" level of resource requirements. Costing exercises also reflect the existing service delivery systems, including their

inefficiencies and quality. Bottom-up costing based on inefficient delivery structures may include inappropriate technologies, services, or level of care. If the purchaser uses average costs to inform payment rates, these rates will reflect the current clinical practices in the health system –and fail to reward efficient behaviours (Özaltın and Cashin, 2014).

Therefore, the value of costing studies is in demonstrating information about the underlying cost structure. A good costing exercise can help delineate service delivery scenarios and assumptions to identify the relative costs of different service delivery configurations (WHO, 2015b). Such an analysis of the different options facilitates decision-making about optimal ways to deliver services and contributes to building a strong purchasing system to drive efficiency and quality.

Take the primary care approach, for example. Evidence suggests that it will cost less to deliver a large share of the basic benefits package by doctors at the primary care level, rather than by specialists working out of hospitals. A useful costing exercise could provide an estimate of the investments needed to strengthen the primary care level to change the cost structure in other parts of the health system. Costing of specific steps can be valuable, such as cost accounting to set provider payment rates or costing of specific investments to produce reform – in this example, investments in primary care facilities. Other examples of policies that can change the cost structure include those that influence the demand for health services and products, including pharmaceutical price controls, regulation of private health care providers, and health promotion and prevention. Ultimately, costing exercises are useful beyond the estimation of unit costs in demonstrating service delivery alternatives that improve efficiency, quality, and promote the appropriate volumes of care.

6/

Aligning pricing with overall policy goals

6.1 Adjustments and add-ons to ensure payment adequacy and fairness

Price adjustments and add-on payments are common when prices are set unilaterally or negotiated collectively, to ensure that specific services or caring for specific populations are covered, particularly where there are additional costs of providing care or it is considered unprofitable.

Geographical price adjustments are common to ensure that health facilities are adequately reimbursed and compensated for factors outside their control. For example, Thailand and Australia adjust prices for remote or rural facilities to ensure adequate funding of operations. In England and the USA (Medicare), adjustments are made for variations in input costs across geographic regions, which are expected to be higher in urban areas (Figure 17). Germany uses geographical add-on payments for hospitals in financial deficit that provide basic surgery for inhabitants of low-density areas.

Prices are also adjusted to promote greater coverage of specific services or access for specific populations. In 2003, Australia introduced financial incentives for general practitioners to provide greater access to services through lower copayments for specific patient groups. Australia, England and the USA (Medicare) adjust for long-term or costly patient stays or specialized services. In addition, adjustments are made for goods that broadly benefit society and communities, such as medical education (USA Medicare) and public health activities (Australia and England). In France, regulated prices are modified for activities related to education, research, and innovation as well as national priorities including cancer treatment and palliative care.

Pricing policies in Japan provide incentives to physicians to deliver services in line with policy goals such as providing end-of-life care at the patient's home, and LTC and community care. This is primarily done by establishing the conditions of billing that set forth human resource and facility standards as a condition of the payment. Bonus payments are also made to provide additional incentives, for example, to nursing homes for delivering end-of-life care within the facility rather than transferring residents to hospitals.

Germany uses financial penalties. For example, hospitals receive a deduction if they refuse to provide emergency care (EUR 60 per case), if they fail to submit requested data, or if the data are of insufficient quality. However, the effect of these deductions is limited because the financial penalties are lower than implementation costs, i.e., hiring additional staff for submitting data.

Figure 17
Adjustments to ensure payment adequacy and fairness

Setting	Geographic adjustments	Outlier payments	Public health goods
Australia	Adjustments are made for approximately 400 hospitals serving small, rural or remote populations based on size, location and type of services.	Adjustments are made for long-stays receiving a per diem rate.	For population based services that are not described in terms of activity, block funding is directed to states and territories to allocate to hospitals.
England	Costs are multiplied by nationally determined market forces factor (MFF), which is unique to each provider and reflects relative costs of care across the country. Providers in London attract the highest MFF.	Adjustments are made for long or short stays and specialised services.	Adjustments are made to support specific policy goals, such as providing care that is compliant with best practices.
France	Geographic adjustments are made only for the Parisian area (Ile-de-France) and for overseas territories.	Adjustments are made both for long and very short stays and specialised services.	Add-on payments are made for medical education, research, and investments for improving quality of care. Add-on payments are also made for local public policy goals, such as prevention, out-reach to populations in need, etc.
Germany	Recently, the government has initiated add-on payments to hospitals if they are located in financially unattractive regions but are vital to providing medical services to the region.	Since 2018, 205 add-on payments were made for patients with high needs for nursing care, or the provision of additional services and pharmaceuticals, which are not included in the DRG system yet.	Add-on payments are made for medical education, specialised units and medical centres, and the delivery of care to medically demanding patients.
Japan	None.	Adjustments are made for long stays.	None. Public health goods are funded from different sources (i.e., screening is funded by health plans directly contracting providers, and public health and immunizations while funded directly by government and through user charges).
Republic of Korea	None.	Adjustments are made for long stays.	Information not available.
Thailand (UCS)	Adjustments are made for districts having higher unit costs due to sparse populations such as mountainous areas or island districts to ensure adequate funding for operations.	No adjustment for outliers are made.	No adjustments are made. Such services are mostly funded by the Ministry of Public Health.
USA (Medicare)	The Medicare Wage Index accounts for local market conditions, by adjusting national base payment rates to reflect the relative input-price level in the local market.	Outlier payments are added for cases that are extraordinarily costly.	Operating and capital payment rates are increased for facilities that operate an approved resident training program (on the basis of hospital's teaching intensity), or that treat a disproportionate share of low-income patients.

Sources: case studies (see annexes). Note: UCS: Universal coverage scheme.

6.2 Expenditure control mechanisms

Ultimately, the amount of money that the government spends on health care is determined by the amount available to spend (Getzen, 2006). While costing exercises are useful in understanding the cost structure, particularly where the sample sizes are sufficiently large, prices are also influenced by the budget envelope representing the available funds. Therefore, expenditure ceilings have been used to link prices to the overall available budget, primarily to control costs. Moreover, regulated prices can be combined with additional instruments to control volumes. As illustrated previously, in settings that have adopted DRGs as the main method of payment method for inpatient care, they have also used DRGs with global budgets as an overall volume constraint (Busse et al., 2011).

In France, ONDAM (National Goal of Health Insurance Spending) is used to control overall hospital expenditure (with price volume adjustments) and in negotiations for controlling prices in the ambulatory sector. The growth in activity volumes are not regulated at the individual hospital level but at the aggregate level (separately for the public and private sectors). National-level expenditure targets for acute care are set by the Parliament each year to contain hospital expenditures. If the actual growth in total hospital volume exceeds the target, prices are reduced the following year. In practice, the activity level has been higher than the targets, and prices have been adjusted downwards regularly since 2006. The French Ministry of Health also introduced a volume-price control mechanism at the individual hospital level. For high volume and fast growing DRGs (including knee prosthesis and cataract surgery), the Ministry sets a threshold based on the growth rate for that activity nationally. If the hospital's caseload grows faster than the threshold, the price is reduced by 20%. The impact of this pricing policy is being monitored.

In Germany, hospitals face financial pressures to increase the volumes of care provided beyond what is medically necessary to finance infrastructure costs that are only partially covered by the states. Some one-half of the total number of DRGs are driven by one or more medical procedures, which provide strong incentives for volume and surgical interventions. Deductions are therefore used to incentivize hospitals not to deviate from the negotiated budget. If a hospital performs more services than agreed upon, it receives only 35% of the reimbursement price; if a hospital performs fewer services than negotiated, it receives a reimbursement of 20% for the services it should have theoretically performed. Since 2017, hospitals also face a 35% deduction on DRGs that are subject to economies of scale, such as hip and knee replacements. This deduction applies to additional negotiated services between the individual hospital and its sickness funds and aims to discourage hospitals to request budget increases.

In Japan, the Prime Minister establishes the global revision rate, or the de facto global budget for health expenditures, based on an evaluation of the political and economic situation. Factors considered include information from the survey of pharmaceutical prices and data about the revenues and expenditures in health care facilities. Subsequently a line-by-line revision of the fee schedule is undertaken based on the global budget constraint and changes in volume and prices. The government contains expenditure increases by lowering the fees of items that have had rapid increases in volume and/or can be delivered at lower costs by providers. For example, physician FFS payment for an initial visit is four-times higher than for a repeat visit.

In the Republic of Korea, copayments are used to decrease demand. Copayments for outpatient care range from 30% to 60% depending on the level of the system (from primary to tertiary level). This is done to prevent patients from overusing services at private hospitals. In the Republic of Korea, for LTC hospitals, the national health insurance reduces its price by 5% for stays over six months and by 10% for stays over one year to encourage hospitals not to keep patients for long stays. The impact of these policies has yet to be evaluated. In Thailand, the base for payment varies based on the total number of cases to keep within the budget framework.

Under the Maryland all-payer model, an annual global budget is established during a base period (2013) and adjusted for subsequent years factors such as hospital cost inflation rates, approved changes in the hospital volume based on changes in population demographics and market share, rising costs of new outpatient drugs, and additional adjustments related to reductions in potentially avoidable utilization and quality performance (Health Services Cost Review Commission (HSCRC), 2018). The global budget establishes a ceiling on hospital revenues. This provides hospitals have an incentive to ensure that revenues do not fall short of or exceed their budgets.

The HSCRC sets an agreement with each hospital in Maryland following the Global Budget Revenue model. This model is a revenue constraint and quality improvement system to provide hospitals with strong financial incentives to manage their resources efficiently and effectively and to slow growth in health care costs. Hospitals that adopt the model receive a fixed amount of revenue each year (Approved Regulated Revenue) –regardless of the number of Maryland residents they treat or the amount of services they deliver – provided that they also meet their obligations to serve the health care needs of their communities in an efficient, high quality manner on a continuous basis.

6.3 Balance billing limitations and financial protection

A key question for pricing policy is whether the prices are binding for providers or whether the providers are permitted to charge patients more than the regulated price for covered services. In the case of balance billing, health care providers can charge patients for amounts higher than the amount reimbursed based on the fixed or negotiated prices. In this case, the patient should pay the difference. Where balance billing is permitted, some groups of patients may be excluded from the prices determined and face additional out-of-pocket fees. The policy of fully reimbursing regulated prices influences the affordability of health care services to individuals.

Where balance billing is permitted, some groups of patients may face additional out-of-pocket fees.

Among the settings in this study, several prohibit balance billing, including Malaysia, Japan, the Republic of Korea, Germany, Thailand, and the USA Medicare program and state of Maryland for preferred providers. Thailand strictly enforces laws to prohibit balance billing and hospitals are legally required to return the amount to patients should any cases occur.

Under the USA Medicare program, balance billing is generally prohibited for preferred providers within the insurance network. Similarly, in Maryland, preferred providers are not permitted to balance bill. Additional protections apply to low-income beneficiaries enrolled in the Qualified Medicare Beneficiary program. Enrollees do not pay cost sharing (i.e., deductibles, copayments, and coinsurance), which is covered by the Medicaid program in the beneficiary's state. Out-of-network providers can balance bill patients, but they are limited to the Health Services Cost Review Commission-approved hospital rate in Maryland.

The Republic of Korea does not permit balance billing for covered services; however, physicians can provide both insured and uninsured services in one episode and bill for uninsured services to compensate for lower payments for covered services. In Japan, physicians are prohibited from balance billing. The exception is nursing care facilities, where the rules restricting balance billing are more relaxed because equity is considered less problematic in LTC. A separate practice of extra billing can occur, in which services and pharmaceuticals not listed in the Japanese Fee Schedule are billed together with those listed in certain conditions. This practice is mainly limited to new technology under development by hospitals. Before being permitted to extra bill, hospitals must submit a request to the Ministry of Health, Labour, and Welfare to carry out clinical trials on efficacy and safety, with the objective of including the technology in the revision of the fee schedule.

Figure 18
Conditions of balance billing in Australia, England, France, and the USA

Setting	Conditions of balance billing
Australia	Doctors can charge any fee to any patient at any time with the gap between the regulated fee and the actual price paid by the patient. In most cases, the fees charged by general practitioners are equal to the established fees and the patient incurs no out-of-pocket payments. For specialists, fees are higher than regulated prices for 59% of services.
England	Published mandated prices for hospital-based care must be used unless providers have agreed to an alternative price, payment approach, or to a different service delivery model. In very exceptional circumstances, providers can make an application to National Health Service Improvement for an increase to a nationally determined price. Only one application has been approved to date.
France	Physicians and dentists working as sector 2 contractors can balance bill or charge higher than the regulated fees based on their level and experience. In some cases (but not all) the amount above the regulated price can be covered by private complementary health insurance. Balance billing is prohibited for emergency care and low-income patients.
USA	Health providers participating in Medicare cannot balance-bill. Non-participating providers are allowed to balance-bill beneficiaries, but the amount cannot exceed 15% of the Medicare-approved payment amount for non-participating providers for each service (95% of the Medicare fee schedule amount). For privately insured individuals, in 29 states and the District of Columbia, there are no state laws or regulations that protect individuals from balance billing by out-of-network providers in emergency departments or in-network hospitals.

Source: case studies (see annexes)

In other settings, balance billing is permitted (Figure 18). In Australia, doctors can charge any fee to any patient at any time with the gap being paid by the patient. If the doctor charges a fee equal to the reimbursement level, the patient faces no copayment. Although doctors have full discretion over their fees, in practice, the fees charged by doctors tend to be equal to the regulated fee ("bulk-billing"). In 2017/18, 86% of all primary care consultations were bulk-billed, indicating that the fee schedule acts as a floor price. The high rate of bulk billing was the result of a major reform in incentive payments to doctors. General practitioners were given bonus payments if they bulk-billed (charged zero copayments to) patients who hold a concession card (for low-income families and pensioners) or are 16 years or younger. The payment amounted to an extra AUS \$5 for metropolitan areas, and AUS \$7.50 for rural, remote, and some outer metropolitan areas. Whereas bulk billing is not routine in practice and concession-card holders are more likely to have zero copayment, other types of patients are more likely to experience an increase in their copayment. Such price discrimination, where an identical service can be

purchased by different payers at different prices, became more of a problem with primary care (Wong et al., 2016). Government control over specialist prices is more limited. For specialists, fees are higher than regulated prices for 59% of services.

In England, prices paid can exceed the schedule in certain extenuating circumstances. Published mandated prices for hospital-based care must be paid by commissioners unless providers have agreed to an alternative price or payment approach, or to a different service delivery model. In very exceptional circumstances, providers can make an application to NHS Improvement for an increase to a nationally determined price when it cannot be locally agreed. Only one such application has been approved. Patients are not financially impacted by such decisions.

France permits balance billing for a certain category of health workers (sector two). In the 1980s, sector two contractors were allowed to reduce the cost of social contributions for the social health insurance fund. Those physicians and dentists allowed to work in sector two can charge prices higher than the regulated fees based on their level and experience. Prices set by sector two providers above the regulated fees may or may not be covered by private complementary health insurance. Patients without private complementary insurance can face high out-of-pocket payments, which raises concerns on equity of access to care. This practice may also drive growth in total health expenditures since unregulated prices could be highly inflationary. Regulations prohibit balance billing for emergency care and low-income patients and, where applied, must be "reasonable," which is defined as less than three to four times the regulated fee.

In the USA, balance billing may be permitted where the patient selects an out-of-network provider. Six states provide comprehensive consumer protection, including prohibiting balance billing and protecting patients from financial liability.⁸ In contrast, no state laws or regulations exist in 29 states and the District of Columbia that protect privately insured consumers from balance billing by out-of-network providers in emergency departments or in-network hospitals (Lucia et al., 2017). One survey comparing charges billed by out-of-network providers to Medicare fees reported that members were routinely billed 10 to 20 times Medicare rates for out-of-network care (NASI, 2015). Given that many insurance plans have very minimal or no out-of-network coverage, exposure to balance billing in the USA is a major concern for financial protection (Hempstead, 2018). Recently, federal legislation has been proposed that prohibits balance billing completely or allows it only under consent (Dekhne et al., 2019).

⁸ Comprehensive protection was defined as applying consumer protection to both emergency department and in-network hospitals settings, as well as to health maintenance organization and preferred provider organizations. It also includes protecting consumers by "holding them harmless" from liability of extra provider charges; prohibiting balance billing; and adopting adequate payment standards or dispute resolution processes between providers and insurers (Lucia et al., 2017).

6.4 Bundled payments

A bundled payment method involves combining the payments for physicians, hospitals, and other health care provider services into a single amount. Bundled payments can refer to clinical pathways (i.e., maternity), to clinical episodes or to blending inpatient and outpatient care.

A persistent challenge with the Medicare program in the USA is that the payments are fragmented, focusing on a category of care or provider. This allows providers to shift costs to another part of the care system in response to cost containment pressures (Frankford and Rosenbaum, 2017). To address this challenge, Medicare is testing a new voluntary episode payment model, the Bundled Payments for Care Improvement Advanced (BPCI Advanced). It generates 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. The first cohort of participants started their participation on October 2018, and the initiative will run through the end of 2023.

The Maternity Pathway Payment System was first introduced in 2012-13 by NHS England and replaced FFS arrangements for birth and block grants for community midwifery services. The scheme involves a single prospective national price (tariff) provided to a NHS commissioner, which pays providers for an integrated package of care offered to all pregnant women and their newborns. The pathway consists of three integrated packages of care covering the antenatal, birth, and postnatal phases (Department of Health, 2016). The purpose of the scheme is to give providers the financial flexibility to focus on providing high quality, coordinated care. A new patient level activity data set for maternity care was also introduced. The tariff is based on the average cost of a stage of care and allows for different levels of payment depending on the risk and complexity profile of the woman. Her risk and complexity profile is determined prospectively within the first few booking appointments. The tariff for the antenatal and postnatal phase is split into standard, intermediate, and intensive pathways, while the tariff for the birth episode has seven payment levels, six related to clinical complexity, and one specifically for home births (NHS Improvement and NHS England, 2019).

England adjusts regulated prices to encourage health care providers to comply with best practices. Best practice tariffs focus on 50 procedures with the greatest potential impact on outcome.

6.5 Incentives for quality

Any of the payment methods can be combined with explicit specific performance-based rewards or penalties (results-based financing or pay for performance) to promote quality and performance.

England adjusts regulated prices to encourage health care providers to comply with best practices (Best Practice Tariffs (BPTs)). BPTs focus on 50 procedures with the greatest potential impact (i.e., high volume care, significant unexplained variation in practice, or significant clinical impact of best practice on outcomes), strong evidence base, and clinical consensus. Regulated prices are adjusted upwards or downwards 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. BPTs apply to all providers of NHS-funded care for hospital admissions related to hip fracture, stroke, cholecystectomy, and cataract surgery. Early evidence suggests that the impact was positive for some conditions. Among participating hospitals, two-fifths of episodes receive the BPT for hip fracture. Those receiving BPT reported a larger decrease in mortality rate (by 0.7%) and a 2.1 % higher increase in the share of patients discharged within 56 days (Marshall et al., 2014). Evaluators also noted the importance of the conditions of payment, differences in quality trends, and ongoing quality improvement initiatives (McDonald et al., 2012).

In Australia from June 2017, the pricing authority has been working with another independent body, the Australian Commission on Health Care Safety and Quality, to adjust prices with the objective of promoting safety and quality. For example, hospital admissions that include a sentinel event (i.e., serious medical errors or hospital-acquired infections) are not paid. Prices are adjusted downward for hospital-acquired complications after adjusting for patient characteristics. Discussions are underway about how to adjust prices for avoidable hospital admissions. In the USA, all states have non-payment policies for health care-acquired conditions such as retaining a foreign object surgery, stage III and IV pressure ulcers, and surgical or other invasive procedures performed on the wrong body part. Evaluations of zero reimbursement for sentinel events in the USA did not demonstrate an impact on their incidence (Lee et al., 2012). Instead, such policies resulted in perverse incentives for coding practices –implying that such events would more likely go unreported (Kawai et al., 2015).

In the USA, the Quality Payment Program mandates incentives for value and outcomes for eligible health care providers through a Merit-based Incentive Payment System (MIPS) and Advanced Alternative Payment Models (AAPMs). Under MIPS, the performance of eligible clinicians is scored in four areas:

quality (six measures of performance that reflect the scope of practice); improvement activities (activities appropriate to each practice related to enhancing care coordination, shared clinical decision-making, and expansion of practice access); promoting interoperability (sharing information with other clinicians or the patient); and total cost of care (CMS, 2019b). In 2019, final scores above a fixed threshold receive a 7% positive payment adjustment, while those below the threshold receive a 7% negative payment adjustment. APMs give bonus payments to provide high quality and cost-efficient care for specific clinical conditions, care episodes, or populations.

In 2019, Maryland implemented the 10-year Total Cost of Care Model to promote better coordination across hospital and non-hospital settings, including mental health and LTC. The model sets a per capita limit on Medicare total cost of care. All-payer hospital cost growth will be limited to 3.6% per capita, a limit set in 2014 based on long-term economic growth. Each hospital receives a population-based payment amount to cover all hospital services provided during the year. Hospitals can make incentive payments to non-hospital health care providers who perform care redesign activities to improve quality. A participating hospital may only make incentive payments if it has attained certain savings under its fixed global budget, and the total incentive payments cannot exceed such savings. In addition, primary care providers receive an additional per beneficiary per month payment directly. These performance-based incentives are intended to reduce hospitalizations and improve quality (CMS, 2019a, 2019b, 2019c).

71

Infrastructure for costing and pricing

7.1 Institutional entities

In some settings, the task of price setting is located directly under the responsibilities of the government ministry (Figure 19). This occurs in England, Japan, Republic of Korea, and Thailand. In England, the NHS responsibilities for price setting are shared by NHS Improvement and NHS England who are working under a joint operating model since April 2019. In Japan, the Bureau of Medical Affairs sets forth the biennial revision of the fee schedules and authorizes negotiations between the Japanese Medical Association and other stakeholders with the Ministry of Health, Labour and Welfare. In the Republic of Korea, the Health Insurance Review and Assessment costs and analyses provider behaviour related to pricing.

The Thai National Health Security Board is a state agency under the supervision of the Public Health Minister and works towards implementation of the Universal Health Coverage Scheme. A sub-committee on financing analyses unit costs, utilization rates, high cost interventions, and all other benefit packages as approved by the Board and proposes a capitation budget. The benefits of this approach are the linkages between payment systems for primary and inpatient care, and the close alignment between payment systems and government goals.

Others have set up independent agencies that are responsible for developing and updating hospital prices and DRG schedules. This has occurred in Australia, France, and Maryland (Figure 20). In Australia, the Independent Hospital Pricing Agency reports to a board chosen by the national and state and territory governments. It has broad responsibilities for activity-based costing, the classification system, data collection, and calculating costs. It employed 42 staff in 2017/18, and its operating budget was AUS\$ 17.9 million. In France, the Technical Information Agency of Hospitalization (ATIH) was created in 2002 as an independent public administrative institution, which is co-funded by the government and the national health insurance funds. It collects data and categorizes DRGs. In 2017, it employed 118 staff, and its budget was approximately EUR 29.4 million.

Figure 19
Technical agencies mandated for price setting, where located within the government

Setting	Institution responsible	Tasks	Resources
England	National Health Service (NHS) Improvement, NHS England	NHS Improvement regulates resource use, financial levers and operational performance using a shared definition of quality and efficiency by the Care Quality Commission. Their responsibilities include commissioning health care services in England; contracting for general practitioners, pharmacists, and dentists; supporting Clinical Commissioning Groups that plan and pay for local services such as hospitals and ambulance services; and calculating prices.	NHS England and NHS Improvement employs approximately 7500 staff, and some 75 staff work in the two pricing teams.
Japan	Ministry of Health, Labour and Welfare (MoHLW), under the Bureau of Medical Affairs	The Prime Minister sets the global revision rate in the biennial revision of fees and the conditions of billing that establish the human resource requirements and patient conditions. The Bureau of Health Insurance serves as the secretariat to ensure that the cumulative effect on item revisions are made equal to the global budget. It negotiates with the Japanese Medical Associations, hospital associations, and specialist groups about the details of the revisions.	Staff in the Medical Affairs Division number 84 in total, including 20 physicians, 2 dentists, 2 pharmacists, 2 nurses, and 12 career bureaucrats, with the rest being administrative staff.
Republic of Korea	National Health Insurance Corporation (NHIS), Health Insurance Review and Assessment (HIRA), Insurance Policy Deliberation Committee (HIPDC), National Health Insurance Service (HIRA), Ministry of Health	The HIRA costs and analyses provider behaviour related to pricing. One of the key institutions under HIRA is the Healthcare Review and Assessment Committee, which plays an important role in the benefits design, review, and assessment. The HIPDC approves major decisions about health insurance, including contribution rates, benefit packages, pricing, etc. The HIRA and each provider association (for physicians, hospitals, pharmacists, etc) negotiate fees.	The NHIS has about 14,000 workers. HIRA has about 2500 staff, one headquarters (22 departments), one research institute, and seven regional offices. The Health care Review and Assessment Committee consists of approximately 1,050 members, with a maximum 50 full-time members. HIRA also has various expert committees to support technical decisions.
Thailand	National Health Security Office (NHSO), National Health Security Board (NHSB)	The NHSO is a state agency under the supervision of the Public Health Minister, working towards the implementation of the Universal Coverage Scheme. The sub committee on financing under the NHSB analyses the unit costs, utilization rates, high cost interventions and all other benefit packages as approved by the NHSB, and proposes a capitation budget.	NHSO has 881 staff (464 in the HQ office, and 467 in 13 regional offices). Staff generate the annual budget, monitor and purchase services, improve access and financial risk protection to its 47 million members. The total administrative cost is 1.49% of total budget (average 2003-19).

Sources: case studies (see annexes).

Figure 20
Technical agencies established for hospital price setting

Setting	Entity	Responsibilities	Resources
Australia	Independent Hospital Pricing Authority (IHPA)	The IHPA's role is price determination. It takes responsibility for the ongoing development of the component parts required by activity-based costing, the classification system (AR-DRGs and for sub-acute and non-acute services in the Australian National Sub-acute and Non-Acute Patient Classification), data collection on activity (the National Hospital Data Collection), calculating costs (with a standard framework for costing activities, i.e., the Australian Hospital Patient Costing Standards).	For the financial year 2017/18, the IHPA's total expenses were AUS \$17.9 million and 42 staff were employed.
France	Technical Agency for Hospital Information (ATIH)	The ATIH is an independent public administrative institution co-funded by the government and national health insurance funds, under the control of the Social and Finance Ministries. It collects data on hospital activity in order to establish a national schedule, and undertakes financial analysis of health care facilities and of the health system.	For the financial year 2017, the ATIH employed 118 staff and its expenses amounted to EUR 29.4 million.
Germany	Institute for the Hospital Remuneration System (INEK)	The INEK is jointly supported by the Federal Association of Sickness Funds, the Association of Private Health Insurance, and the German Hospital Federation. It receives data from hospitals annually to develop the Case Fee Catalogue for the following year. A total of 253 hospitals (13% of the total) share data that follow a standardized cost accounting approach to calculate the costs of treating individual patients. Participating hospitals receive a fixed allowance for sharing the cost accounting data.	All hospitals pay a DRG system contribution per hospital case, and the InEK receives 1/3rd of the total contribution to fund their activities. In 2017, the INEK's estimated budget was EUR 5 million. It employs approximately 50 staff.
Maryland, USA	Health Services Cost Review Commission (HSCRC)	The HSCRC works closely with the Maryland Department of Health, and its seven commissioners are appointed by the Maryland governor. It is authorized to establish hospital rates to promote cost containment, access to care, equity, financial stability and hospital accountability. It is given broad responsibility regarding the public disclosure of hospital data. All Maryland hospitals are paid on the basis of the rates established by the HSCRC. These rates are updated each year based on multiple factors, including the Medicare "market basket" forecast, economic conditions, productivity improvements, changes in case mix and the previous year's performance.	The HSCRC employs 39 full-time staff, with a budget of \$14.1 million funded by fees collected from hospitals.

Sources: case studies (see annexes).

In Germany, the Federal Association of Sickness Funds, the Association of Private Health Insurance, and the German Hospital Federation established the Institute for the Payment system in Hospitals (InEK). It is not an independent entity, but a public entity supervised by the three parties. To fund the operations of the Institute, the three parties negotiate annually an amount in which hospitals pay a DRG system contribution per case. Participating hospitals receive two-thirds of the contribution, whereas the InEK receives one-third. In 2017 and 2018, the contributions amounted to EUR 1.30 and EUR 1.31 per case, respectively. Given that the number of cases amounted to over 19 million in 2017, this implies that the InEK received a budget of EUR 5 million. Generally, these institutes are responsible for the technical details of price determination, including establishing common frameworks for price estimation and collecting directly or commissioning the collection of data.

Notably, the InEK neither collects or commissions data. It employs approximately 50 staff.

Maryland established the Health Services and Cost Review Commission in 1976 to regulate hospital fees for all hospitals, based on a list of approved fees for specific services and departments. It works closely with the Maryland Department of Health and its seven commissioners are appointed by the Maryland governor. The agency is thus independent, and its decisions are not reviewed by the legislative or executive branches. The Commission is responsible for updating the rates annually and publicly disclosing hospital data. It employs some 39 staff and has a budget of US\$ 14.1 million funded by hospital fees.

While situations vary, independent agencies may have more freedom from conflicts of interest, and the political standing to resist industry and regulatory capture. The establishment of national independent agencies can help to promote comparability and harmonization of clinical classifications across hospitals. In some settings, such harmonization applies across both public and private sectors, whether through the contracting of services or price benchmarking.

7.2 Formal stakeholder consultation

Many stakeholders have an interest in the outcomes of price setting and regulation, particularly medical doctors and health care provider associations. Lack of formal consultation and stakeholder engagement can lead to stalemates in the price setting process. In the case of the USA, political challenges led to the downfall of price regulation in many states in the 1980s, despite the positive impact of fixed prices on cost savings (Hadley and Swartz, 1989). Feedback from health care providers involved in care provisions may ensure acceptability of the regulated fees. A balance must be found between maintaining dialogue with stakeholders, including the health industry, while also observing objectivity and independence. To address this challenge, formal consultation processes have been implemented that involve stakeholders in the discussion of the base price and the cost elements that it covers.

The Maryland Health Services Review Commission has an Advisory Committee and technical working groups that conduct formal expert technical consultation. In Australia, consultation and stakeholder feedback is an integral part of the price setting processes. The pricing authority works with a Jurisdictional Advisory Committee and a Clinical Advisory Committee in developing its systems and analyzing data. Its pricing framework establishes various principles, including transparency, and the framework itself is reviewed annually in consultation with the federal government, states, and territories. There is also a period of public consultation, and the studies are published on the authority's website, including the list of prices.

Japan's consultation process takes place within the Central Social Medical Care Council, which is composed of seven members from payer groups (including social health insurance, business, and labour), seven members from provider groups, six members who represent public interests, and ten specialists representing professional associations and industry. In the Republic of Korea, the Health Insurance Policy Deliberation Committee consists of 25 members, chaired by the Vice Minister of Health and Welfare. Eight members represent payers (including labour unions, employer associations, civic groups, consumer associations, farmers associations, and self-employment associations), eight from health care professional associations (representing medical doctors, hospitals, traditional medicine practitioners, dentists, pharmacists, nurses, and pharmaceutical manufacturers); and eight experts and public agency representatives (from Ministries of Health, Strategy and Finance, Health insurance, and independent experts). In Thailand, the proposed budget for the Universal Coverage Scheme is evaluated by all relevant actors including the Ministry of Finance, Bureau of Budget, technical experts, and health care provider representatives.

In England, public consultation on the price-setting methodology is formalized with internal stakeholders, as well as the external clinical community, NHS service providers, and Clinical Commissioning Groups to ensure that new proposals make clinical sense and are practical to implement. If more than 66% of commissioners or providers object, the regulated prices must be referred to the Competition and Markets Authority or a new consultation is conducted.

7.3 Investments in data collection

The determination of the payment method and the collection of data for costing is closely linked with the information that is available. Each approach to costing requires different information and inputs (Figure 21). Top-down costing approaches, for example, require the availability of health provider cost information by department and major categories (i.e., salaries and medicines). The availability and accuracy of this information is a determinant of how costs and prices are calculated. Recognizing the incentives inherent in the traditional line-item budgets, and to be able to modify payment methods over time, investments have been made into data collection systems to collect input costs, output volumes, and outcomes.

Figure 21
Data management capacities required by base for payment

Capacities	Line-item budget	Global budget	Capitation	Fee-for-service	Case-based payment
Basic accounting	X	X	X	X	X
Management of enrolment database			X		
Ability to project revenues and expenditures			X	X	X
Programming of DRG grouper			X	X	X
Automated claims processing				X	X
Cost accounting system to calculate relative case weights				X	X

Source: Adapted from Cashin, 2015.

Özaltın and Cashin (2014) identify a few lessons for middle-income settings about developing the required minimum dataset for implementing payment systems. They recommend focusing on large expenditure items and data that are feasible to collect. Detailed information that is difficult to collect and does not improve the quality of the results should be omitted from the data collection efforts. Similarly, collecting only the data needed can avoid time spent collecting extra information that does not inform the costing analysis. Towards this effort, costing instruments should be pretested, reviewed and simplified after the initial data collection efforts.

Being imperfect can be a starting point. In many settings, pricing work can start even though only skeletal data sets are available. In such cases, initial information can be used from available information – whether collected from settings with similar cost structures, historical reimbursements, or regional price averages from commercial health insurer databases, for example. At the same time, the minimum datasets needed can be identified, and processes can be put into place to continually review and improve on data infrastructure.

This is the experience of the National Health Insurance Scheme in India, which targets over 500 million poor and vulnerable people (Figure 22). Established under a very short time frame, the government of India set reimbursement rates without complete costing data by using available information, while also putting into place a review mechanism to modify and improve over time.

Figure 22 Pricing of Services under the National Health Insurance Scheme of India (PM-JAY)

The Government of India launched a mega health program called Ayushman Bharat, which focuses on primary, secondary and tertiary care through two separate components. The first component aims to set up approximately 150,000 health and wellness centres that will provide comprehensive primary care. The second component is a new National Health Insurance Scheme called Pradhan Mantri – Jan Arogya Yojana (PM-JAY), which provides a cover of Rupees 500,000 (approximately US\$ 7143) per family per year for secondary and tertiary care conditions. The scheme targets more than 500 million poor and vulnerable people across the country, making it the largest completely government funded scheme in the world. PM-JAY replaces an earlier scheme called Rashtriya Swasthya Bima Yojana.

One of the critical decisions in the new scheme is the decision about provider payment mechanisms. The government decided to use a system of package rates, whereby a fixed rate for each procedure is paid to the hospital. The rate is fixed by the government in advance, and hospitals are not allowed to charge any other money from the patient. No cash is exchanged as a part of obtaining care. For medical conditions, a fixed per day rate is paid. Similar provider payment mechanisms have been used in India across many government funded health insurance schemes. Currently almost 1400 packages and their rates have been fixed in advance by the National Health Authority, an independent agency under the Ministry of Health and Family Welfare (MoHFW) that was set up to manage PM-JAY.

For preparing these packages and their rates, MoHFW formed a committee comprising various stakeholders under the chairmanship of the Director General of Health Services. This committee formed various sub-committees for each of the specialties. The sub-committees also collected data about the packages and their rates for RSBY and various other state government funded health insurance schemes. Data related to the costs of treatment in both public and private providers was also collected. Based on the data collected, inputs from various experts and cost estimations, the final list of packages and their prices was prepared by each of the sub-committees. The committee collated the packages and rates and then finalized the list with their rates. These rates were then shared for peer review with the think tank of the Government of India (NITI Aayog). NITI Aayog further analysed these rates and discussed with various industry associations, medical associations and hospitals. Based on these discussions and other inputs, NITI Aayog provided their final recommendations to MoHFW. Using these recommendations, the list of packages with their rates was finalized and are now being used in the scheme.

To address the differences in quality across various hospitals and accommodate those in the package rates, the scheme guidelines also has a provision for a fixed percentage incentive over the package rates to the hospitals that are accredited. In addition, teaching hospitals and hospitals located in rural districts (called aspirational districts) are also provided a fixed incentive over and above the package rates.

This system of package rates is a simplistic one but, at the same time, it prevents the huge variations in prices charged by the health care providers and keeps the cost of the scheme under the control of the government. The government is now working on further refining these rates and creating a mechanism for regular feedback with respect to the list and rates. This will ensure that the rates are in sync with market conditions. In addition, new conditions are added regularly through a systematic process and conditions that are not required are removed.

Source: Jain Nishant, Indo-German Social Security Programme

7.4 Information disclosure

Price transparency, or publishing service prices charged by health care providers, is one means to help consumers make informed choices. Price and quality information also inform active purchasers of health care and can, in some cases, control overall spending and reduce price variation for routine services. Depending on the health care markets, publishing prices could also stimulate price competition on the supply side and force high-priced providers to lower their prices so that they remain competitive. Many initiatives publish average or median within-hospital prices for individual services, and some report total and out-of-pocket costs for care episodes (Figure 23).

Australia publishes both price and quality information for the public (IHPA, 2019; AIHW 2019). Maryland publishes an online price guide and a hospital performance evaluation guide (HSCRC, 2019). The Health Insurance Review and Assessment in the Republic of Korea publishes online its regulated prices and quality measures. The Ministry of Health, Labour, and Social Welfare in Japan publish their reports surveying patient satisfaction indicators nationally (MoHLW, 2019b). In the USA, the Centres for Medicare and Medicaid Services has developed an online physician fee look-up tool (CMS, 2019d) for more than 10,000 physician services and their associated relative value units. A companion site also describes hospital measures of quality (CMS, 2019e). Many individual states also now have their own initiatives for providing information to consumers about hospital prices (Sinaiko and Rosenthal, 2011). All costing and price information is in the public domain in England, and an impact assessment is published alongside each national tariff.

Figure 23
Public release of information about price schedules and quality

Setting	Published prices	Scope of information reported	Published quality information
Australia	National Hospital Cost Data Collection Cost Reports (https://www.ihsa.gov.au/publications)	Detailed and average costs per episode for acute care admissions, emergency department, non-admitted patient expenditures, sub-acute and other products, and the pricing framework	National Indicators of Safety and Quality in Health Care (https://www.safetyandquality.gov.au/our-work/indicators/)
England	National Tariff Payment System and Published Costs (https://improvement.nhs.uk/resources/national-tariff-1719/)	Costs from all secondary care providers against currencies where they exist; National prices for acute services and local pricing rules for services without national prices in secondary care	Individual provider level reports and broader reports from the Care Quality Commission (https://www.cqc.org.uk/)
France	DRG prices, reimbursement rates for ambulatory services, and average prices charged by hospital/health professionals (https://www.atih.sante.fr/tarifs-mco-et-had)	DRG prices for public and private hospitals for acute (non-psychiatric) care, and range of prices and most frequent amounts for out-of-pocket costs (before complementary health insurance coverage) for each hospital and health professionals	Quality, satisfaction and safety indicators collected from all hospitals and published by the national health authority (HAS) (https://www.has-sante.fr)
Germany	Public reporting of DRGs, hospital base rates, hospital add-on payments, physician fee schedules, and nursing home rates reports on websites of each nursing home (https://www.g-drg.de)	For hospital prices: relative weights per condition, average length of stay, outlier adjustments and add-on payments; for physician fees: the points and eurocents per service, definition, detailed information on minimum required services and billing restrictions	All hospitals are required to document quality information on 250 selected indicators (https://g-ba-qualitaetsberichte.de/#/search)
Japan	Outline of Health Care Insurance Systems, Ministry of Health, Labour and Social Welfare (http://www.mhlw.go.jp/english/wp/wp-hw6/dl/02e.pdf)	(In English), published descriptions include patient co-payments, medical care benefits, cash benefits, premium rates and government subsidies	Patient satisfaction indicators are collected from all hospitals and clinics and published by the Ministry of Health, Labour, and Welfare (https://www.mhlw.go.jp/toukei/saikin/hw/jyuryo/17/dl/kakutei-kekka-gaiyo.pdf)
Maryland state, USA	Price Transparency, Maryland Health Care Commission's (MHCC) consumer website (https://healthcarequality.mhcc.maryland.gov)	Average hospital price per case, average length of stay in the hospital, average hospital charges by certain types of payers (i.e., Medicare, Medicaid, Commercial, and other)	Maryland Health Care Quality Reports (https://healthcarequality.mhcc.maryland.gov)
USA	Physician Fee Schedule Look-up, Centres for Medicare and Medicaid Services (https://www.cms.gov/apps/physician-fee-schedule/overview.aspx)	Provides information for >10,000 physician services, relative value units, fee schedule status indicator, and indicators needed for payment adjustment. Prices are adjusted to reflect regional variations	Measure Management System, Centres for Medicare and Medicaid (https://healthcarequality.mhcc.maryland.gov)
Republic of Korea	Health Insurance and Review Assessment Service (http://www.hira.or.kr/)	–	Health Insurance and Review Assessment Service (http://www.hira.or.kr/)
Thailand	Guidelines for obtaining health care expenses in Universal Health Coverage Scheme published annually by NHSO in the Thai language	Price, fee schedule, central price for reimbursements	Annual consumer satisfaction survey by Academic Network for Community Happiness Observation and Research, Assumption University of Thailand; NHSO Annual Fiscal Report on accessibility and quality (https://www.nhso.go.th/eng)

Sources: IHPA, 2019; AIHW, 2019; CMS, 2019d, 2019e; MHCC 2019; MHLW, 2019a, 2019b; case studies (see annexes).

The impact of publishing prices and quality depends on many factors. Publishing information about both quality and prices helps overcome consumer difficulty in evaluating technical quality. Where quality information does not accompany prices, consumers may equate price with quality and thus choose higher priced services – despite weak associations between price and quality for routine care (Sinaiko and Rosenthal, 2011). Patients may rely on information from their health care providers about where to obtain health care and also consider other factors such as convenience, relationships and amenities. Insured patients are insulated from prices and therefore are less cost conscious (Cooper et al., 2018). Even in the case where patients want to compare prices, the patient will face information asymmetry and time constraints for evaluating information – constraints that would be prohibitive for emergency care (Bai and Anderson, 2015).

Generally, common procedures performed in different settings and prescription medicines may be appropriate for price comparisons, particularly where co-payments result in high out-of-pocket costs. In terms of interpretation, average unit costs are the most readily available; however, cost per episode may be more meaningful to patients. Quality information must be reported alongside prices so that patients and purchasers can make sound decisions. In the USA, some employers offer their employees meaningful incentives to choose higher-value providers, such as higher reimbursements or bonuses for providers offering quality care for lower prices (McCluskey, 2016).

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Best practices for low- and middle- income settings

We conclude the paper with lessons learned, particularly for low- and middle-income settings that are increasing their public funding to health and looking to other settings for useful experiences. While this study included many highly developed health care settings, it is notable that all policy-makers continue to strive to align payment levels with incentives for quality care. The lessons learned from these settings include investing in data infrastructure and institutional capacities, planning sequenced implementation of changes, using prices as instruments to drive health policy goals, and establishing systems of monitoring and evaluation to systematically identify adjustments and modifications needed to attain health objectives.

8.1 Investing in data infrastructure

Sound pricing and payment systems require accurate information about costs, utilization, and quality of care. Information systems can be one of the most important barriers to the implementation of provider payment mechanisms in low- and middle-income settings. DRG-based financing for public hospitals requires substantial investments in data collection and hospital coding. Data collection infrastructure, coding of key information, including procedures and diagnoses, and skilled human resources in hospitals are needed investments for generating the minimum dataset required for accurate analysis.

Yet, having only rudimentary data should not prevent attempts to initiate reforms in pricing policy. In many settings, pricing work can start even though only skeletal data sets are available. Where data infrastructure is not yet in place, information can be used from available sources initially. This may include information from settings with similar cost structures, historical reimbursements, or regional price averages from commercial health insurer databases, for example. At the same time, the minimum datasets required can be identified. This may focus on large expenditure items and data that are feasible to collect. Figure 24 is an example of this process underway in Malaysia.

Figure 24 Costing health services in Malaysia

The Ministry of Health (MoH) in Malaysia, including the Institute for Health Systems Research (IHSR), initiated costing exercises to estimate the budget requirements for delivering health service in government facilities. To calculate the costs for hospital discharges, outpatient visits, and daycare visits, the IHSR research team collected data using provider questionnaires and estimated the share of organization-level expenditure by departments.

One public clinic that uses electronic medical records was selected to conduct a costing exercise to determine the cost per visit for patients with specific conditions. Four people developed a costing template for each service using the patient as the cost object and collected data about staffing medicines, medical and non-medical consumables, and equipment and devices. The team calculated the cost of 310 separate services grouped into 11 visit categories. The visit categories were acute upper respiratory tract infection, prenatal care, routine child health examination, primary care for hypertension and Type 2 diabetes, dental exam, dental caries, fever, contraceptive management, nail removal, and dengue rapid test. They added up the costs of services in each category to arrive at an average cost per patient visit per category. Included in the costs were services and supplies, assets, grants and fixed charges, building, and land. Overhead costs were distributed by assuming average resource use across patient types, and personnel costs were assigned based on the average staff time spent on specific procedures.

For establishing DRGs in hospitals, the team costed all hospital inpatient cases using a top-down approach to measure and value personnel, medical products, overheads, and capital resource use. They plan to cost intensive care unit stays because those stays are known to be heterogeneous in their resource use. The team also plans to use the bottom-up approach to cost expensive laboratory tests and radiological interventions. Between 12 to 50 staff at ten hospitals were required to complete the exercise over a four-month period, including one month for verification.

Source: Adapted from Özalpın & Cashin, 2014.

8.2 Building institutional capacities

Given the technical and political complexities of price regulation, in several settings, entities with the legal authority to set up and control payment rates have been established. The mandate of these agencies is to develop a credible price schedule. This includes grouping and ordering services based on their complexity, taking into consideration the available health resources, burden of disease, and clinical protocols and pathways.

Whether an independent entity or designated institution, characteristics of successful systems include political independence, formal systems of communication with stakeholders, freedom from conflicts of interest, and political standing to resist both industry capture and political pressures. In some cases, such entities have independent sources of funding that are separate from general revenues. Clearly delineating the technical task of establishing the price schedule

from the political process of negotiating payments to health care providers has also been recommended (Kumar et al., 2014).

There are multiple stakeholders involved in price setting and regulation, and systems have failed in the past when they faced political challenges (Barber et al., 2018). Critical to the work of price setting is a process that also involves stakeholders to establish a base price and identify the cost elements that are covered by the unit of payment. To do this objectively, it is important to establish formal systems of collaboration with medical doctors and specialists, health care providers, and payers. Formal and transparent systems can help establish a balance between maintaining dialogue with stakeholders while also observing objectivity and independence.

Appropriate institutional oversight can help insulate the authority from external influences. Mechanisms for price setting are instruments to achieve broader system goals. Where clear policy goals and priorities have been articulated, they can be used to guide action and may avoid overly complex implementation processes. Regular public reporting on performance standards and targets linked to the overarching policy priorities can increase accountability. Such mechanisms also allow for modifying processes that have become overly complex that inhibit performance and responsiveness.

An important issue for low- and middle-income settings is how to make use of all health resources available to attain coverage and financial protection. Price setting for only one part of the health system (either public or private) could create incentives for providers to shift care to other settings that are not subject to price regulation (Frakt, 2011). This would diminish the impact of pricing policies on coverage and desired outcomes. A comprehensive price setting system could be used to create a level playing field and eliminate the fragmentation across public and private sectors. In this sense, price schedules are a public good, whereby private health plans can use prices set by the government as benchmarks. Given finite resources for health, price regulation can be used to promote greater value for all payers, and both public and private health spending.

8.3 Planning sequenced implementation

Particularly for settings that employ line-item budgets, substantial long-term planning is needed to change payment systems, estimate prices, and use prices and payment systems to reach policy goals. Figure 25 illustrates an example of a planning exercise to implement such changes over a period of a few years including investing in institutional capacities to sustain changes in how providers are paid (Özaltın and Cashin, 2014).

Figure 25
Hypothetical example of sequencing the change in payment methods

	Preparation	Initiation	Strengthening implementation
Planning activities	Analyse utilization of health services across providers. Plan to gradually consolidate and reducing budget line items.	Plan new formula for setting budget caps that gradually introduces volumes. Begin consolidating and reducing line items for budget formulation and implementation.	Establish caps and budgets based on data about activities and population. Flexibility given to providers to move budgets across line items.
Primary health care capitation	Estimate population for capitation. Conduct cost analysis of PHC benefits package to estimate base payment. Estimates adjustments for different regions.	Introduce new formula for calculating base payment. Introduce mechanisms to account for mobile and migrating populations. Apply geographic adjustments.	Initiate electronic registration for population database for capitation. Expand incentives for health promotion and disease prevention.
Outpatient bundled payments	Analyse volumes and delivery for acute outpatient services: day surgery, dialysis, cancer.	Explore bundled payment options for episodes of care among different providers.	Introduce bundled payments with a cap, and incentives for the management of chronic conditions.
Hospital payments (based on DRGs)	Analyse current case-based groupings and cost per case distribution within each group.	Develop new case groups and adjustable base payments. Conduct simulations.	Expand number of groups, adjust for severity and comorbidities.

Source: Adapted from Cashin, 2015.

For any payment reform, the starting point is developing a classification system of the services that are currently being delivered. This involves an analysis of utilization and costs for the different categories of care and facilities, and a plan to consolidate budget line items. Subsequently, new formulas for setting budget caps can be initiated to gradually introduce volumes. The budget formulation process can utilize consolidated line items for implementation, and data collected in the first stage can be used to calculate base for payments while incorporating adjustments for payment adequacy by region. During implementation, the budget planning process can be based on data about activities and population, and greater flexibility given to providers to move budgets across line items. Investments in health information systems could allow for electronic registration of the population to create the database for capitation. Finally, monitoring systems could inform adjustments in prices and payment systems to expand on incentives for important public health goals, such as quality care and disease prevention.

This is not to endorse any one payment or pricing method, which should be determined based on local needs and capacities. For example, should there be a plan to implement capitation, in many settings, the first task would be to decrease balance billing for covered services that may lead to catastrophic spending.

Low- and middle-income settings typically initiate payment reforms while also building critical capacities in health systems. Given that the strength of these fundamental capacities can affect the speed and quality of implementation, continued investments in broader health systems capacities should receive greater attention. Unbiased clinical care standards and treatment pathways are the basis of purchasing and pricing. Managerial capacities at central and health facility levels are needed to analyse and implement changes and manage contracts. Strong professional associations can establish systems of self-regulation and enable participation in negotiation processes. The strength of professionals representing primary care, for example, may affect the extent to which primary care is recognized and rewarded. Hospital autonomy can ensure that hospitals have decision-making authority to respond to incentives for efficiency. Policy-makers can shape the health care market through trade and competition policies, which can influence hospital mergers and acquisitions that affect prices.

8.4

Establishing prices that approximate the most efficient way of delivering care

Prices should approximate the cost of delivering services in the most efficient way that enables quality and health outcomes. This minimizes incentives for inappropriate levels of care and enables accurate budget projections. Costing aims to collect information that reveals the costs of delivering services and providing quality patient care. To do this, different methodologies have been used to approximate the costs of health services and allocate indirect costs. Costing studies should be sufficiently large to capture cost variations. In instances where unit costs are not available, other options include using information and experiences from other settings.

Costing studies have important limitations in reflecting costs at one point in time within existing service delivery structures, including their inefficiencies. Costing exercises can be useful if they reveal information about the underlying cost structure of service delivery and enable the development alternative scenarios about modes of service delivery that offer higher levels of efficiency and quality. Thus, costing exercises should not be considered one-off exercises. Costing is a part of an ongoing process to collect information about the different alternatives to align resources and service delivery configurations with the desired outcomes, i.e., coverage, quality, financial protection, and health (WHO, 2015b).

8.5 Using prices as instruments to promote value for health spending

We have emphasized that prices should reflect actual costs. However, the price level not only ensures adequacy in covering the costs of delivering services but also provides important incentives for health care providers. In each of the settings studied, pricing and payment systems are recognized as powerful tools to drive broader health system goals.

Geographical price adjustments are used to ensure that health facilities are adequately reimbursed and compensated for factors outside their control. Prices are also adjusted to promote greater coverage of certain services or access for specific populations to attain broader policy objectives. For example, prices have been adjusted in many settings to ensure the provision of care in rural and remote areas and for those providers treating high numbers of low-income or high-cost patients. Regulated prices are frequently modified to promote education, research, and innovation in addition to national health priorities. Pricing policies have been used to control volumes and overall expenditure levels through reductions in prices for repeated unplanned outpatient visits or hospital readmissions. A number of countries prohibit or restrict balance billing. This ensures that patients are fully reimbursed at regulated prices and ensure that covered services can be accessed and remain affordable.

8.6 Strengthening the national role in setting prices

While the methods for setting prices vary and are grounded in historical developments, we can conclude that unilateral price setting by a regulator eliminates price discrimination and performs better in controlling growth in health care costs. In contrast, individual negotiations between buyers and sellers are the weakest along these same parameters. Both collective negotiations and unilateral administrative price setting also have the potential to improve quality better than individual negotiations. Generally, macro-budgeting tools and limits on the rate of budget growth have provided strong controls on expenditures under different payment systems.

Where prices are used as instruments to attain policy goals, a strong central role in guiding the process is required. Among those settings in this study, including the USA Medicare program and the Maryland all-payer system, national governments have played active roles in price setting and price regulation to reach policy objectives. Across many settings, the price and fee structures are centrally determined (i.e., France, Japan, the Republic of Korea, and Australian specialists working privately).

In countries such as Germany, fees can additionally be tailored to state specificities reflecting the country's federal structure.

8.7 Establishing systems of ongoing revision, monitoring and evaluation

Payment systems and price levels are being continuously revised, particularly because there are many factors driving prices that are not under control of health care providers such as input costs. When a new technology is introduced, evaluations are required to compare its impact with existing technology. In addition, the total fiscal resources for health continually change. At the same time, health care providers and other stakeholders quickly adapt to the incentives (and disincentives) inherent in each payment mechanism and try to "game" the system to their benefit.

Flexibility is needed to respond to the evolution of pricing and payment methods, to identify changes in the market structure and factors outside of the control of providers, and to adapt to unintended changes in provider behaviour so that the system can function as intended. In many settings, systems of monitoring enable adjustments in response to unintended consequences or negative incentives. Ongoing reviews can inform about whether the pricing and payment systems are on track towards the larger system goals of financial protection, efficiency, coverage, and quality. Reviews at specific regular intervals may be better than waiting for a problem to arise.

Given the potential impact on provider behaviours, it is important to maximize the use of pricing policies to attain better outcomes. There are many experiments underway to link pricing and payment systems to quality of care through bundled payments and value-based purchasing, for example. Price adjustments and payment reform need to be monitored and evaluated to dynamically adjust the price level to induce desirable health care provider behaviours. In addition, unintended consequences can result. More research is needed, for example, about the impact of the different methods of price setting and regulation on quality of care. Systematic testing and evaluation is critical to inform about the impact of payment systems on behaviours and determine the feasibility of scale-up within a given setting and replicability elsewhere.

In conclusion, policies about pricing and purchasing health care services attempt to overcome the imperfections of health care markets. They are grounded in each country's institutional history, and level of resources dedicated to health. In each setting, approaches have been implemented that help address the broader system objectives – whether to promote better coverage, quality, financial protection, and health outcomes. Ultimately, it is these objectives that guide policy choices.

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World Health Organization

WHO Centre for Health Development (WKC)
Kobe, Japan

www.who.int/kobe_centre/en/

