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The challenges of hospital payment systems

Jonathan Cylus and Rachel Irwin

Spending on hospital services has historically been one of the largest shares of total health care expenditures for the majority of countries in Europe and the developed world.¹ According to the OECD, hospital spending on average accounted for approximately one-third of total current expenditure on health care in European OECD countries in 2008, ranging from 26.7% in Slovakia to 46.9% in Sweden (See Table 1). In some countries in the WHO European region, particularly in CIS countries, inpatient expenditures as a share of total health care expenditures has at times been over 70%.² As hospitals continue to consume a considerable share of health care resources, policymakers have looked to new payment strategies to ensure that care is delivered efficiently. Hospital financiers are faced with the difficult task of designing systems aligning patient needs and provider incentives in order to obtain the best possible value for money.

Varying payment methods

The financial incentives underlying hospital payment systems ultimately affect providers' organizational structure and treatment patterns. In the past, most European countries paid for hospital care through payment systems such as global fixed budgets, fixed rates per admission or per diem rates based on the number of bed days. Each of these systems encourages different approaches to providing hospital care. For example, fixed payments per admission incentivize hospitals to increase the number of admissions, while fixed payments per diem encourage lengthier hospital stays. Hospitals paid under both of

these systems also become more profitable by increasing their capacity and reducing the quantity of inputs per patient. Additionally, global fixed budgets tend to induce providers to under-provide services; however, they may promote more efficient care as providers aim not to waste their fixed resources and subsequent profits.³ These flat-rate or fixed budget payment systems have contributed to performance issues and declining health outcomes in some countries. For example, in countries where hospitals were given excessively large budgetary resources relative to the rest of the health system, patients with minor health conditions often were referred to hospitals when they could have been more effectively and efficiently treated in outpatient or primary care settings.⁴ For the most part, these payment systems do not reflect the varying intensity associated with treating different types of patients. In response, many European countries now incorporate case-based payments into their hospital payment structures (Table 1).

Case-based payments

To deal with high cost growth, in 1983 the US developed a hospital case-based payment system known as the Prospective Payment System (PPS) to pay hospitals to treat Medicare beneficiaries, thereby replacing the previous fee-for-service system. Such case-based payment systems are intended to categorize hospital interventions according to their intensity. Each episode of care is grouped into what is typically called a diagnostic related group (DRG). Box 1 outlines the main characteristics of DRG-type systems.

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Table 1. Hospital Spending in Selected European Countries, 2008

	Hospital spending as a % share of total current expenditure on health	Hospital spending per capita, US\$, Purchasing Power Parity	Hospital payment scheme
Austria ^a	38.8	1393	Payment per case/DRG (47%)/retrospective reimbursement of costs (48%)
Belgium	31.2	1147	Payment per case (45%) + payment per procedure (41%) + payments for drugs (14%)
Czech Republic	45.8	796	Prospective global budget (75%) + per case (15%) + per procedure (8%)
Denmark ^a	46.2	1567	Prospective global budget (80%) + payment per case/DRG (20%)
Estonia	46.5	563	Case-based payment
Finland	35.3	1010	Payment per case/DRG
France	35.0	1259	Payment per case/DRG
Germany	29.4	1061	Global budgets and payment per case/DRG
Hungary	33.1	463	Payment per case/DRG
Iceland	40.6	1363	Prospective global budget
Luxembourg ^c	33.4	1322	Prospective global budget
Netherlands	37.0	1378	Adjusted global budget (80%) + payment per case/DRG (20%)
Norway ^b	38.2	1613	Prospective global budget (60%) + payment per procedure (40%)
Poland	34.5	391	Payment per case/DRG
Portugal ^a	37.5	796	Prospective global budget
Slovakia	26.7	442	Payment per case/DRG
Slovenia	41.6	918	Global budgets and case-based payment
Spain	39.8	1117	Line-item budget
Sweden	46.9	1545	Payment per case/DRG (55%) + global budget
Switzerland ^a	35.1	1567	Payment per case/DRG (2/3 cantons) + global budget
United Kingdom	n/a	n/a	Payment per case/DRG (70%) + global budgets (30%)

Sources: OECD Health Data 2010; Paris V, Devaux M, Wei L. OECD Health Working Papers No. 50, *Health Systems Institutional Characteristics: A Survey of 29 OECD Countries*. Paris, 2010; Thomson S, Foubister T, Mossialos, E. *Financing Health Care in the European Union: Challenges and Policy Responses*, World Health Organization on behalf of the European Observatory on Health Systems and Policies, 2009.

Notes: a = 2007 data, b = 2006 data, c = 2005 data, n/a = data not available

Originally, case categorization approaches like DRGs were developed to monitor quality and utilization of services.⁵ In essence, a case-based payment system such as this aims to reimburse hospitals based on the approximate costs of treating certain types of patients assuming standardized efficient practices. Most countries in Europe base their classifications to some extent on the US DRG or Australian refined DRG systems, although data collection methods and reimbursement rates differ among countries.⁶ Busse et al⁶ have argued that if we see hospital payment mechanisms on a continuum, case-based payments may appear to fit in the middle

between the European and US starting points, with Europe and the US converging towards DRGs from very different perspectives.

Relative advantages and disadvantages

The main advantage of incorporating case-based payments into a hospital payment system is to incentivize hospitals to provide more efficient care. Because case-based payment systems reimburse hospitals based on the approximate inputs that are needed to treat a specific case, it is not profitable for hospitals to provide unnecessary services or to encourage long

lengths of stay. Hospitals are financially motivated to use more appropriate means of care to treat patients and to eliminate waste. To that end, hospitals also are incentivized to constrain their capacity (ie. number of hospital beds, size or number of departments) to a reasonable level to satisfy patient demand. The use of tools such as DRGs also allows for comparison of hospital performance.

However, as with all payment systems, case-based payment systems have the potential for unintended consequences. For one, they can lead to what is termed DRG creep or upcoding, where hospitals categorize patients into DRGs that offer

Box 1: DRG-type hospital payment systems*

In general, DRG-type hospital payment systems consist of two fundamental building blocks: (1) a patient classification system (i.e. the DRG system), and (2) a payment rate-setting mechanism that defines cost weights or prices per DRG.

The patient classification system defines 'diagnosis related' groups of patients (mostly based on diagnoses, procedures, and demographic characteristics,) that have (a) similar resource consumption patterns and that are (b) clinically meaningful. By relating patient characteristics to resource consumption, DRGs provide a concise measure of hospital activity or, in other words, they define hospital products.

The payment rate setting mechanism determines resource requirements for treating patients grouped into specific DRGs and sets payment rates (e.g. cost weights, or average prices) accordingly. The objective is to give sufficient resources to hospitals enabling them to provide all necessary services. Otherwise, if payment rates were too low, hospitals may cut down necessary services. On the other hand, if payment rates were too high, hospitals are not encouraged to use resources efficiently. Therefore, often information about average costs of treating patients in a sample of hospitals is used to determine cost weights or prices for a specific DRG.

Besides these two fundamental building blocks, DRG-type hospital payment systems require the establishment of data collection processes for clinical data and cost data. Clinical data is needed in order to group patients into DRGs. Cost data is necessary in order to calculate payment rates. Both, clinical and cost data are used to readjust the patient classification system in order to assure that it achieves its goal to assign patients to clinically meaningful groups of patients with homogenous resource consumption.

Furthermore, mechanisms have to be developed to determine hospital payment based on calculated cost weights or prices. These mechanisms need to account for the fact that some cases treated in hospitals are significantly more costly than the average case. Therefore, DRG-type hospital payment systems usually require adjustments to the payment rate for these so-called 'outlier' cases.

* Scheller-Kreinsen D, Geissler A, Busse R. The ABC of DRGs. *Euro Observer* 2009;11:1–5.

higher payment rates. For example, Serden et al found that the introduction of case-based systems in Sweden led to a comparatively greater increase in the number of secondary diagnoses among hospitals paid under prospective payment systems.⁷ At the same time, the use of DRGs can lead to skimping on the quality and intensity of treatment given, which may later lead to re-admission.⁸ There is also the need for an appropriate risk-adjustment mechanism to reduce cream-skimming, or the preference towards low-risk patients. Another disadvantage of DRGs is that they are complex from an administrative perspective, both in paperwork for hospitals and also in collecting the data used to calculate DRG weights. Other related issues to the effective use of DRG-type systems are the extent to which hospitals really know their costs, the extent to which reliable data is collected and how capital and overhead costs can be appropriately incorporated into DRG 'prices'. Also, it is not always clear if efficiency and quality gains in particular hospitals' performance can be fully attributable to the introduction of DRGs within a system. That is, it is difficult to disentangle the direct

effects of introducing DRGs on quality and efficiency from other reforms such as introducing chronic disease management programmes, shifting services to other settings (such as primary care) or from the introduction of targets and other methods of managing performance.

The European experience

Hospital payment system development in Europe over the past 20 years has been directed at improving efficiency and containing costs.⁹ DRGs must be viewed in the context of wider health system reforms within a country, an increasing need to deal with technological innovation and the increasing complexity of cases. These last two factors in particular pose continuing challenges to the development of countries' DRG systems, which need to be dynamic: the systems must be updated to reflect changes in clinical practice and must, accordingly be designed so that they can easily incorporate these changes.

As Table 1 highlights, DRG-type hospital payment systems are now employed to varying degrees within European countries, representing different health care

system structures. In particular, recent changes in how hospitals are paid in Germany, The Netherlands and Finland are highlighted in more detail in this issue (see case studies).

Briefly, Germany is moving from using a state (Länder) to a national base rate when assessing the structural variable for price-setting in its DRG payment system. The country also is working on including psychiatric care in its DRG system and on developing a monistic payer system.

In the Netherlands, overall health care reforms in 2005 and 2006 saw the merger of social and private insurance schemes, a change from a supply to a demand-led system and the introduction of the Diagnosis Treatment Combination (DBC) case mix system. The aim of the DBCs is to encourage negotiation on quality, but this goal is still in progress and to date it seems there is more negotiation on price and production volume than quality. Another main limitation is that there is not yet use of demographic data in the new hospital payment system when using patient variables to set prices.

Finally, in Finland we have an example of a very decentralized system in which only 13 out of 21 districts use DRGs. Moreover, amongst these 13 districts there is wide variation in price-setting because there are no national guidelines. However, despite this, the Finnish have found them to be useful in benchmarking quality and efficiency (see case study).

Concluding remarks

Although most case-based hospital payment systems across Europe were modelled after the US Medicare Hospital PPS system, there is now wide variation – both in the methods of price setting and the wider health systems in which they are used. Many European countries have not replaced their earlier hospital payment systems, but instead have incorporated case-based systems into their existing payment structures, all with the common goal of promoting more efficient, better quality health care. Ascertaining more precisely the extent to which DRG-type systems can contribute to this goal and seeing which models

work best requires further research and monitoring of those payment systems currently being used and developed.

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DRG-type hospital payment in Germany: The G-DRG system

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Since the first use of diagnosis related groups (DRGs) for hospital payment in the United States in the early 1980s,¹ DRG-type hospital payment systems have become the main method of hospital payment in the majority of OECD countries.² In Germany, a national German-DRG (G-DGR) system was gradually introduced over a ten year period following a legislative decision in 2000.

The G-DRG system

In Germany, there are about 2100 hospitals providing care for about 17 million inpatient cases per year.³ Hospitals are financed through a system of ‘dual financing’, which means that they receive funds from two different sources: infrastructure investments are covered directly by tax-funded state budgets, whereas operating costs are paid mostly by sickness funds and private health insurers.⁴ The introduction of DRG-type hospital payment goes back to the Statutory Health Insurance Reform Act of 2000, which reformed hospital financing for operating costs. The main objective of the reform was to replace previously existing historically-based hospital budgets (using per diem charges as the unit for reimbursement) with a more activity-oriented payment system assuming that it would promote efficiency, quality and transparency in the hospital sector.⁵

The reform legislation outlined the fundamental characteristics of the new payment system but delegated the responsibility for developing and managing the future G-DRG system to the self-governing corporatist bodies (the then federal associations of sickness funds, the Association of Private Health Insurance, and the German Hospital Federation). The legislation further specified that the system should apply to all hospitals irre-

spective of ownership status. Psychiatric services were excluded since DRG-type payment was perceived to be inadequate at that time. For the technical management of the system, the self-governing bodies founded the Institute for the Payment system in Hospitals (InEK). Currently, about 1700 hospitals (80% of all hospitals but accounting for 97% of all discharges) receive reimbursements through DRG-type hospital payment.³

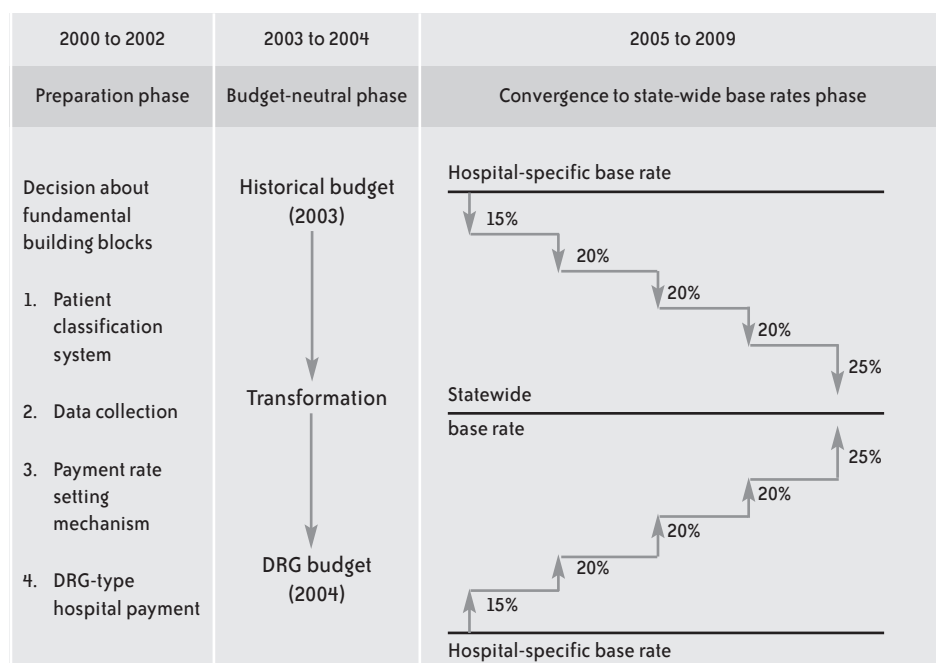
Figure 1 illustrates three phases in the introduction process of DRG-type hospital payment in Germany. During the preparatory phase, the fundamental characteristics of the system were defined. This was followed by a budget-neutral phase, during which the payment units within the budgets were changed from per-diems into DRGs. In the ‘convergence phase’ the relevance of the budgets was reduced step by step in favour of a uniform state-wide price system for DRGs.

Preparation phase

Patient classification system

In June 2000, the self-governing bodies decided to use the Australian Refined DRGs (AR-DRGs) as the starting point for developing the G-DRG system. In order to adapt AR-DRGs to the German context, Australian codes for procedures and diagnoses were transformed to German procedure classification codes (OPS) and ICD-10-GM (German Modification) codes for diagnoses. After pilot testing the system in hospitals in 2001, a first version with 664 DRGs was prepared by the end of the year 2002. According to G-DRG coding rules, all discharged hospital patients are assigned to a specific DRG based on a grouping algorithm using the inpatient hospital discharge dataset. In very high cost cases like transplantations or extended intensive care

Figure 1: Three phases of introducing DRG-type hospital payment in Germany



unit treatment, the DRG is determined directly by the procedure. In most other cases, the algorithm considers major diagnosis, procedures, secondary diagnoses, and patient characteristics (age, sex and weight of newborns) in order to determine the DRG. Since the first version for 2003, the G-DRG catalogue has been updated annually based on data analyses (of clinical and cost data) and considering suggestions from hospitals and professional medical associations. The number of DRGs has increased continuously to 1200 in 2010. Hospital outpatient services are not included in the system.

Data collection

Clinical patient data of the hospital discharge dataset grouped into DRGs are collected from all German hospitals and transmitted to sickness funds and private health insurers for payment of hospitals. Before payments are made by sickness funds, their medical review boards check the received data in order to detect any fraudulent actions by hospitals, such as inappropriate discharges of patients or classification of patients into higher paying DRGs. In addition, clinical data from all hospitals, supplemented with hospital-related structural data (for example, number of beds, number of personnel and total costs), are sent to a

Data Centre (operated by 3M Medica), which performs data checks before forwarding data on to InEK for the development of the new G-DRG catalogue.

Cost data are collected from a sample of about 250 hospitals conforming to a standardized cost accounting system developed by InEK.⁶ Participating hospitals must be able to calculate costs at the patient level by collecting information about individual services delivered to each patient. Similar to clinical and structural data from hospitals, cost data are first sent to the Data Center before being forwarded to InEK for calculation of cost weights and for developing the new G-DRG catalogue. Last but not least, information about technological innovations is needed in order to update the diagnosis and procedure classification systems (done by the German Institute for Medical Documentation and Information, DIMDI) and to support the introduction of new technologies into hospitals through additional payments.

Payment rate setting mechanism

German DRG-type hospital payment relies on a cost weight approach, meaning that hospital payment for a treated patient is calculated by multiplying the cost weight of the patient's DRG with a

base rate. Cost weights for each DRG are updated annually by InEK using patient-level cost data from the above mentioned sample of hospitals.⁷ In order to calculate cost weights for each DRG, 'in-liner cases' are defined by excluding cases with extremely long (more than two standard deviations from the mean length of stay) or short (less than one-third of the mean) hospital stays. Average costs of the remaining in-liner cases are then divided by a reference value that is conceptually related to the average costs of treating all cases in German hospitals. The resulting cost weight of any DRG is equal to one if its costs are equal to average costs of all cases in German hospitals. They will be much higher (for example, maximum cost weight in 2010: 74 – for transplantation of liver and >999 hours of intensive care treatment) or lower (minimum: 0.13 – for uterine contractions without delivery) if cases are much more or much less resource-consuming than the average. There is always a time lag of two years between the year of the data used to calculate cost weights and the year for which the G-DRG case fee catalogue was developed. For example, the 2010 version of G-DRGs is based on data from the year 2008; hence, 2009 was used for data checks and DRG catalogue development.

DRG-type hospital payment

G-DRGs are meant to cover medical treatment, nursing care, the provision of pharmaceuticals and therapeutic appliances, as well as board and accommodation. Since 2010, each patient's DRG cost weight is multiplied with a uniform state-wide base rate in order to calculate hospital payment. For long-stay outlier cases, hospitals receive DRG-specific surcharges for every day that the patient stays above the upper length of the stay threshold. Similarly, if patients are discharged earlier than the lower length of stay threshold, the DRG payment is reduced by per diem based deductions. DRG-type hospital payment constitutes about 80% of hospital revenues.⁸ The rest is made up by supplementary payments for certain procedures, additional payments for technological innovations, apprenticeship and quality assurance surcharges etc.

Budget neutral introduction phase

When DRG-type hospital payment was first introduced in Germany, it happened on a budget-neutral basis. Hospitals still received historically-based budgets as in previous years but started classifying their patients into DRGs. In 2003, hospitals could voluntarily group their patients into DRGs, with the incentive that it was possible to negotiate higher budgets. In 2004 all hospitals were mandated to do so. Based on information about DRGs of patients treated in each hospital, it became possible to calculate the 'case mix' of hospitals. The case mix of a hospital is the sum of all DRG cost weights of patients treated in that hospital. The case mix can be used as an indicator of hospital activity. The derived case mix index (case mix divided by the number of patients) is an indicator of the average complexity of treated patients.

Prior to 2002 hospital budgets were divided by the negotiated number of annual patient days in order to calculate per-diem charges. During the budget neutral transformation phase negotiated hospital budgets were divided by the hospitals' case mix in order to calculate a hospital-specific base rate. Using the hospital specific base rate for DRG-payments assured that the sum of all DRG-payments would amount to the same budget as negotiated for previous years. Initially, hospital-specific base rates varied considerably from ~€2200 (mostly in small rural hospitals) up to ~€3200 (for major hospitals in urban areas),⁹ which reflected historical differences in budget negotiations and possibly that the data basis for calculation of cost weights was not sufficiently representative in the first G-DRG version.¹⁰

Convergence phase

During the convergence phase from 2005 to 2010, hospitals' individual base rates were gradually adjusted towards state-wide base rates (one for each of the 16 Länder). State-wide base rates were negotiated for the first time in 2005 and were used as a benchmark for hospital base rates in each state. Negotiated hospital

budgets were still used to calculate hospital-specific base rates but each year actual base rates used to calculate hospital payments progressively approached the state-wide base rate. In 2005, actual base rates were set at 15% of the difference between the hospital specific base rates and the state-wide base rate; in 2006 at 35% (15% plus 20%) etc. – until in 2009 actual base rates were programmed to converge at state-wide base rates (see Figure 1).

In order to make the reform politically more acceptable, hospitals were sheltered from excessive budget cuts by limiting losses in 2005 to 1% (compared to 2004 budgets) and increasing this percentage to 3% in 2009 (compared to 2008). In 2010, budget losses are no longer limited and all hospitals are paid using the state-wide base rates. However, hospital budgets continue to be negotiated for each year based on the expected case mix volume. If a hospital treats more cases than negotiated, the DRG payment rate is reduced by a certain percentage (and vice versa, it is increased if the number of treated cases is lower).

Conclusion: current developments and results

The 2009 Hospital Financing Reform Act (KHVG) further modifies hospital financing in Germany:¹¹

1. state-wide base rates are programmed to converge to a nation-wide base rate by the year 2015;
2. the self-governing bodies are mandated to develop and introduce a DRG-like payment system for psychiatric services by 2013, which will be special in that it will be based on per diem payments adjusted for patient characteristics and treatment efforts; and
3. starting in 2012, state governments are given the choice to abandon the existing system of 'dual financing' for a monistic (single payer) system by adjusting DRG-type hospital payment using investment cost weights.

All three developments show that the importance of DRG-type hospital

payment in Germany is continuing to increase. At the end of a ten-year process of careful introduction of G-DRGs, the system is widely accepted and generally seen as a success.

The G-DRG impact evaluation concludes that the system has increased transparency in the hospital sector.¹² DRG-type hospital payment is perceived to have contributed to greater efficiency while maintaining or improving the quality of care.¹³ In particular, the annual updates of G-DRGs based on robust data analyses by InEK working in close co-operation with key stakeholders is seen as a strength of the system. However, available data are still insufficient to answer the question of whether changes in quality and efficiency of the hospital sector can be attributed to the introduction of DRG-type hospital payment.

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Structural reforms and hospital payment in the Netherlands

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Over the past 20 years, structural reforms of national healthcare sectors have taken place in many European countries. The most common reason for such reforms is to improve the efficiency of hospital care, with the aim of containing or reducing hospital costs. Secondly, the aim is to increase transparency of hospital costs and to introduce fundamental incentive mechanisms to improve efficiency, such as systematic benchmarking and managed competition.

Structural reforms in the Netherlands were implemented in 2005/6. During the previous decades, hospitals were mainly financed based on prospective global budgets, i.e. hospitals received a fixed payment for treating a pre-specified volume of activity. Thus, incentives to increase production or to produce more efficiently were mainly absent. The structural reforms entailed substantial changes in the financing, budgeting and reimbursement of healthcare organizations.

A central element of the reforms was the transition from a supply-led system to a demand-led system.¹ It was the government's intent to shape the healthcare system primarily according to the needs of patients (i.e. the demand side) by:

- increasing competition between health insurers
- increasing competition between healthcare providers
- financing the core/main care chain based on quality

Integration of health insurance schemes

Since January 2006, statutory and private health insurance have been integrated into a single and mandatory scheme that

provides coverage to the whole population, including care provided by hospitals, medical specialists and general practitioners and uninsurable risks such as those related to chronic illnesses.^{2,3}

Each health insurer has to accept each customer, regardless of age or medical history, at a standard premium applicable to all its customers. A risk equalization fund compensates insurers for an over-representation of bad risks. The expected expense associated with each customer is estimated on the basis of predictive modelling, and the risk equalization fund pays appropriately more to insurers whose customers' care is predicted to cost more than average, while insurers whose customers' care is expected to cost less than average must pay the fund.⁴

Insurers are to compete by purchasing high-quality care for their customers. Consequently, the market power of insurers would be determined by the willingness of customers to switch between insurers and the willingness of customers to go to those hospitals that are contracted by their insurer.^{4,5}

Free access to the hospital care market

In 2007, there were 8 university hospitals, 86 general hospitals, 35 specialized hospitals and 17 rehabilitation centers in the Netherlands.⁶ All hospitals work on a not-for-profit basis and provide care which is covered by the mandatory insurance scheme. Where hospital care was previously only provided by hospitals, independent treatment centers (ITCs) and private clinics have been allowed to freely access the hospital care market since 2006. Similar to hospitals, ITCs work on a not-for-profit basis and deliver care which is covered by the mandatory

scheme. However, ITCs focus on straightforward, non-acute outpatient care. Private clinics work on a for-profit basis and focus on non-insured care.

The DBC casemix system

The third instrument to support the transition from a supply-led system to a demand-led system was the introduction of the national Diagnosis Treatment Combination (DBC) casemix system for the registration and reimbursement of care provided by medical specialists and hospitals. DBC includes the whole set of hospital services provided by the medical specialist and hospital resulting from the first consultation and diagnosis of the medical specialist at the hospital. This implies that the codification process starts at the beginning of the care process and ends after treatment completion when the care process has finished.

Patients are classified according to medical specialty, type of care, demand for care, and diagnosis and treatment setting and nature. The DBC system now comprises about 30 000 DBCs with the 'medical specialty' dimension as the primary basis for the classification of patients. In the near future, the number of DBCs will be substantially reduced to 3,000 by means of discarding the 'medical specialty' dimension and excluding expensive/orphan drugs and intensive care.⁷ The information used to classify patients includes clinical and resource use data. However, resource use care intensity is not used in the current classification system because demographic data, co-morbidities, secondary diagnoses, grading of severity and secondary procedures and operations are not yet registered. All hospitals and ITCs are paid for all of their inpatient and outpatient care according to the system's logic. In addition, the system is implemented in mental healthcare.

All DBCs are exhaustively assigned to one of two lists – either List A or List B. The distinction between List A and List B DBCs is especially interesting in the light of the transition from a supply-led system to a demand-led system. List A DBCs have fixed national prices and are (still) largely financed according to the financing system in place before 2005

(based on production volume rather than on quality).⁸ In contrast, the prices of List B result from negotiations between health insurers and hospitals. Any deficits or earnings on List B DBCs are the responsibility of the hospital. List B DBCs are meant to encourage insurers and hospitals to negotiate on quality rather than on production volume. Insurers are not obliged to contract all hospitals, may employ different DBC prices for different hospitals and may set a maximum on the number of DBCs they want to reimburse to a hospital. Likewise, hospitals are not obliged to contract with all insurers and may employ different DBC prices for different insurers. In addition, insurers and hospitals may agree upon a lower or higher DBC price if production exceeds a predetermined figure and may determine the frequency and terms of agreements.^{4,1}

The DBC casemix system aims to achieve a situation in which the core care chain is predominantly financed based on the quality of delivered care, i.e. by List B DBCs. Currently, about 33% of DBCs are in List B, but it is the government's intention to gradually increase this share to 70% over time. Major List B diagnoses include hip and knee replacement, diabetes mellitus, cataracts and inguinal hernia repair. List B DBCs are sufficiently medically coherent and cost-homogeneous and should have a sufficiently high incidence/ production volume. In addition, List B DBCs concern predictable, non-acute outpatient care and are freely accessible for (new) healthcare providers. A List A DBC is eligible for transfer to List B when it meets these criteria, when the transfer is supported by the medical profession and when it is technically realisable.⁷

Evaluation of structural reforms

Integration of insurance schemes

The integration of social and private insurance schemes created strong price competition among health insurers.⁵ Many insurers tried to attract customers by offering low-priced contracts, in particular by discounts on group contracts (on average these were about 7% cheaper). In 2006, 18% of the population switched to another insurer.

As a result of the heavy price competition, health insurers incurred annual losses of about 2% of total premium revenue. Since 2007 insurers started to cut operating costs, premiums converged and switching rates dropped to about 4%.^{1,5}

However, insurers have been quite reluctant to selectively contract with hospitals and to offer preferred hospital contracts to their customers. There are several reasons for this.⁵ Firstly, there is limited availability of high-quality information. Insurers often do not have sufficient information to selectively contract with good-quality providers. In addition, the limited availability of high-quality information makes it difficult for insurers to explain to (potential) customers that preferred providers are selected because they offer good-quality care. When there is already a free choice of health insurer for customers, insurers fear a loss of reputation if they restrict choice to a limited network of preferred hospitals. A third reason why insurers do not have an incentive to selectively contract with hospitals is that most of the DBCs are still in List A and (still) largely financed according to the financing system in place before 2005. However, with ongoing improvements to the DBC system, the method of risk equalization in place and the increasing share of List B, the financial risk on hospital expenses has substantially increased since 2009.^{9,5}

Free access to the hospital care market

In order to remain competitive, many hospitals have established ITCs over recent years. Consequently, the number of these centers has increased rapidly from 79 to 135 in 2007.⁶ The introduction of ITCs to the hospital market has led to higher accessibility for patients, especially when it comes to straightforward non-acute outpatient care (List B DBCs). ITCs are an attractive alternative to hospitals because they provide relatively high-quality care due to the routine delivery of specific treatments and they more easily respond to changes in the needs of the patients. Moreover, the introduction of ITCs reduce the waiting lists of competing hospitals and encourage competitors to improve the quality and efficiency of care.¹⁰

Table 1 Negotiated prices in 2007 and 2004 for seven list B DBCs at four health insurers

	2004 price (€)	Minimum 2007 price (€)	Maximum 2007 price (€)	Mean 2007 price (€)	Price increase (%)
Hip replacement	8571	7603	11370	9097	6.3
Knee replacement	10228	9097	13000	10746	5.1
Inguinal hernia repair	2163	1529	3088	2254	4.2
Diabetes	409	385	1027	483	18.1
Tonsillectomy	740	433	1498	800	8.1
Cataract	1317	1044	1599	1381	4.8
Spinal disc herniation	3046	2413	5778	3308	8.6

Source: NZa, 2005¹¹*The DBC casemix system*

Although negotiations were intended to be based on quality, insurers and hospitals currently predominantly negotiate on price and/or production volume.⁸ Since 2006, prices for List B have increased at a lower rate than those for list A and the health insurers increasingly put pressure on hospitals to charge even lower prices. On the other hand, the production volume of List B has grown faster than that of list A, but it is unknown whether this is due to supplier-induced demand or to a learning effect in the new coding and registration system.⁵

Table 1 depicts the negotiated tariffs of 2007 compared to those of 2004 for seven List B DBCs at four health insurers.¹⁰ Negotiated prices generally vary widely between health insurers. For example, the 2007 price for hip replacement ranged from €7 603 to €11 370. Overall, List B prices have increased about 8% compared to 2004. Current practice suggests that negotiations take place annually, but that either party re-opens negotiations if required by the circumstances; for examples, when there is a long waiting list, increased public attention to a specific health problem or

the introduction of new and expensive medications or medical devices.¹ In general, large negotiated price deviations only occurred for the minority of DBCs. More complex and chronic DBCs seemed to be less sensitive to market competition. Moreover, the most recent evidence suggests that hospitals negotiate on the total budget of the overall List B segment rather than at the individual DBC level.⁸

Besides the problems of having the right mix of criteria to determine quality, accurate data and having this data in a timely manner, there are several limitations for Dutch health insurers that prevent them from competing on quality.² Firstly, patients assume that the quality of care in terms of effectiveness and safety is equal among all hospitals. The public debate about quality of care is predominantly focused on topics like waiting lists and access time. As a result, insurers have no incentive to aim for quality because this might not earn back investments through higher payments for high-quality performers. Secondly, hospitals have contracts with several insurers, which might limit the effect of an insurer's effort to motivate hospitals – unless the insurer who is promoting the incentive program is responsible for a substantial proportion

of a hospital's patients. An additional consideration is 'free riding'. Customers who are not insured through the insurer who sets up a value based purchasing program will also benefit from the quality improvement. Thirdly, quality is particularly important to patients who are sick. If an insurer achieves recognition for providing high-quality care, it is likely to enrol a disproportionate share of patients with chronic medical problems. However, improving the risk equalization fund might reduce insurers' concerns about risk selection.^{4,9} Because of these limitations, the only aspects that impact on how insurers can stand out from one other are (i) improving accessibility to hospitals, (ii) the service they themselves provide and, in particular, (iii) the costs related to a lower premium and/or co-payments.²

Concluding remarks

The Dutch healthcare sector has been radically reformed and the first stage of the introduction of competition between health insurers and healthcare providers has been completed. The development of the DBC casemix system to encourage insurers and hospitals to negotiate on quality is still work-in-progress.

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Financing of hospital care in Finland

Unto Häkkinen

In its institutional structure, financing and goals, the Finnish health care system is closest to those of other Nordic countries and the United Kingdom in that it covers the whole population and its services are mainly produced by the public sector and financed through general taxation.

However, compared to the other Nordic countries the Finnish system is more decentralized; in fact, it can be described as one of the most decentralized in the world. Even the smallest of the 342 municipalities (local government authorities) are responsible for arranging and taking financial responsibility for a whole range of ‘municipal health services’. Another unique characteristic of the system is the existence of a secondary public finance scheme (the National Health Insurance scheme, NHI), which partly reimburses the same services as the tax based system, but also services which are provided by the private sector. NHI also partly reimburses the use of private hospital care.

Specialized care (psychiatric and acute non-psychiatric) is provided by hospital districts which correspond to the federations of municipalities. Each municipality is obliged to be a member of a hospital

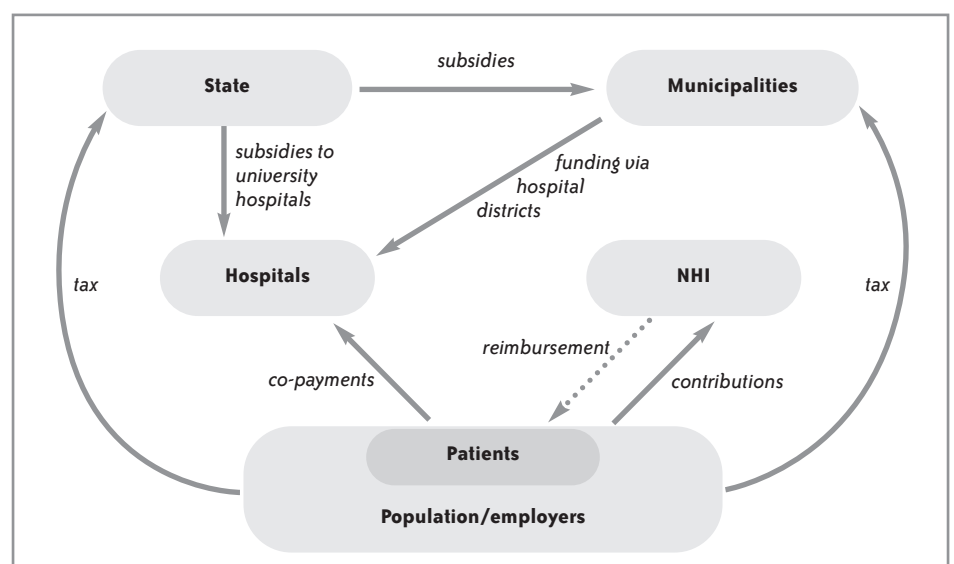
district. In addition to services provided through health centres and hospital districts, municipalities may purchase services from a private provider. In 2008 specialized care comprised 33% of total health care expenditure.

There are 21 hospital districts in the country. Each hospital district has a central hospital and in some districts care is supplemented by small local hospitals. There are 15 local hospitals in the country. Tertiary care is given in five university hospitals, which also act as central hospitals for their hospital district.

Hospital districts are managed and funded by the member municipalities. Funding is mainly based on municipal payments to hospital districts according to the services used. In 2008, 4.2% of funding came from user charges.¹ In addition, governments subsidize hospitals’ teaching and research activities, which are mainly undertaken in university hospitals. The funding of Finnish hospitals is illustrated in Figure 1.

As purchasers, municipalities negotiate annually the provision of services with their hospital district. There are different

Figure 1 Hospital funding flows in Finland



contractual or negotiation mechanisms between hospital districts and municipalities for agreeing target volumes and payments which comprise elements of purchaser and provider separation. Both the volumes and costs are planned based on the previous year. In many cases views on the right size of the resource allocations differ between the municipalities and the hospital districts. There is a tendency for budgets to be too low and agreements are therefore sometimes revised during the year according to the actual amount and type of services provided by hospital districts. Usually, there are no explicit sanctions if there is deviation from agreed plans and targets, and municipalities cover any deficits and retain any savings in their accounts. The negotiation mechanisms are under continuous change and development.

The budget of each hospital district is based on these negotiations and is formally decided by a Council, whose members are appointed by each municipality. The council also approves the financial statements (such as payment methods and levels of payments (prices)) and makes decisions about major investments. If the budget is exceeded, the municipalities must cover the deficit from their own revenues, usually by paying higher prices for services. In the case of budgetary surplus, the prices paid by municipalities can be lowered. Thus, the major purpose of hospital pricing systems has been to cover the costs of production and to allocate hospital costs fairly between the municipalities financing the provision of services within a hospital district.

Thus, in the absence of nationally set regulations or even guidelines, each hospital district determines the payment methods used to reimburse its hospitals. Because payment methods are district based, they may vary from district to district. The pricing trend has been consistently moving away from the bed-per-day price towards case-based prices. Presently, 13 out of 21 districts use DRG-based pricing. The principles and rules for DRG usage vary greatly between hospital districts because there are no national guidelines.

There is now increasing evidence that Finnish hospitals are more efficient than

hospitals in other Nordic countries. According to a recent study, Finnish hospitals were somewhat more efficient than Danish ones, about 10% more efficient than Norwegian hospitals and almost 20% more efficient than Swedish hospitals.² The reason for these differences have not been fully analysed, but one explanation may be that cost control by municipalities (financed mainly by local taxes) is much more effective than that of counties or national governments.

Current issues

Government involvement and monitoring

Under current legislation the power of the Ministry of Social Affairs and Health is very weak, and it does not have effective means to affect decisions made at the local level. However, in recent years the government's involvement in providing health care has increased. In 2005 the government implemented two reforms. The first was the introduction of clinical guidelines for a wide range of treatments, aimed partly at bringing about some convergence across Finland in rates of elective surgical procedures and setting thresholds for admission to waiting lists for procedures. The second was the introduction of a set of maximum waiting-time targets for non-urgent examinations and treatments at health centres and hospitals. The hospital districts must pay a fine if they do not meet waiting-time targets.

Scale and scope

There is a clear trend towards increasing the size of the hospital providers as well as purchasers, which has happened on a voluntary basis following government recommendations. One example is the merging of three hospitals (Helsinki University, Jorvi and Peijas hospitals) in 2007 into one big unit, which produces about 25% of all acute somatic care in the country. The new unit is organized under medical specialties so that the same specialties in the former three hospitals were merged. A current initiative from the Ministry will centralize the care of diseases requiring highly demanding treatment to five special responsibility hospital districts (government legislation

2010; implementation 2011). On the purchasing side, in 2009 the number of municipalities decreased from 415 to 342.

Vertical integration

During the last ten years several local reforms have integrated service provision to a single organization. The purpose of these reforms is to enhance cooperation between primary and secondary health care and social welfare services. The reforms include merging of health centres and regional hospitals into one organization, creating a new regional, self-regulating administrative body for all municipal services (including health care, social services, upper secondary schools and vocational services) with regional councils and hospital districts also taking responsibility for primary health care. In 2008 about 10% of the Finnish population lived in areas where most primary and secondary care is provided by the same organization. Another current initiative from the ministry includes greater integration of care between health centres and non-university hospital districts throughout the country (government legislation in 2010; implementation expected in 2011).

Patient choice

In the municipal health care system, patients are not free to choose between hospitals. A current government proposal involves the idea that patients can choose (public) hospitals from their own special responsibility hospital districts (government legislation presented to parliament in 2010; implementation is expected in 2011). However, so far, it has not been decided (or indeed proposed) how municipalities would pay hospitals under such a framework.

Hospital benchmarking

In 1996, the National Research and Development Centre for Health and Welfare (STAKES) launched a project, called the Hospital Benchmarking project, in co-operation with the hospital districts. The main purpose was to provide hospital managers with benchmarking data to improve and direct hospital activities. The project designed and implemented an internet-based information system that supports continuous data gathering and processing, as well as displays benchmark

measures at the desired level of aggregation. The project has taken advantage of the existing information systems in hospitals (the patient administration systems, cost accounting and pricing/ reimbursement data and cost administration) to collect patient-level data on produced services and their costs. Nowadays, annual data is collected routinely. Productivity and efficiency calculations are made with traditional activity measures, such as DRG admissions and outpatient visits, and with a more advanced DRG-weighted episode of care measure.

The quality as well as efficiency of specialized care has been evaluated in a PERFECT project (PERformance, Effectiveness and Cost of Treatment episodes, (www.thl.fi/fi_FI/web/fi/tutkimus/hankkeet/perfect) since 2004. In this project, protocols for eight diseases/health problems (acute myocardial infarction (AMI), revascular procedures (percutaneous transluminal coronary angioplasty (PTCA), coronary artery bypass grafting (CABG)), hip fracture, breast cancer, hip and knee joint replacements, very low birth weight infants, schizophrenia, and stroke) have been developed. The development has been undertaken in seven separate expert groups, whose members (approximately 50 experts) are leading clinical experts in the disease areas. DRGs are used for calculating the costs of diseases.

At present, register-based indicators (both at the regional and hospital levels) on the content of care, costs and outcomes between 1998 and 2007 are available for seven health problems. The indicators are freely available on the internet, and they will be routinely updated using more recent information. They have been widely used in local decision-making and also have been discussed in the media. The Ministry of Social Affairs and Health uses the information in its strategic planning: the indicators developed in the project will be used to evaluate the development of regional differences in the

effectiveness of specialized care. The ministry also has used the information in its recommendation concerning the centralization of certain services (such as care of low birth infants) to university hospitals with adequate resources.

Conclusion

Internationally, the Finnish decentralized hospital system seems to be rather effective in producing services, but we do not yet have information on its performance in terms of outcomes. There exist great regional and hospital-level differences in efficiency, cost and outcomes which indicate great potential to improve performance. New government initiatives (such as introducing patient choice) have been proposed without considering how financing will be arranged. On the other hand, benchmarking of hospital efficiency and outcomes is well developed. Originally, this activity was initiated by researchers and later implemented, together with producers (hospitals districts) using financial support from research funds. The information has been increasingly used in local and national decision making

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