

How To Pay?

Understanding and Using Incentives

John C. Langenbrunner, Xingzhu Liu

September 2004



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Health, Nutrition and Population (HNP) Discussion Paper

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Health, Nutrition and Population (HNP) Discussion Paper

How To Pay *Understanding and Using Incentives*

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Paper prepared for the World Bank's Resource Allocation and Purchasing Project

Abstract: Many countries have experimented with alternative ways of paying providers of health care services. This paper illustrates different methods, suggests some of the theoretic advantages and limitations of each, and provides a general theoretical framework for evaluating alternatives. Over the last two decades, new and more sophisticated payment systems have evolved, with a broadening of units of payment and setting of payments prospectively. The authors discuss the international experience of a number of payment systems, both traditional and more recently developed, including line-item budgeting, salary, fee-for-service, per diem, case-mix adjusted per episode, global budgets and capitation. The authors argue that no one set of incentives will address the multiple objectives of purchasers, providers, and patients. As a result, purchasers and policymakers must understand and address policy objectives explicitly.

With more sophisticated systems, part or all of the financial risk is transferred from the purchaser back to the provider and patient. Most observers caution against full risk but encourage some “supply-side cost sharing” only, with purchaser and provider sharing in risk arrangements to address moral hazard issues. Imposing high copayments or user fees is an alternative, but in developing countries that quickly erodes financial protection. More sophisticated payment systems may also lead to higher transaction costs and necessitate a greater capacity to use information and management systems.

Finally, the best planned and implemented payment incentives and systems may fail due to a variety of other and related factors in health care delivery. Unless these issues are addressed, impacts of change in resource allocation and purchasing will be diluted or neutralized. Technicians and policymakers will need to address these potential “chokepoints” in any process of implementation and refinement.

Keywords: resource allocation and purchasing, health care financing, purchasing, reimbursement, incentives, physicians, hospital

Disclaimer: The findings, interpretations and conclusions expressed in the paper are entirely those of the authors, and do not represent the views of the World Bank, its Executive Directors, or the countries they represent.

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FOREWORD

Great progress has been made in recent years in securing better access and financial protection against the cost of illness through collective financing of health care. This publication – *How to Pay? Understanding and Using Incentives* by John C. Langenbrunner, William Jack, and Xingzhu Liu – is part of a series of Discussions Papers that review ways to make public spending on health care more efficient and equitable in developing countries through strategic purchasing and contracting services from nongovernmental providers.

Promoting health and confronting disease challenges requires action across a range of activities in the health system. This includes improvements in the policymaking and stewardship role of governments, better access to human resources, drugs, medical equipment, and consumables, and a greater engagement of both public and private providers of services.

Managing scarce resources and health care effectively and efficiently is an important part of this story. Experience has shown that, without strategic policies and focused spending mechanisms, the poor and other ordinary people are likely to get left out. The use of purchasing as a tool to enhance public sector performance is well documented in other sectors of the economy. Extension of this experience to the health sector is more recent and lessons learned are now being successfully applied to developing countries.

The shift from hiring staff in the public sector and producing services “in house” from non governmental providers has been at the center of a lively debate on collective financing of health care during recent years. Its underlying premise is that it is necessary to separate the functions of financing health services from the production process of service delivery to improve public sector accountability and performance.

In this Discussion Paper, Langenbrunner, Jack, and Liu examine the important role that provider payment mechanisms and incentives play in achieving the policy objectives of strategic resource allocation and purchasing. They suggest that payment mechanisms should be tailored to the desired policy objectives during resource allocation and purchasing.

Alexander S. Preker

Lead Economist
Editor of HNP Publications

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INTRODUCTION

Many countries have experimented with alternative ways of paying providers of health care services. This paper illustrates different methods, suggests some of the theoretic advantages and limitations of each, and provides a general theoretical framework for evaluating alternatives.

At its simplest, there are three major approaches to payment of health providers under resource allocation and purchasing (RAP) arrangements:

- Direct payment to providers by the patient
- Direct payment to providers by the patient, but with later full or partial reimbursement of the expenses incurred through the RAP mechanism
- Direct payment of the provider by the RAP mechanism, with the patient bearing only a limited copayment or informal charge

Direct payment by the patient sends a clear signal to the consumer about the price of the service used. But poor patients, or patients receiving expensive care for major illnesses, may not have the disposable income. Partial or full reimbursement later may still not allow the patient to bridge the period between paying for the service and receiving a full or partial reimbursement.

When providers are reimbursed primarily through RAP arrangements rather than patients, the payment incentives and mechanism used rather than prices and demand create the behavioral environment for suppliers of services.

Due to information asymmetry, neither consumers nor producers have full information about preferences, prices, or the market in which they operate. The level, mix, and quality of care for consumers can be ascertained only after the fact, and good health depends on factors other than the health services consumed. Although physicians act as agents for their patients (Arrow 1963), often not even they know the full impact of the interventions they recommend. Both consumer and provider behavior is therefore important. Pricing and payment mechanisms provide an opportunity to shape the behavior of both through incentives and improve knowledge about clinical outcomes, cultural factors, and the professional ethics of providers.

CATEGORIES OF PAYMENT SYSTEMS AND A CONCEPTUAL FRAMEWORK FOR THINKING ABOUT INCENTIVES

Oxley (1995) characterizes the financial relationship between funders (i.e., purchasers) and providers of health services in three categories:

- The *reimbursement approach* in which providers are funded *retrospectively* for services delivered. Under this open-ended fee-for-service model, the agents determine the nature and quality of health services (i.e., the patients and the physicians) and face little in the way of financial consequences.

- The *contract approach* involving some kind of *prospective* agreement between purchaser and provider regarding the terms and conditions of payment. The contract provides more explicit specifications of the volume and quality of care.
- An *integrated approach* to health systems design, combining the roles of purchaser and provider under a single institutional umbrella (e.g., a local or central government).

This characterization of payment mechanisms can be applied to both hospital and physician funding. To properly evaluate the benefits of alternative payment mechanisms, a model of behavior is needed that admits that outcomes of interest (quality, cost, access for the poor) vary according to the financing alternative employed.

Why can't a purchaser just buy wanted services from hospitals and doctors? If the services can be fully specified in an enforceable contract, perhaps they could be purchased directly, but the financial cost and allocation of risk associated with such a contract might be undesirable. On the other hand, any contract specifying services to be provided will likely be inherently incomplete. In both cases, the issue of incentives is key. *Moral hazard* occurs when the uncertainty is resolved after the provider acts. *Adverse selection* occurs when uncertainty is resolved before the provider acts, but the purchaser does not share this information.¹

An optimal payment contract would base the transfer to the consumer on the illness she has, thus ensuring that the patient bears the full (social) cost of care at the margin, while a lump-sum payment fully protects the purchaser against risk. Optimal payment contracts for providers should induce providers to render high-quality, effective treatments, while promoting a rational allocation of resources to and within the health sector.

Because verifying the illness state is costly, however, insurance payments are based on generated expenditures. This practice introduces a distortion inducing the patient to utilize more care than she otherwise would.² This same overconsumption of care occurs if we think of the physician as making choices of care, as long as she acts in the patient's interests.³ One policy response is to monitor provider actions more closely, and thus to approach the mechanism of purchasing effort directly.

¹ In the case of *moral hazard*, to induce a provider to deliver inputs not easily observed (generically identified as effort), payment must be made conditional on other correlated outputs or indicators. Because of stochastic elements in the link between effort and indicators, the incentives provided are weaker, and allocate risk less efficiently, than those under a contract based directly on effort. In the case of *adverse selection*, uncertainty about observable outcomes derives not from a stochastic effect outside the relationship but from the purchaser's imperfect knowledge about the provider's circumstances such as the health needs of its clientele. In this case, a purchaser who observed high costs of care would be unable to tell if these were due to high underlying needs coupled with efficiently delivered care, or low needs coupled with wasteful and cost-padded delivery. The trade-off now is between incentives and rent extraction.

² For more analysis of the costly verification issue, and its interaction with adverse selection, see Zeckhauser (1970), Jack and Sheiner (1997), and Jack (2001c).

³ Ellis and McGuire (1986) examine the implications of the physician-patient agency relationship for provider payment mechanisms.

International experience and the literature reflect the asymmetry of information. Conflicts or tensions arise across the multiple behaviors of purchasers, providers, and patients. Several parties' objectives may be equally desirable, but mutually irreconcilable, in the sense that payment systems' capacity to achieve each party's objective are not the same, and multiple objectives may or conflict with each other. Among the tensions illustrated in the literature on provider payments are between

- Quality-enhancement and cost containment (Ellis and McGuire (1990))
- Provider risk and production efficiency (Jack 2001)
- Risk-selection and production efficiency (Newhouse 1998)
- "Fairness" in payment size and optimal service (Jencks, et al. 1984).

Provider response to payment incentives has been analyzed through both principal-agent models and monopolistic competitive models. The relative advantage of principal-agent theory is that it recognizes and models explicitly the potential conflicts of interest among different actors, emphasizing asymmetry of information as the critical problem in the discipline of providers. The relative advantage of monopolistic competitive models is that, unlike principal-agent models, these explicitly consider the effects of competition among a plurality of health providers.

Using these models from the perspective of the tensions outlined above, the literature suggests that retrospective payment systems address issues of access, acceptable levels of provider risk, adequate revenues, patient selection, and quality enhancement. Prospective payments do better on optimal levels of services, efficiency, and cost containment. With integrated models, cost containment is often an outcome, but the overall impact depends upon how internal managers allocate resources within these integrated environments.

WHICH PAYMENT SYSTEM SHOULD BE CHOSEN?

Instead of being linked to health outcomes, payments are linked to observable (by both parties) and verifiable outcomes. These are often intermediate outcomes or even types of inputs. In addition, when purchasers begin to consider new incentives, decisions are typically made on a practical basis such as policy priorities, available information, technical capacity, and time available to design, implement, then monitor payment systems.

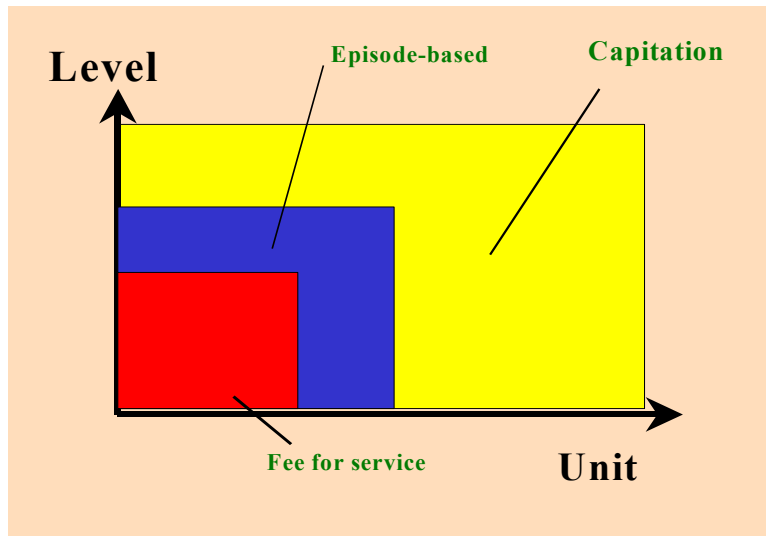
Purchasers first have to consider and decide on policy objectives—increased revenues, efficiency, cost-containment, access, quality, administrative simplicity, or some combination? Payment systems and incentives have to address the one or more policy objectives facing the health sector at that particular time.

Purchasers also have to address the basic mechanics of developing a payment system for providers. The perspective of purchasers is to examine payment mechanism along two different axes: the unit of payment and the size of the payment (figure 1).

The unit of payment can be discrete: a visit, a test, or an event, and these units can be subdivided into one or more parts. At the other extreme, the unit of payment can be much broader—an episode of care or even some bundle of services needed for a defined period such as a year.

The payment size is based on several factors, including: standard and perceived cost of the services, number of providers, competition between providers, health product volume, availability of good information, and patients' to copay. Other factors such as provider influence and governance issues are also important.

Figure 1. Dimensions of Developing a Payment System



Purchasers often have to develop a payment system but have little time or technical resources to do it. The purchaser's lack of technical capacity and lack of good baseline information as well on costs and volumes of needed care may force purchasers initially to merge these two dimensions and to allocate resources on a historical basis or on the basis of gross categories of inputs. This is closest to the Oxley notion of an integrated approach. Specific examples of such mechanisms are discussed below.

LINE ITEM BUDGETS

Lack of information often results in use of the line item budgeting approach. The provider is paid an amount per given period (usually a year) for a defined responsibility of service provision. The total amount is broken down into items such as salaries, drugs, equipment, maintenance, and the like. Managers cannot switch the funds across the line items without approval by the funding agency such as the Ministry of Finance. Governments typically provide line item budgets for publicly run facilities with no purchaser-provider split. The line item budget was common in Eastern bloc and former Soviet Union republics, as well as in many Soviet-influenced systems in Vietnam, Egypt, and some African countries. It is also still found in many government-run systems in every part of the world, regardless of income (e.g., Bahrain, Mozambique, Bangladesh).

Line item budgets offer strong administrative controls, often valued with government-run providers. At a theoretic level, technical and allocative efficiency of health interventions can be optimized by manipulating the government budget lines over time to increase delivery of more cost-effective health interventions and decrease delivery of less cost-effective health

interventions. Nevertheless, this assumes governments can track and understand the right combination to achieve these outputs. In fact, the lack of good monitoring information has led to the reverse trend, with line item budgeting system becoming increasingly abandoned across the world. In reality, instead of proving cost-effective, the system has more often provided an incentive for inefficient use of resources and rapid spending by the end of the budget year. The line budget is rigid in use of resources and discourages use of the best and the least costly combination of inputs for providers to produce services.

The classic example of line item budgeting is health sectors in the Soviet republics. During the Soviet period, the base source of information on needs was an expert assessment of the number of units of input required for a given population at each level of the system. A similar procedure was in place for all publicly financed services. For health care, the norms were defined by the network of health institutions based on the Semashko model of health service provision and finance. The model ensured that the country was served by a tiered system of health facilities, starting with the rural *feldsher* station and ambulatory clinic through district and city hospitals and polyclinics, up to regional and national specialist hospitals, clinics, and dispensaries.

These norms led to specific budgetary requirements for each health care institution. The number of beds in an inpatient institution determined the number and type of staff required. Staff numbers in a polyclinic were based on the size of the population served by the area. The total budget for an institution was obtained by multiplying staff numbers by the appropriate national pay scale. This reflected the experience of staff, specialty, and a small number of adjustment coefficients. Adjustments were made for geographic region, and for working in areas of environmental degradation. Funding for other “line items” was based on facility and population-specific norms (table 1). Hospital expenditure on food, for example, was based on the number of days provided in the previous year.

Table 1. Basis of Norms to Compute Expenditure by Line Items

<i>Budget line item</i>	<i>Basis of norm</i>
1,2. Salaries and social security	Number and grade of staff in post
3. Operating expenditures	Last year’s budget
9. Meals	Bed days
10. Medicines	Bed days
12. Equipment	Number of beds
14. Furniture and fixtures	Number of beds
16. Maintenance	Number of beds

Source: Ensor and Langenbrunner 2002

Although the basic population norms encouraged a certain degree of input-dominated equity, the actual distribution was inevitably and inexorably influenced both by the initial distribution of facilities and political, social, and economic factors. Areas that generated more revenue had greater influence over their share than those with a smaller revenue base. In Tajikistan, for example, Richter (1998) suggests that much of the variation in spending by region can be attributed to the size of the revenue base rather than to social needs. This permitted a region to build up and maintain a large publicly financed infrastructure and led to wide differences in funding within each country. Once begun, these inequities were self-perpetuating. Since the overall budget was dominated by the hospital whose activity was largely supply driven, large

hospitals attracted more patients, in turn increasing their budgets for nonstaff items and even “justifying” greater investment in infrastructure (Ensor and Langenbrunner 2002).

SALARY

Closely related to line item budgeting is use of salary as a payment method for doctors based on the time of work. It is often used in conjunction with line item budgeting for a facility, as discussed above. A part-time or full-time salary can be paid, depending on the pattern of employment. Salary payment to doctors is quite common. For example, all hospital-based doctors in China and the United Kingdom are salaried. Doctors who provide care in outpatient health centers are often on full-time or part-time salaries in, for example, Finland, Sweden, the former USSR, Spain, Portugal, Greece, Turkey, India, Indonesia, Israel, and many countries in Latin America (Ron 1990).

Salary facilitates planning and execution of public or insurance budgets and is neutral with regard to providing an economic incentive for either over or underproviding services (Culyer, Donaldson, and Gerard 1988). The salary system encourages doctors to conduct group consultation and referrals necessary for an appropriate treatment plan and has lower administrative costs than performance-based approaches (described below).

At the same time, fixed salary, if very low as in many low-income countries in Africa and Asia, gives doctors no incentives to work productively—or at all. Salaried physicians may collect illegal payments from patients and gain under-the-table money from kick-backs from pharmaceutical industries and high-tech equipment owners. Nor does salary payment give doctors any direct incentive to decrease costs, increase health outcome, or recommend the most cost-effective health interventions.

Gosden, Pedersen, and Torgerson (1999), based on review 23 papers, find that payment by salary is associated with the lowest use of tests and referrals, fewer procedures per patients, lower throughput of patients per doctor, longer consultations, and more preventive care. However, the authors do not look at the links between utilization and case-mix (patient needs) and outcomes.

LINKING PAYMENTS WITH PERFORMANCE

Many countries have moved away from line-item budgets. Initially, simple units of payment (e.g., per service) were introduced retrospectively. This payment mechanism is typically referred to as fee-for-service (FFS) for outpatient care and per diem (per day) for inpatient care (e.g., India, Malaysia, Sri Lanka, parts of Russia). Initially, some are relatively easy to introduce, and the change can encourage provider participation and improvements in productivity (as measured by volume) and performance. Several types are discussed below, starting with retrospective mechanisms and then moving to more sophisticated prospective mechanisms.

FEE-FOR-SERVICE PAYMENT

Fee for service payments reimburse providers for delivering specific items such as doctor consultations, specific x-ray tests, specific surgical operations, and other services. In broad terms, FFS also includes itemized charges for medical products and drugs, because medical labor services are often provided with material products.

FFS payment can be further divided into three subgroups: open-ended fees, the negotiated fee schedule, and the regulated fee schedule (Ron, Abel-Smith, and Tamburi 1990).

The traditional type of FFS is an *open-ended fee* charged by the doctor according to the market. This type of payment prevailed in the medical market during the time when medical care was less organized, regulated, and planned than it is today. Although the proportion of this type of FFS payment has been falling since the early 1980s, it is still popular in some countries such as the United States (under its indemnity plans), Canada, the Republic of Korea, and China.

The *negotiated fee schedule* came into existence with the establishment of health insurance schemes. To reduce the cost of services, purchasers (often social health insurance schemes or private health insurance companies) negotiate with providers or provider associations a set of standard charges for the services covered. This system exists in countries such as Germany, France, and Belgium (Normand and Weber 1994). The United States and Canada increasingly use the negotiated fee schedule for their social health insurance programs and managed care organizations for both preventive and curative services in combination with capitation payment. Some governments regulate this schedule, as in Japan and China.

FFS is regarded with caution as it encourages overprovision of services, thus pushing up expenditures (Bunker 1970; Hilman, et al. 1990; McPherson, et al. 1981), although it has some advantages. First, with little capacity it can be easily developed and implemented. Community financing schemes in Asia and Africa have used it at start-up (Diop 2000). Second, FFS payment more accurately reflects the work done and the efforts expended (Ron, Abel-Smith, and Tamburi 1990). Thus, this method of payment encourages providers to work longer hours or deliver more services. In general, this is thought to improve access and utilization for underserved areas (e.g., rural areas as in the Philippines), for underserved populations (the poor), or for high priority services (United Kingdom, Denmark, Czech Republic, Haiti (Eichler 2000)).⁴ Second, scheduled fees can be set to encourage the provision of cost-effective services if costs are understood. If prices (i.e., payment levels) and marginal costs do not correlate, either there is overuse (if the price is set too high) or underuse (if the price is set too low). Quality suffers in either case. FFS payment also has high administrative costs to both providers and insurers (Normand 1994), partly because every service and procedure has to be billed. In general, FFS is recognized as good for providers' internal efficiency and bad for social efficiency from the consumer's point of view.

According to experience in industrial countries and increasingly in developing countries, fee-for-service payment correlates with a pronounced increase in health expenditure (e.g., Taiwan, Czech Republic). One short-term response to expenditure growth under fee-for-service has been to cap overall spending on the supply side and to encourage some patient cost-sharing to minimize moral hazard (e.g., Philippines, parts of Canada).

⁴ However, the literature does have some dissenting evidence—Palmer and Mills (2000) find that part-time FFS surgeons in rural South Africa expend minimal time on their public sector patients.

PER DIEM PAYMENT

Daily, or “per diem,” payment is used for inpatient services, and the facility is reimbursed inclusively a fixed amount for each inpatient day regardless of the actual use of services, drugs, and medical products. In theory, it can be applied to all inpatient services, including long-term care in nursing homes. This type of hospital payment is commonly used in continental Western Europe (Donaldson and Magnussen 1992; Schulenbury 1992) and is being demonstrated in parts of China and Indonesia in the social insurance schemes.

This type of change can be done relatively easily (figure 2). Per diem payment gives hospitals incentives to increase the total number of hospital days by increasing both the length of stay and the number of admissions, while reducing the intensity of care for each hospital day. Thus, technical quality may suffer due to insufficient services and drugs, while the perceived quality such as physician interest in a patient may increase to encourage both admissions and revenues. In Brazil, per diem payments were instituted from 1971 to 1981, a period that saw admissions triple (Rodrigues 1989). Germany’s use of per diem resulted in long lengths of stay (13.1 days in 1987) relative to patient stays in other industrial countries (Schulenbury 1992).

Figure 2. How to Calculate Per Diem Payments

$$\text{Payment Policy} = \frac{\text{Last Year's Total Budget for Hospitals}}{\text{Last Year's Number of Days}}$$

As with FFS for physicians, this system may work better when coupled with a budget cap for hospital services (Estonia, parts of Russia). Quality and lengths of stay can be monitored by peer reviewers.

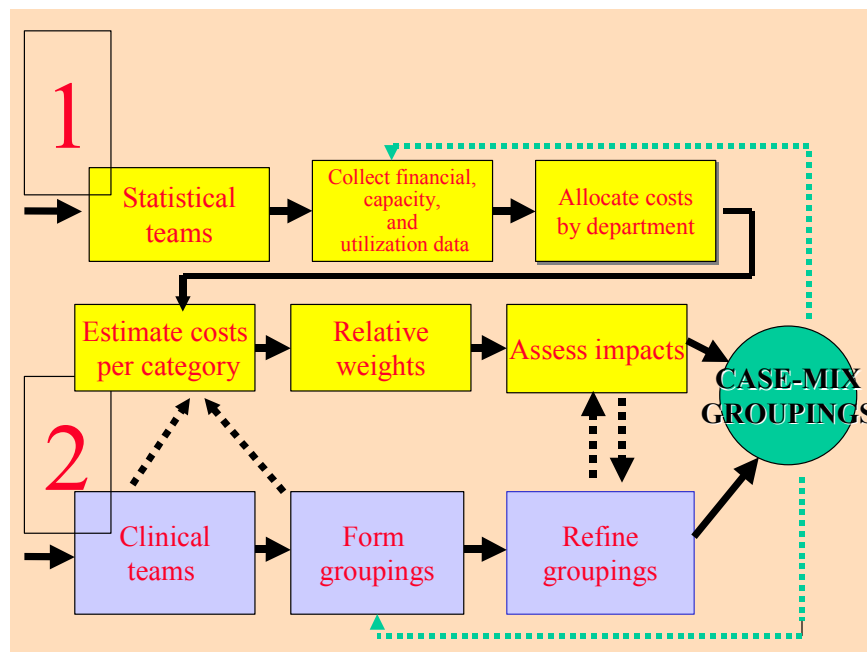
CASE PAYMENT

With case payment, purchasers pay an inclusive fixed amount per case, regardless of services or procedures provided. It is technically more complicated (figure 3) and requires data on individual patients for a sizable sample of cases. The case payment method can be used for both outpatient care (such as the payment per inclusive visit that is being tried out in China’s social health insurance reform and for day surgery in Lebanon (Cotterill and Chakraborty 2002) and for inpatient care (e.g., the Diagnosis Related Grouping or “DRG” in Portugal, Brazil, and the United States) including either physician services, or hospital care, or both. Case payment can be a single flat rate per case, regardless of the diagnosis, and can be severity or risk adjusted. The

most popular type of case payment is the DRG payment for hospital services, which has been implemented in the United States and has been adopted or tested in many other countries and regions (e.g., Germany, Indonesia, Hungary, and Taiwan).

Case payments, if administered correctly, improve cost control and technical efficiency. The principle for case payment is that the costs among cases within some risk or severity categories can be grouped and prices assigned to each category. Diagnosis or the International Classification of Disease (ICD) category is typically used as a proxy for risk or case severity. The number of case groups can be as simple as a single group (Kazakhstan) and as complex as 55,000 groups (parts of Russia), but Brazil, the United States, Indonesia, and most other countries use somewhere between 100 and 800 (Jacobs 1991; Ron 1990). The DRG was developed by grouping cross-hospital studies with average costs for each type of diagnosis. Major indicators of costs were found to be principal diagnosis, secondary diagnosis, principle procedure, secondary procedure, destination of discharge, gender, age, and length of stay. According to these factors, patients were divided into groups reflecting intergroup differences in resource utilization during hospital care. Relative costs of DRG groups were reflected in relative weights. A standard amount was established by considering the purchaser’s budget and the relative costs and volume of each DRG category. In the case of the United States, the size of the reimbursement was “adjusted” with regard to locality (urban or rural hospitals), teaching responsibility (teaching or nonteaching hospitals), and statistical outlier cases (where length of stay and cost per DRG case exceed the average by 2 standard deviations).

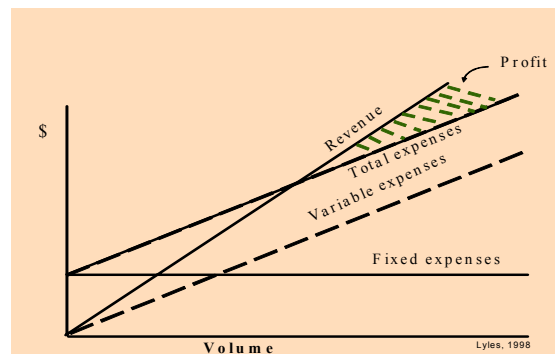
Figure 3. Case-Mix Adjusted per Case Payment



A major advantages of the case payment system is that it removes the economic incentives (figure 4) for the hospital to provide as many items of services as possible (as with FFS) and to keep the patient in the hospital as long as possible (as with per diem). Average lengths of stay typically decrease (Kahn, et al. 1990). The predicted disadvantages are various:

- “Code creep,” where the provider classifies the patient in a group coded for high reimbursement (e.g., Croatia)
- Cost shifting, where providers shift patterns of care and costs to non-DRG patients and non-DRG settings, resulting in unchanged total cost to the purchaser
- Incentives to increase unnecessary admissions and readmissions. In Hungary, Russia, and many other countries, admissions increased significantly after a case-based system was introduced.
- Incentives to either underprovide services or discharge admissions prematurely, where costs are shifted to outpatient services, home service care, and nursing home care. The interruption of care decreases its effectiveness (Normand 1994).

Figure 4. Economics of Per Case Payment



Source: Lyles and Palumbo (1999).

The U.S.-developed DRG has been modified and used by many European countries and Australia as a way of financing public hospitals under a global budget (Wiley 1992). In these countries, DRGs are not used on a case-to-case basis to pay hospitals, but rather to measure the case mix of inpatients and to finance hospitals under some adjusted global cap. Similarly, in some Latin American countries (e.g., Mexico and Argentina), case-mix systems have been developed to track workloads and quality of care, as well as help governments and insurers set payment amounts for hospital care (personal communication, Griffin 2001).

GLOBAL BUDGET

The global budget is a “one-line” item budget for facilities for a fixed period of time (typically one year) for some specified population or service use. One line budgeting allows more discretion than line-item budgeting. While the concept is simple, the types of global budget vary, depending on budget flexibility, providers types, the number of providers under global budget, the number of payers, the budget cap target, and the budget basis.

According to the degree of flexibility, global budget can be divided into two types—soft and hard. Under a *soft global budget*, the purchaser assumes any overruns. Under a *hard global budget*, financial risk is transferred to the provider. Global budgets can be divided by hospital services, physician services, pharmaceuticals, and both services and drugs. According to the number of payers, global budgets can be classified by single or multiple purchasers.

Global budgets vary in important ways depending upon the basis on which the budget is made. The alternative bases include:

- Inputs, such as beds and staff (e.g., Canada)
- Historical spending and activities
- Volume of services provided and types of cases (e.g., France, United Kingdom, and Germany).

The preferred approach is the final one, data and purchaser capacity permitting. In Australia and many European countries, the integration of case mix–adjusted hospital financing with global hospital budgeting constitutes the major form of hospital payment (Wolfe, et al. 1993; Frossard 1990; Hirdes, et al. 1996). Only one county (Belgium) has issued a global budget for pharmaceuticals (Wolfe and Moran 1993).

Under the global budget system, a hospital is paid according to the product of the number of admissions and case-mix index. This means that the greater the number of admissions and the sicker the treated patient, the larger is the payment to the hospital, but the distribution of budget between hospitals is limited by the budget cap. Global budgeting and the case payment system provide similar incentives, but the global budget is expected to be a better tool for controlling hospital costs because there is a budget cap on spending.

In a review of global budget implementation in various countries, Wolfe and others (1993) find that, although some reports state that global budget has an effect on cost containment, the literature is largely descriptive and presents little evidence of rigorous empirical assessment of the effects of the global budgeting schemes employed in comparison to other alternatives.

CAPITATION PAYMENT

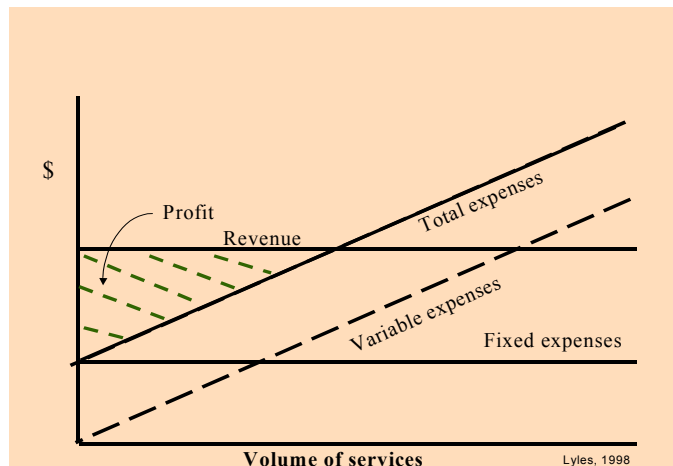
Capitation, at its simplest, means one payment per person, for some bundle of services during a fixed period of time (typically one year). This type of payment transfers the economic risk from third-party payers to the health care providers. The provider receiving a capitated fee can be an office-based doctor or a hospital (Barnum, Kutzin, and Saxenian 1995). Capitation payment has been implemented in the United Kingdom, Denmark, the Netherlands, and Italy and has been introduced in Costa Rica, Indonesia, and Thailand (Mills, et al. 2000), as well as most of Eastern Europe and Latin America for primary care services (Dixon, et al. 2002).

Capitation payment may be a flat fee for each provider or a risk-adjusted fee, based on the relative risk of the registered population. For example, the capitated fee is adjusted in Germany by five variables—age, gender, family size, income, and presence or absence of disability in a working-age insured (Barnum, Kutzin, and Saxenian 1995).

The most important advantage of capitation payment is that it removes the economic incentive for overprovision under the fee-for-service system and adds an incentive to provide cost-effective care, including preventive services. Thus it helps control health care costs. Because the provider is responsible for delivering the contracted package of services for the fixed payment, the provider is motivated to innovate in cost-reducing technology, use lower cost alternative treatment settings, and provide cost-effective care.

Capitation payment may offer incentive for reducing the provision of necessary care. Providers may attempt to select the low-risk clients and to reduce quality of care to cut their own costs and risk. Finally, if referrals are outside the capitation payment, a patient is more likely to be referred to a specialist or a hospital even though the referral is not necessary. For example, the referral rate rose in Hungary and Croatia after family physicians were switched from salary to capitation payments that covered only their services (Barnum, Kutzin, and Saxenian 1995; Dixon et al 2002).

Figure 5. Economics of Capitation Payment



Source: Lyles and Palumbo (1999).

To address adverse risk selection, individual risk adjustment in Germany, the Netherlands, and Colombia are just starting to use simple formulas to adjust the risk. As Barnum and others (1995) state, however, simple formulas may work better when benefit packages are limited; more complex formulas may be needed for comprehensive packages. Methods of risk adjustment remain relatively crude. Only 15 to 20 percent of individual variance can be predicted even with hundreds of variables (Newhouse 1983).

A variation of physician capitation is fundholding, begun in the United Kingdom and parts of the former USSR. General practitioners are responsible for providing the primary care and purchasing the defined specialist and hospital care with set capitated payments. Another practice is found in Thailand and China, where the social health insurance schemes pay the contracted hospitals capitation fees to provide both primary and secondary services. These two types of approaches remove the incentive for unnecessary referrals but add an incentive to keep the patients at the primary level when referrals are needed.

PERFORMANCE-RELATED PAYMENT

Performance-related payment (PRP) directly links payment to the performance and the contribution of health care providers. PRP can be used to pay individuals and groups of people. “Performance” is measured by how well a specified task is implemented against the set target.

PRP has grown rapidly since the 1980s. PRP for nurses and nursing executives is widely reported in North America and the United Kingdom (Buchan 1993; Castledine 1993; Buchan and Thompson 1993). Scola (1990) reports the introduction of PRP to the dental practice in the

United Kingdom. PRP applies to some hospital-based doctors in the United States (Bledsoe 1995; Berwich 1996) and is widely used in the United Kingdom (Lewis 1990; Bloor and Maynard 1992; Bloor, Maynard, and Street 1992; Griffin 1993; Hern 1994; Macare 1995; Smith and Simpson 1994). In some cases, office-based doctors are either rewarded for their performance by a third party (Hutchison 1996; Schlackman 1993) or by their employer (Hemenway 1990). PRP is used in a hospital clinical laboratory in the United States (Winkelman, et al. 1991).

PRP has also been used in very poor developing countries, where complicated payment incentives and systems may be excessively cumbersome for the delivery of basic services. In Haiti, the U.S. Agency for International Development introduced a performance-based bonus arrangement with nongovernmental organizations (NGOs) to deliver maternal and child health services (Eichler 2001). Results point toward increased immunization coverage. Performance-based payments with NGOs have also been used to deliver community-based nutrition services in Senegal and Madagascar (Marek 1999). In both cases, the programs concentrated on poor areas. Services delivered included growth monitoring, nutrition and education sessions, referral to health services of unvaccinated children and pregnant women, and food supplementation. Contracts specified minimum service levels to be met. In areas covered by the projects, malnutrition fell steadily, and lower rates of malnutrition were found among children who had participated in the project than among children who had not.

Cambodia provides another example of PRP. Bhushan and others (2002) evaluate three arrangements:

- A *contracting-out model* in which contractors had full responsibility for the delivery of the specified services, directly employed their staff, and had full management control
- A *contracting-in model* in which contractors provided only management support to civil servants. Most recurrent operating costs were met by the government through normal government channels, but a small supplement was paid over which the contractors had control.
- A *control group* in which services were delivered through the Ministry of Health system.

Results include improvements in immunization coverage, use of antenatal care, and other indicators in the experimental districts. Increases have been especially pronounced in the contracted districts. The poor appear to have benefited disproportionately—vitamin A supplementation increased faster among the poorest half of the population, and the treatment of illness among the poorest half of the population increased several times faster among contracted districts than in the control districts.

Many health care purchaser and management parties have been interested in introducing the PRP schemes, but there are skeptics. Griffin (1993) notes that health care systems often lack such basic requirements to undertake PRP as

Financial capacity to pay employees for improved performance, especially across the entire workforce

Inability to measure and attribute performance clearly to individuals. In health care, medical personnel have to work together to improve quality, and better performance is usually the outcome of joint efforts. Since individual performance is hard to separate from group performance, it is difficult to measure.

Large enough rewards to be valued by medical personnel. In a developing country where doctors are paid almost equally to other comparable disciplines, significant additional pay will raise the earning of medical doctors, but their performance may not increase significantly.

Griffin also argues that payment is just one of the factors that motivate the medical profession. Participation, job enrichment, recognition, working environment, and the extent of their autonomy in resource allocation decisions can be equally important.

Gauri (2002) also argues that one must be careful in specifying criteria for PRP. Basing PRP on just a few indicators such as admissions and lengths of stay may compromise other objectives such as improved quality of care. As more objectives are addressed, indicators multiply, adding administrative complexity and discouraging transparency.

DISCUSSION

No one set of incentives will address the multiple objectives of purchasers, providers, and patients (table 2). As a result, purchasers and policymakers must understand and address policy objectives explicitly.

New and more sophisticated payment systems have evolved, with a broadening of units of payment and setting of payments prospectively. Many purchasers have adopted a fixed-price payment for definable products that mimic entire clinical episodes such as an outpatient surgery (e.g., Lebanon) and more often, for inpatient stays (e.g., Brazil, Hungary, Portugal, Kyrgyzstan). Global budgets fix price as well as volume for all inpatient services (Taiwan, Korea, parts of Russia) or outpatient services (China). Some countries also use capitation payments that set the amount per capita for all services covered regardless of type or setting. Examples of this include Thailand and Indonesia, as well as many of the managed care schemes in the United States, Argentina, and other South American countries (Bitran and Yip 1998; Langenbrunner and Wiley 2002).

In all cases, part or all of the financial risk is transferred from the RAP arrangement back to the provider and patient. Most observers caution against full risk but encourage some “supply-side cost sharing” only, with purchaser and provider sharing in risk arrangements to address moral hazard issues (Ellis 1998; Newhouse 1998). Imposing high copayments or user fees is an alternative, but in developing countries that quickly erodes financial protection.

Table 2. Impact of Selected Payment Incentives

		<i>Possible impact on health sector performance</i>				
<i>Payment characteristics</i>	<i>Risk with</i>	<i>Access /financial protection</i>	<i>Quality</i>	<i>Spending volume</i>	<i>Efficiency</i>	<i>Administrative simplicity</i>
Line item	Provider ^a	+	+	+++		+++
Salary	Purchaser	+	++	+++	+	+++
FFS	Purchaser	++	++			
Per Diem	Purchaser	++	+			+
Per Case	Provider	+	++	+	+++	
Global Budget	Provider		++	++	+	+
Capitation	Provider*	+	+	+++	+++	+
PRP	Purchaser	+	++	+	+	+

a. Depends upon whether budget rules are “soft” or “hard.”

Source: Preker, Jakab, Langenbrunner, and Baeza (2001).

RAP arrangements have been striving to find an equilibrium among conflicting objectives (Belli and Hammer 1999). A “consistent finding from literature is that mixed reimbursement systems are necessary to optimally balance multiple objectives such as cost and quality” (Dranove and Satterthwaite 2000). The European Union countries, though far from the context faced in the developing world, provide an interesting example of convergence toward a mix of mechanisms, with most using fee-for service for “priority services” such as preventive care and selected primary care services, and prospective payments to set rates and cap expenditure for inpatient care services (Langenbrunner and Wiley 2002).

More sophisticated payment systems may, however, lead to higher transaction costs and necessitate a greater capacity to use information and management systems. This is true for both purchasers and providers as the unit of payment increases and risk necessarily shifts relative to providers. Management information systems cannot always be designed and implemented, especially not for quick use. Managed care organizations and private purchasers in the United States use FFS for primary care and do not use DRGs to reimburse hospitals—relying instead on bed days Robinson (2001). For them, the benefit of using DRGs in terms of transferring full and appropriate risk onto providers is simply not worth the administrative cost associated with this system.

This chapter has addressed incentives in the context of the single purchaser of services. If the health sector has multiple purchasers, providers may have multiple incentives at once. The precise impacts of these multiple competing incentives will be unknown and only situation specific. (These more complex situations are covered in some detail in the discussion papers by Peter Zweifel and by William Jack.)

Finally, the best planned and implemented payment incentives and systems may fail due to a variety of other and related factors in health care delivery. Unless these issues are addressed, impacts of change in resource allocation and purchasing will be diluted or neutralized. Technicians and policymakers will need to address these potential “chokepoints” in any process of implementation and refinement. These issue areas include:

- *Fragmented public sector pooling and purchasing.* The scope for payment incentives to change behavior is limited by disintegration of health finance pooling. Newly emerging insurance systems have often coexisted with the old financing mechanisms through direct (noncontractual) allocation of government resources to providers. Related, out-of-pocket payments further disintegrate the pooling through public channels.
- *Low operational autonomy of providers.* To act as contracting parties and to respond to new incentives, providers must have flexibility to answer purchasers' demands, especially to increase or decrease capacity, acquire and dispose of excessive capacity, borrow money within limits, take financial responsibility for performance, and the like. Hospital operational autonomy is an issue for the United Kingdom, the Scandinavian countries, Italy, Spain, and other industrial countries. The trend has been to expand facilities' rights and responsibilities, making contracts a mode of interaction with the government/payer (Preker and Harding 2001).
- *Lack of timely information and routine information systems.* Contracting and sophisticated payment systems are limited by insufficient information. The minimum information requirements for effective contracting and payment cover patient flow data, cost and utilization information across specialties or diagnostic groups and across demographic and risk groups. Large investments in information systems are often required to develop the capacity to process contracts and monitor outcomes—investments that can run up overall health system transaction costs.
- *Poor complementarity of design.* Payment reforms across settings often do not complement one another, hurting allocative efficiency. In Croatia, for example, primary care capitation for physicians was “matched” with fee-for-service payments at the specialist referral and inpatient settings. That meant that primary care physicians and upper end providers both had incentives to refer up the delivery system, instead of managing more patients at the primary care level. As a result, the proportion of inpatient spending and hospital admissions increased in Croatia between 1993 and 1997, despite the targeting of nearly \$50 million in World Bank loan financing to primary care reforms.
- *Institutional impediments.* New pilot initiatives and payment programs are often blocked by legal or administrative impediments such as civil service reform. And, strong vested interests often want to preserve the current system, particularly if they stand to lose from change.
- *Technical capacity and management skills.* Contracting and payment systems require particular skills that are not needed under direct public service provision (e.g., identifying cost-effective medical interventions, negotiating and monitoring providers' performance, communication strategy). Furthermore, contracting and payment systems imply decentralized resource allocation since bids are likely to involve local providers—too numerous to be dealt with at a central level and better known to local purchasers. Effective contract management skills are thus required at the middle and bottom levels where little time and effort have been invested in management training.

- *Monitoring and quality.* The asymmetry of information in the health sector and in any set of incentives brings with it unintended consequences and opportunities for changing the quality of care, for better and for worse. However, the purchaser's monitoring capabilities are often too underdeveloped to spot them.

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