

Payment system reform for health care providers in Korea

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Since its introduction in 1977, the national health insurance programme in Korea has paid health care providers on a fee-for-service basis. Regulated fee-for-service payment has resulted in an increased volume and intensity of medical care. It has also distorted the input mix of treatment because physicians have substituted more profitable and uninsured (no coverage) medical services for those with lower margins, as is evidenced by the sharp increase in the caesarean delivery rate. This paper examines two recent supply-side reforms in Korea: Diagnosis Related Group (DRG) and Resource-based Relative Value (RBRV). Since 1997, through a pilot programme covering a selected group of diseases for voluntarily participating health care institutions, the DRG-based prospective payment system has proven to be effective in containing cost with little negative effect on quality. RBRV-based payment was implemented in 2001, but led to an almost uniform increase in fees for physician services without a mechanism to control the volume and expenditure. Challenges and future issues in the reform of the payment system in Korea include the expansion of benefit coverage, quality monitoring and improvement, strategic plans to overcome the strong opposition of providers and the introduction of global budgeting.

Key words: health insurance, provider payment, DRG, RBRV, Korea

Introduction

The national health insurance programme in Korea relies on a fee schedule for reimbursing health care providers, and the government regulates the fee. Fee regulation has been the source of recurrent complaints by providers in Korea. They maintain that the government regulates the fees so tightly that they at best barely cover the cost of providing medical care. A tension between the insurer and the provider over the adequacy of the fee level has existed since the introduction of the national health insurance programme and is likely to continue. In addition, fee-for-service payment leads to over-provision and distortion in the mix of medical care because physicians have an incentive to provide more of those services with a greater margin. For example, a physician in Korea usually recommends that a patient visit the office every 2 days for a minor case. An office visit consists of several tests at the initial visit and a very short physician consultation that lasts for only 2 or 3 minutes (KIHCM 1999).

For the purchaser – insurer or government – the payment compensates providers for their cost of providing medical care, and at the same time it should encourage them to be efficient providers or to provide cost-effective care. Since health care providers have a strong influence over the type and amount of medical care that patients utilize, how the purchaser pays providers has a critical effect on their medical decision-making and the efficiency and equity of the health care system (Pauly 2000). Physicians in Korea regard the payment system more or less as a mechanism to recoup their cost of providing health care and are mainly interested in the level of medical fees rather than in their behavioural effects. Physicians have requested that the fees of the fee-for-service system should rise. However, they have shown strong resistance to the introduction of alternative payment systems such

as the Diagnosis Related Group (DRG) based reimbursement that provides them with stronger incentives to control costs.

The cost-sharing fees that patients pay at the point of service amount to about 50% of total medical expenses in Korea and hence impose a substantial burden on patients (NHIC 1999). Without a stop-loss mechanism for catastrophic expenses, the high co-payment (or excessive demand-side cost sharing) imposes a huge economic burden on the unhealthy and the poor because it does not take into account patients' varying need for health care and their differing ability to pay. A supply-side cost-sharing payment system would give strong incentives to providers to contain medical expenses by making them take on the economic consequences of health care utilization by patients (Ellis and McGuire 1993). Providers also have better knowledge and information about patients' health care needs (than patients themselves). Therefore a payment system with a supply-side incentive scheme can encourage providers to tailor medical care provision to the need of individual patients. In contrast, the patient co-payment often reduces both necessary and unnecessary health care utilization (Rice 1998).

This paper aims to examine the problems of the current payment system based on fee-for-service and to evaluate the recent reform on supply-side incentive systems in Korea such as Resource-based Relative Value (RBRV) and DRG-based payment. After an overview of the financing and organization of health care in Korea, this paper presents the need for the payment system reform by examining distortions that the fee-for-service reimbursement has introduced. It then examines the recent implementation of RBRV and evaluates the impact of the DRG-based pilot programme on the cost, length of stay, the use of antibiotics and the number of tests

in the participating health care institutions. This paper also examines the tough challenges and future directions for the payment system reform in Korea, such as the expansion of benefit coverage, quality monitoring, the politics of reform and global budgeting.

Health care financing and delivery in Korea

Social insurance for health care in Korea started in 1977 and achieved universal coverage of the population in 1989.¹ Insurance contributions (premia) are proportional to income and are shared equally by the employer and the employee in the case of industrial workers. For the self-employed, government provides a subsidy for the insurance contribution. Before the merger of health insurance societies in 2000, the national health insurance system consisted of more than 350 quasi-public health insurance societies. Each covered a well-defined group of insured based on the workplace (industrial workers) and the region (self-employed). The insured did not have a choice of insurance societies. An increasing gap in the fiscal status of health insurance societies and the chronic financial deficit of the health insurance schemes in rural areas has driven their recent merger into a single entity (Kwon 2003b).

A policy priority of the government has been to expand the coverage of the population at the expense of limited benefit coverage along with a low contribution rate (about 4% of income). In addition to the co-payment for insured medical services, the patient pays a substantial amount out-of-pocket for uninsured (out-of-coverage) services due to the stringent benefit coverage. For example, patients pay in full for uninsured services such as sonogram, Magnetic Resonance Imaging (MRI), meals, private rooms (rooms with less than six beds), etc. On average, patients' total out-of-pocket payment accounts for as much as 39.3% of inpatient expenses (15.7% for co-payment and 23.6% for full payment for uninsured services) and 61.1% of outpatient expenses (36.9% for co-payment and 24.2% for uninsured services) in Korea (NHIC 1999).

Fiscal stability is a major concern for the national health insurance system in Korea. National health insurance as a whole has experienced an annual deficit since 1997. An ageing population, lack of incentives for providers to economize on medical resources, and the rapid increase in expenditure on pharmaceuticals and high-cost medical supplies are important factors contributing to health care cost inflation. For example, the insured are rapidly ageing and the proportion of the population aged over 65 has risen from 5.1% in 1991 to 6.3% in 1999 (NHIC 1999). The hike of physician fees by 45% in 2000 following the physician strikes, which were ignited by the separation of drug prescribing and dispensing, was the biggest blow to the recent fiscal insolvency of the national health insurance.² Changing the economic incentive for providers, or payment system reform, is an important policy tool to control the forces driving costs (other than the ageing population), and to improve the fiscal status of the national health insurance system.

Government applies similar fee schedules to physicians and

hospitals. Physician clinics have inpatient facilities, and hospitals depend on huge outpatient clinics for profit, leading to competition among them. Health care provision in Korea depends heavily on for-profit hospitals that, in most cases, physicians both own and manage. As of 1998, almost 50% of acute care hospitals were for-profit, 44% not-for-profit and only 7% public (KHA 1999). More than half of the not-for-profit hospitals are private corporate hospitals with a de facto physician owner. They are not-for-profit in legal terms, but behave as for-profit hospitals. Most private (both for-profit and not-for-profit) hospitals depend almost exclusively on patient care for their revenue, without philanthropic donations or government subsidy. Many hospitals have originated from clinics with inpatient facilities, which have been expanded by entrepreneurial physicians. The national health insurance programme has expanded health care utilization, and the gap between the demand for and the supply of health care has been met by the growth of private hospitals, most of which were converted from physician clinics with beds.

Need for payment system reform

Health care providers in Korea have been reimbursed by the regulated fee-for-service system since the beginning of the national health insurance. Under the fee-for-service system, medical suppliers have incentives to increase the volume and intensity of services and to choose treatments with a greater profit margin. The volume effect and treatment distortion is greater for services that generate higher marginal revenues for doctors (Hillman et al. 1989). In Korea, a provider's profit came from the difference between the insurance reimbursement and the prices paid for pharmaceuticals and medical supplies. Therefore providers have incentives to increase the volume of drugs and medical supplies or substitute more of them for their own services in treatment. For example, from 1990 to 1998, the average annual rates of increase in expenditure for medical supplies and pharmaceuticals per claim case were 13.6 and 11.4%, respectively, both of which are greater than the average annual rate of increase in total medical expenditure per claim case, 8.2% (Table 1).

Differential margins from different medical services also induce physicians to provide more of those services with higher margins (i.e. over-priced services), resulting in a distortion in the mix of medical care for patient treatment. The persistent distortion in the relative price of medical services has also affected the relative supply of medical specialties in Korea. Some specialties, of which services are paid relatively generously, attract a greater number of applicants for their residency training. Popular specialties include psychiatry, ophthalmology and dermatology, whereas radiology, thoracic surgery and anaesthesiology are unpopular (NCHCR 1998).

In order to avoid the effects of fee regulation, physicians substitute uninsured medical services, for which fees are not regulated, for insured ones. Even as benefit coverage has expanded, the proportion of patients' out-of-pocket payments in the total medical expenditure has declined only slightly in Korea because of the increase in uninsured services. The rapid diffusion and utilization of high-cost medical technology, which is not usually covered by health

Table 1. Annual average rate of increase in medical expense per claim case^a by components, 1990–98

	Total medical expense (%)	Expense for drugs (%)	Expense for medical supplies (%)
Total	8.17	11.43	13.57
Inpatient	10.54	9.97	17.09
Outpatient	7.45	12.71	9.31

^a Medical expense per claim case consists of physician fees, drug expense and expense for medical supplies.
Source: Ministry of Health and Welfare (1999); Shin et al. (1999).

insurance, is to some extent related to the providers' incentive to induce patients to use more of those uninsured (and profitable) services. As of 1996, the number of Computerized Tomographs (CT scanners) per 1 000 000 people is 17.5, which makes Korea one of the leading countries, along with Japan (55.4) and the USA (26.2), in medical technology adoption (NHIC 2001).

One of the most striking examples of the distortion in the mix of medical services in Korea is the sharp increase in the caesarean delivery rate. Based on the health care utilization of public and school employees, the caesarean delivery rate has risen from 6% in 1985 to 43% in 1999, which is more than four times greater than the level recommended by the World Health Organization (WHO) (Table 2). The difference in the margins for the two services – the fee for caesarean section is 2.7 times greater than that for normal delivery – can best explain the upsurge in caesarean delivery. It is noteworthy that the caesarean delivery rate is very similar across different types of health care institutions. There is only a 2.7% difference in the caesarean delivery rate between tertiary care institutions and physician clinics, despite the fact that patients of the former are normally sicker than those of the latter.

Faced with these problems, the government decided to adopt two approaches to reform the payment system for providers: the DRG and RBRV. The idea of the case-based payment, such as DRG, has faced tough opposition from providers in Korea. The government decided to apply a pilot programme of DRG-based payment for selected disease categories to voluntarily participating health care providers. In contrast to the DRG, the RBRV has faced little opposition from providers because it is still a fee-for-service payment system.

RBRV-based payment system

RBRV was originally developed in the USA to correct distortions in payment rates between services – some services were over-valued and others under-valued (Hsiao et al. 1988;

1992). RBRV determines relative fees of physicians on the basis of resource costs required to produce services: total work (time and intensity) of the physician, practice (overhead) costs and the opportunity costs of specialty training. RBRV is used in the USA to reimburse for physician services in the Medicare programme. The payment for a physician service is determined by multiplying the relative value of a service by a conversion factor, which converts the relative value into dollar amounts. However, RBRV has some theoretical shortcomings because it fails to consider the economies of scale and scope in physician practice and suffers from measurement problems with respect to physician inputs, extrapolation and cross-specialty linkages (Hadley 1991; Pauly 1991). To contain the growth of expenditures for physician services, the US government has introduced Medicare Volume Performance Standard (MVPS), which is a desired annual rate of growth for expenditures. The update of the conversion factor is based on the relationship between actual increase in physician spending and MVPS.

It took several years to determine the relative values for all physician services in Korea before RBRV was finally implemented in 2001. Data are not available yet to evaluate the RBRV system, but its development and implementation encountered tough problems. The unique characteristics of health care provision in Korea make the direct application of the US-based RBRV system a risky venture. The USA has developed the RBRV system for office-based physician services, for which the indirect (practice) cost is quite easy to measure and small in size. Unfortunately, the Korean government has attempted to develop a uniform RBRV scale for both physician clinics and hospitals, because Korean hospitals operate on a closed system with their own large outpatient clinics. The share of the total cost accounted for by practice costs is much greater in hospitals than in physician clinics. Costs of medical services provided in hospitals depend more on how indirect costs are allocated to individual services than on the value of a physician's own input (physician work). However, the allocation of indirect costs is

Table 2. Caesarean delivery rate

WHO recommendation (%)	Japan 1998 (%)	UK 1998 (%)	USA 1998 (%)	Korea 1999 (%)
10	15	16	20	43

Source: National Health Insurance Corporation (2000).

always arbitrary, controversial and easily driven by strategic concerns (Finkler 1993).

Although the objective of the RBRV was to correct the distortion in the structure of the medical fee system, physicians in Korea have regarded it as a mechanism to raise the fees for their services. This expectation by physicians is related to their perception that the fee scheduling by the Ministry of Health and Welfare is unfair and makes it difficult for them to get adequate compensation for services. The rate of increase in fees is greater than the consumer price index on a cumulative basis, although the former lagged behind the latter until the mid-1990s (Figure 1).³ Providers argue, however, that the Ministry of Health and Welfare set fees much lower than the customary charges when health insurance began in 1977, meaning that even if the rate of fee increase has been greater than the consumer price index, its level is unsatisfactory because of the low base (starting) level.

The implementation of the RBRV system in Korea generates conflict among physicians because it affects the relative prices and thus redistributes income among physicians with different specialties. For budget neutrality, the RBRV system should cut the fees of over-valued services and raise those of under-priced ones. However, physicians in Korea anticipated that the RBRV system would result in a uniform increase in medical fees. Unless the government raised fees for all medical services, the physicians whose income is negatively affected by the fee alignment through the RBRV system would oppose the new fee schedule. Facing pressure from physicians, government increased the fees of relatively under-priced services but did not cut the fees of over-priced ones, which is far from the goal that the RBRV system aims to achieve. At the same time, the government did not introduce a mechanism to control health care expenditure, such as the volume performance standard that the research team

proposed (Kim et al. 1997). As a result, the RBRV system in Korea will fail to neutralize physician incentives among different medical services, and the tendency toward over-provision under the fee-for-service payment will persist.

DRG-based prospective payment system

Structure of the DRG-based payment system

To ease the transition from fee-for-service reimbursement to the DRG-based prospective payment system for inpatient care, the government launched a DRG pilot programme in February 1997 for 54 health care institutions, which extended to 132 institutions in the second year programme. In the third year of the pilot programme (February 1999 – January 2000), 798 health care institutions participated voluntarily in the pilot programme. DRG payment covers all medical expenses except for meals, MRI, sonogram, extra charge for qualified specialist physicians and extra charge for rooms shared by less than six persons. In this respect, DRG-based payment has the effect of expanding benefit coverage compared with the current fee-for-service system. The DRG payment is set on average 23.8% greater than the comparable (regulated) fee-for-service level in order to encourage the participation of health care institutions in the pilot programme. Expanded benefit coverage and the increased fee for providers under the DRG programme have resulted in an increase in the medical expense paid by the insurer. The insurer expects that the change in provider behaviour will reduce overall medical expenditure in the long run.

The third-year pilot programme covers nine disease categories (lens procedure, tonsillectomy/adenoidectomy, appendectomy, caesarean section, vaginal delivery, anal/stomal procedure, inguinal/femoral hernia procedure, uterine/adenexa procedure and normal pneumonia/pleuritis)

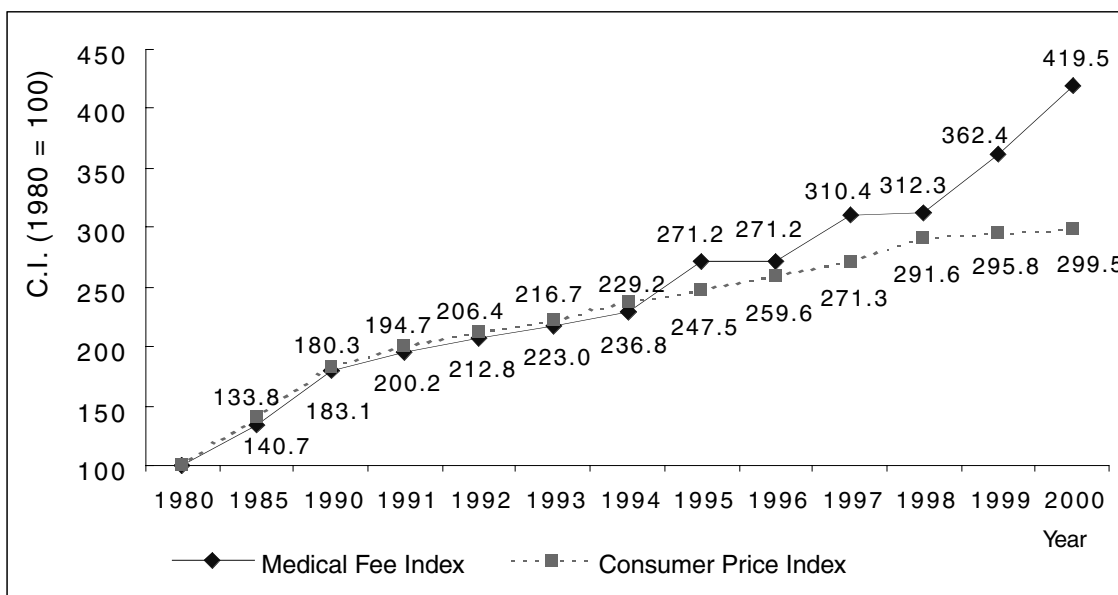


Figure 1. Fee increase and the consumer price index

Source: National Health Insurance Corporation (1999); National Statistics Office (2000); Ministry of Health and Welfare (2000b).

with 25 DRG codes depending on the severity and age of the patient.⁴ It accounts for 25% of inpatient cases. The criteria for selecting the disease groups for the pilot programme in Korea include lower than average variation in medical expenses, little disagreement among physicians on treatment methods, lower degree of uncertainty about treatment outcomes, high frequency of utilization, smaller proportion of uninsured services and lower possibility of 'DRG creep'.

The Korean-DRG (K-DRG) was developed based on the Yale Refined DRG system. There are three types of patients in each DRG code categorized on the basis of the length of stay, namely, normal case, outlier below the lower-limit and outlier above the upper-limit. The major portion of the payment to the provider is set prospectively, with a small portion taking into account the actual costs of treatment via both outlier payment and patient co-payment.⁵ In that sense, the DRG-based payment system in Korea is a mixed payment system. Some mixture of cost-based reimbursement and prospective payment was expected to be more efficient in general, because it not only gives providers incentives to minimize costs, but also compensates for the legitimate cost differences among hospitals due to case-mix differences (Ellis and McGuire 1990; Kwon 1997).

Performance of the DRG-based payment system

The evaluation of the DRG pilot programme shows that providers have responded to the economic incentives of the DRG-based payment. The medical care cost of given diagnoses in health care institutions declined by on average 8.3% after their participation in the DRG pilot programme (Table 3). The length of stay dropped by 3.0% on average. Lens procedures (-24.1% for monocular and -17.2% for binocular) and simple appendectomy (-21.6%) showed the largest drop in medical expense. In terms of length of stay, the DRG-based payment had the largest impact in inguinal/femoral hernia operation (-16.7%) and simple appendectomy (-17.4%).⁶ Controlling for the types of health care institutions (clinics, hospitals and general hospitals) in the regression analysis, the pure effect of the DRG-based payment was to reduce medical expense by 14.0% and the length of stay by 5.7% (MOHW 2000a).

The heavy use of antibiotics and the resulting high resistance to antibiotics has been of major concern in Korea for a long time. The DRG-based payment has significantly reduced the use of antibiotics in inpatient care (by 29.6% on average), with the largest impact in lens procedure and tonsillectomy/adenoidectomy (MOHW 2000a). The use of antibiotics at discharge (dispensed when patients are discharged) also decreased by on average 23.6%, with the largest drop in lens procedure. However, the use of antibiotics after discharge increased by 27.0% on average, meaning that providers substituted non-inpatient use for inpatient use of antibiotics to some extent, although the drop in inpatient use of antibiotics (24 264 won or US\$20) was much greater than its increase after discharge (2350 won or US\$2). Lens procedure shows the largest decrease in the use of antibiotics both at hospitalization and at discharge, and at the same time the largest increase in antibiotics after discharge has occurred for this

DRG code. An exceptional case is vaginal delivery with complication, for which the use of antibiotics increased at hospitalization (30.1%), at discharge (14.9%) and post discharge (155.7%) after the DRG payment was implemented. The pressure to discharge patients early may have pushed providers to use more antibiotics in the case of vaginal delivery with complication.

The DRG-based payment also reduced the average number of tests in inpatient care, from 5.06 to 3.85 (MOHW 2000a). However, providers substituted tests before hospitalization for those at hospital. The average number of tests before hospitalization has increased from 3.51 to 4.46 after the DRG prospective payment. The new payment system has not affected the average number of tests after discharge. There is also some evidence that the number of outpatient visits increased in the participating institutions as a result of the DRG payment. The number of outpatient visits increased before hospitalization (from 1.22 to 1.30) and after hospitalization (from 1.16 to 1.39).

Under the DRG-based prospective payment system, providers may have an incentive to reduce the quality of care, although there is little evidence of a negative impact on patient outcomes in the USA (Rogers et al. 1990; Coulam and Gaumer 1991).⁷ This is partly because attending physicians in the USA, who are reimbursed by the insurer through a separate payment scheme from the hospital, can counteract the hospital's incentive to reduce medical inputs and harm quality. In Korea, however, all hospital-based physicians are employed by the hospital and there is little check and balance between the hospital and the physician in terms of quality. The prospective payment system is more likely to have a negative effect on quality in Korea, and hence the role of quality management is crucial.

Pilot programmes have shown that the DRG-based payment has not had a negative effect on quality as measured by complications and re-operations (MOHW 2000a). However, the surgical procedures in the DRG pilot programme in Korea are not complicated ones for which the rates of adverse outcomes are generally low. When the DRG payment extends to more complicated procedures, it might have a different impact on quality. So far, only a small proportion of participating health care institutions have tried to develop clinical guidelines or critical pathways. The government's monitoring system currently focuses more or less on the potential overcharge of patient co-payment, 'DRG creep' and the distortion in outlier classifications. The Korean DRG is in urgent need of a monitoring system on the outcome-based quality of care and on the appropriateness of discharge.

The overall economic burden on patients has decreased under the DRG-payment system because it has expanded benefit coverage. For patients, it also improves the predictability of the medical expense of a given diagnosis or treatment, reducing the disputes over medical expenses. The drop in resource use and length of stay in health care institutions along with the increase in fees has improved the profitability of participating institutions. Savings in the

Table 3. Impact of the DRG-based payment on medical expense and the length of stay (unit: won, day, %)

DRG code	No. of Institutions	No. of cases		Medical expenses per patient (won)			Length of stay (days)		
		Before DRG	After DRG	Before	After	Difference (%)	Before	After	Difference (%)
03900									
Lens procedures (monocular)	14	1 589	5 549	929 438	705 703	-223 735 (-24.1)	2.36	2.23	-0.13 (-5.6)
04100									
Lens procedures (binocular)	4	69	55	1 555 621	1 288 732	-266 889 (-17.2)	2.99	3.78	0.80 (26.7)
05900									
Tonsillectomy and/or adenoidectomy (age >17 years)	4	45	102	583 095	516 346	-66 713 (-11.4)	3.60	3.47	-0.13 (-3.6)
05910									
Tonsillectomy and/or adenoidectomy (age 0–17 years)	5	182	199	547 764	512 348	-35 416 (-6.5)	3.63	3.44	-0.19 (-5.1)
15700									
Anal and/or stomal procedures	23	787	1 689	458 214	454 193	-4 021 (-0.9)	4.50	4.48	-0.02 (-0.4)
16100									
Inguinal and/or femoral hernia procedures (age >17 years)	15	63	211	766 764	689 398	-77 365 (-10.1)	6.98	5.82	-1.16 (-16.7)
16110									
Inguinal and/or femoral hernia procedures (age 0–17 years)	9	146	452	585 891	499 088	-86 803 (-14.8)	3.46	3.50	0.05 (1.3)
16400									
Complicated appendectomy	8	117	171	1 126 888	1 166 047	39 158 (3.5)	8.55	8.99	0.45 (5.2)
16600									
Uncomplicated appendectomy	14	385	1 285	982 592	770 159	-212 432 (-21.6)	7.24	5.98	-1.26 (-17.4)
35800									
Uterine and/or adenexa procedures	16	783	1 696	987 831	934 732	-53 099 (-5.4)	7.61	7.01	-0.60 (-7.9)
37000									
Caesarean section	18	1 763	2 902	907 984	822 702	-85 282 (-9.4)	7.77	7.11	-0.66 (-8.5)
37200									
Vaginal delivery with complication	7	158	117	420 562	429 338	8 776 (2.1)	3.65	3.50	-0.15 (-4.1)
37300									
Vaginal delivery without complication	21	2 849	6 728	347 622	375 784	28 161 (8.1)	3.24	3.15	-0.10 (-3.0)
Average change (%)						-79 666 (-8.3)			-0.24 (-3.0)

Source: Ministry of Health and Welfare (2000a).

* Based on the data from participating health care institutions.

administrative costs of filing claims and expedited reimbursement to health care institutions also contributed to the satisfaction of participating providers. However, many health care providers still prefer the fee-for-service to the DRG payment system because they think the former better guarantees clinical autonomy. They also argue that the current generous payment level of the DRG system is just a temporary carrot and government will later cut the DRG payment level once all health care institutions participate. Obstetricians are the most active opponents of the DRG payment system because the relevant disease category for

them under the DRG system – normal delivery and caesarean section – accounts for the majority of their revenue.

Challenges and future issues in the payment system reform

Benefit coverage expansion and quality improvement

Providers have financial incentives to substitute health services that are not reimbursed by a stringent payment

system for those services that are subject to it. Unless the payment system covers a comprehensive range of health services, an aggressive payment system will shift health care cost from the insurance to the non-insurance sector in Korea, as the regulated fee-for-service payment for insured services has led to the increase in the provision of uninsured services. Even if health insurance expenditure is contained, total health expenditure will rise and eventually the economic burden on patients increases. In this respect, expanding the benefits covered by health insurance, which have been quite limited in Korea, is an impending task before reforming the payment system.

An aggressive payment system can also lead to the under-provision of necessary medical care, particularly in the Korean context with its closed hospital system, hence there is a need for the insurer to devote more resources to monitoring and assuring the quality of medical care. The implementation of new payment systems therefore needs to be accompanied by an information system for disease classification, health care utilization and expenditure, cost of services and financial performance of health care institutions. Patient outcomes, adjusted for the severity of illness, need to be disclosed to the public to encourage consumers' informed choice, which will facilitate quality competition among providers. For example, it will be necessary to monitor and evaluate the trend in the caesarean section rate in Korea following the recent disclosure of the list of health care institutions that have a very high caesarean section rate.

Politics of the payment system reform

Payment system reform faces the typical problem of interest group politics in Korea. From a social perspective, the total benefit of the payment system reform is greater than its total cost. However, the cost of the reform concentrates on health care providers, and they offer strong opposition to it with their superior financial and information resources. On the other hand, the benefit of the reform to consumers is so diffused that they have little incentive and capacity to support the reform. As a result, providers have often prevented health care reform in Korea.

The government planned to implement the compulsory DRG-based payment covering nine disease categories for 'all' health care institutions in January 2001. Physicians increased their bargaining power through their strikes against the separation of drug prescribing and dispensing, and succeeded in pushing the government to defer several health care reform measures, including the DRG-based payment system reform. Although the DRG-based system was more promising than the RBRV-based system in changing provider behaviour and reducing cost, the former was blocked due to physician opposition. And internal politics among different specialties is a barrier to decreasing the fees of over-valued physician services in the RBRV system. It is now uncertain when the DRG-based payment system will be implemented on a mandatory basis and when the RBRV-based system will lead to a fee alignment that is fair among physician services. The government needs to carefully carve out a strategic plan for payment system reform, in the face of such strong

opposition by providers. Making the public the ally of the reform by informing them of its benefits will be an important step.

Global budgeting

In 2001, national health insurance in Korea introduced a fee negotiation between the insurer and providers, replacing the unilateral scheduling of fees by the government. How the negotiation mechanism will be implemented is still under discussion; for example, whether it is on fees or expenditure (or fees with a budget cap), and how to manage the conflict resolution process. For the last 2 years, the provider association and the insurer have failed to reach an agreement, and government set the rate of fee increase. Some maintain that it is timely to introduce global budgeting by negotiating not only on fees, but also on the health care budget or expenditure. The DRG prospective payment system still has weaknesses such as 'DRG creep' (Carter et al. 1990) and the aforementioned substitution of outpatient for inpatient care in terms of antibiotics and tests. The RBRV-based payment is still a fee-for-service system and cannot contain health care expenditure in Korea due to the lack of a mechanism that links the fee change to the service volume such as the VPS in the US Medicare. With active quality management, the global budgeting system can lead to less distortion in the mix of health services than in the fee-for-service system and can improve the predictability and macro-efficiency of resource allocation.⁸ The DRG system will be a valuable mechanism to allocate resources and budgets under the global budgeting system.

Currently under discussion is the approach of bilateral bargaining between the insurer and the provider association to reach an agreement on the amount of total health care expenditure. The physician association then will be responsible for allocating the budget to individual providers, monitoring their billing patterns, reviewing utilization and sanctioning outliers as in Canada and Germany (Hurley and Card 1996; Schwartz and Busse 1996; Katz et al. 1997). The provider organization has more information to monitor providers' practice patterns than the insurer has. Then the old conflict between the insurer and providers over utilization review in Korea may disappear. However, after the severe conflicts among physicians and government due to the recent pharmaceutical reform, it will be a long while before Korea builds the partnership between the insurer and the medical association that is essential for the negotiated global budgeting approach.

Conclusion

Although a payment system has a critical effect on the performance of a health care system, in Korea its role has been largely neglected and the transition from the current fee-for-service payment has been difficult. The fee-for-service reimbursement system has led to an increase in the volume and intensity of services and the distortion of medical care, such as the substitution of more profitable and less regulated services. A wasteful dispute continues between the payer and the provider over the adequate level of the fees.

Through 3 years of pilot programmes, the DRG-based prospective payment has been effective in containing medical expenses with little negative impact on quality. However, several physician strikes have put at risk the expansion of the DRG-based payment system to all health care institutions in Korea.

For a long time, health care policy in Korea has depended greatly on consumer cost-sharing to contain health care costs. The government has always responded to the financial distress of the national health insurance programme by increasing patient co-payment, rather than changing the economic incentives for health care providers. As a result, more than half of total expenditure on health care is borne by patients in the form of out-of-pocket payments. National health insurance in Korea needs to redirect its policy priority from demand-side cost sharing to payment system reform for health care providers. Facing the strong interests of providers, a strategic plan will be crucial for reforming the payment system in the future.

Endnotes

¹ See Peabody et al. (1995) for a summary of the Korean health care system before recent reforms. Kwon (2002) provides detailed descriptions of the institutional characteristics of the Korean health care system as well as its political and economic development context.

² Until recently, physicians could both prescribe and dispense drugs, which had been the largest source of their income. In order to change the perverse economic incentives of physicians and to reduce the overuse of drugs, government implemented a reform that mandates the separation of drug prescribing and dispensing, which led to several lengthy physician strikes (Kwon 2003a).

³ Physician strikes against the pharmaceutical reform resulted in a huge increase in physician fees in 2000.

⁴ In the second year of the pilot programme, the DRG-based payment covered five disease categories (lens procedure, tonsillectomy/adenoidectomy, appendectomy, caesarean section and normal delivery), accounting for 18.6% of inpatient cases.

⁵ Payment by the patient (co-payment of roughly 20% of the total payment) consists of a fixed payment and the variable payment, which depends on the patient's actual length of stay, namely: payment by the patient = standard payment \times 0.1 + (standard payment/average length of stay) \times 0.1 \times actual length of stay.

⁶ An exception is the complicated appendectomy, for which medical expenses and the length of stay increased by 3.5 and 5.2%, respectively, in the participating health care institutions. Further analysis is needed to explain this outlier case.

⁷ McClellan (1997) argues that due to administrative exceptions, Medicare DRG payment does not provide very strong incentives to reduce cost, which can be related to its modest effect on quality.

⁸ Global budgeting is not free from distortions associated with non-price allocation, such as inflexibility among sectoral budgets, political manipulation or difficulty in incorporating consumer preference (Danzon 1992).

References

Carter G, Newhouse J, Relles D. 1990. How much change in the case mix index is DRG creep? *Journal of Health Economics* **9**: 411–28.

Coulam R, Gaumer G. 1991. Medicare's prospective payment

system: a critical appraisal. *Health Care Financing Review* **13**: S45–77.

Danzon P. 1992. Hidden overhead costs: is Canada's system really less expensive? *Health Affairs* **11**: 21–43.

Ellis R, McGuire T. 1990. Optimal payment systems for health services. *Journal of Health Economics* **9**: 375–96.

Ellis R, McGuire T. 1993. Supply-side and demand-side cost sharing in health care. *Journal of Economic Perspectives* **7**: 135–51.

Finkler S. 1993. *Cost accounting for health care organizations*. New York: Aspen Publishers.

Hadley J. 1991. Theoretical and empirical foundations of the resource-based relative value scale. In: Frech III H (ed). *Regulating doctors' fees: competition, benefits, and controls under Medicare*. Washington, DC: AEI Press, pp. 97–125.

Hillman A, Pauly M, Kerstein J. 1989. How do financial incentives affect physician's decisions, resource use and financial performance in health maintenance organizations? *New England Journal of Medicine* **321**: 86–92.

Hsiao W, Braun P, Dunn P, Becker ER. 1988. Resource-based relative values: an overview. *Journal of American Medical Association* **260**: 2347–53.

Hsiao W, Braun P, Becker ER et al. 1992. An overview of the development and refinement of the resource-based relative value scale: the foundation for reform of U.S. physician payment. *Medical Care* **30** (Supplement 11): NS1–12.

Hurley J, Card R. 1996. Global physician budgets as common-property resources: some implications for physicians and medical associations. *Canadian Medical Association Journal* **154**: 1161–8.

Katz S, Charles C, Lomas J, Welch H. 1997. Physician relations in Canada: shooting inward as the circle closes. *Journal of Health Politics, Policy and Law* **22**: 1413–31.

Kim H, Sohn M et al. 1997. *RBRV (Resource-based Relative System) in Korea*. Seoul: Yonsei University and Ministry of Health and Welfare (in Korean).

Korean Hospital Association (KHA). 1999. *Hospital statistics*. Seoul: KHA (in Korean).

Korea Institute of Health Care Management (KIHCIM). 1999. *Evaluation of service performance of health care institutions*. Seoul: KIHCIM (in Korean).

Kwon S. 1997. Payment systems for providers in health insurance markets. *Journal of Risk and Insurance* **64**: 155–73.

Kwon S. 2002. Health insurance for all: lessons from the Republic of Korea. ESS (Extension of Social Security) Discussion paper no 1. Geneva: International Labor Office.

Kwon S. 2003a. Pharmaceutical reform and physician strikes in Korea: Separation of drug prescribing and dispensing. *Social Science and Medicine* (in press).

Kwon S. 2003b. Health care financing reform and the new single payer system in Korea. *International Social Security Review* (forthcoming).

McClellan M. 1997. Hospital reimbursement incentives: an empirical analysis. *Journal of Economics and Management Strategy* **6**: 91–128.

Ministry of Health and Welfare (MOHW). 1999. Internal report. Seoul: Ministry of Health and Welfare (in Korean).

Ministry of Health and Welfare (MOHW). 2000a. *Evaluation of the 3rd-year pilot program on DRG-based payment*. Seoul: Ministry of Health and Welfare (in Korean).

Ministry of Health and Welfare (MOHW). 2000b. [<http://www.mohw.go.kr>].

National Committee on Health Care Reform (NCHCR). 1998. Report on health care reform. Seoul: National Committee on Health Care Reform (in Korean).

National Health Insurance Corporation (NHIC). 1999. *Health insurance statistics*. Seoul: National Health Insurance Corporation (in Korean).

National Health Insurance Corporation (NHIC). 2000. *Trends in health insurance*. Seoul: National Health Insurance Corporation (in Korean).

- National Health Insurance Corporation (NHIC). 2001. Internal report. Seoul: National Health Insurance Corporation (in Korean).
- National Statistics Office (NSO). 2000. [http://www.nso.go.kr].
- Pauly M. 1991. Fee schedules and utilization. In: Frech III H (ed). *Regulating doctors' fees: competition, benefits, and controls under Medicare*. Washington, DC: AEI Press, pp. 288–305.
- Pauly M. 2000. Insurance reimbursement. In: Culyer A, Newhouse J (eds). *Handbook of health economics*, volume 1A. North-Holland, pp. 537–60.
- Peabody J, Lee S-W, Bickel S. 1995. Health for all in the Republic of Korea: one country's experience with implementing universal health care. *Health Policy* **31**: 29–42.
- Rice T. 1998. *The economics of health reconsidered*. Chicago: Health Administration Press.
- Rogers WH, Draper D, Kahn KL et al. 1990. Quality of care before and after implementation of the DRG-based prospective payment system: a summary of effects. *Journal of the American Medical Association* **264**: 1989–94.
- Schwartz F, Busse R. 1996. Fixed budgets in the ambulatory care sector: the German experience. In: Schwartz F, Glennerster H, Saltman R (eds). *Fixing health budgets: experience from Europe and North America*. John Wiley and Sons, pp. 93–108.
- Shin Y, Shin H, Shin C. 1999. *The increase in health insurance expenditure and policy options*. Seoul: Korea Institute of Health and Social Affairs (in Korean).

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Biography

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