

Special Article

Designing an Effective Pay-for-performance System in the Korean National Health Insurance

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The challenge facing the Korean National Health Insurance includes what to spend money on in order to elevate the 'value for money.' This article reviewed the changing issues associated with quality of care in the Korean health insurance system and envisioned a picture of an effective pay-for-performance (P4P) system in Korea taking into consideration quality of care and P4P systems in other countries. A review was made of existing systematic reviews and a recent Organization for Economic Cooperation and Development survey. An effective P4P in Korea was envisioned as containing three features: measures, basis for reward, and reward. The first priority is to develop proper measures for both efficiency and quality. For further improvement of quality indicators, an electronic system for patient history records should be built in the near future. A change in the level or the relative ranking seems more desirable than using absolute level alone for incentives. To stimulate medium- and small-scale hospitals to join the program in the next phase, it is suggested that the scope of application be expanded and the level of incentives adjusted. High-quality indicators of clinical care quality should be mapped out by combining information from medical claims and information from patient registries.

Key words: Pay-for-performance, Quality of health care, Value Incentive Program, Incentives, Korean National Health Insurance
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INTRODUCTION

The Korean health insurance system achieved universal population coverage within a short period of time [1] and then integrated nearly four hundred insurance cooperatives that had been operating separately into a single insurance organization [2]. While it remains controversial whether such an integrated organization sufficiently reflects equity in the level of insurance contributions between employees and non-employees, it is certain that under the National Health Insurance (NHI) scheme, an environment was created based on which excellent domestic data processing technology can be used. While previously, the major concern was with how to raise funds and how much to disburse, the task for the days to come should include where to allocate funds in order to elevate the 'value for money.'

The assessment of the adequacy of medical care introduced in the early 2000s was the first step toward the realization of such a task, and the Value Incentive Program (VIP) now being rapidly developed since the latter half of the 2000s is an attempt to materialize the task through payment incentives. The 2008-2009 Organization for Economic Cooperation and Development (OECD)

survey on health system characteristics [3] shows that 19 out of 29 countries had reported that they had pay-for-performance (P4P) programs on hand. However, the way it is implemented varies from country to country. Recent OECD reports rated Korea high in terms of efforts toward quality of care and P4P [4,5]. This article proposes to design an effective P4P system in view of recent developments in Korea and in consideration of current trends of quality of care and P4P now underway worldwide.

KOREAN NATIONAL HEALTH INSURANCE

A national health system is aimed at improving the health status of the population. The Republic of Korea's NHI scheme, as part of the health system, primarily carries out the financing function in the system (Figure 1) [6]. The current Korean health system is designed in such a way that the supply of medical care is entrusted to the private sector, leaving the public sector to take charge of the demand side through the NHI. This suggests that the NHI plays a significant role and that the other components of the health system do not

comparatively attract much attention.

The financing referred to here includes not only collecting and pooling funds but purchasing health care with it. In a country like Korea, in particular, where health insurance covers the entire population, whether or not the NHI scheme is appropriately managed serves as a clue to whether the health system properly works. However, while the NHI scheme has a hand in the quality and safety of the services it covers, those services that are not covered by the NHI have been left in the blind spots.

Before public medical insurance started to be applied to a segment of the nation in 1977, only a small number of people accessed medical services. For minor diseases, most people would drop into a neighborhood pharmacy and buy medicines over the counter, with hospitals set aside for serious medical situations or accessible only to the financially well-to-do. After 12 years of partial coverage by medical insurance, it was extended to the entire population in 1989. However, the benefits from medical insurance were still very limited, with the number of days available for health care services also limited, and many services and medicines left unavailable. Since health insurance benefits were made based on the insurance contribution rate, services were to be expanded as far as contributions allowed. Limited reimbursement was taken for granted since the contribution rate in those days stood at a slim 3%. Later, since the mid-1990s, insurance benefits were rapidly expanded, to the point where there was virtually no limitation on the number of days reimbursed by 2000.

Now, the public mentality has shifted to the point where it is taken for granted that medical fees are reimbursed by the NHI without any warrantable ground.

In the early 2000s, two major reforms, including both the pharmaceutical reform and the reform of health insurance integration, were implemented. The pharmaceutical reform could be justified in that the misuse and abuse of antibiotics could be prevented by separating the prescription and dispensing of drugs, thus directly affecting the quality of health care and the level of health of the population. While diverse views remain to be examined as to the extent to which the pharmaceutical reform contributed to the safety of medicines, it is obvious that a policy basis on which to move forward positively has gained ground [7]. The reform of health insurance integration concerns financing and governance. Though not directly connected to the quality of health care and the health of the population, it is not unrelated to them on a long-term basis. While at the time when health insurance was mapped out and expanded, the focus was largely on “collecting” money, the focus now is on how to “appropriately purchase” health care. For evidence-based strategic purchasing, an integrated organization covering the entire nation rather than multiple small organizations would be a better platform [2]. The Health Insurance Review and Assessment Service (HIRA) founded separately in 2000 during the integration reform seems to have a major role to play in making such purchasing more strategically.

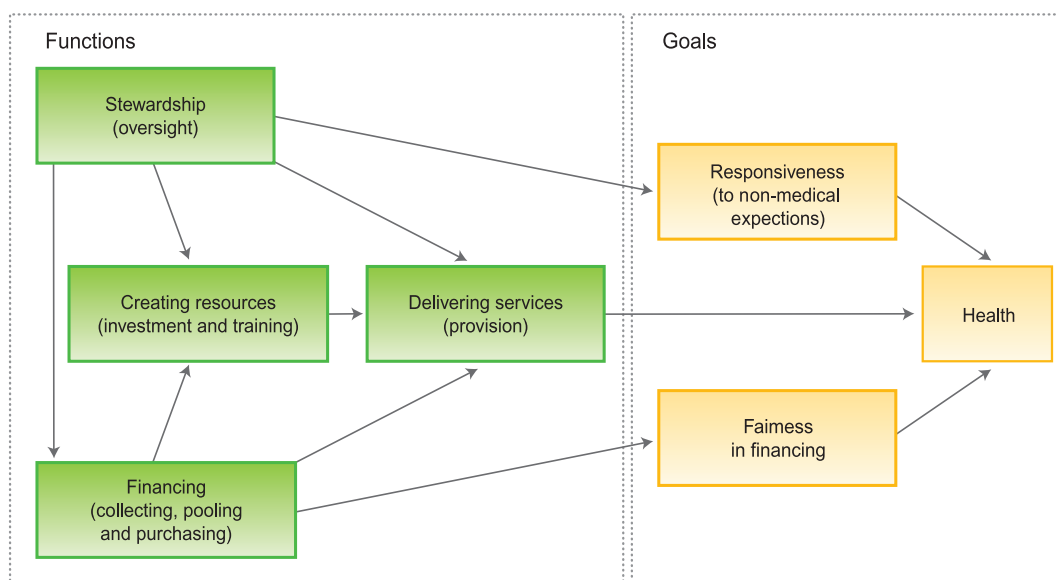


Figure 1. Functions and goals of health system [6].

QUALITY OF CARE

To attain the objectives of the health system, health care should be provided that is effective and safe while meeting the needs of patients. This is enabled by appropriately compensating providers for quality of care. However, it is not simple to measure the quality of care, which is complicated and multi-dimensional by nature.

I. Quality Assessment and Quality Indicators in OECD Countries

It is the United States that is on the forefront of developing evaluation of quality of care. Competing private insurers have attempted to attract customers by providing high quality medical care for the insured, which could be fulfilled by evaluating the quality of medical institutions and the medical care they provide. The Joint Commission on the Accreditation of Healthcare Organizations (JCAHO) mapped out formats whereby medical institutions can submit data, but to no avail, since medical institutions found it difficult to follow those formats and shied away from joining the program. JCAHO's Oryx Initiative was introduced which sought to integrate outcomes and other performance measurement data into the JCAHO's accreditation process. This got somewhere in collecting information for the evaluation of quality of care by showing flexibility in the way data were accepted when basic requirements were met, though their formats differed. On the other hand, the Agency for Healthcare Research and Quality (AHRQ) embarked upon the AHRQ Quality Indicators Program in 1994, which requires hospitals to prepare and submit quality indicators based on administrative data collected on their own. This is made up of 14 prevention quality indicators, 32 inpatient quality indicators, 27 patient safety indicators, and 18 pediatric quality indicators. The Hospital Compare Project introduced by the Center for Medicare and Medicaid Service (CMS) in 2001, a project where clinical indicators are collected from each hospital and published for the public with explanatory notes, helped to motivate hospitals to enhance quality of medical care by informing patients and insurers of criteria for selecting hospitals.

Endeavors to collect quality indicators with the country as a unit for international comparisons have been made by the OECD. The OECD built a basis for the collection of quality indicators through Health Care Quality Indicator (HCQI) in 2003 [4]. In less than ten years, it has grown into a robust and sustainable effort to

provide internationally comparable data on quality of care. It now brings together a large number of OECD and non-OECD countries, international organizations including the World Health Organization, European Community, International Society of Quality in Health Care and the European Society for Quality in Health Care [8]. Quality indicators collected are largely concerning clinical effectiveness. Much work remains to be done before the project will have achieved its ultimate goal of providing usable information for evidence-based policy decisions. Many priority areas in health care are still not covered by the existing HCQI indicators, either because of data limitations or because of gaps in measurement science.

II. Quality of Care in Korea

A. Hospital accreditation

Disclosure of quality of care to the public enhances consumer awareness and enables the patient to make an informed choice. This stimulates medical care providers to enhance the quality of care. Hospital accreditation has been performed by the Korean Hospital Association (KHA) and the Korean Medical Association since the 1960s. In 1985 a hospital standardization program was introduced. However, it was with the turn of the millennium that quality of care emerged as a policy issue and the quality of medical services started to be officially evaluated. The Korean Institute for Healthcare Accreditation (KOIHA), which was established in 2010, collects data and reports from medical institutions for accreditation. The Ministry of Health and Welfare makes public the results of quality assessment of 450 emergency medical institutions every year based on the Emergency Medical Service Act.

B. Publishing information on quality of care extracted from insurance billing claims

One of the primary functions of HIRA is to evaluate the appropriateness of medical care claims. HIRA's mission of quality assurance and cost-effectiveness is based on the law. An information infrastructure for quality of care began to be built in 2001. HIRA started to publish a list of high performing providers on its website in 2005, compiling a broader list including providers with both positive and negative results in 2006. Later on, the assessment lists continued to be expanded. This paved the way for the introduction of a hospital rating system, in which hospitals are rated on a scale ranging from one star through five stars. HIRA is now publishing the average cost, length of hospital stay, and

number of nurses per patient in 38 categories of surgical procedures.

With information technology highly developed in Korea, the country already introduced an electronic data interchange (EDI) billing system in 1990s and most medical institutions are now doing billing through the EDI. An electronic medical record system has also been in use and has been combined with the EDI system. Since a patient is identified against the national identification number, medical access is traceable patient by patient no matter what medical institution the patient has visited. This makes it possible to calculate quality indicators of a wide scope. Korea now ranks among the world's most advanced group of countries with regard to the scope covered, continuity in time-series, and timeliness of the indicators [4,5].

Not a few quality indicators related with acute care, long-term care, and prescription of medications are currently available. Such indicators are nationwide in scope and time-series data has been built for most of them. HIRA is now conducting surveys on hospitals to verify and supplement administrative information from medical bills, and to fill in missing information. Such validation work under way through differing data sources makes it possible to carry out quality control on data and indicators. However, doctor's clinics are excluded from such surveys.

Such information has not been fully used for the enhancement of quality of care of medical providers. The information collected has not been sufficiently fed back to medical providers in a format needed and applicable, thus failing to stimulate them to enhance their quality of care. This gave rise to the introduction of the VIP in 2007 in an effort to correct the situation. The VIP was first applied to both acute myocardial infarction and Caesarian section delivery in 43 tertiary general hospitals.

PAY-FOR-PERFORMANCE PROGRAMS IN FOREGOING COUNTRIES

P4P refers to a payment method whereby payment is made to medical providers based on their performance. Performance includes structures, processes and outcomes, a concept in this sense broader in meaning than result-based payment. P4P is differentiated from the existing payment systems including salary, fee-for-service, diagnosis related group, capitation, and so forth that are based on the quantity of care. When 'performance' is defined as limited to 'quality,' P4P could be

understood as a method that complements the existing payment method. On the other hand, when 'performance' is defined as combined 'quantity' and 'quality,' P4P could be interpreted as a substitutive payment method.

P4P is expected to help close the 'care gap', i.e. the difference between the best care and the actual care [9]. Though P4P pays based on the values of quality measured, whether it actually causes the quality of medical care to improve has yet to be further substantiated scientifically and analytically. While we need to wait some time before it is substantiated since the matter came to the fore recently, it is essential to monitor the trend of P4P programs worldwide, particularly in OECD member countries.

I. Organization for Economic Cooperation and Development Survey

According to an OECD survey [3], pay-for-performance schemes have been introduced in several OECD countries in which third-party payers offer financial incentives to providers in exchange for the achievement of agreed quality-of-care targets. Twelve countries have reported the existence of bonuses for primary care physicians. Bonuses are linked to quality targets in preventive care and in the management of chronic diseases in seven countries (Poland, 80% of primary care physicians' revenue; Czech Republic, 5% of primary care physicians' revenue; Belgium, 2% of the revenue of 90% of primary care physicians for the management of chronic diseases; United Kingdom, 15% of primary care physicians' revenue for prevention, chronic disease management and patient satisfaction). In France, a P4P scheme was introduced in 2009: a generalist can sign, on a voluntary basis, individual contracts with the health insurance fund (Contrats d'amélioration des pratiques). These contracts provide additional payments for the achievement of targets related to the quality of care (preventive activities, compliance with evidence-based guidelines) and related to the efficiency of drug prescription (share of generics in some therapeutic classes). At the end of 2009, about one-third of all generalists had signed such agreements.

Eight countries reported the existence of bonuses for specialists (United Kingdom, 68% of National Health Service [NHS] consultants [specialists]) for preventive care and the management of chronic diseases; Poland, 5% of the specialists receiving bonuses amounting to 5% of their revenues). Six countries reported the existence of bonuses for hospitals (Luxembourg, 9% of hospitals receiving bonuses amounting to 1.4% of their revenues;

Belgium, 0.5% of hospital revenues). Only the Slovak Republic and the United Kingdom reported bonuses linked to all types of quality targets, i.e., clinical outcomes, appropriate processes, patient satisfaction, and patient experience. Ten countries indicated that physicians can incur penalties when volume targets are exceeded. In seven countries, penalties would take the form of reduction in physicians' fees. In three countries, the Czech Republic, Finland and Italy, penalties would consist of partial refunds to health insurance funds.

The initial results of P4P programs were positive and efforts for measuring quality were found to increase among payers and providers [10]. In the California P4P program, which began in 2003, clinical performance improved an average of 3 percentage points per year [11]. The largest change was groups adopting specific IT activities. Health plans are, however, less motivated to participate because quality improvements are not large. UK's Quality and Outcomes Framework (QOF), which began in 2004 as a voluntary incentive pay program for general practitioners with almost universal participation, increased the rate of improvement in the quality of care initially for asthma and diabetes, but not for heart disease, and by 2007, the rate of improvement had slowed for each condition [12].

II. Systematic Reviews

The number of health care purchasers that have adopted P4P for quality improvement is growing rapidly. P4P programs are heterogeneous across countries and among purchasers with regard to incentives, target providers, measures for quality, etc. New programs continue to be developed around the world at an accelerated rate. Some studies [13,14] have demonstrated that P4P has led to improved quality of care.

A. Christianson et al. [15]

Christianson et al. [15] reviewed the evaluations of recent P4P initiatives ranging from the NHS program in the United Kingdom to a relatively small pilot program in upstate New York. Despite considerable variation in the contexts of the P4P initiatives, the evaluations reported that there was significant improvement in every initiative. The main findings in terms of specific implementation decisions and issues are summarized as follows.

1. Level and type of payment

No quantitative results in the literature directly addressed the level at which P4P pays to achieve desired outcomes. In a cross-comparison of Medicaid P4P

programs, Felt-Lisk et al. [16] found that the most successful plans with respect to quality improvement paid the highest rewards. Rosenthal et al. [17] concluded that paying clinicians to reach a common, fixed performance target may produce little gain in quality for the money spent and will largely reward physicians for their historical performance. Lindenauer et al. [18] reported a similar pattern for hospitals in the CMS premier initiative.

2. Risk adjustment

There were no comparative analyses of the implications of different types of risk adjustment for P4P programs. However, an analysis of the UK P4P program by Doran et al. [19] pointed out the influence of a particular method of risk adjustment for the distribution of P4P dollars. Physicians who were able to exclude larger proportions of patients from the payment calculations primarily because these patients suffered from relatively complicated medical conditions (a form of risk adjustment allowed under program regulations) scored higher than did other physicians.

3. Communication of incentives

An important part of implementing any P4P initiative is communicating with participating providers regarding the nature of the payments. In their analysis of several P4P efforts implemented in Medicaid programs, Felt-Lisk et al. [16] concluded that better results were achieved in Medicaid P4P programs where there was better communication with physicians.

4. Cost and cost-effectiveness

Most P4P programs have not conclusively established the contribution of financial incentives to improvements in care processes or outcomes. Nevertheless, Curtin et al. [20] and Nahra et al. [21] addressed this issue and found positive returns.

5. Practice impacts

P4P programs can have impacts that are unanticipated. Several studies have documented a variety of impacts of this nature. Langham et al. [22] examined changes in the distribution of financial incentive payments for health promotion in the United Kingdom. Also in the United Kingdom, Srirangalingam et al. [23] analyzed how referral patterns for diabetes care changed after introduction of the NHS's new financial reward system.

6. Documentation improvements

Simpson et al. [24] analyzed the impact of a new payment scheme for general practitioners on recording of quality indicators for patients with stroke. The new payment system, introduced in Scotland in 2004, compensated for practices that developed an accurate

register of stroke patients and for the recording of smoking habits, blood pressure, and cholesterol levels.

7. Effect on physician motivation or satisfaction

McDonald et al. [25] reported that the financial incentives in the P4P program in the United Kingdom did not damage the internal motivation of general practitioners, nor did physicians question the quality targets or their implications. Gene-Badia et al. [26] found limited effects on the quality of professional life and on patient satisfaction.

B. Van Herck et al. [27]

Van Herck et al. [27] presented the results of a systematic review of P4P effects and requisite conditions based on 128 evaluation studies published prior to July 2009. A large body of evidence on the impact of P4P on 'clinical effectiveness' and 'equity of care' was found, as opposed to less evidence on coordination, continuity, patient-centeredness, and cost-effectiveness. The effects of P4P interventions varied according to 'design choices' and 'characteristics of the context'. The main results of the study can be summarized as follows.

1. Clinical effectiveness as effect finding

The clinical effectiveness of P4P ranged from negative or absent to positive (1% to 10%) or very positive (above 10%), depending on the target and program. Negative results were found only in a minority of cases [28]. In terms of preventive care, more conflicting results were found for screening targets than for immunization targets. P4P most frequently failed to affect acute care. In chronic care, diabetes was the condition with the highest rates of quality improvement.

2. Access and equity of care as effect findings

P4P did not have negative effects on patients of certain age groups, ethnicities, or socio-economic statuses, or patients with different co-morbid conditions [29]. A small difference implicating less P4P achievement for female as compared to male patients was found [30].

3. Quality goals and targets as design choices

Process indicators generally yielded higher improvement rates than outcome measures, with intermediate outcome measures yielding in-between rates [31]. Whereas early programs generally addressed one patient group or focus (e.g., immunization), recent programs have expanded patient group coverage and the diversity of targets included.

4. Pay-for-performance incentives as design choices

Incentives of a purely positive nature (financial rewards) seem to have generated more positive effects than incentives based on a competitive approach (in

which there are winners and losers) [32]. The use of a fixed threshold versus a continuous scale to reward quality target achievement and/or improvement, are both options that resulted in positive effects in some studies (UK) but no or mixed effects in others [33]. What is clear, however, is that the positive effect was higher for initially low performers as compared to already high performers [34].

5. Healthcare system characteristics as contextual factors

Nation-level P4P decision making led to more uniform P4P results (as seen in the UK) [35], whereas more fragmented initiatives led to more variable P4P results (as seen in the USA). Based on findings as such, van Herck [27] recommended that future P4P programs should 1) select and define P4P targets on the basis of baseline room for improvement, 2) make use of process and (intermediary) outcome indicators as target measures, 3) involve stakeholders and communicate information about the programs thoroughly and directly, 4) implement a uniform P4P design across payers, 5) focus on both quality improvement and achievement, and 6) distribute incentives at the individual and/or team level.

C. Scott et al. [36]

Six of the seven studies reviewed by Scott et al. [36] on the effect of financial incentives on the quality of health care provided by primary care physicians showed positive but modest effects on quality of care for some primary outcome measures. The use of financial incentives to reward primary care physicians for improving the quality of primary healthcare services is growing. However, there is insufficient evidence to support the use of financial incentives to improve the quality of primary health care.

EFFECTIVE PAY-FOR-PERFORMANCE SYSTEM FOR KOREAN NATIONAL HEALTH INSURANCE

Previously, there was virtually no payment system that took quality into consideration. Payment was made by quantity on the premise that medical care of the highest quality available at the moment was provided [10]. Competition among providers was presupposed to naturally enhance the quality of medical care. However, with such a belief being questioned on the one hand and some conditions for the evaluation of quality being met on the other, compensation for quality is now being emphasized with the turn of the 21st century.

An analysis of the results of the Korean VIP program for the period 2007-2008 showed that the total score recorded in terms of acute myocardial infarction rose by 1.55% and that of Caesarian section delivery declined by 0.56% [5]. Differences among the providers have also narrowed, and in the group belonging to the lowest level the situation has noticeably improved. However, since those facts and figures were drawn from some of the hospitals at the initial stage of the program, it is premature to generalize the findings as universally applicable. It is to be further monitored whether VIP leads to the enhanced quality of care expected from P4P.

The framework of the P4P program can be divided into three parts: measures, basis for reward and reward [37]. The effective P4P system of the Korean National Health Insurance will be suggested, centering around those building blocks.

I. Measures

The ‘principal-agency problem’ arising from asymmetry of information [38] and ‘the third-party payment problem’ [39] in medical care make the generation of the P4P structure complicated. The three entities of medical care, i.e., patients, providers, and the insurer, differ in their levels of medical knowledge, and in the goals they seek. Such a situation could be resolved if quality of care could be quantified objectively and measured by means of clear-cut indicators. The task atop the list of priorities in the days to come is to develop quality measures, secure data and information to this end, and build a stabilized, workable mechanism for the task.

A. Efficiency and quality measures should be created and electronic patient history records be built

P4P targets should be selected and defined on the basis of baseline room for improvement, and process and intermediary outcome indicators be used as target measures [27]. Measures are largely divided into that of efficiency and of quality. The efficiency measure is about how much the cost is cut down while maintaining quality of the same level. The quality measure is generally regarded to have the paradigm of structure, process, and outcomes [40]. Considering the current level of information, P4P mostly uses process indicators as the quality measure. The intermediary outcome indicators, at best, are used as outcome indicators. Blood pressure and cholesterol level are such examples. Though it is generally agreed that P4P is effective in compensating for prevention and public health service,

performance measures employed are intermediary, not final, outcome indicators such as whether cancer screening test is made or not. For the P4P program to be effective in Korea, the Korean NHI will need to expand outcome indicators.

Electronic patient history records should be built to upgrade quality indicators a step further. With national identification numbers already on hand, they are not technically difficult to form in Korea. Health services can be linked to drug use, which in turn can be linked to diagnostic and other test results. This will prevent mishaps due to abuse or misuse of medicines and save costs involved in duplicate services. At the same time, there could be privacy concerns. Measures to safeguard and control the disclosure of patient health information should be mapped out in close consultation with consumer groups.

B. Safety indicators should be monitored and patient experience indicators be standardized

Indicators showing patient safety and patient experience are also important in addition to indicators showing clinical effectiveness. Though the seriousness of adverse events often comes under discussion, information on them is hardly available on the insurance billing claims. In Korea, where the majority of hospitals are privately owned, it is more difficult to gain access to information on adverse events, compared with Western countries where the majority of hospitals are public or non-for-profit. However, large hospitals have internal mechanisms through which to monitor the safety of patients and adverse events on their own initiatives. Various measures should be taken so that small- and medium-sized hospitals may also introduce such systems whereby safety and adverse events are monitored and reported on. A complementary mechanism needs to be established whereby medical professional associations may investigate and examine professional misconduct and patient feedback, and report on such adverse events.

Some OECD member countries have surveyed patient satisfaction, calculating experience indicators at the national level, and these are used for international comparisons. In Korea, patient experience indicators are used as a major standard in the hospital accreditation program by the KOIHA as well as in the hospital standardization program by the KHA. However, since those indicators are not standardized, values that may be gained through hospital-to-hospital comparisons are halved. Standardization of indicators and continuous surveys need to be written into law.

C. P4P indicators should be widened and monitoring and reporting program be expanded

P4P indicators need to be integrated into a wider health system context [41]. The UK QOF Project has shown the benefits of using a wide range of indicators. Perverse incentives have been avoided that would result from a narrow approach to health care quality. For this to happen, a monitoring and reporting program now underway centering around university hospitals should be expanded to cover small- and medium-sized hospitals. Linking accreditation or reporting to financial incentives could be a possible choice. In addition, as van Herck et al. [27] suggested, the programs need to be refocused timely when the goals fulfilled but scores on old targets should be kept monitored to see if the achieved results are maintained.

II. Bases for Rewards

Bases for rewards, as the second component of a P4P scheme, include the absolute level of the measure (quality achievement), and a change in the level, or the ranking (quality improvement) [42]. Quality improvement seems more desirable than using the absolute level alone. This is not optimal in that those staying on a low level are disadvantaged while those having historically performed above the targeted level will have no incentives to improve. Rather, a combination of both achievement and improvement is most likely to support acceptance and to direct the incentive to both low and high performing providers [27].

Some have worried that P4P could further aggravate the unequal accessibility of medical care. Prioritizing quality improvement for underserved populations is not technically easy. Granted, low rates of co-payment applicable to medical care in public health centers or to medical care for the aged are serving as an incentive motivating the underserved population to use medical care.

III. Rewards/Incentives

Forms of rewards/incentives, as the third component of a P4P scheme, are dependent on their objectives and contextual characteristics [43]. They could be financial or non-financial, or a combination of both. Financial rewards could be a lump-sum or an increase in the rate of payment. Non-financial rewards, which could take various forms, could not only influence the reputation of the medical institution by publishing the ranking itself

but affect finances as they influence the number of visiting patients. According to an OECD survey [3], the share of the physician and hospital earnings represented by the bonus payment was generally 5% or less. Many P4P programs in the US make use of a remarkably low incentive size (mostly 1% to 2% of income) [44]. Further research is required to find a sufficient incentive size to lead to the intended effect.

It is under discussion whether to pay the medical group or institution, or its individual health care workers. Some authors have stressed the enabling role at an institutional level to control the rewards to individual workers [45], while others, the importance of incentivizing providers individually or at a team level [27,46]. However, it would be difficult for the Korean health insurance to take the former position since it has been made a principle that the insurer pays the institution, which in turn pays individual workers according to its internal standards.

CONCLUSIONS AND RECOMMENDATIONS

This article reviewed changes in the issues associated with quality of care in the Korean health insurance system, and envisioned a picture of effective P4P in Korea taking into consideration quality of care and P4P systems in other countries. The main findings and suggestions are as follows. First, the task atop the list of priorities is to develop proper measures for both efficiency and quality. For quality indicators to be upgraded a step further, electronic patient history records should be built in the near future. Safety indicators need to be monitored and patient experience indicators be standardized. Second, as for bases for rewards, a change in the level or the relative ranking seems more desirable than using the absolute level alone. Third, rewards could be financial or non-financial, or a combination of both. They could be a lump-sum or an increase in the rate of payment. Further research is required to find a sufficient incentive size to lead to the intended effect. The insurer can pay to the institution, which in turn pays to individual workers according to its own standards.

To be included in the next phase of the VIP would be expanding the program to small- and medium-sized hospitals and other disease categories, and elevating the level of applicability of incentives. For this, stakeholders should be involved and in communication through the whole process. Performance indicators need to be monitored on a continuous basis. It is

important to allocate sufficient time and resources to ongoing management of the program. Most important, high-quality quality indicators for clinical care should be mapped out by combining claims information and information available in registries. When such a basis has been provided to some degree, national health system performance reports should be published periodically by combining such quality indicators and data on inputs of the health system as well as medical expenditures. This in turn will function as a strong catalyst for the progress of quality indicators.

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CONFLICT OF INTEREST

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