Performance of Universal Health Insurance: Lessons from South Korea

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Abstract

The aim of this study was to assess the maturity of the South Korean healthcare system in comparison with those of the 30 countries of the Organization for Economic Co-operation and Development (OECD) and to provide a foundation to evaluate the performance of the South Korean healthcare system. Using OECD Health Data 2005, we evaluated the performance of the healthcare system of the 30 industrialized countries. The evaluation focused on three dimensions that have remained central to healthcare debates internationally for years: access, cost and outcomes. Although South Korea has successfully implemented its universal health insurance scheme in a very short period of time and possesses highly advanced medical technologies, we found that South Koreans incurred more out-of-pocket expenditures on healthcare. Health outcomes were of relatively low quality compared with those of other OECD countries, but compared relatively well with the four countries (Greece, New Zealand, Portugal and Spain) with similar per capita gross domestic product (GDP).

Introduction

The purpose of the study was to identify the current status of South Korean healthcare in comparison with worldwide healthcare and, through this international comparison, to provide an initial step to evaluating the quality of the South Korean healthcare system. Comparisons focus on three dimensions that have been central in healthcare debates across countries for years: access, cost and

outcomes. We examined whether South Korea has shown improvement relative to other industrialized countries on any of these dimensions during the period from 1980 to 2003. The performance of the South Korean healthcare system in terms of access to care and health cost-sharing as of 2003 may provide some insight for world healthcare systems, which have struggled with the shared tensions and goals among fair contributions, cost control and quality care (WHO 2000). Understanding how well the South Korean universal healthcare system performs may give a reference level for the potential effectiveness of similar reforms in other countries.

The South Korean healthcare system has developed dramatically over the past three decades. The most remarkable achievement in its evolution has been the adoption of universal health insurance. In 1977, the government mandated compulsory medical insurance for employees and their dependants in large corporations of more than 500 workers. Since that time, national health insurance (NHI) coverage has been continually expanding to include more occupational groups of citizens such as government employees, teachers, workers in smaller firms and the self-employed. Ultimately, all South Korean citizens were covered by NHI by 1989. Until the economic crisis in 1997, the South Korean universal health insurance system was financially and administratively stable. Subject to the minimal guidelines imposed by the central government, decentralized insurance societies, either private-sector initiatives or medical insurance societies, served the covered enrollees (Jeong 2005). Each independent insurance society had autonomy in managing the scheme for enrollees and set the level of contributions and benefits, collected premiums and co-payments and reimbursed and monitored providers of medical care services for their enrollees. Financial feasibility was the responsibility of each society (Peabody et al. 1995; Kwon 2002; Jeong 2005).

However, the inefficiency of operating more than 300 individual insurance societies and financial inequity across societies gradually emerged as serious problems in the administration of universal health insurance. The economy-wide crisis in 1997 dramatically increased the overall NHI's financial deficit. Concerns regarding both the inequity in healthcare financing between employment categories and the chronic deficit of health insurance societies for the self-employed led the Korean government to instigate the Korean healthcare reform of 2000. Reform involved the merger of all health insurance societies into a single insurer, the newly formed government agency of the National Health Insurance Corporation (NHIC) (Lee 2003; Jeong 2005; Kwon and Reich 2005). Additional to the integration reform for equity and efficiency, the government implemented another major reform in 2000: the separation of drug prescription by medical doctors and drug dispensing by certified pharmacists in order to improve specialization and quality of care (NHIC 2005). The NHIC covers basically the entire national population as beneficiaries to the NHI, that is, government employees and teachers, the self-employed and industrial workers.

Another feature noted as a primary contributor to the success of universal health insurance in South Korea is the active role of private-sector initiatives. The private sector, consisting of three health insurance societies, insured 90% of the population, while the South Korean government insured the remaining 10% (Kwon 2002): "The rapid economic growth, the policies implemented by the military regime, and the design of a pluralistic insurance system based on separate insurance societies for different employee categories all contributed to the rapid expansion of health insurance" (Kwon 2002: 16).

To extend health insurance coverage to the population, the Korean military regime adopted the strategy of separating the working population into employees and the self-employed (Peabody et al. 1995). Mandating employers to cover their employees has been an effective way to extend coverage from the government's perspective. The notable point associated with the mandatory expansion is that "universal health insurance coverage has been accomplished without any major disruption to the overall economy, any apparent harm to specific industries, or any adverse impact on small firms" (Anderson 1989: 2).

In the South Korean experience, the rapid expansion to population coverage, however, has resulted in several problems, such as low contribution levels with limited health benefits, little involvement of the public sector in healthcare delivery, cost inflation and financial distress (Kwon 2002). Although

launching the NHIC was to improve the financial soundness of the health insurance system and enhance efficiency and equity among South Korean beneficiaries, a limited number of studies to evaluate the performance of the South Korean healthcare system have been completed. Analysis of the development and reform process of the health insurance system may provide meaningful implications for healthcare reform in other countries (Anderson 1989; Peabody et al. 1995).

Data and Sample

We used the Organization for Economic Co-operation and Development (OECD) Health Data 2005 for the analysis. The OECD health data provide rich information on per capita spending, utilization rates, health status, demographic factors and other data on 30 industrialized countries over the years from 1960 to 2003. While complete data are available for each country annually, there may be some technical and data collection issues involved in an international comparison. Nonetheless, the data are useful in outlining how well a particular healthcare system is performing and have been used in many previous studies (Anderson 1997). In particular, the data allow researchers to evaluate a country's progress in comparison with that of other industrialized countries. The OECD has taken the lead in collecting and publishing data for conducting international comparisons in recent years.

Performance of the South Korean Healthcare System

Access to Care – Insurance Coverage

The achievement of universal health insurance coverage for all citizens in South Korea has been very rapid. Before 1976, when the military regime initiated the NHI program in South Korea to assure universal health insurance coverage for all citizens, less than 10% of the population had health insurance and the per-capita income was less than $800 per month (Anderson 1989). Although South Korea has experienced considerable political turmoil in the intervening years, it finally achieved its goal of universal health insurance coverage in 1989, as the plan was originally designed (Anderson 1989; Peabody et al. 1995; Kwon 2002). The prominent characteristic of South Korea's universal health insurance coverage is that it was achieved via private-sector initiatives through an incremental process. These initiatives "relied on a series of self-contained medical insurance societies to collect revenues, determine benefits, and accumulate reserves" (Anderson 1989: 27). In general, the medical insurance societies were wholly owned subsidiaries of for-profit private corporations, and their primary goal was to provide insurance to the employees of the owner corporations. Owing to the absence of competition, the medical insurance societies often lacked financial incentives to pursue profits and thus did not earn a profit for all their activities (Anderson 1989; Kwon 2003). They did not "exercise their bargaining power in relation to health providers, and there was no selective contracting with providers" (Kwon 2003: 66–67). They were functioning as "financial intermediaries that channeled funds to providers" (Kwon 2003: 67).

Another notable feature of the South Korean experience in expanding health insurance coverage is the mandatory aspect. Coverage was compulsory and gradually expanded through a series of laws requiring incremental phase-in of universal coverage. During this process,it is noteworthy that the South Korean economy did not experience any major disruption to the overall structure, any apparent harm to specific industries, or any adverse impact on small firms (Anderson 1989). Over the period 1976 to 1989, South Korea enjoyed one of the fastest economic growth rates in the world, about 12.2% per year, which supported the mandatory implementation of the employment-based health insurance for industrial workers (Lee 2003).

The program to guarantee coverage started with the employed population. All firms with more than 500 employees were required to provide health insurance in 1976, and the company size limit was reduced to more than 16 employees in 1982 under the expanded obligation imposed on employers. Corporations and employees negotiated the benefit package as long as it met a minimum set of benefits established by the government. The health insurance societies, joined by corporations with more than 16 employees, provided health insurance coverage to the employees. Over 30% of

the population was covered through the employment-based scheme by 1988.

The second insurance program, established in 1977, covered the indigent. It was a categorical program similar to the U.S. Medicaid program that covered individuals living in public facilities, those who were unemployed and relied on family assistance for financial support and those who were medically needy owing to high medical expenses (Anderson 1989). The percentage of the population eligible for this government assistance program has remained relatively constant at 10% since the program was established (Kwon 2002).

Table 1. Publicly mandated coverage for in-patients and acute hospital care among OECD countries, 1977–2003

Country	1977	1989	2003
Australia	100.0	100.0	100.0
Austria	98.0	99.0	97.0
Belgium	99.0	98.0	99.0
Canada	100.0	100.0	100.0
Czech Republic	100.0	100.0	100.0
Denmark	100.0	100.0	100.0
Finland	100.0	100.0	100.0
France	98.0	99.3	99.9
Germany	92.3	89.3	90.9
Greece*	98.0	100.0	100.0
Hungary	100.0	100.0	100.0
Iceland	100.0	100.0	100.0
Ireland	85.0	100.0	100.0[b]
Italy	100.0	100.0	100.0[e]
Japan	100.0	100.0	100.0[a]
South Korea*	14.5	100.0	100.0
Luxembourg	-	-	99.6
Mexico	-	-	-
Netherlands	69.7	61.6	64.2[a]
New Zealand*	100.0	100.0	100.0
Norway	100.0	100.0	100.0
Poland	-	-	-
Portugal*	98.0	100.0	100.0
Slovak Republic	-	-	19.3
Spain*	84.0	98.9	-
Sweden	100.0	100.0	100.0
Switzerland	94.8	99.3	100.0
Turkey	37.8	53.6	66.0[e]
United Kingdom	100.0	100.0	100.0
United States	-	23.3	25.3[a]
Median	100.0	100.0	100.0

Source: *OECD Health Data 2005* (Paris: Organization for Economic Co-operation and Development, 2005)
Note: [a]2001, [b]2000, [c]1999, [d]1998, [e]1997, – not available.
* Countries with GDP per capita ranging from $18,000 to $24,000 in 2003.

Coverage for government workers, school employees and pensioners began in 1979, with the third type of health insurance (Anderson 1989; Peabody et al. 1995). In this program, the government and the insured shared the contributions equally (Kwon 2002). Payroll deductions were relatively higher than deductions for industrial workers because utilization rates were higher for this population, who tended to be older than the members of the industrial societies. These health insurance plans covered about 10% of the entire population annually until 1998, when they were merged with the industrial societies (Anderson 1989; Kwon 2002).

Table 1 shows changes in the percentage of the population with health insurance coverage in in-patient and acute care services during the period 1977 to 2003. The insurance rate of 14.5% in South Korea in 1977 was the lowest among 25 countries that reported relevant information. As South Korea completed the expansion of coverage to all citizens in 1989, the coverage rate increased from 14.5% in 1977 to 100%, the fastest increase in the 25 industrialized countries.

According to Table 1, 18 countries have achieved 100% coverage publicly mandated for in-patient and acute hospital care, and the majority (23 of the 30 OECD countries) have more than 90% coverage for the services. Though all South Koreans hold basic coverage from the mandatory NHI, many people, as in other countries, opt to purchase supplemental private health insurance against disastrous medical bills from serious illness such as cancer and heart disease. The most affluent Germans had private health insurance as well as public insurance (Iglehart 1991a, b). Similarly, the Netherlands had achieved universal coverage through a combination of public and private insurance. While publicly mandated insurance coverage was only 64.2% in the Netherlands in 2001 (Anderson 1997), the higher-income employee groups, the self-employed and state government officials had private health insurance for receiving better treatment not covered by publicly mandated insurance (Schut 1995).

As shown in Table 1, the U.S. coverage rate was relatively low, since the insurance rate represented only coverage by public programs such as Medicare and Medicaid and excluded the coverage by private insurance, which most Americans purchase through their employment. The rate of public insurance coverage in the U.S. rose from 23.3% in 1989 to 25.3% in 2002, and the slight increase during the 1990s may be attributed primarily to the expansion of Medicaid eligibility. Private health insurance based mostly on employment-related plans covered about 60% of the U.S. population for in-patient and acute care services. An estimated 15.2% of the population had no health insurance coverage during 2002, challenging the entire healthcare system in the U.S. via cost increases and inequity in access to health services (U.S. Census Bureau 2003).

Healthcare Use and Supply

Service Use and Resource Supply

Table 2 shows the average use of physician services and hospital beds among the 30 OECD countries in 2003. The average number of annual physician visits per capita[1] (column 1) varies widely, from 2.5 in Greece and Mexico to 14.1 in Japan, with a median of 6.15. South Koreans made 10.6 annual visits per capita and were ranked with the 5th highest utilization. The majority of OECD countries had from 5 to 10 annual physician visits per capita. Only five countries (Japan, Czech Republic, Slovak Republic, Hungary and South Korea) had annual physician visits per capita higher than 10 in 2003. Unless South Koreans are particularly unhealthy compared with populations of other developed countries, the high utilization of physician services in South Korea indicates that either South Koreans tend to be more dependent on medical help for mild health problems or they are more likely to be subject to "moral hazard" problems in their demand for healthcare, due to universal coverage. The moral hazard problem, as a general rule, refers to the situation where "having health insurance leads people to consume more healthcare services than they would have purchased if they had to pay for such services" (Shi and Singh 2003: 590).

More than two-thirds of the OECD countries had between two and four practising physicians per 1,000 citizens in 2003, with the median for the OECD being 3.1. Greece had the largest

Table 2. Use of physician services and hospital facilities among OECD countries, 2003

Country	Physician Visits per Capita	Number of Practising Physicians per 1,000	Average Visits per Physician	Hospital Acute Care Days	Hospital Acute Care Beds per 1,000
Australia	6.0 (17)	2.5[a] (21)	2,400[a] (11)	6.2[a] (19)	3.6[a] (15)
Austria	6.7 (12)	3.4 (7)	1,971 (17)	5.8 (21)	6.0 (4)
Belgium	7.8[a] (8)	3.9[a] (3)	2,000[a] (16)	7.7[e] (9)	4.0[a] (10)
Canada	6.2[b] (14)	2.1 (26)	2,952[a] (8)	7.4[d] (10)	3.2[a] (17)
Czech Republic	13.0 (2)	3.5 (6)	3,714 (6)	8.3 (6)	6.5 (3)
Denmark	7.3 (9)	2.9[a] (17)	2,517 (9)	3.6 (30)	3.4[b] (16)
Finland	4.2 (21)	2.6 (19)	1,615 (21)	4.3 (28)	2.3 (25)
France	6.9[a] (11)	3.4 (7)	2,029 (15)	5.6 (22)	3.8 (13)
Germany	7.3[c] (9)	3.4 (7)	2,147[a] (14)	9.2[a] (3)	6.6[a] (2)
Greece*	2.5[e] (27; 5)	4.4[b] (1; 1)	568[c] (28; 5)	6.2[c] (19; 4)	--
Hungary	12.2 (4)	3.2 (12)	3,813 (5)	6.7 (15)	5.9 (5)
Iceland	5.6[b] (18)	3.6 (4)	1,556[a] (22)	5.2[h] (24)	--
Ireland	--	2.6 (19)	--	6.5 (18)	3.0 (22)
Italy	6.1[c] (15)	4.1 (2)	1,488[a] (23)	6.8[a] (14)	3.9[a] (11)
Japan	14.1[a] (1)	2.0[a] (27)	7,050 (1)	20.7 (1)	8.5 (1)
South Korea*	10.6[a] (5; 1)	1.6 (28; 5)	6,625 (2; 1)	10.6 (2; 1)	5.9 (5; 1)
Luxembourg	6.3 (13)	2.7 (18)	2,333 (13)	7.4[g] (10)	5.7 (8)
Mexico	2.5 (27)	1.5 (29)	1,667 (20)	3.9 (29)	1.0 (27)
Netherlands	5.6 (18)	3.1 (14)	1,806[b] (19)	8.6[b] (5)	3.2[a] (17)
New Zealand*	3.2 (24; 4)	2.2 (24; 4)	1,455[e] (24; 3)	4.9 (26; 5)	--
Norway	--	3.1 (14)	--	5.4 (23)	3.1 (19)
Poland	6.1 (15)	2.5 (21)	2,440[a] (10)	7.9[a] (7)	5.1 (9)
Portugal*	3.7 (22; 3)	3.3 (10; 2)	1,121[b] (25; 4)	7.3 (12; 2)	3.1 (19; 2)
Slovak Republic	12.4 (3)	3.1 (14)	4,000 (3)	7.9 (7)	5.9 (5)

Country	Physician Visits per Capita	Number of Practising Physicians per 1,000	Average Visits per Physician	Hospital Acute Care Days	Hospital Acute Care Beds per 1,000
Spain*	9.5 (6; 2)	3.2 (12; 3)	2,969[b] (7; 2)	7[b] (13; 3)	3.1 (19; 2)
Sweden	2.9[b] (25)	3.3[a] (10)	879[a] (27)	4.8[a] (27)	2.4[c] (24)
Switzerland	3.4 (23)	3.6[a] (4)	944 (26)	9 (4)	3.9 (11)
Turkey	2.6[b] (26)	1.4 (30)	1,857[a] (18)	5.2 (24)	2.3 (25)
United Kingdom	5.2 (20)	2.2 (24)	2,364 (12)	6.7 (15)	3.7 (14)
United States	8.9 (7)	2.3[a] (23)	3.870 (4)	6.7 (15)	2.8 (23)
Median	6.15	3.1	2,088	6.7	3.7

Source: *OECD Health Data 2005* (Paris: Organization for Economic Co-operation and Development, 2005)
Note: ALOS stands for average length of stays. [a]2002, [b]2001, [c]2000, [d]1999, [e]1998, [f]1997, [g]1996, – not available. Ranking is reported in the brackets.
* Countries with GDP per capita ranging from $18,000 to $24,000 in 2003; ranking is reported out of the 30 OECD countries; out of the 5 countries with similar GDP to South Korea.

number of practising physicians (4.4 per 1,000) and Turkey the least (1.4 per 1,000). South Korea, despite its high utilization of physician care (measured by physician visits per capita), had a relatively small number of practising physicians (1.6 per 1,000) and was ranked third from the bottom next to Mexico (1.5 per 1,000) and Turkey (1.4 per 1,000), indicating a short supply of physicians to meet the demand for services. The shortage of physicians in South Korea, combined with the high utilization of services, produced the second highest number of visits. The average number of annual visits per physician in South Korea was 6,625. The large number of visits or patients per physician in a given period of time may degrade the quality of care or the responsiveness of care to patients' satisfaction, with the resulting problems of difficulties in making an appointment, long waits in the service setting and short consulting time with a doctor.

The average length of stay (ALOS) in acute care hospital beds per capita ranged from 3.6 days in Denmark to 20.7 days in Japan (Table 2). There has been a consistent trend toward shorter in-patient stays per capita in many OECD countries since 1980 (Anderson and Hussey 2001). Worldwide health policies, particularly in the U.S., have centred on keeping people out of hospitals and keeping hospital stays as short as possible to slow down the increases in health expenditure. The average length of hospital acute care stay in South Korea was 10.6 days, the second longest stay. If Japan, with the longest ALOS, relies on hospital in-patient care primarily for its high portion of elderly citizens, the same aging problem that is rapidly progressing in South Korea may also be the reason for its long stays in hospital in-patient beds.

Contrary to the case of physician supply, the number of hospital acute care beds per 1,000 population in South Korea was the 5th (5.9 beds) highest among the 30 OECD countries. Beds per 1,000 people ranged from 1.0 in Mexico to 8.5 in Japan. Notably, the U.S had relatively fewer beds, 2.8 per 1,000 (23rd), indicating that, as a way of cost containment, the U.S. not only limits the length of stay in acute care beds but also cuts the supply of in-patient beds to generate additional cost savings.

In terms of controlling for income effects, among countries with a similar gross domestic product (GDP) per capita, ranging from $18,000 to $24,000 (i.e., Greece, New Zealand, Portugal, Spain and South Korea), utilization of healthcare services per 1,000 population, including physician visits, average visits per physician, hospital acute care days and hospital acute care beds, was highest in South Korea.

Table 3. Use of medical technology among OECD countries, per million population, 2003

Country	MRI	CT Scanners	Lithotripters
Australia	3.7 (19)	20.8[f] (7)	1.8[a] (13)
Austria	13.5 (4)	27.2 (4)	1.8 (13)
Belgium	6.6[a] (13)	28.8[a] (3)	--
Canada	4.5 (16)	10.3 (20)	0.5 (20)
Czech Republic	2.4 (24)	12.6 (18)	3.4 (6)
Denmark	9.1 (8)	14.5 (11)	--
Finland	12.8 (5)	14.0 (14)	0.4 (22)
France	2.8 (22)	8.4 (22)	0.7 (19)
Germany	6.0[a] (14)	14.2[a] (12)	3.3[a] (7)
Greece*	2.3[a] (25; 5)	17.1[a] (10; 2)	3.0[e] (9; 2)
Hungary	2.6 (23)	6.9 (24)	1.1 (17)
Iceland	17.3 (2)	20.7 (8)	3.5 (5)
Ireland	--	--	--
Italy	11.6 (6)	24.0 (6)	2.9[g] (10)
Japan	35.3[a] (1)	92.6[a] (1)	6.4[a] (2)
South Korea*	9.0 (9; 1)	31.9 (2; 1)	6.8 (1; 1)
Luxembourg	11.1 (7)	26.7 (5)	2.2 (12)
Mexico	0.2 (28)	1.5 (27)	0.3 (23)
Netherlands	3.9[h] (17)	--	--
New Zealand*	3.7 (19; 4)	11.5 (19; 5)	0.5 (20; 5)
Norway	--	--	--
Poland*	1.0 (27)	6.3 (25)	2.9 (10)
Portugal	3.9 (17; 3)	12.8 (17; 4)	1.4 (16; 4)
Slovak Republic	2.0 (26)	8.7 (21)	4.3 (4)
Spain*	7.3 (12; 2)	13.0 (16; 3)	1.8 (13; 3)
Sweden	7.9[d] (11)	14.2[d] (12)	--

Country	MRI	CT Scanners	Lithotripters
Switzerland	14.2 (3)	18.0 (9)	4.5 (3)
Turkey	3.0 (21)	7.3 (23)	0.9[b] (18)
United Kingdom	5.2[b] (15)	5.8[b] (26)	--
United States	8.6[a] (10)	13.1[a] (15)	3.2[a] (8)
Median	5.6	14.0	2.2

Source: *OECD Health Data 2005* (Paris: Organization for Economic Co-operation and Development, 2005)
Note: MRI and CT stands for magnetic resonance imaging and computed tomography, respectively. [a]2002, [b]2001, [c]2000, [d]1999, [e]1998, [f]1997, [g]1996, [h]1995, – not available. Ranking is reported in the brackets.
* Countries with GDP per capita ranging from $18,000 to $24,000 in 2003; ranking is reported out of the 30 OECD countries; out of the 5 countries with similar GDP to South Korea.

Medical Technology

For measuring the utilization rate of high-tech medical equipment, we used the supply of magnetic resonance imagers (MRIs), computed tomography (CT) scanners and lithotriptors as proxies for the availability of expensive medical technology. In previous studies in this line of research, the number of MRIs was the most common measure for the degree of technological advance in a given medical system (Anderson and Hussey 2001). The number of MRIs per million persons ranged from 0.2 in Mexico to 35.3 in Japan (Table 3). The availability of MRIs in South Korea was in the upper 30% of the OECD countries and was ranked ninth behind Japan, Switzerland, Iceland, Austria, Finland, Italy, Luxembourg and Denmark. The number of CT scanners ranged from 1.5 per million persons in Mexico to 92.6 in Japan. In South Korea, the number of CT scanners was 31.9, which ranked second behind Japan. The median number of lithotripters in OECD countries was 2.2 per million citizens, ranging from 0.3 in Mexico to 6.8 in South Korea. South Korea was ranked first, with more than three times the median.

As Table 3 shows, compared to other countries with similar income (i.e., Greece, New Zealand, Portugal and Spain), South Korea had the highest supply of all three types of technologically advanced medical equipment (MRIs, CTs and lithotriptors). The large supply of advanced medical technology in South Korea may have contributed to the cost-insensitive use of expensive medical services. On the other hand, as these services were not reimbursed by the NHI until 2005, individual providers and hospitals, which are under strict regulations on service pricing, may have sought high revenue by inducing demand for these uncovered services among their patients.

Healthcare Spending and Financing

Table 4 documents various measures of healthcare expenditure among the OECD countries. Health spending per capita (in U.S. dollars adjusted by purchasing power parity [PPP]) ranged from $452 in Turkey to $5,635 in the U.S. The U.S. continues to spend considerably more per capita on healthcare than any other country – more than double the 2003 median for OECD countries. Many studies have shown that most international differences in health spending could be explained by the average wealth level as indicated by GDP per capita (Anderson and Hussey 2001). Countries with higher average wealth spent proportionally more on healthcare, as exemplified by the U.S., Switzerland, Germany, France and Canada.

Healthcare expenditure per capita in South Korea ($1,074, 26th) was relatively low at less than half the OECD median ($2,269). South Korea's total health spending per capita and total health spending as a percentage of GDP were the lowest among the five countries (Greece, New Zealand, Portugal, Spain and South Korea) with similar per capita income. During the period 1995 to 2003,

Table 4. Healthcare spending among OECD Countries, 2003

Country	Health Spending per Capita, US$ PPP	Health Spending, Percentage of GDP	Annual Growth in Health Spending, 1995–2003	Public Expenditure on Health per Capita, US$ PPP	OOP Spending per Capita, US$ PPP
Australia	$2,699[a] (12)	9.3[a] (12)	7.8% (11)	$1,821[a] (13)	$529[b] (5)
Austria	2,280[a] (15)	7.6[a] (21)	3.1 (20)	1,593[a] (18)	399[a] (13)
Belgium	2,827 (10)	9.6 (10)	6.9 (16)	--	--
Canada	3,003 (6)	9.9 (7)	5.8 (25)	2,100 (10)	448 (9)
Czech Republic	1,298 (24)	7.5 (22)	6.1 (22)	1,170 (22)	108 (26)
Denmark	2,763 (11)	9.0 (14)	6.2 (21)	2,292 (6)	436 (10)
Finland	2,118 (19)	7.4 (23)	6.0 (23)	1,622 (17)	403 (12)
France	2,903 (9)	10.1 (6)	5.3 (28)	2,214 (7)	291 (21)
Germany	2,996 (7)	11.1 (3)	4.0 (29)	2,343 (5)	312 (17)
Greece*	2,011 (20; 1)	9.9 (7; 1)	7.6 (13; 3)	1,032 (23; 4)	935 (2; 1)
Hungary	1,115[a] (25)	7.8[a] (18)	9.3 (5)	783[a] (24)	293[a] (20)
Iceland	3,115 (5)	10.5 (4)	8.5 (8)	2,602 (3)	513 (6)
Ireland	2,386[a] (14)	7.3[a] (24)	13.7 (2)	1,793[a] (14)	314[a] (16)
Italy	2,258 (16)	8.4 (15)	5.9 (24)	1,697 (16)	468 (7)
Japan	2,139[a] (18)	7.9[a] (17)	5.6 (27)	1,743[a] (15)	370[a] (15)
South Korea*	1,074 (26; 5)	5.6 (30; 5)	12.5 (4; 1)	531 (26; 5)	450 (8; 2)
Luxembourg	3,190[a] (4)	6.1[a] (27)	7.8 (11)	2,725[a] (2)	379[a] (14)
Mexico	583 (29)	6.2 (26)	6.6 (18)	270 (29)	294 (19)
Netherlands	2,976 (8)	9.8 (9)	7.9 (10)	1,856 (12)	233 (22)
New Zealand*	1,886 (21; 2)	8.1 (16; 3)	6.4 (20; 5)	1,484 (19; 1)	296 (18; 4)
Norway	3,807 (2)	10.3 (5)	12.6 (3)	3,188 (1)	591 (4)
Poland	677[a] (28)	6.0[a] (28)	8.9 (6)	490[a] (27)	187[a] (23)
Portugal*	1,797 (23; 4)	9.6 (10; 2)	8.3 (9; 2)	1,253 (21; 3)	--
Slovak Republic	777 (27)	5.9 (29)	7.2 (14)	687 (25)	91 (27)

Country	Health Spending per Capita, US$ PPP	Health Spending, Percentage of GDP	Annual Growth in Health Spending, 1995–2003	Public Expenditure on Health per Capita, US$ PPP	OOP Spending per Capita, US$ PPP
Spain*	1,835 (22; 3)	7.7 (19; 4)	6.6 (18; 4)	1,306 (20; 2)	434 (11; 3)
Sweden	2,594[a] (13)	9.2[a] (13)	7.0 (15)	2,213[a] (8)	--
Switzerland	3,781 (3)	11.5 (2)	5.8 (25)	2,213 (8)	1,192 (1)
Turkey	452[c] (30)	6.6[c] (25)	28.9 (1)	284[c] (28)	125[c] (25)
United Kingdom	2,231[a] (17)	7.7[a] (19)	8.9 (6)	1,860[a] (11)	160[g] (24)
United States	5,635 (1)	15.0 (1)	6.8 (17)	2,503 (4)	793 (3)
Median	2,269	8.25	6.95	1,743	379

Source: *OECD Health Data 2005* (Paris: Organization for Economic Co-operation and Development, 2005)
Note: OOP, PPP, GNP stand for out-of-pocket, purchasing-power-parity and gross national product, respectively. [a]2002, [b]2001, [c]2000, [d]1999, [e]1998, [f]1997, [g]1996, [h]1995, – not available. Ranking is reported in the brackets.
* Countries with GDP per capita ranging from $18,000 to $24,000 in 2003; ranking is reported out of the 30 OECD countries; out of the 5 countries with similar GDP to South Korea.

however, South Korean healthcare spending rapidly increased at an average annual rate of 12.5%, almost twice as high as the average OECD annual rate of increase (6.95%).

Between 1960 and 1998, healthcare spending generally tended toward the mean; that is, countries with high healthcare spending in 1960 tended to have lower-than-average rates of growth in healthcare expenditure, while countries with lower spending per capita tended to have higher-than-average expenditure growth (Anderson and Hussey 2001). Also, countries such as South Korea, with more rapid economic growth, had higher rates of increase in healthcare spending. The case of South Korea clearly demonstrates the combination of relatively low initial per capita spending and high growth rate accompanied by a dramatic GDP growth and extension of universal health insurance to full coverage in only three decades. South Korea, however, is presumed to be facing a large future challenge in growing healthcare costs associated with an aging population.

Canada is an example of the opposite situation: high level ($3,003, 6th) and slow growth (5.8%, 25th) of per capita spending. The well-respected performance of the Canadian health system in terms of stabilized growth in health expenditure has generated enthusiasm among researchers and policy makers abroad about learning from the Canadian system.

Public health expenditure per capita in South Korea ($531) was less than one-third the OECD median. South Korea's public expenditure on health per capita was the lowest among the five countries (Greece, New Zealand, Portugal, Spain and South Korea) with similar GDP per capita. In the process of expanding the NHI, the central government of South Korea minimized its role in financing healthcare to mitigate any adverse effects on national economic growth, which was the top priority in government budgeting. As employers and employees made most contributions, public spending on healthcare per capita remained very low compared to other countries that ran an NHI system. For instance, per capita public health spending was $2,100 (10th) in Canada, $1,743 (15th) in Japan and $1,860 (11th) in the U.K. Another indicator that demonstrates the minimal role of the central government in financing the South Korean healthcare system is the percentage of total health expenditure to total public funding. This was only 49.4% in South Korea, compared with much higher rates in many other countries with an NHI system (69.9% in Canada, 81.5% in Japan and 83.4% in the U.K.).

With less support from the central government, the consumer's share of healthcare costs measured by per capita out-of-pocket (OOP) spending was high ($450, 8th) in South Korea, well above the OECD median ($397). Even after controlling for income effects, South Korean per capita OOP spending was second highest after Greece among the five countries with similar income (ranging from $18,000 to $24,000). In Germany and Japan, whose healthcare systems have been the benchmark for moulding healthcare financing in South Korea, per capita OOP was much smaller ($312, 17th for Germany and $370, 15th for Japan). Again, the proportion of total OOP spending to total healthcare expenditure was 41.9% in South Korea (the 3rd highest after Mexico [50.5%] and Greece [46.5%]), compared with only 14.9% in Canada, 10.4% in Germany, 17.3% in Japan and 14.1% in the U.S. These findings suggest that the successful expansion of health insurance coverage in South Korea has not necessarily guaranteed satisfactory financial protection against potentially catastrophic medical expenses that an average South Korean citizen might be exposed to.

Furthermore, low contribution rates of the insured beneficiaries and stringent public funding for the healthcare system have limited the range of services like benefit-in-kind. The wide variety of services commonly received by patients that remain uncovered by insurance may account for the high OOP spending in South Korea. On the other hand, the high rates of cost sharing may play a role in mitigating the previously mentioned moral hazard effect in utilizing health services. Many believe that the introduction of the cost-sharing rule could improve the financial stability of the NHIC in South Korea, which is the only insurer of the Korean NHI that has suffered a continuous deficit since 1997 up to 2003.

In summary, the benefits of Korean universal coverage should not be overemphasized, although the achievement, especially at such a rapid pace, is admirable. In practice, the range of benefit-in-kind in the Korean NHI package is insufficient to completely remove barriers to necessary care among the insured South Korean beneficiaries.

Health Outcomes

Life Expectancy

High and rapidly growing healthcare expenditure may nevertheless be beneficial if it actually improves health in the population. Though better health is unquestionably the ultimate goal of any healthcare system, it is inconvenient to measure and compare a variety of health outcomes (by nature, a qualitative attribute) across countries and their relationship with the type of health system and level of healthcare spending. Obviously, the marginal improvement of health outcomes generated by a unit investment in healthcare would be the best indicator of how well a health system performs. The most commonly used quantity measures for health outcomes include life expectancy at birth and infant mortality rate (Table 5).

Women's life expectancy at birth was 5.6 years longer (81.1 years) than men's (75.5 years) in the OECD median. Japan had the longest life expectancy for women (85.3 years) and the second longest for men (78.4 years), indicating the severity of aging-related problems presently arising in Japan. Life expectancy in South Korea was below the OECD median for both men (73.4 years, 24th) and women (80.4 years, 21st), and was the lowest among the other four countries with similar income (Greece, New Zealand, Portugal and Spain). Women lived seven years longer than men in South Korea.

To adjust for the loss of life expectancy due to various health problems, "potential years of life lost" (PYLL) measures the years of life lost before the age of 70 due to preventable conditions.[2] PYLLs of the South Korean population were about 5.7 years for men (16% above the OECD median for men at 4.95 years) and 2.7 years for women (3% above the OECD median for women at 2.6 years). This result contrasted with the case of Japan, where PYLLs were 25% below the OECD median for men (3.7 years) and 25% below for women (2.0 years). In the U.S., neither life expectancy nor PYLLs were particularly impressive. Average life expectancy in the U.S. was 74.5 for men (22nd) and 79.9 for women (23rd). PYLLs were 6.4 years for men (6th) and 3.7 years for women (3rd).

Table 5. Life expectancy and infant mortality among OECD countries, 2003

Country	Life Expectancy at Birth, 2003		Potential Years of Life Lost per 100,000 Population, 2003		Infant Mortality per 1,000 Live Births
	Males, 0–69	Females, 0–69	Males, 0–69	Females, 0–69	All
Australia	77.8 (4)	82.8 (6)	4.376[b] (22)	2.385[b] (21)	4.8 (13)
Austria	75.6 (14)	81.6 (12)	4.713 (18)	2.516 (19)	4.5 (16)
Belgium	75.1[a] (18)	81.1[a] (15)	5.576[f] (10)	3.053[f] (8)	4.3 (18)
Canada	77.2[a] (6)	82.1[a] (9)	4.425[b] (21)	2.636[b] (15)	5.4[a] (9)
Czech Republic	72.0 (26)	78.5 (26)	6.257 (7)	2.875 (11)	3.9 (24)
Denmark	74.9 (20)	79.5 (24)	4.953[c] (15)	3.055 (7)	4.4 (17)
Finland	75.1 (18)	81.8 (11)	5.219 (12)	2.294 (23)	3.1 (27)
France	75.8 (13)	82.9 (4)	5.590[b] (9)	2.624[b] (16)	3.9 (24)
Germany	75.5 (15)	81.3 (14)	4.789[b] (17)	2.523[b] (18)	4.2 (21)
Greece*	75.4 (16; 3)	80.7 (18; 3)	4.700[a] (19; 5)	2.200[a] (26; 4)	4.8 (13; 3)
Hungary	68.3 (29)	76.5 (29)	9.483 (2)	4.310 (2)	7.3 (4)
Iceland	78.7 (1)	82.5 (7)	3.661[a] (28)	2.526[a] (17)	2.4 (30)
Ireland	75.2[a] (17)	80.3[a] (22)	5.232[b] (11)	3.034[b] (9)	5.1 (11)
Italy	76.9 (9)	82.9 (4)	4.332[b] (23)	2.247[b] (25)	4.3 (18)
Japan	78.4 (2)	85.3 (1)	3.718[a] (27)	1.969[a] (29)	3.0 (29)
South Korea*	73.4[a] (24; 5)	80.4[a] (21; 5)	5.741[a] (8; 2)	2.716[a] (13; 3)	6.2[d] (7; 1)
Luxembourg	74.9[a] (20)	81.5 (13)	5.119 (14)	2.265 (24)	4.9 (12)
Mexico	72.4 (25)	77.4 (28)	11.129[h] (1)	6.486[h] (1)	20.1 (2)
Netherlands	76.2 (11)	80.9 (17)	3.966 (26)	2.677 (14)	4.8 (13)
New Zealand*	76.3[a] (10; 2)	81.1[a] (15; 2)	5.208[c] (13; 3)	3.108[c] (6; 1)	5.6[b] (8; 2)
Norway	77.0 (8)	81.9 (10)	4.273[a] (24)	2.492[a] (20)	3.4 (26)
Poland	70.5 (27)	78.9 (25)	8.315[a] (3)	3.477[a] (5)	7.0 (5)
Portugal*	74.0 (23; 4)	80.6 (20; 4)	6.547[a] (5; 1)	2.985[a] (10; 2)	4.1 (22; 4)

Country	Life Expectancy at Birth, 2003		Potential Years of Life Lost per 100,000 Population, 2003		Infant Mortality per 1,000 Live Births
Slovak Republic	69.9[a] (28)	77.8[a] (27)	8.117[a] (4)	3.638[a] (4)	7.9 (3)
Spain*	77.2 (6; 1)	83.7 (2; 1)	4.828[a] (16; 4)	2.187[a] (28; 5)	4.1 (22; 4)
Sweden	77.9 (3)	82.4 (8)	3.658[b] (29)	2.197[b] (27)	3.1 (27)
Switzerland	77.8[a] (4)	83.0[a] (3)	4.225[b] (25)	2.323[b] (22)	4.3 (18)
Turkey	66.4 (30)	71.0 (30)	--	--	29.0 (1)
United Kingdom	76.2 (11)	80.7 (18)	4.620[a] (20)	2.762[a] (12)	5.3 (10)
United States	74.5[a] (22)	79.9 (23)	6.435[b] (6)	3.733[b] (3)	7.0[a] (5)
Median	75.5	81.1	4.953	2.636	4.7

Source: *OECD Health Data 2005* (Paris: Organization for Economic Co-operation and Development, 2005)
Note: [a]2002, [b]2001, [c]2000, [d]1999, [e]1998, [f]1997, [g]1996, [h]1995 – not available. Ranking is reported in the brackets.
* Countries with GDP per capita ranging from $18,000 to $24,000 in 2003; ranking is reported out of the 30 OECD countries; out of the 5 countries with similar GDP to South Korea.

Life expectancy, however, may rely on many factors other than support from medical services, such as food, natural environment, ethnicity-specific physical conditions and healthy lifestyle. Unhealthy eating and lifestyle are gaining attention for their detrimental effects on life expectancy in many countries.

Infant Mortality

The comparison of infant mortality per 1,000 live births (Table 5) shows similar results to those for life expectancy. Japan had the second lowest infant mortality rate (3 per 1,000 live births) while the rate was quite high in the U.S. (7 per 1,000 live births, 5th) and South Korea (6.2, 7th). The South Korean infant mortality was about 33% above the OECD median of 4.7 per 1,000 live births and the highest among the other four countries with similar income (Greece, New Zealand, Portugal and Spain).

Immunization

The rate of immunization against life-threatening diseases, which is particularly critical for infants and children, is one of the most important preventive cares that may be highly related with long and healthy living among the population. Diphtheria, pertussis and tetanus (D.P.T.) and measles are examples of child vaccinations that most countries require or at least strongly recommend. As shown in Table 6, about 97% (14th, slightly above the OECD median) of South Korean children were vaccinated against D.P.T. and 90.2% (20th, below the OECD median) against measles. The South Korean NHI does not provide coverage for certain services, including vaccinations.[3] The lack of a comprehensive national-level immunization policy and insufficient vaccinations may have implications for the risk of prevalent communicable diseases. Nevertheless, these vaccination rates of over 90% were quite impressive as all costs were borne by consumers. South Koreans seem to have been well aware of the importance of proper immunizations and the potential harm a communicable disease might cause. It is probable that expanding insurance coverage for immunization services would successfully raise the immunization rates to 100%, as in Japan. Therefore, it is strongly recom-

mended that immunization rates are increased by including national immunization services in the South Korean NHI system in order to prevent the circulation of communicable diseases.

In spite of the variation in immunization rates across the OECD countries, many countries had achieved nearly universal immunization rates for communicable diseases such as D.P.T. and measles by 2003, with median OECD immunization rates of 97.0% and 93.5%, respectively. This is a very satisfactory and optimistic sign of better health worldwide in the future.

Unhealthy Lifestyle

The promotion of healthy lifestyles is a crucial aspect of the performance of a public health system (Anderson and Hussey 2001). Smoking and drinking are the most prevalent unhealthy activities (Table 6). The smoking rate among men aged 15 or more was highest in South Korea (61.8%), whereas the rate among women aged 15 or more was lowest (5.4%) among the 30 industrialized countries.[4] The smoking rate among South Korean men was almost double the median OECD value (31%). The very low rate of South Korean female smoking seems closely related to cultural practice. Social prejudices about female smoking contribute to the large gender gap in smoking, but this gap is rapidly diminishing with the decreasing male smoking rate and increasing female rate.

Per capita alcohol consumption among South Koreans aged 15 or older was ranked 16th (9.3 litres per year). Among the countries with similar income (Greece, New Zealand, Portugal and Spain), alcohol intake by South Koreans was third.

The heaviest drinkers were the French (14.8 litres per year), seemingly related to their culture, which is also shared by other Mediterranean countries, of savouring wine with everyday cuisine. Regardless of the relative extent of smoking and heavy drinking, unhealthy activities generate a serious risk as they tend to be addictive. Systematic provision of health education programs may be a reliable way to reduce smoking and heavy drinking and to promote healthy lifestyles, especially in South Korea.

Concluding Remarks

South Korea's achievement of universal health insurance within 12 years is remarkable. The incremental expansion of health insurance coverage from private employees in large firms to public employees and finally to self-employed rural residents was effective as it allowed private-sector manufacturers to smoothly accommodate the cost of providing health plans to their workers. Although the South Korean government lacked sufficient funds for universal coverage in 1977, at the commencement of the NHI, it was able to evade the heavy financial burden of supporting the NHI system by collecting contributions from private health insurance societies and by limiting government subsidies only to defaulting societies. Furthermore, the gradual implementation of the universal health plan provided the South Korean government with sufficient time to mediate any severe conflicts that might arise among insurance societies with varying financial statuses. In this process, the government successfully merged the insurance societies into a single insurer, the NHIC, while increasing government assistance to a financially challenged group, the self-employed, among NHI beneficiaries.

At the launching of NHI in South Korea, many predicted that it would suffer financial distress, but no significant sign of financial instability was observed in the trends in financial receipts and disbursements during the early 1990s. Clearly, South Korea benefited from its rapid economic growth during the 1990s (Lee 2003). However, the economic crisis of late 1997 introduced a severe financial deficit challenge to South Korea's NHI, and the deficit grew constantly each year (Kwon 2002; Lee 2003; Jeong 2005). Successful completion of universal insurance coverage has resulted in the rapid increase in healthcare expenditure in South Korea from $169 (4.0% of GDP) per capita in 1985 to $1,074 (5.6% of GDP) in 2003, an average annual growth rate of 29.8%.

Since 1998, the cost containment and stabilization of the NHI financial deficit has been a pressing mission for the South Korean NHIC. To contain healthcare spending, two consumer-side schemes have been implemented in South Korea. They require patients to obtain referrals from general

Table 6. Immunization and indicators of unhealthy lifestyle (smoking and drinking) among OECD countries, 2003

Country	Percentage of Children Immunized, 2003		Percentage of Population Aged 15 and Older Smoking Daily, 2003		Annual Litres per Capita Alcohol Consumption, Aged 15 and Older, 2003
	D.P.T.	Measles	Men	Women	
Australia	92.2 (21)	94.1 (14)	21.4[b] (27)	18.2[b] (21)	9.8[a] (13)
Austria	84.0 (29)	79.0 (27)	40.7[d] (5)	32.2[d] (1)	11.0[a] (10)
Belgium	97.1[d] (13)	75.0 (29)	30.0 (18)	25.0 (8)	9.6[a] (15)
Canada	84.2[e] (28)	94.5[a] (13)	19.0 (29)	14.0 (27)	7.8[a] (24)
Czech Republic	97.0 (14)	99.1 (4)	30.9[a] (17)	18.1[a] (22)	12.1 (5)
Denmark	96.0 (17)	96.0 (9)	31.0 (15)	25.0 (8)	11.5 (6)
Finland	96.0[a] (17)	97.0[b] (5)	25.7 (23)	19.3 (18)	9.3 (16)
France	97.2 (12)	86.5 (22)	32.0[a] (13)	25.6[a] (7)	14.8[a] (1)
Germany	97.5 (11)	92.5 (18)	29.8 (19)	19.1 (19)	10.2 (12)
Greece*	88.0 (25; 5)	88.0 (21; 4)	44.0[c] (4; 2)	27.0[c] (4; 1)	9.1[a] (18; 4)
Hungary	99.8 (2)	99.9 (2)	40.5 (6)	27.8 (3)	13.4[a] (4)
Iceland	97.0 (14)	93.0 (16)	25.4 (25)	19.6 (16)	6.5 (27)
Ireland	85.0 (26)	78.0 (28)	28.0[a] (20)	26.0[a] (5)	13.5 (3)
Italy	95.8 (19)	83.0 (24)	31.4 (14)	17.6 (24)	8.6[a] (20)
Japan	100.0 (1)	100.0 (1)	48.3 (3)	13.6 (28)	8.2[c] (22)
South Korea*	97.0 (14; 3)	90.2[d] (20; 3)	61.8[b] (1; 1)	5.4[b] (30; 5)	9.3 (16; 3)
Luxembourg	98.0 (6)	91.0 (19)	39.0 (8)	26.0 (5)	14.7[a] (2)
Mexico	97.9 (10)	96.4 (8)	39.1[a] (7)	16.1[a] (25)	4.6[a] (29)
Netherlands	98.0[a] (6)	96.0 (9)	39.0[b] (8)	30.0[b] (2)	9.8[a] (13)
New Zealand*	88.7[c] (24; 4)	85.0[c] (12; 5)	25.0 (26; 5)	25.0 (8; 2)	8.9 (19; 5)
Norway	90.0 (23)	84.0 (23)	27.0 (22)	25.0 (8)	6.0 (28)
Poland	99.0 (4)	97.0 (5)	37.0[b] (10)	19.5[b] (17)	8.1[a] (23)
Portugal*	99.0 (4; 1)	96.0 (9; 2)	32.8[e] (12; 4)	9.5[e] (29; 4)	11.5[a] (6; 1)

Country	Percentage of Children Immunized, 2003		Percentage of Population Aged 15 and Older Smoking Daily, 2003		Annual Litres per Capita Alcohol Consumption, Aged 15 and Older, 2003
	D.P.T.	Measles	Men	Women	
Slovak Republic	99.3 (3)	99.3 (3)	25.5[a] (24)	22.5[a] (14)	7.6 (25)
Spain*	98.0[a] (6; 2)	97.0 (5; 1)	34.2 (11; 3)	22.4 (15; 3)	11.2[a] (8; 2)
Sweden	98.0 (6)	94.0 (15)	16.7 (30)	18.3 (20)	7.0 (26)
Switzerland	95.0 (20)	82.0 (26)	31.0[a] (15)	22.8[a] (13)	10.8 (11)
Turkey	68.0 (30)	75.0 (29)	51.1 (2)	17.8 (23)	1.5 (30)
United Kingdom	91.3 (22)	82.3 (25)	28.0 (20)	24.0 (12)	11.2 (8)
United States	84.8 (27)	93.0 (16)	19.4 (28)	15.7 (26)	8.3[a] (21)
Median	97.0	93.5	31.0	21.0	9.45

Source: *OECD Health Data 2005* (Paris: Organization for Economic Co-operation and Development, 2005)
Note: DPT includes diphtheria, pertussis and tetanus. [a]2002, [b]2001, [c]2000, [d]1999, [e]1998 – not available. Ranking is reported in the brackets.
* countries with GDP per capita ranging from $18,000 to $24,000 in 2003; ranking is reported out of the 30 OECD countries; out of the 5 countries with similar GDP to South Korea.

practitioners to meet a specialist in general hospitals, and they require a high co-payment structure as a mechanism for suppressing the use of expensive and medically unnecessary treatments. These strategies, however, have not been regarded as very helpful in reducing health expenditure. Since the separation reform in pharmaceuticals, total heath expenditure increased greatly from $36.2 billion in 2000, the year of the reform's introduction, to $51.4 billion in 2003. This represents an average annual growth rate of 14%, which was much higher than that of 9.9% from 1995 to 2000. The per capita health expenditure also rose dramatically from $771 in 2000 to $1,074 in 2003, an average annual growth rate of 13.1% that was much higher than that of 11.1% from 1995 to 2000.

The lesson to be learned from the South Korean experience in escalating healthcare costs is that governmental policies to regulate the supply side of the market are essential to maintain the financial worthiness of the NHI system. The five-year experience after the integration reform in South Korea indicates that government cost containment in the absence of effective monitoring on the supply side can no longer succeed in controlling healthcare expenditure (Kwon 2002; Lee 2003). The South Korean government acknowledged the need to control providers' behaviour and conducted several pilot programs of the Diagnosis-Related-Group (DRG) system in the reimbursement scheme. The outcomes of these pilot programs were encouraging: less spending for a specific disease treated under the DRG system than under the fee-for-service system where fees for services provided by hospitals and physicians are set by the government (Kwon 2002). Unfortunately, the government failed in its attempt to enact the DRG reimbursement system for the entire NHI system due to the fierce opposition of the providers, medical professionals and hospitals. Therefore, few cost-containment programs have actually been developed in South Korea. The fixed-fee scheme was the most effective government regulation on providers but was rapidly disrupted when it faced unexpectedly fierce strikes by physicians (Lee 2003; Kwon and Reich 2005). The lack of regulation of the supply side and the expansion of insurance coverage to all citizens led to the rising healthcare costs (Kim et al. 2004). Furthermore, the rising healthcare cost was mostly shifted to consumers as a larger portion of their payrolls is deducted as their contributions. The larger portion of private expenditure (about 55% of the total healthcare expenditure) and high cost sharing for consumers in receiving healthcare

(as reported in Table 4) are consequences of the weak monitoring power of the NHIC.

The other important mission in a universal coverage system is to assure efficient use of medical resources. Concern has been raised that inappropriate and excessive utilization of resources may be generated by the universal coverage in South Korea (Anderson 1989). High coinsurance levels and a wide range of uncovered services were designated to reduce potential overutilization of health services by patients. This response has not been fully successful, however. Physicians tended to provide more uncovered services with higher margins than covered services with lower margins (Kwon 2002), and patients are misled by profit-pursuing physicians to seek the most sophisticated care for modest symptoms (Anderson 1989). Again, the role of the NHIC or any institution responsible for running a universal coverage system is crucial to effectively monitor consumers and providers simultaneously. The key point is to provide accessibility to quality care at reasonable contribution rates for consumers and enable providers to run on reasonable margins that allow investment in facility and medical technology development.

Even though South Korea has achieved universal health insurance for all citizens in a very short time and possesses highly advanced medical technologies, the rapid increase in healthcare expenditure that has been experienced remains a burden to policy makers. In this regard, precisely understanding provider-side incentive, as well as consumers' behaviour, in the healthcare market and constructing effective ways to monitor both consumers and providers are the most urgent and important elements of the policy agenda in South Korea's future healthcare reform. Simultaneously, other missions must be accomplished. The portion of the total OOP expenditure relative to total expenditure may need to be reduced so that people with limited private resources are not alienated from necessary medical care. As an example, the expedited provision of coverage for indispensable preventive services like immunization is desirable. In addition, enhanced health education programs targeting the younger population against unhealthy habits like smoking will be helpful in reducing healthcare expenditure and providing a healthy long life in the long-term.

Notes

1. The average number of visits per physician was calculated by dividing the number of physician visits per capita by the number of practising physicians per capita.

2. The PYLL per 100,000 population was calculated by the OECD centre based on the age-specific death statistics provided by the World Health Organization (WHO). The total OECD population in 1980 was taken as the reference population for age standardization.

3. "The NHI did not provide coverage for ultrasounds, MRIs (Magnetic Resonance Imaging), vaccinations, meals during hospitalization, home care, traditional medication, private hospital rooms (rooms with less than six beds), etc." (Kwon 2002: 26). In this list of health insurance benefits not covered by the Korean NHI, MRIs and hospital meal services were newly included in the covered benefits as of 2005.

4. The true rate of women's smoking, however, would be higher as most surveys rely solely on self-reporting; due to the social and cultural stigma against female smoking in Korea, many female smokers may have a good reason to report wrongly in any survey.

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