

# Health Care System Structure and Delivery in the Republic of Korea

## Considerations for Health Care Reform Implementation in the United States

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**A**s part of its plan for rapid economic development, South Korea achieved universal health insurance in 1988. In the ensuing years, the national government has continued to adjust health care system structure and care delivery mechanisms in response to social and political changes, culminating in a single-payer system in 2000. Further reforms have included improvements in pharmaceutical distribution, efforts to contain costs, and development of programs to care for older adults. This paper examines the underpinnings of health care system development in South Korea and offers lessons for the United States as it implements the Patient Protection and Affordable Care Act, which addresses similar systemic issues. These include the challenges of controlling growing expenditures, administering coordinated care in a decentralized provider system, and providing care for an aging population.

### Introduction

In contrast to the many decades it took the United States to pass comprehensive health care reform, the Republic of Korea (hereafter referred to as South Korea) implemented universal health insurance coverage in just twelve years (Anderson, 1989). In 1976, President Park Chung-Hee passed a series of laws to provide coverage to a succession of groups, starting with beneficiaries of firms with more than 500 employees, with smaller firms soon following (Anderson, 1989). The next year, a program similar to the United States' Medicaid was created to provide coverage to the poor and unemployed (Anderson, 1989). Laws to ensure the coverage of public workers and the self-employed followed in 1979 and 1981. In 1988,

coverage was extended to the remaining urban and rural populations (Anderson, 1989).

Dr. S. Kwon identifies Park's motivation for shepherding health coverage legislation as an attempt to gain political legitimacy: He was formally elected President in 1963 only after leading a military coup d'état in 1961 and had ambitious economic goals for the country (2007). Park's focus on industrialization informed the structure and delivery of health care for decades, and is implicated in the system's strengths and weaknesses. While passing health care legislation in the United States was a much more highly contested event, South Korea's evolving health care structure has many elements that are similar

to what was proposed in the 2010 Patient Protection and Affordable Care Act (PPACA), which is currently under review by the U.S. Supreme Court. An analysis of how these structures and the delivery of services have affected costs, quality, and health outcomes can be instructive for purposes of implementation planning for the PPACA, and for envisioning future policy pathways.

From the beginning, the three major characteristics of South Korea's universal coverage were 1) its provision as a mandate, 2) beneficiary contributions based on income, and 3) benefits offered not correlated with the amount of the contribution (Anderson, 1989). Mandated individual coverage is central to the PPACA as well, and is the keystone of the law. It increases the size of the risk pool so that costs are more likely to be balanced among the sick and the healthy. Without it, insurers may act on fears that only the sick would buy coverage by raising prices (Gruber, 2012). While beneficiary contributions generally will not be based on income in the United States under the PPACA, coverage will be subsidized according to income level in relation to the federal poverty line (Kaiser Family Foundation, 2011). However, benefits most likely will continue to vary according to contribution through employer plans and through the different state insurance exchanges.

Another important feature of the South Korean system is the delivery of health care through private providers, who account for more than 90% of health care services provided and represent a case of supplier-induced demand (Lee, 2003). Features that have consequently driven costs up include overuse of medical technology and pharmaceuticals, fee-for-service payment structures, poorly managed chronic care, and lack of care coordination. Because these are noted areas of concern in the United States as well, the effect of South Korean public policy interventions should be examined so as to suggest possible solutions and, more importantly, draw attention to the unintended negative impacts of these features.

Many challenges have tested the South Korean health system since 1988 and subsequently significant reforms have been made. One such challenge has been the aging of the general population, an issue facing many developed nations; however, this problem is especially acute in Asian countries (United Nations Development Program, 2005). In South Korea, the need for care assistance for the elderly has risen as the numbers of older adults living with their family members has dropped significantly and a substantial percentage of women have begun working outside of the home (Jones, 2010). Changing cultural values, evolving away from traditional Confucianism toward modernist and market principles, also have played a role.

Although South Korea has long lagged behind other Organization for Economic Co-operation and Development (OECD) member countries in its support for older adults (Yang, 2008), new programs are being developed to assist the elderly as the demographics shift, partially by building out the administrative structure of the health system, and in some cases, changing the face of health care delivery. In particular, the possibilities of technology in addressing the needs of chronically ill patients and older adults are being piloted in Seoul through its e-government<sup>1</sup> infrastructure. The results could hold great promise in the United States.

## **Health Reform Provisions in the United States**

The PPACA is best known in the United States for its provision requiring most individuals to acquire health insurance by 2014, to significantly reduce the number of uninsured Americans. The Congressional Budget Office has estimated that of the roughly 50 million uninsured Americans, 32 million will be covered by 2019 (Kaiser Family Foundation, 2011). The PPACA will provide Americans with access to health insurance through state insurance exchanges<sup>2</sup> if no insurance is

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<sup>1</sup> e-government refers to digital interactions between a government and its citizens, businesses, and employees; and also between that government and other governments.

<sup>2</sup> American Health Benefit Exchanges will be established in each state, allowing individuals and small businesses to purchase insurance, learn about different plan options, and access premium and cost-sharing subsidies.

available through one's employer (Kaiser Family Foundation, 2011). Subsidies will be available for those within 133% of the federal poverty line. If this provision were in effect today, a family of four would be eligible for a subsidy if the household income was \$30,657 or less (Kaiser Family Foundation, 2011; Families USA, 2012). Small businesses with less than 50 employees also will be able to purchase coverage through an exchange. Larger employers could face a \$2,000 fee per employee if they do not offer coverage (Kaiser Family Foundation, 2011).

The PPACA also includes provisions to address increasing costs, lack of care coordination, and support for an approach to caring for older adults called 'aging in place,' in which health care is delivered to older adults in their home communities rather than in institutions (MacGuire Woods, 2010). Approaches to addressing costs are focused mostly on changing reimbursement patterns to incentivize better health outcomes, costing less down the road. One popular provision designed for this purpose supports providers in forming accountable care organizations (ACOs) to care for Medicare beneficiaries. Similar to health maintenance organizations (HMOs) in their network structure, ACOs are physician-run instead of being operated by insurance companies, and thus patients are free to go out of network (Gold, 2011). Medicare historically has used a fee-for-service payment system, which is said to incentivize providers to order more procedures than is medically necessary, thus driving up costs (Gold, 2011). ACOs do not dismantle the fee-for-service system, but they do alter the incentives by offering bonuses when providers keep costs down through quality benchmarking focused on prevention and coordinated chronic care management (Gold, 2011). ACOs are also designed to promote better care coordination through the provider network structure.

Two provisions that promote aging in place are Community First Choice Option and Money Follows the Person, both of which facilitate home-based care. The Community First Choice Option is somewhat limited in that it specifically excludes assistive technologies and devices, and home modifications (MacGuire Woods, 2010). As the PPACA is implemented, it will be possible to adjust its provisions so as to heighten the efficiency of state health exchanges, consider additional cost containment mechanisms and their effects, and to assess opportunities for using information technology to support older adults through the aging in place approach.

## **The Structure of the South Korean Health System**

### *Administrative Structure*

Several years before universal health insurance was initiated in South Korea, legislation was passed that allowed businesses to offer health insurance to employees through medical insurance societies (Anderson, 1989). These societies were formed as subsidiaries of large firms or were incorporated by a number of small firms and existed to collect revenues, set benefits, and develop reserves (Anderson, 1989). Claim reviews and payments to providers were centralized (Kwon, 2009). For the next ten years, there was debate about whether these administrative societies should be further unified under the central government or remain decentralized (Lee, 2003). The structure of administration and its relationship to both the country's goals for efficiency and its political philosophies were at the heart of the debate, as they have been in the United States through the legislative process in passing the PPACA.

In 2000, South Korea's new president Kim Dae-Jung fulfilled promises to merge all of the medical societies into one single payer (Kwon, 2009). Now the insured are divided into two groups, the employer-insured and the self-employed (Song, 2009), and the health care system comprises three branches: the National Health Insurance Program (NHIP), Medical Aid Program, and the Long-term Care Insurance (LCI) Program (Song, 2009). The NHIP itself is divided into four parts: the Ministry of Health, Welfare and Family Affairs, which supervises operations and makes policy decisions; the National Health Insurance Corporation, which manages health insurance enrollment, collects contributions, and sets medical fee schedules; the Health Insurance Review Agency, which reviews fees and evaluates care; and the medical care institutions that provide health care and are

supervised by the Ministry (Song, 2009). Medical Aid covers the poor while LCI covers disabled older adults. Medical Aid is comparable to the United States' Medicaid program, but LCI is highly restrictive in comparison to Medicare.

The move to a single-payer system was partially driven by inequities in financing, whereby the self-employed in poor regions were paying a higher proportion of contributions than those in wealthy regions, even though the benefits themselves were identical (Kwon, 2009). This was due to differences in the administrative societies, which were often too small to pool risk efficiently. Consequently, administrative costs varied substantially (Kwon, 2009). With the introduction of the single-payer system, administrative costs were equalized across different segments of the population and dropped substantially overall. Before the move to a single-payer system, administrative costs ranged from 4.8% for government workers to 9.5% for the self-employed. By 2006, the rate was 4% for all workers (Kwon, 2009). A mixed system of tax-based financing and health insurance was established (Kwon, 2009), avoiding problems in assessing the income of the self-employed.

Although a single-payer system currently may not seem politically viable in the United States, South Korea's example could provide a roadmap for finding administrative cost savings and achieving more equalized coverage among consumers through a more tempered centralization process. For instance, states could combine health exchanges across regions. If the PPACA does gain broader political and public acceptance, South Korea could also provide an example for transitioning to one federally offered public option in the future.

#### *Health Care Financing and Cost Containment*

In comparison to other OECD member countries, which spent an average of 9.6% of gross domestic product (GDP) on health care in 2009, total health care spending in South Korea is among the lowest, at an estimated 6.9% of GDP (Health at a Glance, 2011). The United States leads OECD countries in health care spending by a wide margin, having spent 17.4% of GDP in 2009 (OECD 50, 2011). Two components that may help to explain this spending gap are the ways in which costs are structured for patients in South Korea and the limitations placed on physicians and pharmacists over time. These mechanisms have their own disadvantages that the United States would need to consider before implementing them.

The influence of the Japanese health care system can be seen in South Korea's payment model in which the employer and employee each pay half of the premium (Lee, 2003), resulting in much higher payments from the employee than generally paid by U.S. employees. Along with a co-payment structure also adopted from Japan, this mechanism provided enough revenue to provide financial stability for South Korean medical societies until the Asian Financial Crisis in 1997, when national health insurance began to run an operating deficit (Lee, 2003). The cumulative debt was paid off in 2004 (Yang, 2008), after the switch to the single-payer system. The NHIP now has three sources of funding: contributions, government subsidies, and tobacco surcharges (Song, 2009). Yet even with reduced administrative costs, the rate of health care spending has increased rapidly, from 4.5% of GDP in 2000 to 6.9% in 2009 (Health at a Glance, 2011). In response, a number of reforms aimed at cost containment were implemented.

One strategy was to end a provider practice, also borrowed from Japan, in which pharmacists and physicians were able to both prescribe and dispense medicine (Anderson, 1989). Profit margins were significant, thus incentivizing overprescribing (Health of Nations, 2011). In 2000, the South Korean government separated reimbursement for pharmaceuticals from medical care (Lee, 2003). Now, like in the United States, only doctors are able to prescribe medications and only pharmacists are allowed to fill prescriptions. However, South Korea went a step further in 2006 by using economic data in reimbursement decisions for newly introduced drugs (Yang, 2008). Furthermore, NHI regulates all prices for both treatments and medications (Kwon, 2009) and does not involve physicians in these decisions (Lee, 2003). Still these government regulations have not adequately prevented the physician from playing center stage in increased spending.

Yang (2008) considers the fee-for-service payment method the most important factor in cost increases in the South Korean system because it structurally ensures that the system's resource requirements are open-ended, as opposed to the 'global budget' used in Canada's National Health Insurance system, or the flat monthly fees paid per-member within managed care organizations in the United States. When added to the liberal provider choice given to beneficiaries, the resulting competition by private health care providers led to a high volume of services, exponentially raising costs under fee-for-service. This is often referred to as moral hazard in the United States. Reforms have limited consumer choice, but have not balanced out costs incurred by the high proportion of specialists that extensively utilize new medical technology (Lee, 2003).

The lesson for the United States from South Korea's experience is that even when controlling treatment and drug prices, fee-for service structures are problematic. Furthermore, focusing on cost mechanisms alone without any restraints on supply or regulation of care is ultimately ineffective. Although there is little worry that the free market-focused United States will attempt direct price-setting, the importance of concentrating on smart regulation of care itself through evidence-based guidelines is underscored here. Therefore, cost controls should continue to be designed in tandem with care coordination or other health outcomes goals, as exemplified in the ACO provision of the PPACA.

#### *Medical Aid Program*

For people unable to pay for their own health care coverage, the South Korean government offers the Medical Aid Program. The program was written into law via the Medical Aid Act in 1977 and was fully established two years later (Song, 2009). Like Medicaid in the United States, Medical Aid is jointly funded by the central and local governments (Kwon, 2007) and recipients undergo means-testing based on income to qualify for benefits (Kwon, 2009). Public demand for additional social welfare increased after the Asian Financial Crisis (Lowe-Lee, 2010) and part of President Kim Dae-Jung's 1998 campaign platform was an expansion of health care coverage (Shin, 2006). However, in 2009, Medical Aid covered only 3.7% of the entire South Korean population (Song, 2009); as a comparison, 15.7% of the U.S. population was covered by Medicaid in 2009 (U.S. Census Bureau, 2010). Park (2008) argued that the low percentage of coverage in South Korea is evidence of an underdeveloped social insurance system. Shin (2006) cited estimates of the poor in need of further coverage, additional benefits, and reduction of co-payments to be closer to 10% of the population.

In the United States, the PPACA will expand Medicaid to people living at or below 133% of the poverty level (Kaiser Family Foundation, 2011), leading to the 45% reduction in uninsured Americans by 2019 according to projections from the United States' Congressional Budget Office (Holahan & Headen, 2010). Funding Medicaid for Americans at or below 133% of the federal poverty line will also equalize beneficiary levels that currently vary widely among states.

President Kim took office soon after the onset of the Asian Financial Crisis. In response, his administration quickly changed the focus of their policy from expanding Medical Aid to containing costs. To accomplish this goal, the administration created the National Health Insurance Corporation (NHIC) (Shin, 2006). Attention was diverted from key campaign promises, such as ending the discrimination against Medical Aid beneficiaries by private medical providers (Shin, 2006), to projects that shifted financing away from general revenues (Song, 2009). Significant barriers to Kim's project were an immature civil society, anti-Communist values (Shin, 2006), and a 'growth-first' ideology (Park, 2008) that continually prioritized cost-containment over egalitarian values or public health measurements, particularly in a time of financial crisis.

Medical Aid serves Type 1 beneficiaries, who are children under 18 years old, seniors above 65 years old, and the disabled; and Type 2 beneficiaries, who are those able to work (Shin, 2006). One change implemented by the NHIC was to introduce cost-sharing for Type 2 beneficiaries, who comprise 43% of all Medical Aid beneficiaries. Another change was that it limited provider choice. Both changes were intended to reduce unnecessary usage of health care services (Kwon, 2007).

Opponents argued that costs were higher because Medical Aid recipients were in worse health: 25% were older adults and many suffered from expensive chronic conditions (Kwon, 2007). Another option would have been to focus attention on why costs for older adults and those with chronic conditions were so high, as these issues exist outside of the Medical Aid program as well. In the United States, over a third of expenditures come from long-term care. One goal for reducing these costs is to move the care setting from institutions back into the community (Kaiser Commission for Medicaid and the Uninsured, 2012). Better coordination of care across providers and the use of evidence-based standards are other potential solutions.

If the mix of recipients is truly to blame for high Medical Aid costs, then the NHIC's overemphasis on cost controls may eventually cause or contribute to further long-term problems both in terms of health status and costs, such as poorly coordinated care for those with chronic conditions and a population of low-income older adults that have had care delayed or withheld due to discrimination from providers. The PPACA in the United States begins to address some of the same issues that were created by underfunding health coverage for low-income populations, by setting up economic incentives for better care coordination through ACOs via Medicare (Gold, 2011). Close monitoring of this mechanism may outline a health-status-focused policy viewpoint, which can help avoid a similar public resistance to a perceived socialization of the U.S. health care system.

#### *Long-term Care and Expanding Benefits to Older Adults*

In South Korea, nearly 4 of every 10 Koreans is age 65 or older ("Medical Reform," 2010). Yet the urgent issue is the rate of growth of this population, which is higher than anywhere else in the world (OECD Factbook, 2011). In 2010, South Korea's senior population had a growth rate of 3.63%; the next highest growth rate among this population was 1.78% in Israel. The OECD average was 0.56% and the U.S. rate was 0.78% (OECD Factbook, 2011). In addition to the aging of the population, changes in family structure have created pressures on older adults and their familial networks. Historically the Confucian virtue of filial piety, respect for one's parents and ancestors, has promoted informal caregiving for elders in the extended family (Chee & Levkoff, 2001). Daughters-in-law have long been expected to serve as caretakers (Chee & Levkoff, 2001), yet as women have entered the workforce, family structures have been put under great stress because of the need to care for older family members.

The government responded to this burden by introducing the Long-term Care Insurance Program in 2008 (Kwon, 2009). It began as a pilot that provided services to older adults with severe limitations in the performance of daily activities (Song, 2009). Services offered include in-home nursing care and discounts of up to 20% on long-term care facilities (Lowe-Lee, 2010). The NHIC manages the system along with the Ministry for Health, Welfare and Family Affairs (Kim, 2011). After the introduction of the program, the Korean Longitudinal Study of Ageing found that 60% of adults ages 50–64 are still family caregivers (OECD 50, 2011). However, the portion of older adults living with their children fell sharply from over 80% in 1981 to 29% by 2008 as more women began working (OECD 50, 2011). If the program is able to grow at an adequate rate, its development will stand as a significant advancement in health care coverage. The program has been followed by others, some pioneered in Seoul by the SMG.

The older adult population is projected to increase substantially in the city of Seoul, from 5.4% to 20% in 2027 (Park, 2011). One of the goals of Seoul's Warm Life Welfare initiative is to create "an elderly-friendly city in the era of one million senior citizens" (Hi Soul web site, 2011), and the city operates 4,356 senior welfare facilities (Seoul Metropolitan Government, 2011). The initiative includes designing built environments that address the needs of senior citizens, assuring assistance to underprivileged and homebound seniors, and developing institutional support (Hi Soul web site, 2011). Two programs that exemplify Seoul's aims are the 9988 Senior Program and the Elderly Care Service. The "99" in the 9988 Senior Program is meant to indicate that all older adults in Seoul can live to the age of 99 by staying healthy. The program consists of services for seniors with

Alzheimer's disease, employment services, counseling, opportunities for social interaction, and a fitness program offered in over 40 city parks (Park, 2011). In 2009, the program expanded day-care for Alzheimer's patients to offer evening care ("Capital News"). The Elderly Care Service provides safety check calls for homebound seniors, which include video calling for those with limited mobility (Seoul Metropolitan Government, 2011). These initiatives provide case studies for the national government to consider in developing programs.

Many of OECD's recommendations to South Korea for improving social protections are also relevant for the senior care in the United States, including limiting long-term care costs by shifting from hospital-based to home-based care, using quality control in place of fee-for-service structures, and avoiding cost-containment initiatives that could further increase out-of-pocket spending and inhibit care access (OECD 50). Because these elements are limited in the PPACA, it will be important to measure outcomes carefully. South Korea is limiting its roll out of these services; future comparisons of results may provide both countries a wider understanding of how long-term care functions in aging societies.

## **Health Care Delivery**

### *Access and Delivery*

Doctors, dentists, nurses, and midwives are licensed with the Ministry of Health, Welfare and Family Affairs (Song, 2009). Health care delivery facilities are classified into three tiers based on the number of beds and degree of specialization: the first tier consists of clinics (0–30 beds); the second consists of small hospitals (31–100 beds) and general hospitals (101–700 beds); the third tier includes university hospitals and general hospitals with more than 700 beds (Choi, 2002). All South Koreans have access to these facilities, with a referral system for the third tier. In South Korea, the patient can go to any health care provider for the first consultation and must present a referral slip issued by the diagnosing provider to receive care in a third-tier center (Song, 2009). In choosing a specialist, a patient has a great deal of latitude as compared with a patient in the United States (Choi, 2002). Kwon (2009) suggests that a lack of gatekeeping leads to "competition rather than coordination among physician clinics and hospitals." The competitive nature of the field may affect quality of care, as will be discussed in the next section.

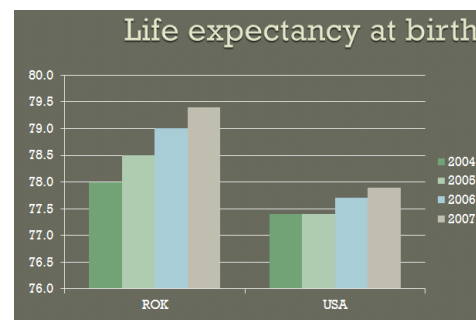
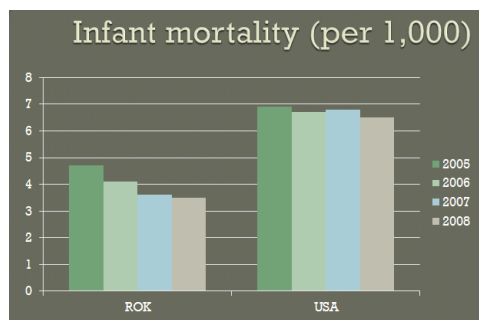
In 2007, the World Health Organization (WHO) and OECD reported that South Korea had 17.1 physicians per 10,000 people as compared to the OECD average of 30.7; 2004 WHO data showed that South Korea counted 43.9 nurses per 10,000 versus 95.4 in OECD countries overall (Health of Nations, 2011). Not only are there relatively fewer health care providers in South Korea, but 80% of doctors are specialists, with many holding degrees in two or more specialty areas (Lee, 2003). There are certainly cost implications here as specialists use more advanced technology for medical treatment and testing (Lee, 2003), and liberal consumer choice allows demand for these services to grow with the associated prestige of these practices. Yet the real concern is what affect this imbalance of providers has on the health of the South Korean populace.

A recent OECD report by the Health Division of the Directorate for Employment, Labour and Social Affairs (2012) recommended that the South Korean health care system move from continually expanding acute care in order to proactively manage the specific needs of an aging population and patients with chronic conditions. As in the United States, the best consensual health care delivery strategy is to strengthen and reinvigorate primary care (OECD Health Division, 2012). The PPACA not only provides access to free preventive care in the form of blood pressure and cancer screenings generally applied through primary care, but primary care providers seeing Medicaid patients will receive temporary bonuses for seeing Medicare patients and increased reimbursement for Medicaid patients (Abrams, 2011). Similarly the OECD Health Division recommends raising reimbursement rates for preventive care in South Korea, increasing the primary care workforce, and improving coordination through privacy-minded electronic medical

record sharing (OECD Health Division, 2012). The SMG offers a useful case-study of the plans and possibilities for this technology in South Korea, as discussed below.

### *Health Outcomes and Quality of Care*

Data show that the overall quality of medical care and the health status of its citizens have both improved in South Korea since the implementation of universal health insurance. This is demonstrated by the decline in infant mortality, which went from 61.0 per 1,000 live births in the 1960s (Song, 2009) to 3.5 per 1,000 in 2008 (OECD Factbook, 2011), and the increase in life expectancy from 51.1 years in the 1960s to 75.7 years in 2006 for men and from 53.7 in the 1960s to 82.4 in 2006 for women (Song, 2009). Health outcomes are worse in the United States, which had an infant mortality of 6.5 per 1,000 births in 2008, and an average life expectancy of 75.1 for men and 80.2 for women in 2006 (OECD Factbook statistics, 2011). However, health care coverage is not the only change in South Korea over the past thirty years. Yang (2008) points out that additional factors including “lifestyle, diet, income distribution, and environmental elements,” contribute to health outcomes.



Source: OECD Factbook statistics, 2011

Jung (2011) reported that the delivery system of medical services is not fully established in South Korea, and “every doctor can run his private office regardless of specialty.” This can lead to highly variable quality of care. Eight years earlier, Lee (2003) noted that South Korean medical professionals have practiced without public accountability, resulting in overuse of antibiotics, excessive testing, and a high rate of caesarean section deliveries. In 2008, Yang pointed out that quality-of-life measurement tools such as the EQ-5D (Euro quality of life) and the health utility index were available only from North American and European contexts, which may not correspond with Asian values. Recently, Jung (2011) has reported on a new validity and reliability measure, the Korean Primary Care Assessment Tool that assesses patient satisfaction with primary and non-primary care services.

The demand for this tool arose from professional discussion focused on primary care as a more efficient use of medical resources, improved cost containment, and increased equity (Jung, 2011). The resulting study found low satisfaction on health care coordination among both primary and non-primary groups, and suggested that self-owned clinic-based physicians may dismiss referrals because of competition for patients with other medical facilities, short visits, and a loose medical service delivery system in which physicians’ treatment boundaries are not as strictly defined as by licensure in the United States (Jung, 2011). The low scores given by patients may be correlated with a high demand for medical care, but also demonstrate an area for future attention.

Both primary care and quality improvement measurement are central to the PPACA. Provisions supporting the development of primary care include funding for primary care residencies in



underserved areas of the country, temporary increases in Medicare and Medicaid reimbursements for primary care, and financial assistance for students (HealthReform.gov). Health IT plays a key role in improving the health care system (Broadband.gov, 2011). In fact, “when appropriately incorporated into care, technology can help health care professionals and consumers make better decisions, become more efficient, engage in innovation, and understand both individual and public health more effectively” (Broadband.gov, 2011). The PPACA also encourages the use of health IT in its reimbursement methods for integration of electronic medical records and its envisioning of health information exchanges.

#### *Expanding Health Care Delivery Through e-Government*

One of the strategies employed by SMG to ensure access to quality care is to deploy advanced technological tools and services. In 2010, SMG was rated as the top global city in e-government worldwide (Hicks, 2010). The E-Governance Institute at Rutgers University-Newark and the Global e-Policy e-Government Institute at Sungkyunkwan University, South Korea, evaluate the digital governance of large municipalities annually, and rated Seoul’s online e-government efforts as the best in the world in 2003, 2005, 2007, and 2009 (Holzer, Min-Bong, & Manoharan, 2009). E-government projects touted by SMG include the Imagination Bank, through which city employees can make suggestions; Seoul Oasis, through which citizens offer ideas for increasing public good; and interactive online meetings between citizens and city government (Kang, 2011).

Lee and his colleagues predicted in 2009 that South Korea as a whole would be a major center for the e-health industry due to its geography, advanced information technology, and high public consciousness about health (Lee et al., 2009). South Korea’s u-Healthcare system started with a pilot in Seoul’s Guro district in 2007 (Ramalingam, 2010). This was the first phase of the ‘Ubiquitous City’ project for the district, which went on to plan for the implementation of u-Seoul. u-Seoul was intended to facilitate the use of mobile devices to access public services “anytime, anywhere” (Hicks, 2010). Health care is just one of many public services u-Seoul efforts will address.

The u-Healthcare system is designed to increase capacity for managing chronic diseases, such as hypertension and diabetes. The Guro Public Health Center provides check-ups through the system, consisting of patient input of health indicator measures for diabetes, blood pressure, obesity, and respiratory diseases via mobile devices (Ramalingam, 2010). The center then monitors data for diagnosis and treatment as appropriate (Ramalingam, 2010). This promotes a focus on disease prevention and early intervention, which can greatly improve one’s quality of life.

The larger u-Healthcare system is still under development, with a primary focus being the build-out of its Electronic Medical Records (EMR) system. Launching a comprehensive EMR system is also a goal of the PPACA. An EMR system can reduce administrative costs, duplicative services, and the number of medical errors, thus increasing quality of care (HealthReform.gov). In South Korea, the technology industry maintains that privacy laws are preventing more advanced use of the system, such as the sharing of medical information among doctors via cloud computing and electronic prescription ordering (Je-yup, 2011). Experts are now considering managerial issues, behavior perspectives, and the user’s point of view for further policy modification (Yu, Guo, & Kim, 2011).

The national u-Healthcare system may also supplement the brick-and-mortar health care delivery system for the elderly because of its potential for better preventive care and early intervention. The national government is likely to look to Seoul to test the implementation of new components. The U.S. may also consider adding further e-medicine solutions in addition to the EMR requirements in the PPACA, which will better support aging-in-place efforts, patient self-monitoring of chronic care tests and measurements that can be done at home and reported to the provider, and technological decision-support for primary care.

## Conclusion

The South Korean health system mixes single-payer administration with private provider delivery while managing universal coverage. As a leading global city, Seoul has a key role in developing and expanding health care structure and delivery in South Korea. The United States could follow the results of Seoul e-health care pilot programs to develop new policies for health care, particularly care for seniors.

In many ways, the South Korean health care system has met the goals it set for itself, with universal health insurance coverage, improved health outcomes, and overall costs that are a lower percentage of GDP compared with other OECD countries. South Korea was able to fairly quickly transition to a single-payer system without substantially altering the private provider market. Such a transition would not be so easy in the United States, as the PPACA leaves the United States' private health insurance systems in place. However, the fact that both countries built (or are building) health care reform around the free market—with insurance companies in the United States and medical providers in South Korea—demonstrates the two nations have similar values. These values offer useful comparisons and lessons in health care system strengths and weaknesses.

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