
A Study of Healthcare Reform in China in Light of the USA and Canadian Systems

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Abstract: This article describes and examines the newly implemented basic medical insurance system for urban employees in China. The insurance system was built on two distinct concepts, individual providence and social insurance, and was characterized by national government mandates, local government administration, and employer/employee contributions. The study found that the Chinese basic medical insurance program for urban employees was implemented in all major urban areas. About 130 million people were covered under the scheme as of May 2005. The program benefits are limited with relatively low ceilings on reimbursable expenses and high cost sharing from the insured. The procedure for reimbursement is complicated and time consuming. China can learn from the U.S. and Canadian systems in both financing and providing healthcare. The U.S. system arguably supplies the best medical services in terms of quality and accessibility for those who are insured and those who can pay out of pocket. But the huge costs may not work well with China at present. The Canadian system, which is relatively effective, efficient, and equitable, although not as accessible, may fit China better. The study also suggests that the U.S. employer-based healthcare insurance system requires a major overhaul. It puts U.S. companies at a disadvantaged position in the increasingly competitive global marketplace.

According to Pipes, “The goal of a healthcare system should be to provide all citizens with access to quality and affordable healthcare” (2004). However, achieving accessibility, quality, and affordability are by no means easy tasks. This is especially true for developing countries that face competing priorities with limited resources. This article describes the Chinese healthcare system in general, and examines the newly established urban employee basic medical insurance program in particular. The Chinese healthcare system was analyzed against a backdrop of the U.S. and Canadian healthcare systems. The study intends to inform Chinese policymakers in healthcare reform by drawing lessons from comparisons of healthcare systems in the developed world. Conversely, Chinese healthcare reform may also provide insight and implications for U.S. healthcare reform, highlighting the interconnectedness of all nations in this rapidly shrinking and increasingly flattening world (Friedman, 2005).

China is undergoing fundamental economic and social reforms. Since the beginning of the 1980s, China has gradually transformed from a central planning to a primarily free market economy under a socialist government. China is the second largest recipient (after the United States) of direct foreign investment, attracting a total of over \$60 billion in 2004 (Wang, 2005). Measured on a purchasing power parity (PPP) basis, China is the second largest economy in the world (CIA, 2005). China is also the third largest trading nation, with the U.S. as its largest trading partner (CSC, 2005). At a consistent 9% economic growth in GDP for a decade and a rapid rate in absorbing and internalizing new technologies, China is becoming a major economic powerhouse in the world.

Economic reform in China has, however, brought about conflicts and incoherence with its deeply rooted, but somewhat outmoded, socialist institutions. Economic reform has de facto dismantled the healthcare system. Health insurance in urban areas declined from 70% in the late 1970s to less than 39% in the later 1990s (Guan, 2004). China needs new and corresponding policies to protect its citizens’ health security and to sustain its socio-economic development in the 21st century.

Interestingly, China shares many issues and concerns in fundamental ways with the U.S. Both countries have the tradition of employer-sponsored healthcare insurance systems, although the origin and purposes of the arrangements are different. While in the U.S. employee medical insurance was initiated in response to wage and price controls during World War II (Folland, et al, 2004), the Chinese system was designed and constructed based on socialist ideology. Since the 1980s, China has been gradually and selectively adopting U.S. style policies in its economic and social reforms. The U.S. influence can be witnessed in many aspects of economic, social and cultural life in contemporary China.

An alternative to the U.S. healthcare policy can be found in Canada, its northern neighbor. The United States and Canada have very similar demographics and socio-economic systems (Lindorff, 2005). The two countries are to a large extent integrated and interdependent in their economies. However, the healthcare systems in the two countries are substantively different, representing two different philosophies, conceptualizations, and implementations of healthcare in the industrialized world (Evans and Morris, 2001). The U.S. adopted a market-driven, privately-financed

and privately-supplied healthcare system while Canada embraced a government-administered, publicly-financed, and privately-provided system. A comparison and contrast of the two systems can provide information and insights for Chinese policymakers in reforming China's healthcare system.

To this end, the study first reviews the evolution of the Chinese healthcare system since the 1950s. It then introduces the new urban employee basic medical insurance program. The study reports on an initial assessment of the insurance scheme from the patient standpoint. It then outlines and compares the U.S. and the Canadian systems. The study discusses potential lessons that China can learn from the U.S. and the Canadian systems, and lessons that the U.S. can learn from the recent reforms in China.

The study combines qualitative and quantitative methods. The author obtained data from Statistics Canada, OECD, United Nations/UNICEF, WHO, and many research and think tank organizations in China, the U.S. and Canada. These aggregate statistics are supplemented by field studies. A number of interviews with government officials, medical doctors, and policy holders/patients were conducted in five cities in China: Beijing, Shanghai, Tianjin, Wuhan, and Baotou. A survey of a convenient sample of 130 patients in Tianjin investigated their satisfaction with the basic health insurance program and solicited their opinions for change. The survey verifies and corroborates the ideas and assessments obtained from document reviews and informant interviews.

China's Urban Healthcare System

Brief History of China's Healthcare System

China's urban healthcare system was introduced in the early 1950s (Yip & Hsiao, 2001). It was built upon three pillars: enterprise-based financing, a public-delivery system, and price controls for medical services and drugs. It was conceived as part of the fringe benefits for those who worked for the state. The healthcare system fell into two categories: the labor insurance system (LIS) and the government insurance system (GIS). The LIS served employees mostly in state-owned enterprises (SOE). It was financed by welfare funds that each SOE put aside before submitting taxes and profits to the government. There was no risk sharing among SOEs. It was, in effect, a self-insurance program (Ibid.). The GIS provided for government employees and non-revenue-generating public organizations. It was funded by government budgetary appropriations. The two systems provided medical care insurance to about 70% of urban populations by the end of 1970s (Guan, 2004).

Relative to the level of economic development, the benefits of two insurance systems are generous (Yip & Hsiao, 2001). They covered all medically necessary physician and hospital services, dental care, and pharmaceuticals. However, the supplies of services were variable and rationed by the funds

available through each enterprise or government. Profitable SOEs and tax-rich local governments offered better medical care for their employees. New technologies and pharmaceuticals were limited in the then relatively closed society.

China's healthcare was provided through publicly-owned institutions. Large SOEs had, and many still have, their own hospitals and clinics. Public hospital systems provided services for employees of smaller SOEs and government agencies. Government financed capital investments and subsidized about 50-60% of hospital recurrent costs, mostly to pay for medical supplies and the salaries of health personnel (Yip and Hsiao, 2001). The remaining revenue came from fee-for-service activities paid by participating workplaces or paid out-of-pocket by uninsured urban residents. Budgetary appropriations for hospitals were soft. When running deficits, hospitals could ask for more financial help from the government. The central government exercised tight controls on the price of medical services and pharmaceuticals. The prices were deliberately set below costs. The pricing system made medical care affordable and accessible for all, including the poor and uninsured. As institutions in a socialist country, hospitals and clinics in China provided a welfare function as well as an economic function. Under this system, healthcare providers' decisions on the input or output mix were not based on financial incentives or guided by price system.

The LIS and GIS played an important role in providing China's urban working population with health protection over the past four decades, thereby contributing to economic development and social stability. The structural change from central planning to a free market economy, however, has fundamentally altered and effectively dismantled the two medical insurance and provision systems (Blumenthal & Hsiao, 2005). Economic reforms opened domestic markets to private and foreign companies. These new entrant companies tended to have advantages over existing SOEs due to newer products, better management, more advanced technologies, and younger workforces. They did not have to carry the burden of pensions and healthcare costs for retirees. They were not required to provide or contribute to health insurance for their employees. Many SOEs failed in the new order of the market economy and subsequently underwent ownership restructuring, often in the form of privatization. Many former employees of these SOEs were laid off, and, consequently, lost their medical insurance. Many other SOEs, although still operating, could not afford to reimburse the medical costs of employees, and, in effect, stopped providing health insurance. Except for some larger and profitable SOEs, LIS crumbled under the new economic order of the day.

The GIS is also under financial pressure. Governments at all levels have experienced revenue shortfalls as a result of the dwindling numbers and lackluster financial performance of SOEs. The financial

decentralization of the 1990s reduced the capacity of the central government to transfer funds between rich and poor provinces, exacerbating regional differences in the country. Limited government resources are often used in high priority infrastructure construction projects to stimulate and maintain economic growth, leaving very few resources for healthcare and other public programs. Without major policy changes, the future of the GIS system is also in question.

Chinese governments started to experiment with new healthcare systems in the 1980s (Yip & Hsiao, 2001). The key objectives of these measures included decentralizing management responsibilities and regional development, introducing a range of financial incentives to medical staff to improve productivity, encouraging private practitioners and private firms, and reforming the existing health insurance system. The impact of these 1980s reforms is significant and far-reaching. Government funding for healthcare was reduced to about 25-30% of hospital expenditures (Hsiao, 1995). In return, the central government allowed hospitals and clinics to charge patients higher fees for high technology diagnostics and new drugs. A bonus system was introduced in hospitals that linked revenue generation to personal income of doctors and other healthcare workers. In affluent areas, there was growth in the private sector for profit-based healthcare firms (Bloom and Gu 1997). This profit-oriented incentive system, when combined with the fee-for-service provider payment method, encouraged and enabled medical professionals to prescribe high-cost diagnostic tests and expensive medicines, which might not have been medically necessary. The incentive system contributed to an escalation of medical service spending on aggregate for the supply side. The total healthcare spending grew 11% annually over the 1986 to 1993 period, much higher than per capita GDP growth, rendering the systems unsustainable (Yip & Hsiao, 2001). These reforms also had an impact on the cost distribution of healthcare. Private spending increased substantially while public spending declined. Out-of-pocket expenses accounted for 58% of healthcare spending in China in 2002, as compared with 20% in 1978 (Blumenthal & Hsiao, 2005). For individuals, the higher healthcare costs, exacerbated by the shrinking insurance coverage, further reduced affordability and therefore accessibility to healthcare for the growing population of uninsured urban residents.

Design of the Basic Medical Insurance System for Urban Employees

Declining healthcare access and escalating healthcare costs set the stage for broader healthcare reforms in the 1990s. These included healthcare provider/hospital reform, pharmaceutical reform, and the extension of medical insurance to large segments of the population (China Ministry of Health, 2005). Improving access has become the priority of the government, which has recognized its potential impact on political stability and

economic growth (Ibid.). After extensive experimentation and pilot studies in many cities across the nation in the mid 1990s, the Chinese government issued the “Decision on Establishing a Basic Medical Insurance System for Urban Employees” (BMISUE) in 1998 (State Council of the Republic of China, 1998). The system intended to extend medical insurance and therefore health protection to all urban employees and retirees (Ibid.).

The BMISUE is a nationwide, centrally mandated, however, locally administrated (city or county) program. It intends to extend healthcare access to most urban employees and to control increasing healthcare costs, all predicated on the financial capacity of the local government. The basic medical insurance program is financed mainly through employer and employee contributions. To extend and standardize healthcare insurance coverage, the central government recommends that employers contribute six percent of the total annual salaries of the company to the health insurance funds as premiums. Employees are also required to pay two percent of their salaries into the system. Retirees are exempted from paying the premiums (Ibid.).

The BMISUE includes two major components: an individual health savings account (MSA) and a medical social pooling account (SPA). Similar to the U.S. health saving accounts, the MSA is designed to pay for regular, mostly outpatient healthcare expenses. The SPA is mainly for inpatient services and a list of diseases requiring high cost treatment, although in some jurisdictions it is also used to cover outpatient services. Employees’ contributions plus a portion (30% in Tianjin) of the premiums paid by employers is allocated to the personal medical savings account (MSA). The rest of the employer contribution is pooled into the social pooling account (SPA). Local governments have the authority to increase the workplace share of the medical insurance contribution. For example, employers contribute 10% of the total salary of the workplace to the basic medical insurance fund in Shanghai, the largest city in China (Dong, 2001).

The BMISUE attempts to control medical spending from the demand side by requiring cost sharing: deductibles, co-insurance and spending caps, from the insured. This stems from the theoretical framework of economics in insurance, such as moral hazard, predominating in healthcare discussions in the U.S. (Feldstein, 1973; Pauly, 1968). The deductible is set at 10% of the average annual salary of a locality (State Council of the Republic of China, 1998). The rate of co-insurance for outpatient services depends upon the age of the insured and the locality. In Shanghai, the co-payment ranges from 0% to 70% (Shanghai Municipal Government, 2005), depending on the ages and seniority of the employees. The insurance system caps the total amount to four times the average yearly salary of a locality (State Council of the Republic of China, 1998).

Many city governments extend the protection and mandate supplementary catastrophic medical insurance over and above the cap of the basic insurance. For example, Beijing, the capital city, stipulates that employers contribute an extra 1% of annual salary and employees pay 3 RMB (Chinese currency) into a citywide catastrophic fund. The fund provides additional protections for serious diseases, such as cancer, up to 10,000 RMB per year (Beijing Municipal Government, 2005).

The BMISUE attempts to control costs from the supply side by introducing regulations and competition into the healthcare marketplace. This is similar to the managed competition concepts and some of the managed care practice in the U.S. (Dranove, 2000; Enthoven, 1988). The city medical insurance bureau contracts with selected hospitals and other healthcare facilities. Only those hospitals and clinics that are designated and that maintain a good standing with the insurance program are qualified to provide reimbursable medical services as far as the basic insurance system is concerned. Formularies of medical tests, treatments, and pharmaceuticals are published that outline reimbursable diagnostic and treatment procedures under the basic medical insurance plan (Mather, et al., 1999).

The BMISUE is buttressed by workplace-sponsored second-tier supplementary programs (China Ministry of Health, 2005). Profitable businesses are encouraged to provide employees with additional medical insurance. Similar to the U.S. practice and as an incentive, the costs of the supplementary insurance are tax deductible up to four percent of the employees' annual salaries. Government offices and agencies are required to provide supplementary insurance to all civil servants, supported by general taxes. The governments also encourage individuals to purchase commercial medical insurance as the third tier of healthcare protection. This provides freedom of choice for those who are willing and able to purchase premium healthcare service on their own. The multi-tiered system intended to broaden the coverage for the urban population while respecting consumer sovereignty. This reflects the Chinese government's philosophical and policy change (i.e., moving away from government involvement in supplying and providing social welfare, which is in line with the fundamental tenets of U.S. policies) (China Ministry of Health, 2005).

Preliminary Assessment of the Basic Medical Insurance System for Urban Employees

The basic medical insurance system for urban employees has been implemented in urban jurisdictions across China since 1998. As of May 2005, about 130 million people have been covered by the insurance plan (People's Daily, 2005). Structurally, the BMISUE transformed the traditional enterprise-specific self-insured LIS system to a community-based social insurance system, which gives legacy firms with

extended retirement liabilities a level playing field to compete domestically and on the world stage (Wang, 2005). The workplace is no longer responsible for the premium of retirees who are covered by the city-level pooled insurance fund. To the extent that it was mandated and required to include all companies, the new system improved labor mobility among SOEs and private firms. Moreover, the expanded risk pool for the whole community and employer-sponsored participation prevents potential adverse selection (Folland, et al., 2004). The single payer system by the city insurance bureau reduces transaction costs that account for significant portion of the total healthcare cost as in the United States (Woolhandler, et al, 2003).

Reviews of government documents and news reports, and interviews with government officials and healthcare professionals revealed that to a varying degree, competition was achieved by selectively contracting with hospitals and other healthcare providers. Chinese-managed competition has a single payer and multiple providers in each community under BMISUE. Although most existing medical facilities were initially certified almost by default, a noticeable proportion was later revoked or put on probation. For instance, contracts of nine hospitals in Tianjin were cancelled in one month's time due to repeated violation of insurance regulations (Zhang, 2006).

However, Chinese reform seems to have failed to achieve the two major goals of the program (i.e., to reduce healthcare cost and to extend healthcare access). For the nation as a whole, healthcare costs have continued to outpace the growth of income. According to an official Ministry of Health survey, while average incomes in urban areas increased by 8.9% in the five years ended in 2003, annual medical expenditures rose by 13.5% (China Ministry of Health, 2005).

Reform did not solve the related problem of accessibility either. The program did not extend medical insurance to most urban residents. The most vulnerable urban residents, the poor and unemployed, migrate workers, and children, are excluded from the system. The more than 60% private financing for medical care is unconscionable for a socialist society (Hu, 2003). Combined with escalating healthcare costs and the shift to user-pay methods, accessibility is becoming a "time bomb" in China. Based on China's official 2003 national health survey, about 64% of people in cities did not seek needed healthcare because of the costs (Aiyar, 2005).

Many reasons contributed to the unsuccessful reform of the urban healthcare system. The BMISUE did not address the key causes of escalating costs. It failed to address supply-induced demand by not continuing the fee-for-service payment method (Folland, et al. 2004). It did not address the issues of reduced public financing of healthcare and the perverse incentive systems to link physician income with revenue generation. Cash-strapped hospitals continue to operate as quasi for-profit businesses, over-prescribing expensive new drugs and high tech procedures, often

with questionable efficacy. As Dr. Li Ling at the China Center for Economic Research revealed, on average 50% of babies born in Chinese hospitals are delivered by Caesarean section now, compared with the pre-economic reform rate of 10%. Li considered this strong evidence of suppliers inducing the demand, and information dissymmetry. "If a doctor says, 'I think it is better to have it,' nobody has the courage to say no." (Lague, 2005). Physician agency functions and physician reputations are under increasing scrutiny and criticism (Gao, 2005).

The program, by design, does not provide universal coverage for all urban residents. Those who are unemployed do not have a workplace. Unless they pay the full premium without support from an employer, which is unaffordable for many, they are left out of the system. Family members of employees, including children, are not covered by the system, which is regressing from the traditional GIS and LIS systems. The program does not take into account temporary migrants who moved from rural areas to large urban centers to seek employment. The number of migrant workers is large and increasing at an alarming pace, approaching 80 million in 2004 (Zheng and Lian, 2004).

The implementation and management of the program also needs attention. Interviews with government officials and medical personnel suggest that many non-insured patients use their friends' or family members' plans to obtain medical services. Hospitals do not check the identity of the patients. The author's own observation supported the information from informants. Some hospitals leave the official seal for basic insurance in the hallway, so that everybody can stamp it on their receipts. The long-term financial stability of the program could be jeopardized if an effective control mechanism is not devised and implemented to combat fraudulent claims.

Some of these issues were substantiated in a population survey conducted by Horizon Research International, the most prominent social policy and consumer research firm in China, under the supervision of Harvard University. The study was completed in December 2004 and the data published in the report, "Citizen Assessment of Chinese Government," in March 2005. Among other things, the study included an assessment of medical insurance coverage in the country. The study followed a widely accepted design, including a stratified random sample of 3,978 residents between the ages of 16 and 60 in the country (1,876 urban and 2,102 rural and small towns). The study involved seven large cities in China, including Beijing, Shanghai, and Guangzhou, and many small cities, townships, and rural areas. The survey found that about 60% of urban residents did not have any medical insurance coverage (Horizon Research, 2005). More than a quarter of families surveyed had foregone medical services due to cost concerns.

The Horizon study was a comprehensive population survey of citizen assessment of government

works. However, the survey was not specially designed to assess the newly designed and implemented urban employee basic medical insurance program. This present study supplements and extends the population survey with a patient survey of the insurance program. The study addresses two key issues: implementation of and patient satisfaction with the urban employee basic medical insurance program. Patients are considered the most valid source for assessing the perception of the system, compared to the general population, which may or not may not have used the system in its short lifespan.

The patient survey was conducted in Tianjin, one of the largest cities in China with a population of 10 million people. Senior medical personnel interviewed patients in the Center for Women, Children and Family Planning. A convenience sample of 130 patients was interviewed between June 10 and July 7, 2005. All patients participated in the survey, although not all patients answered each and every interview question. The use of a convenience sample is due to the financial and political constraints that the author had at the time of the study. The BMISUE is a national program, implemented in urban jurisdictions across the country. A random or stratified sample would require political support from each jurisdiction. Given the highly controversial nature of the program, this was not obtainable for the author. Consequently, the present study is preliminary and exploratory. The results of the survey should not be generalized to the nation as a whole, as each municipality developed its own specific program under the general guideline of the central government. The Chinese central government may need to be involved in a nationwide study of this deep and far-reaching social reform.

The interview questions addressed gender, age, the purpose of the visit, and whether or not the patient had insurance. Patients were also asked about their satisfaction with the basic insurance program. Open-ended questions at the end of the survey solicit patient opinions on the strength and weaknesses of the program. An outline of the interview questions is presented in Appendix A. The patients were informed of the purpose of the interview and consent was obtained. The interview is brief due partly to the time constraints in a medical office and partly to the limited financial resources available for this study.

The interview data were summarized and the key results are presented in Table 1. The qualitative data on comments, suggestions, and notes were examined through content analysis for ideas and patterns. Table 1 shows that about 72% of the patients had the basic medical insurance for urban employees. The rest either had no insurance at all (24%) or had other types of insurance, including commercial coverage offered by foreign companies. The pre-reform GIS system is still operational. It provides insurance for some government agencies and institutions (5%).

Table 1 indicates that the majority of the respondents (90%) were either dissatisfied with or

indifferent toward the program. This was mainly due to the program's limited coverage, high cost sharing from patients, and complex and slow reimbursement procedures. The content analysis revealed that about one half of the patients were dissatisfied with the program because of its meager coverage, high cost sharing (deductible and co-payment), and complicated procedures for reimbursement. The 10% average annual salary deductible is high for many salaried employees, considering that they did not have to pay in the pre-reform period. Consistent with Horizon's population survey, some residents may have restrained their tendency to seek preventive and well care to save money in their individual medical account.

For primary and tertiary care, the program did not seem to help control patient healthcare utilization behavior. About 10% of the respondents specifically mentioned that medical service is not a luxury good that they enjoy. They seek medical services when needed, with or without cost containment in the insurance scheme. A reduction in preventative care and the potential increase in curative medicine could shift the inexpensive well care to emergency room visits, which is counter-productive from both health and economic standpoints.

The procedure for reimbursement was deemed very complicated and time consuming. The content analysis indicates that about three quarters of dissatisfied respondents disliked the program for its procedural complexity and time delays for reimbursement. Moreover, a substantial proportion of the patients (close to 10%) who responded to this question were concerned with privacy. This seems to be justified, considering that patients have to submit all medical records to their employers for initial verification.

The implementation and management of the program also needed attention. Table 1 reveals that about 92% of the patients did not carry their basic insurance ID when visiting the clinic. This is a loophole in the current system that allows the uninsured to make fraudulent claims. Some of them (12%) openly admitted that they were using another's insurance so that they could get reimbursement. Four "patients" came to the clinic for prescription drugs for their friends or relatives, who probably did not have medical insurance.

The financial position of the funds has been a major concern in many individual jurisdictions. The amount of the premium and the rate of cost sharing are based on historical utilization rates of medical services for the population they serve and the actuarial forecast of future claims and costs. It fails to anticipate the level of fraudulent claims. This situation is further exacerbated by doctors' over-prescribing high cost diagnostic tests and expensive drugs in response to the incentives of the provider payment scheme. The medical insurance funds risk deficit financing if the management of the program is not overhauled and revamped in time. This is especially true as the program

is still in its early stage. Few reserve funds have been saved to weather unpredicted events.

Table 1. Patient Behavior in Response to and Satisfaction with the Program

Interview Questions and Response Categories	Frequency	Valid %
Satisfaction with the basic medical insurance system	Satisfied	10 9.2
	Neutral	69 63.3
	Dissatisfied	30 27.5
	Total	109 100.0
Brought insurance ID card when visiting clinic	Yes	8 8.1
	No	91 91.9
	Total	99 100.0
Purpose of the visit being to obtain prescription for others	Yes	4 4.4
	No	87 95.6
	Total	91 100.0
Use of other's basic insurance for reimbursement	Yes	11 12.0
	No	81 88.0
	Total	92 100.0

The public share of the financing of the program is both inadequate and inequitable. The coverage of the program is too limited for many people, especially when compared with the previous labor insurance and government insurance systems. The 5% GDP invested in healthcare is low even for many developing countries. The more than 60% of private financing for medical care is unconscionable for a socialist society (Hu, 2003). The WHO Report 2000 ranked China 188 of 191 countries in terms of fairness in financial contributions to healthcare (WHO, 2000). China has a long way to go to balance its economic and social/human development, which is so crucial to the country's long-term progress and prosperity. It seems advisable that China review and develop its health policy and implementation strategies in light of the experiences of the U.S. and Canada, two developed countries which are very similar on many accounts, except for their healthcare systems.

U.S. Healthcare System

The U.S. healthcare system is primarily privately financed and privately provided. Employment-based insurance is the predominant form that insures most Americans. Private financing, including insurance premiums, cost-sharing, and out-of-pocket payment, makes up 54% of total healthcare expenditure in the U.S. (Goldman & Alpert, 2005). This separates the U.S. from the rest of the developed world, wherein public financing is the major source for healthcare coverage.

The coverage of the American employer-based private healthcare systems varies substantially among companies. Many plans have caps on total expenses or on some categories of benefits. Most plans

try to limit expenses with cost-sharing requirements or by mandating participation in managed care arrangements. Health Maintenance Organizations (HMOs), Preferred Provider Organizations (PPOs) and other arrangements under the rubric of managed competition (Enthoven, 1988) have been growing in popularity (Dranove, 2000). Although cheaper in many circumstances, these plans, it is argued, restrict the patient's choice among healthcare providers (Ibid.).

By law, American employers are not required to provide health insurance to their employees. The health insurance system does not involve risk sharing or resource pooling among companies (White, 1997). The marketplace orientation of the system seems to lead to inequity at both the company and the individual levels. Low profit companies may find healthcare costs prohibitive. Small employers face higher rates because insurers are spreading administrative costs over fewer customers. Legacy companies carry an extra burden for their retirees. Consequently, smaller and lower-wage employers are much less likely to contribute. Individuals who do not receive insurance through their place of employment face extra difficulties. Insurers will charge them higher rates because of administrative costs. Individuals can also be rejected for insurance if they happen to have a chronic medical condition (Ibid.).

The overall trend of the employer-based private medical insurance in the U.S. is troublesome. The participation rates have been dropping in recent years mainly due to a decline in employers offering coverage. The recent census indicates the percentage of people covered by employment-based health insurance dropped from 61.3% in 2002 to 60.4% in 2003 (DeNavas-Walt, et al, 2005). Coverage for part-time workers has also decreased sharply. The norm that employers should take care of their employees by providing health security is fading away from corporate culture. More and more employers believe that they are not obliged to nor should they contribute to employee insurance costs. This is especially true when considering employees' spouses and children.

The U.S. healthcare system also includes two major publicly-financed government programs: Medicare and Medicaid, in addition to a number of smaller and often directly-provided healthcare services in the Department of Defense, Veterans Affairs, and Indian Health Services. Overall, public medical insurance covers about 24% of the population (Flood, 2001). The Medicare program provides for the elderly and the disabled. The program includes two parts: part A is Hospital Insurance (HI) and Part B refers to Supplementary Medical Insurance (SMI). Part A is automatically available to all persons age 65 or over who have met the standards for participation in the Social Security System for at least 10 years. It also includes persons under age 65 who are legally disabled. Part B is a voluntary medical insurance program with high government subsidies. It charges a premium of between 25 and 30% of actual program costs, and

premium costs are subsidized for many of the poor. Most Medicare-eligible Americans who do not have coverage from other sources buy Part B coverage (Ibid.).

Medicare is financed through various sources, depending on the specific program. Medicare Part A for hospital services is financed primarily from the social security payroll tax. The contributions are mandatory and are set at 1.45% for employers and 1.45% for employees. Medicare Part B, the Supplemental Medical Insurance program, is financed by a combination of premiums and general tax revenue from both federal and state governments, supplemented by a variety of user charges (Flood, 2001).

The Medicaid program is for the poor and it is administered by each state. A mixture of federal and state budget appropriations funds the program. The portion of the Medicaid program that is paid by the federal government is derived from the general revenue. The federal share is determined annually for each state according to a formula that compares the state's average per capita income level with the national average. By law, the federal share cannot be lower than 50% or greater than 83%. Wealthier states have a smaller share of their costs reimbursed. The federal government also shares in the states' expenditures for administration of the Medicaid program, covering 50% of most administrative costs (Ryan, 2004).

Healthcare services in the U.S. are provided privately by practicing physicians and hospitals. Physicians are reimbursed through various arrangements. For Medicare, these include paying physicians on a fee-for-service basis or through a capitation system as used by HMOs. Physicians participating in Medicaid must accept the Medicaid reimbursement level as payment in full; that is, no extra-billing is allowed. Hospitals in the US have different ownership structures. About 15% of hospitals in the U.S. are private for-profit institutions, 60% are private non-profits, and the remaining 25% are owned by states or local governments (Flood, 2001). Medicare reimburses hospital services according to a system of Diagnosis Related Groups (DRGs). This system is based on a list of some 500 services, each of which is assigned an average national cost. When admitted, patients are classified into one of the 500 categories. At the end of the treatment episode, the hospital receives the amount shown on the list. It does not depend on the length of stay, or the volume of services actually provided. The DRG system is intended to encourage efficiency by rewarding those hospitals that can treat patients at a lower-than-average cost. Some states also use this method to fund hospitals delivering Medicaid services.

Arguably, the U.S. healthcare system provides the most advanced technology and the best-trained physicians in the world. The market-based system encourages innovation and supply of services. There is almost no waiting time for specialists, surgeries or

diagnostic tests as long as the patient has the means to pay for them.

U.S. governments have shown increasing concern for the future of their public healthcare programs. The unfunded liability of the U.S. federal government for its Medicare program is estimated to be approximately \$30 trillion in discounted present value terms over a 75-year time span, and \$60 trillion dollars over an infinite horizon if the current policies remain (Walker, 2005; Saving, 2005). With the aging population, this poses a serious question about the sustainability of the system. Immediate action is required to reform these entitlement programs in order to provide medical insurance and health security for future generations.

Canadian Healthcare System

In contrast to the U.S. system, the Canadian healthcare system is primarily a publicly financed, privately provided, single payer system. It is founded on five principles: universality, portability, comprehensiveness, accessibility, and public administration. The fundamental ideas of the system are enshrined in the 1984 Canada Health Act (Department of Justice, Canada, 1985). Although nationally mandated, the administration of the healthcare system is in the jurisdiction of each provincial government. The provincial governments are responsible for planning, financing, and evaluating the provision of hospital care. (Kraker, 2002). The federal government influences health policies by establishing general policies and by contributing to the financing of the program. The contributions from the Canadian federal government, however, decreased significantly in the late 1990s. The federal payments make up only slightly more than 20% of provincial medical care costs (Kraker, 2002). The share of the federal government has since increased incrementally. This was due to concerns about deteriorating accessibility, a principle of the Canada Health Act, especially when elective surgery and high tech diagnostic tests are concerned.

Similar to the U.S., healthcare services in Canada are provided by nonprofit hospitals and practicing physicians. Hospitals are governed by a board of trustees, and receive an annual global operating budget from the provincial government (Klatt, 2000). Physicians are mostly in private practice and remunerated on a fee-for-service basis with a cap imposed by the provincial health plan. Private physicians cannot over-bill patients above the fee schedules and as far as the patients is concerned, the Canadian healthcare is free of charge, at least at the point of service. The Canadian system does not have deductibles or co-payments. Healthcare is free from the patient's viewpoint. Patients are free to choose doctors and other service providers. Cost sharing in terms of a deductible or co-payment is not required at the point of service.

The coverage of the Canadian medical service plan is limited, allowing only those services deemed medically necessary. These services include hospital and physician services, x-ray, and laboratory work. In general, coverage does not include prescription drugs nor does it cover dental services, although it varies to some extent among provinces. The medical service plan is more generous to people 65 years or older and people with chronic conditions and high medical costs. Many employers provide extended healthcare insurance from commercial insurance companies to their employees in addition to the government basic medical insurance.

The Canadian Health Act does not ban private insurance as long as it is supplementary and does not compete with the publicly funded core service. An estimated 80% of the population has private coverage for items such as private rooms, pharmaceuticals, and dental care, financed primarily through employers. The Canadian tax system, as in the United States, favors employer-provided insurance by allowing employers to count it as a business expense, rather than treating premiums as income to the employees.

As in the U.S. and other industrialized countries, Canada's healthcare system is under financial pressures. Reform of the healthcare system has included rationing of supplies. The Canadian Coordinating Office for Health Technology Assessment develops policies to control expensive procedures and medicines. One way for the Canadian government to contain healthcare expenses is by limiting services, which is enabled by the single payer national insurance plan.

This cost cutting and arguably rationing practice has exerted significant impact on the access of Canadians to healthcare services, especially advanced technologies and new drugs. In a recent study, participating physicians voiced their concerns about the accessibility of the present system. They felt that waiting times in many provinces had exceeded "clinically reasonable" delays (Gratzer, 2002). In 2003, patients had to wait over one month for CT scans, almost three months for an MRI, and more than three weeks for an ultrasound (Esmail, et al., 2003). Additional funding from the government was advocated.

In recent years, healthcare reform has become a major priority in political and government scenes. High profile royal commissions have been assembled to study the issue and to suggest solutions (Romanow, 2002; Standing Senate Committee, 2002). Meetings of first ministers in each province have been convened to discuss issues and negotiate agreements (Health Canada, 2004). Funding increases have been passed in the Canadian parliament to address, among other things, the issue of waiting times (Department of Finance Canada, 2003). The impact of these reforms on access to care and on health status is yet to be thoroughly analyzed.

Canadian governments at different levels are also taking a more open approach and attitude toward

the roles of private firms in healthcare. The Senate's Kirby Committee further opened the discussion of private financing and for-profit delivery (Standing Senate Committee, 2002). The Alberta Premier has recently announced that his province will implement a two-tiered system, which will allow the rich to buy services over and above the national healthcare plan (The Canadian Press, 2005). A multi-tier system seems to be emerging, although most Canadians reject the concept that ability to pay determines who and at what time can have access to healthcare services (Lewis and Fooks, 2002).

Comparison of the U.S. and Canadian Systems

A brief comparison of the U.S. and Canadian healthcare systems is summarized in Table 2. Apart from the differences and similarities in financing, administration, and provision of healthcare in the two systems, as discussed in earlier sections, Table 2 indicates that the U.S. and the Canadian systems are different in the amount of resources used in providing healthcare services. The U.S. consumed more than 15% of its GDP in healthcare, \$1.8 trillion in 1994 (Leavitt, 2005). The Canadians spent about 10% of their GDP on healthcare, which amounts to 57% of the U.S. per capita expenditure (Reinhart, et al., 2004).

The market orientation of the U.S. healthcare system may have contributed to the plentiful healthcare supplies and a thriving healthcare pharmaceutical and technology industry in the U.S. In contrast, the lack of supply as evident in the long waiting times has been attributed to the Canadian healthcare system, especially the single payer system and the reduced funding by all levels of government in the late 1990s when faced with severe fiscal constraints (Esmail, et al, 2004; Pipes, 2004). Although healthcare expenditures have increased in recent years in Canada, the impact on accessibility has not yet been fully demonstrated.

Compared to the U.S., the Canadian system lacks choices and flexibility. In the United States, an individual who wishes to spend more on healthcare can pay and obtain better and faster services. In Canada, on the contrary, increases in medical expenditures can only be achieved through social means (policy changes and budgetary decisions). It often takes time to go through the political process, even if the vast majority has decided to do so.

Although devoting more resources to healthcare and providing choice for its consumers, the U.S. system has not been associated with superior health outcomes. On the contrary, Americans are less healthy, as measured by widely used, although somewhat oversimplified indicators. As of 2002, life expectancy in the U.S. was 77.1 years, which is lower than the life expectancy of 79.6 in Canada. Infant mortality rate in the U.S. was 6.8 deaths per thousand live births, which

is higher than the 5.2 deaths in Canada (Hoyert, et al., 2005; Kochanek, et al., 2004; OECD, 2005). Moreover, the divergence is not closing (OECD, 2005). Although many other socio-economic factors affect these basic healthcare measures, it seems fair to say that the high spending in the U.S. system has not been efficiently translated into better health outcomes (DiPiero, 2004).

The lack of efficiency in the U.S. system could be partially attributed to its complex, multi-payer insurance system. It was estimated that the U.S. spent 31% of total health expenditures on administration in 1999. The Canadian system, on the contrary, spent 16.7% on administration (Woolhandler et al., 2003). Functions essential to private insurance but absent in public programs, such as underwriting and marketing, account for about two thirds of private insurers' overhead. Multi-payer systems, complex accounting systems within provider organizations, and dealings with insurance companies prove to be time and resource consuming. In contrast, the Canadian system has eliminated most billing and has minimized internal cost accounting since charges do not need to be attributed to individual patients and insurers.

The U.S. system is also less equitable than the Canadian system. With its high costs, the U.S. still leaves 15% of its citizens uncovered compared to the universal coverage achieved by the Canadian system. The lack of insurance for many Americans could impact their decision to seek medical services when needed. The uninsured may postpone medical service until their health problems deteriorate to the extent that they need emergency hospital admission. The medically uninsured population in the U.S. is increasing in recent years (Citizens' Health Care Working Group, 2005; DeNavas-Walt, et al., 2005). There is no reason to expect the gap in health status between Canada and the U.S. to be closed in the short run.

The inequality of health and healthcare manifests itself sharply along racial lines (Smedley, 2002). In 2002, life expectancy for whites was 77.7 years, substantially higher than the 72.3 years for blacks (CDC, 2005). The infant mortality rate was 14.4 infant deaths per 1,000 live births for blacks, almost twice as high as that for whites (5.8 per 1,000). Minorities in the U.S. have less access to healthcare; this is determined partly by health insurance. Data in the first half of 2004 showed that Hispanics were less likely than non-Hispanic whites or non-Hispanic blacks to have a usual place to go for medical care (CDC, 2005). Although whites in the U.S. are very comparable to Canadians in general, black and Hispanic populations are substantially under served by the U.S. healthcare system and less healthy when compared to Canadians in general (Sanmartin, et al, 2004). Despite decades of effort, disparities persist in the U.S. (CDC, 2005).

Table 2. Comparison of U.S. and Canadian Healthcare Systems

Category	U.S.	Canada
Insurance	<ul style="list-style-type: none"> • Commercial health insurances through employment • Government programs for the aged & poor (Medicare/Medicaid) 	<ul style="list-style-type: none"> • National Health Insurance Plan
Financing	<ul style="list-style-type: none"> • 45% public • 55% private 	<ul style="list-style-type: none"> • 70% public • 30% private
Administration	<ul style="list-style-type: none"> • Insurance companies • HMOs • Government agencies 	<ul style="list-style-type: none"> • Provincial governments
Benefit	<ul style="list-style-type: none"> • Hospitals, physician, pharmaceuticals, and a variety of services • Coverage depending on the workplace and employers 	<ul style="list-style-type: none"> • Medically essential services including hospitals and physicians services • No pharmaceuticals nor dental services
Cost sharing	<ul style="list-style-type: none"> • Various rates of deductibles • Various rates of co-pays 	<ul style="list-style-type: none"> • No cost sharing, free at point of services
Providers	<ul style="list-style-type: none"> • Physicians (private) • Hospitals (private and public) 	<ul style="list-style-type: none"> • Physicians (private) • Hospitals (private)
Provider payment methods	<ul style="list-style-type: none"> • Fee-for-service (Insurance) • Package/global budget (HMO) • Diagnosis Related Groups (DRGs) 	<ul style="list-style-type: none"> • Fee-for-services (physicians) • Global budgets (hospitals)
System input	<ul style="list-style-type: none"> • 15% of GDP 	<ul style="list-style-type: none"> • 10% of GDP
Accessibility	<ul style="list-style-type: none"> • Plenty of supplies • Fast access to mordent technology • No waiting time for diagnostic test nor surgeries 	<ul style="list-style-type: none"> • Limited supplies • Rationed access to specialist and new technologies/drugs • Waiting time long for some diagnostic and elective surgeries
% Administration cost	<ul style="list-style-type: none"> • 30.0% 	<ul style="list-style-type: none"> • 16.7%
Coverage	<ul style="list-style-type: none"> • 85% of residents 	<ul style="list-style-type: none"> • All residents
Life expectancy	<ul style="list-style-type: none"> • 77.3 	<ul style="list-style-type: none"> • 79.6
Infant mortality rate	<ul style="list-style-type: none"> • 7.0 	<ul style="list-style-type: none"> • 5.3

Source: OECD Fact book 2005 and various research papers as referenced in the article.

What Can China Learn from the U.S. and Canada?

China can benefit from examining and comparing the U.S. and the Canadian healthcare systems. China should pay closer attention to Canada in reconstructing its basic healthcare system. The single payer, public administrated Canadian system proves to be more efficient and equitable than the market-oriented U.S. system. This is admittedly difficult as China does not yet have a tax system that enables the government to finance healthcare to a greater proportion. China, however, can increase healthcare appropriation within the current fiscal system, recognizing the significance that healthcare and health play in social stability and economic growth. Incrementally, China may reconsider and redistribute its current taxation power among various levels of governments, so that the central government could play a major role in equalizing resources for health protection for all its citizens among different regions, creating a system similar to that of Canada's fiscal federalism. The present urban employee basic medical insurance program seems to be an important step in the right direction. China needs substantial government involvement in financing and regulating healthcare services, reversing the trend of the past 20 years.

China may also learn from Canada on how to develop and use information technologies in healthcare. This includes, but is not limited to, creating a system of shared patient records. The system should be open and interoperable, not proprietary, so that the data can be exchanged between different organizations. This system, when balanced with issues of privacy protection, provides great potential to improve service quality, reduce duplications, and prevent medical mistakes. Moreover, these linked files could also be used for public health purposes. The linked information can be used in disease prevention, surveillance, and control, which in the future may prove to be invaluable in combating unexpected events, such as bio-terrorist attacks or new and highly infectious diseases. The central government of China should take a leadership role, as it is the only authority that can set standards and protocols to insure nationwide system interoperability. The current admirable but fragmented effort in many technologically advanced cities to build local information networks needs attention. These good intentions, brilliant architecture, and huge financial input could be partially, if not totally, wasted if interchangeability, or at least adaptability to a broader system, is not built into the design.

China can learn from the U.S. in providing a complementary second-tier healthcare system to increase choices and flexibility. China can learn from the U.S. in creating business conditions that allow a commercial insurance industry to emerge and to expand. At present, few private insurance companies operate in China. Many foreign insurance companies find it difficult to make a profit, given the low premiums they can command and the high risk due to the shaky foundation of the basic insurance system in China. It seems advisable that Chinese governments work with private insurance

companies to come up with ideas and identify issues. A discussion on managed care and HMOs in China's social and economic environment could function as a starting point.

China can also learn from the U.S. about the varieties of provider payment schemes. Although having experimented with different ideas at various stages of its healthcare reform, China still compensates healthcare providers primarily on a fee-for-service basis in the current urban employee basic medical insurance. The Diagnosis Related Groups method of the U.S. is especially relevant as it is intended to encourage efficiency by rewarding those hospitals that can treat patients at a lower than average cost. Used properly, DRGs could help China control costs from the suppliers end in addition to the cost-sharing mechanism that addresses the issue from the demand side in the basic medical insurance program for urban employees.

China needs to be selective in absorbing healthcare experiences from developed countries. Given the limited resources that are available at present time, China as a developing country should probably pay attention to the Canadian system, considering its low economic cost and its high health status universal insurance coverage. Health is not a commodity and healthcare should not be left for market forces to decide completely. Public involvement in terms of financing and providing should be strengthened. China should not follow the Americans blindly in reconstructing its healthcare system (Gao, 2005; Xiue, 2005).

What Can the U.S. Learn from China?

There are a number of features in the newly implemented basic medical insurance system for urban employees in China that deserves U.S. attention. These include the experience of the Chinese-style medical savings accounts and social pooling of healthcare insurances in local jurisdictions. The decoupling of companies from funding health insurance for their retirees is of special interest. With the increasingly flattening world, leaving employers, especially large and legacy companies, to carry the burden of healthcare for their employees and retirees puts U.S. companies at a severe disadvantage in the competitive global marketplace. The recent downgrading of General Motors bonds to junk class and the floating of ideas of potential bankruptcy for this symbol of U.S. industrial should be viewed as a warning sign. The ailing airline industry is also attributing its difficulties partly to the expense of healthcare insurance. Double-digit increases in health insurance costs are making many legacy industries unprofitable and unsustainable. Policy alternatives, including the Chinese basic healthcare scheme, should be investigated and decisions made to level the playing fields. This is especially important at this point in time, when China, the potential competitor of the U.S., is reforming its healthcare system and releasing its companies from carrying the burden of healthcare for retirees and their families.

Summary

China's healthcare system, which was dismantled in the economic reform of the last 30 years, has been undergoing fundamental reconstruction since the early 1990s. The present urban employee medical insurance program is extending medical care insurance to millions of urban residents who may or may not have access to insurance. Although insurance is very basic in terms of coverage and benefits, the Chinese multi-tiered system is unique, combining individual medical savings accounts with social pooling. The U.S. system supplies the best medical services in terms of quality and accessibility for those who are insured or those who can pay out of pocket. But the huge costs may not work well with China at present. The Canadian system, which is relatively effective, efficient, and equitable, although not as accessible, may fit China better. A shift of attention in the policy community from focusing on the U.S. system to a balanced approach derived from both the U.S. and the Canadian systems may better serve the interest of Chinese people at the present time.

There are many limitations in the present study. A key drawback relates to the convenient sample in the patient survey. It would have been much better if a random sample, or otherwise representative sample, could have been selected. However, the BMISUE is a nationwide program, involving thousands of jurisdictions with hundreds of millions of people across vast geographic areas. The author could not command the amount of resources needed when the present study was implemented. However, it is conceivable, and it is the current effort of the author, to seek funding and cooperation from governments in the U.S. and China. With the success of this initial study and the positive response from funding sources, the author is planning a randomized, expanded study to evaluate far-reaching, large-scale social and healthcare policy initiatives in China.

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Appendix A: Selected Interview Questions and Response Categories

Items	Data Property/Category Coding
Date	Date
Name	Text
Age	Numeric
Gender	1=Female, 2=Male
What are the reasons/purposes for the clinic visit?	Categories of concerns, symptoms and diagnosis.
What type of medical insurance do you have?	1=urban employee basic medical insurance 2=other insurance 3=no insurance at all
Do you have your medical insurance ID card with you?	1=yes 2=no
Are you using another's insurance card/name for this visit?	1=yes 2=no
Are you obtaining prescription drugs for others who may or may not have insurance?	1=yes 2=no
How satisfied are you with the urban employee basic medical insurance?	1=satisfied 2=neutral 3=dissatisfied
What are the reasons for the level of satisfaction you have with the program?	Text
Any notes, comments, and suggestions for the improvement of the program?	Text

