

Taiwan's healthcare report 2010

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Abstract Times are changing. Taiwan is one of the richest countries in the Asia Pacific region. It enacted its single-payer national health insurance program in 1995: in all estimates, it has been very successful. It has a strong healthcare system and the universal health insurance ensures that all citizens have grown to expect a high level of care. Healthcare systems are designed to meet the healthcare needs of target populations. There are a wide variety of healthcare systems around the world. In some countries, healthcare system planning is distributed among market participants, whereas in others planning is made more centrally among governments, trade unions, charities, religions, or other co-ordinated bodies to deliver planned healthcare services targeted to the populations they serve. However, healthcare planning has often been evolutionary rather than revolutionary. In healthcare all work carried out must be at the highest quality, and a much higher proportion of resources must be invested in quality in healthcare. The aim of this report is to give an overview of the healthcare service provision in Taiwan.

Keywords Healthcare system · Co-payment · Integrated delivery system · Preventive care · Global budget · Premium

Introduction

The island of Taiwan, in Eastern Asia, is about 161 km away from the southeast part of mainland China. It occupies a total area of 36,188 km². Its capital city, Taipei,

is in the northeast, and is the most densely populated area in the territory. It is estimated that the Taiwanese population will be 23.5 million in 2020 and around 20 million in 2050. At the end of the 20th century, Taiwan became a rich country, almost overnight. But it still had a poor country's healthcare—almost half the population had no coverage at all. So Taiwan set out to design a national healthcare system from scratch. What makes Taiwan unique is the way the country figured out how to cover everyone.

Healthcare in Taiwan is managed by the Bureau of National Health Insurance (BNHI). The system is characterized by centralized management. The Department of Health (DOH) of the Executive Yuan formulates health policies and supervises the delivery of health services. The current program was implemented in 1995 and provides centralized health insurance for more than 90% of the population. The public sector plays a major role in the delivery and financing of the healthcare services. The program maintains compulsory insurance for citizens who are employed, impoverished, unemployed, or victims of natural disasters with fees that correlate to the individual and / or family income, it also maintains protection for non-citizens working in Taiwan. A standardized method of calculation applies to all persons and can optionally be paid by an employer or by individual contributions.

To analyze the whole healthcare system in Taiwan, this report attempts to discuss in three different Parts. In [Part I](#), the background information leading to the establishment of the National Health Insurance (NHI) will be illustrated. We will specifically address the key features and the major enhancement in terms of both the service delivery and financing of healthcare system in Taiwan. Its achievement and some problems and challenges of NHI will also be highlighted. [Part II](#) will be a comprehensive review on the measures and policies that Taiwanese government has taken in the healthcare system in terms of the following areas,

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namely: capacity building, access, cost containment, efficiency and quality assurance. Last part (Part III) of this report will try to evaluate the Taiwan's healthcare system according to three evaluation criteria, namely: quality, equity and efficiency. Some unforeseen consequences will also be examined and the improvement initiatives will also be illustrated.

Part I

With the upgrade of citizen's educational level, they would be more concerns about their living standard as well as their health awareness, pushing the formation of an universal health insurance program. On 1st March 1995, the Taiwanese government inaugurated a National Health Insurance (NHI) Program, aiming at establishing an effective and socially affordable universal health insurance. Life expectancy was also gradually increased. Similar with Hong Kong, females in Taiwan have longer years of life expectancy. As referred to Table 1, it is also observed that the life expectancy has already increased before the implementation of National Health Insurance in 1995. This might mainly due to the improvement of living standard as well as medical technology. Apparently, it might lead to greater demand for healthcare service.

Availability of healthcare resources in Taiwan is another social factor that led to inception of NHI. We found that although the government has continued to try to establish a public hospital-based medical care network but it failed in part due to the rapid growth of the private hospital industry. As shown in Table 2, the public share of hospital beds declined from 71.3% in 1961 to 39.9% in 1994. Therefore, in early 1990s, the government has planned to set up a Bureau of National Health Insurance, not only for controlling healthcare cost at an affordable level, but also for

Table 1 Life expectancy in Taiwan

Year	Male	Female
1990	71.3	76.8
1992	71.8	77.2
1994	71.8	77.8
1996	71.9	77.8
1998	73.1	78.9
2000	73.8	79.6
2002	74.6	80.2
2004	74.7	80.8
2006	74.9	81.4
2008	75.5	82.0
2009	75.9	82.5
2010	75.3	81.2

improving the access of healthcare resources, with an aim to upgrade the number of physicians and hospital beds per 1,000 persons to 1.5 and 4.5, respectively.

In early 1990s, at the time when Taiwan initiated an universal health insurance, the economy in Taiwan was very healthy. Unemployment rate was as low as 1.5%–1.8% while inflation rate was kept at about 4%. National income was recorded steady growth with annual growth rate at 6–8%. These all formed favorable environment for the reform of the NHI in Taiwan. Healthcare expenditure in Taiwan shared about 5% of its GDP in early 90's. But in 2009, it now spends about 6% of GDP on health. When we compared this with other developed countries of national health insurance, like Canada (9.4%) and Germany, we observe that although this expenditure share in Taiwan has recorded growth, its share in terms of % to GDP was still rather low, forming a positive force for establishing a NHI in 1995 (Table 3). In view of the above-mentioned factors, all of them were favorable for the establishment of NHI system in Taiwan. Promptly implement a NHI program was ideologically advocated as a critical indicator of a good and modernized government.

Delivery and financing

This part discusses the delivery of health services under Taiwan's National Health Insurance (NHI) and the financing of NHI. It would illustrate the main NHI structure and how NHI operates. To start with, the initial Taiwan NHI healthcare system is launched with the following characteristics:

- (1) Mandatory enrollment;
- (2) Government-run insurer;
- (3) Single-payer insurance system;
- (4) Uniform comprehensive benefits coverage;
- (5) Payroll-related premiums shared by employers, employees and the government with heavy government subsidy;
- (6) Co-payment required for ambulatory care, inpatient care and pharmaceuticals;
- (7) Low premium rate policy—initially fixed at 4.25%;
- (8) Fee-for-service (FFS), but a “pay-for-performance” system has been introduced gradually to improve healthcare quality. The system, first introduced in 2001, is currently being used for breast cancer therapy, diabetes, asthma and hypertension treatment. It tries to go beyond simply purchasing medical treatment on behalf of the insured and instead stresses the concept of buying health.

Some of the characteristics are subject to further enhancement upon any detected problems after the implementation of NHI and hence would also be highlighted in this report.

Table 2 Healthcare resources

	(1960)		(1970)		(1980)		(1990)		(1994)		
Physicians per 1,000 persons	0.5		0.4		0.7		1.0		1.1		
Hospital beds per 1,000 persons	0.7		2.4		3.2		4.1		4.5		
Percentage of public hospital beds	71.3		60.8		53.3		42.7		39.9		
	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Physicians per 1,000 persons	1.4	1.4	1.5	1.5	1.6	1.6	1.7	1.7	1.7	1.8	1.8
Nurses per 1,000 persons	3.2	3.4	3.6	3.7	4.0	4.2	4.5	4.6	4.8	5.0	5.2

Delivery

Structure of NHI Taiwan NHI healthcare system has three major stakeholders relating each other in a closed loop. It adopts a self-sufficient system. It collects insurance premiums in order to sustain its expenditure for purchasing health. As advocating the principle of financial self-sufficiency, the total premium revenue has to be approximate equal contribution from the three major stakeholders of the insured, the employers and the government (i.e. one-third each). In 2001, their shares are respectively 40%, 32% and 28% for the insured, the employers and the government.

The *Insured* (Beneficiaries) denotes the people who have enrolled in the NHI program. Universal enrollment is an aim of NHI. Hence, basically all citizens of Taiwan are eligible. The BNHI collects premiums from the insured and issues them the insurance cards. When the insured use the medical services, they do not need to pay the medical expenses, but a co-payment (Medical benefit) as user fees. The medical providers make claims to BNHI for reimbursement of the services they provide.

BNHI is the Bureau of National Health Insurance that was established on 29th January 1993, and responsible for the preparation and operations of NHI. It is the executive organization of the NHI program. The Department of Health has jurisdiction over the Bureau. As a result, BNHI holds the monopsony power being a single payer. It is empowered by the National Health Insurance Act to make participation in NHI compulsory. It has the functions of planning, promotion, execution, supervision, research and

development, training, information management and auditing. Universal enrollment is an aim of NHI. Hence, basically all citizens, except the convicts, are obligated to participate in the compulsory program. Infants are covered under the program as soon as their births are registered at a local household registration office. Criteria for eligibility as stated are citizens with a household registry, foreigners with resident permits. The main reasons some people do not enroll include:

- (1) Unable to pay the premium;
- (2) An interruption due to change of job;
- (3) Refusal to subscribe for the high premium.

Providers (Medical care institutions) of healthcare of the NHI are on contracted term. Therefore, their medical claims can be reimbursed from the BNHI on fee for services basis (initial design). Since NHI provides a convenient and comprehensive healthcare services with the diversified coverage to the public; the BNHI has made contracted with various healthcare facilities (Western/Chinese medical hospitals, Western/Chinese medical clinics and dental clinics), pharmacies, medical laboratories, midwifery clinics and community psychiatric rehabilitation facilities. Moreover, the contracted rates are mostly high. In view of the standard of contracted healthcare providers, regular inspection by the BNHI would be conducted for any illegal practices (such as the defrauding of insurance payments), unsatisfactory quality and exploitation of patient rights. In violation of regulations, healthcare providers are subject to different penalties (i.e. instruction of correction, fines, suspension of contracts or even termination of contracts) depending on the degree of violation. For criminal cases or cases in violation of medical care laws would be referred to either the court or local health authorities for investigation and action.

Financing of NHI The premium rate is initially fixed but it might be adjusted subject to the amount of reserve fund. Reserve fund is converted from the balance after deducting the healthcare expenditures from the premium collected. In accordance with the rule, the insurance premium rate should be adjusted when the reserve fund exceeds 3 months

Table 3 Healthcare expenditures % of GDP (2007)

Taiwan	6.1%
South Korea	6.8%
Japan	8.1%
UK	8.4%
Netherlands	9.8%
Canada	10.1%
Germany	10.4%
France	11.0%
USA	16.0%

or is reduced to a legal upper/lower threshold of the amount equivalent to one-month medical payment. However, the insurance rate is sometimes difficult to adjust for an increase due to the political concern and public pressure. It is calculated that a balance insurance premium rate of 5.2% is required to maintain financial balance starting from July 2000–2005 for Taiwan NHI program. The rate was 4.25% from the time the system was launched until September 2002, when it was adjusted to 4.55%. In April 2010, the rate was then adjusted to 5.17%. It must be noted that over the past 15 years, the rate has only been adjusted twice. Co-payments are needed for ambulatory care, inpatient care and side moral hazard. Based on Article 36 of the NHI Act, exemptions for co-payment are allowed for encouraging certain healthcare visit (i.e. preventive health services) and not deterring those disadvantaged group from seeking healthcare because of incapable to pay in terms of the healthcare expense. For instance: catastrophic diseases, child delivery, preventive health services, medical services offered at the defined mountain areas or on offshore islands, low-income households and veterans are exempted from co-payment. Moreover, registered tuberculosis patients who receive treatment at specified hospitals, and patients being treated for occupational ailments who are covered by labor insurance or those suffering from PCB (polychlorinated biphenyl) poisoning are also not subject to co-payments.

Major enhancements in NHI The NHI, since its establishment in 1995, has undergone numerous enhancements, in both of the aspects of delivery and financing.

Delivery There are few measures that have been taken place for further enhancements of NHI in the delivery aspect, as follows:

- (1) Increased coverage—At December 2002, the enrollment rate of NHI is 99.16%, which is much higher than 57% in 1994. As of June 2009, there are 22,928,190 people enrolled in the NHI program, and among the six insured categories, insured in the first category were most numerous at over 11 million persons, accounting for over half of enrollees.
- (2) Contracted majority of healthcare providers—NHI contracted with 97% of the hospital and 90% of the clinics in Taiwan.
- (3) Medical care for the disadvantaged groups—For people who have catastrophic illness such as cancer, chronic mental illness, hemodialysis, and congenital illness, the co-payment was exempted to reduce the financial burden of those who need long term medical care. To increase the accessibility of the disadvantaged group to chronic care, BNHI encourage physicians to issue certificates of chronic illness by increasing

payments to physicians for chronic patients' visits. As of the end of August 2009, more than 77 thousand people, or about 3.3% of all those insured under the NHI program, had valid catastrophic illness certificates. The treatment they received in 2008 cost NT \$ 130.3 billion, or 26.2%, of all NHI expenditures, an indication of the commitment the system has made to helping those with major ailments.

- (4) Medical care to 921 earthquake victims—The BNHI has adopted various measures to reduce the financial burden as well as provide adequate healthcare services to the victims. Special Benefit Program for 921 Earthquake Victims—earthquake victims in major disaster areas were exempted from co-payment and hospital expenses.
- (5) Provide computerized service and upgrade performance efficiency—To increase the convenience and flexibility of NHI, voice service systems and internet systems were developed.

Financing

According to statistics from BNHI, the payments of the program are growing at a rate higher than the premiums, and the expenditure of BNHI have exceeded its revenue since 1998. The financing problem was due to the increased payments, which caused by aging, advance in healthcare technology and rising health demand of the public etc. The problem was worsened by the decreased revenue, which was a result of decreasing the maximum number of payable dependent from 5 to 3, and the limited increasing or even decreasing in salary of the insured under recent economic condition. The average number of dependents per insured has been steadily declining, going from 1.36 dependents in December 1995, to 0.7 on 1st January, 2007. In 2008, the NHI system totaled revenues of NT \$ 402 billion, with 95% coming from premiums. The remaining 5% came from the health surcharge of cigarettes, contributions from public welfare lotteries and investment income. Of the premiums, 39% were paid by the insured, 35% by insurance registration organizations (employers), and 26% by government agencies. To solve the financial problem, measures on both *cost saving* and *increase revenue* were implemented, but BNHI mainly focus on cost saving in the past years.

Cost saving

- (1) Global budgeting—A global budgeting system was phased in between 1998 and 2002, capping overall expenditures (Tables 4 and 5) in four medical sectors—dental (implemented in July 1998), traditional Chinese

Table 4 Per capita medical spending (in USD) (2006)

Taiwan	982
South Korea	1,181
Japan	2,908
UK	3,332
Netherlands	3,792
Canada	3,920
Germany	3,718
France	3,937
USA	6,714

medicine (July 2000), office-based ambulatory care (January 2001), Western medicine clinics (July 2001) and hospitals (July 2002). Another sector, ESRD (end-stage renal disease), has since also come under a global budget.

- (2) Implementation of case payment and pilot projects of capitation payment—From 1998 to 1999, the BNHI included laparoscopic surgery, liver transplantation, and home iron-discharging agent pump in the payment system and fees were adjusted accordingly. In addition, there was a case payment of 50 like-DRGs (Diagnosis Related Groups), representing about 15% of the total medical payments. Besides, the NHI has initiated some pilot projects of capitation payment in remote area and outlying islands. Beginning 1st January 2008, payment for kidney, heart, lung and liver transplants were increased substantially.
- (3) Prevent overuse of ambulatory care—To prevent misuse of the resources as well as increase income, from 1999, NHI increased the co-payment on outpatient drugs, frequent visits and rehabilitation. As a result, the number of visit of outpatient care decreased from 15.4 visits per year in 1999 to 14.4 visits per year in 2001. In 2002, a new increased co-payment rates of outpatient care in regional hospital and academic hospital was introduced to discourage the public with minor illness from self-referred to those major hospitals. Under the fee-for-service system of BNHI, medical centers can get NT \$ 1,350, which is a considerable gain, for each ambulatory visit. There-

Table 5 Growth rates of medical expenditures (1997–2006)

Taiwan	5.1%
France	4.9%
Germany	2.5%
Japan	1.5%
USA	7.2%
Canada	7.2%
UK	7.8%
Netherlands	8.0%
South Korea	11.4%

fore, medical centers tend to expand the ambulatory care. From 1995 to 2000, the number of ambulatory visits provided by medical center and regional hospital together has increased by 61%. To ensure quality and reduce unreasonable expenses, BNHI has increased the payments for reasonable number of outpatient visits and decreased the payments for number of visits exceeding the reasonable number of visits.

- (4) More efficient use of resources—Medical treatments prone to being misused, such as heart transplantation, bone marrow transplantation, radiation therapy, stereotactic radio-surgery, liver transplantation, and some high-technology treatments must be previewed before practicing. Before surgery, these medical institutions should file an application with and obtain approval from the BNHI. To prevent waste in resources, reviews on medical expenses was strengthened and file analysis will be used to formulate reference indicators for review. In prevention of inappropriate use of apparatus, such as bone density inspection, ESWL and liver treatment, a separate project management will be implemented. For cataract and ESWL, a pre-examination regulation will be formulated. In addition, a quality examination of PTCA and a real time reporting system will be implemented for CT and MRI. Besides, the control on use of antibiotics has not only saved resources but also improved the quality of healthcare service. Moreover, a RBRVS (Resource-Based Relative Value Scale) system was adopted in 2004 to further reflect the relative input of medical resources in each medical service. Under the system, relative values are assigned to medical services, with the value of a specific service being assessed based on the medical resources used to provide it. Relative values are also adjusted periodically through consultations with experts from different specialties. The BNHI has its electronic medical record system trace and counsel individuals who make an excessive number of outpatient visits. The program prevents medical waste by guiding these heavy users of the healthcare system on how to properly seek treatment.
- (5) Control drug expenditure—To control the pharmaceuticals expenses (Table 6), the BNHI is working on reasonable drug pricing and investigation of drug

Table 6 Growth rates of pharmaceutical expenditures (1997–2006)

Taiwan	4.5%
Japan	2.8%
Germany	5.5%
France	7.0%
USA	10.3%
Canada	11.8%
South Korea	13.6%

prices. Pricing adjustments based on grouping of drugs with the same ingredients were made for both brand-name drugs and generic drugs with irrational high price in 1996 and 1997. In 1999 and 2000, grouping price for large intravenous and more drugs was implemented. The BNHI has conducted a program “Investigation plan for actual trade price of pharmaceuticals” to adjust the payments for the drugs to avoid false reporting of items and prices of drugs by healthcare providers. From 1999 to 2000, the prices of total 19,209 drugs were adjusted. Starting from January 2001, the pharmaceutical payment in primary care clinic was reduced to NT \$ 25 from NT \$ 35 per day. This policy helped BNHI to save NT \$ 32 million.

- (6) Adjust payment of medical devices—To resolve the price difference among similar medical devices and to rationalize payment, the payment of artificial blood vessels, pressure extension tube, injection needles, injection caps and central venous pressure catheter were adjusted according to their functions. To ease the financial burden of patients who stand to benefit from such artificial ceramic hip joints, artificial intraocular lenses, and metal-on-metal artificial hip joints beginning on 1st December 2006. Also, to reflect technological developments and clinical needs, some 33 procedures and devices, including laparoscopies and thorascopies and incubators for newborn infants, were added to the last of items covered under the program.

Increase revenue Despite collecting the sin tax of tobacco in 2001, BNHI cannot solve its financial problem. Therefore, in 2002, the highest insured payroll-related amount was increased from NT \$ 53,000 to NT \$ 87,600 to increase premium collected. In addition, collection of lottery revenues and increase in premium rate from 4.25% to 4.55% was proposed in 2002. Other measures for increasing revenue are listed as below:

- (1) Collection of premium from local government—Up to July 2002, local governments have owed the BNHI a premium debt of NT \$ 30 billion. Department of Health has determined to overcome difficulties in collecting those premiums from local government and the department will be repaid in several years according to the financial condition of individual local government. Meanwhile, the BNHI will ensure local governments to pay the current premium on time.
- (2) Prevent misconduct of insured and healthcare providers—Comparison between tax data and the insured payroll-related amount was conducted in 2000 to

prevent underpayment of premiums. The BNHI also strengthening audit and review the encroachment on premiums by group insurance applicants, violation on issuance of national health paper card and illegal acquisition of national health insurance paper cards. Healthcare providers found to misuse medical resources will be corrected and may face penalties such as fines, suspension of contracts for 1–3 months, or even termination of contract. The BNHI also holds regular audits on various projects and announces major violations from time to time to intimidate as well as educate the healthcare providers to reduce illegal occurrences.

Achievement of NHI

The principle of the social insurance system was quite simple and clear. A person who held a position in labour market or had contributed to the state was most likely to get comprehensive care from social insurance. Those unable to find a job had access to few benefits from Taiwanese state welfare, unless they could get back to work as soon as possible. The benefits people received were therefore closely related to their value in the labour market, while the unemployed and the disadvantaged suffered most. NHI terminates the relationship between benefit and labour market value, though not completely. Theoretically every citizen should be entitled to NHI, no matter where the premium comes from and its nature as wage or something else. This means that the insured do not need to have a full-time job in the labour market. Furthermore, some disadvantaged groups can have a ratio of their premium contributed by the government on their behalf; in particular, the contributions of low-income households are totally born by the government. We may say that NHI most benefits the non-productive population.

Another area of progress concerns the risk covered by NHI. The medical care benefit attaching to previous social insurance systems most focused on inpatient and outpatient treatment and preventive care was limited to pregnant women. Preventive coverage has now been expanded to include the aged, children under 4 years old, females over 30 years old and males over 40 years old. Moreover, residential care is another benefit provided by NHI, which is totally absent in the past [1]. A more comprehensive health service system is being established to meet the three health service needs of prevention, treatment and care. Equality in access to healthcare is improving as well. Within the health insurance card system, the insured can gain access to every contracted medical agency. In the past, medical agencies made contracts separately with different social

insurance system as well as for different services and items. An insurant under labour insurance could only gain access to medical agencies which had a link with this particular system, and they would find that the medicines and treatments provided were different from those under other social insurance systems. Doctors were required to ask patient's status in order to decide which treatment should be offered. This was thus inequality not only between the productive and non-productive population, but also between people with different kinds of social insurance. NHI integrates the varied medical care benefits in all other social insurance systems into a unified system within which every insurant's treatment is equal. Finally, though it is difficult to assess the service quality of the NHI, the level of people's satisfaction with it is a relevant indicator. More and more of the Taiwanese satisfied with the performance of NHI. About two-fold increase in the satisfaction rate from 1995 (39%) to 2001 (71.1%) was largely due to the removal of financial barrier care for those newly insured and full coverage extended to chronically ill patients. These many advantages have made it one of Taiwan's most successful public programs, with satisfaction ratings consistently above 70%. The NHI system faced considerable challenges and resistance when it was first put in place, and public satisfaction with the program at its inception stood at below 40%. Today, nearly 80% of local residents are satisfied with the system, a reflection of the public's recognition of the Bureau's efforts over the past 15 years. Although the system's satisfaction rating plummeted in 2002 when premiums and co-payments were raised, it quickly recovered to 77% a year later and has remained near 80% the past 2 years.

*NHI Public satisfaction ratings—2009

(Satisfied) 83%

Challenges

Prior to March 1995, only 59% of Taiwan's population had health insurance. In view of the rapidly growing medical care cost and the increasing number of elderly, Taiwan has decided to launch the National Health Insurance which can provide universal medical care. At the end of 2000, there were 96.16% of total population covered by NHI and the public satisfaction level had reached 78.5%. Also, by the end of 2008, 99.48% of the population was enrolled in the program. While everything about NHI seems so perfect, there are some challenges are unveiled and they may be critical to the success of NHI in the future. First of all, aging becomes a serious problem in every part of the world

and Taiwan of no exception. The age above 65 in the population has increased 10.6% from 1990–1996 and their medical expenses has increased 50% from 1996–2000. In addition, the total healthcare expenses over the whole population has increased 34% from 1995–1998. During this period of time, the cost per enrollee has increased 20%. In the outpatient cases, the expenditure has raised 41%. It may due to increase in quantity and drug expenses. While in the inpatient cases, the expenditure has raised 21%. It is not the matter of length of stay but increase in the cost per admission. In terms of severe chronic diseases, the medical expense on those patients has increased 44%. On the other hand, the ambulatory visits and the number of inpatient days in regional hospitals and medical centers were increased 61% and 105% respectively. It was because the higher reimbursement rate could be claimed over the local hospital. Moreover, the patients tend to search for physicians with a higher qualification and more expensive services because they enjoy the low cost-sharing system and the free for choice of service. The lack of referral system also made this situation worsen. Since the launch of NHI, the average growth rate of expenditures was 6.26% while the revenues was 4.26%. In 1998, the expenditures became higher than the revenues. If the situation did not change, the saving may be used up in the end of 2002. Therefore, the BNHI has to take some instant measures and long-term policies to deal with the challenges and further improve the financial status of NHI.

Part II

In this section, we attempt to illustrate the measures and policies of the healthcare system in Taiwan after the inauguration of NHI in 1995 through the following areas: *capacity building, access, cost containment, efficiency and quality assurance.*

Capacity building

Establishment of medical care network

In 1985, Taiwan healthcare system had showed an imbalance distribution of medical care resources and lack of overall planning and co-ordination amongst the various medical care systems; may they be the private or the public, in operation. In view of the situation, the Department of Health had taken action to set up a regional medical care network in order to build up a sound medical care system to meet the development of the National Health Insurance

program. This project under the title of “Health and Medical Care Plan” was then initiated in the Taiwan area in July 1985. The project was set up in 3 phases for the duration of 15 years, it was completed the last phase by year 2000. The objectives of the project were:

- (1) To balance the development of medical care resources in various areas;
- (2) To allow medical manpower and facilities to grow at reasonable rate and in full operation;
- (3) To upgrade the quality of medical care services;
- (4) To make available and accessible to every citizen in need the most adequate health and medical care service.

The first two phases were to balance the medical resources for primary, secondary and tertiary cares, which took 10 years from 1985 to 1995, then the third phase would commence from 1996 to 2000 which would focus on long term cares, rehabilitation care and strengthen the medical care services in the mountain areas and off-shore islands. The project had divided the Taiwan area into 17 medical care regions. Each region is used as a basic unit for the development of both medical care manpower and facilities and was co-ordinated by a regional co-ordination committee to manage matters concerning health and medical care services. The 17 medical care regions are further subdivided based on population size, geographic conditions and transportation facilities into 63 subregions for the improvement and development of district hospitals. Another initiative was set up to encourage private sector to establish medical care institutions in areas with relatively poor medical care, the Medical Care Development Fund is used for subsidizing the interests on loans for the private sector. The goals for the project were to accomplish the follow targets by year 2000:

- 13.3 physician per 10,000 population;
- 35 hospital bed per 10,000 population;
- 10 psychiatric bed per 10,000 population;
- 35.2 nursing home bed per 10,000 elderly.

Medical care system in 2000 and 2010

Primary care Primary care in Taiwan is consisted of a combination of Western and traditional Chinese medicine clinics, majority of these are privately operated Western medicine clinics. In 2000, there were 11,863 clinics in Taiwan, 96% were private clinics and 9,402 clinics were practicing Western medicine. The Bureau of National Health Insurance had contracted 88% of the private clinics into the program, which the citizen could have access to over 10,500 clinics and over 18,000 doctors in the area of Taiwan, the population to doctor ratio in 2000 was 15

doctors per 10,000 population. The government also operated 368 health stations and 500 health rooms in the mountain and island areas—details of how they operated will be discussed in the topic on barrier of accessing to medical care.

The BNHI launched a family doctor plan in March 2003 as part of its effort to promote integrated primary care continuity with referrals for more specialized treatment when needed. The program enabled families to obtain primary care through local clinics or neighborhood doctors who are networked with contracted hospitals. These general practitioners serve as preventive medicine consultants who develop complete medical records for every member of the family and provide information on demand.

Dental care

There were 5,550 dental clinics in Taiwan, and they were all privately operated, the NHI contracted 97% of these clinics in 2000 for the program.

Secondary and tertiary care

There were 602 private hospitals and 98 public hospitals in Taiwan in 2000; they had a combined 126,476 beds with 85,552 and 40,924 from private and public, respectively. The NHI had contracted 90% of private hospitals into the program including teaching hospitals and tertiary care hospitals. These hospitals were mainly practicing Western medicine with a few of traditional Chinese medicine. The ratio of hospital bed per 1,000 populations in 2000 was 5.7 beds per 1,000, and 3.2 beds per 1,000 in 2007.

Preventive care / early detection

(1) Children health

Free vaccinations—A strong preventive care program has been implemented in Taiwan offering free vaccinations to infant and children for hepatitis B, poliomyelitis, measles, mumps, rubella, Japanese encephalitis, tuberculosis, diphtheria, pertussis and tetanus.

Comprehensive health checks—Six health examinations for all infants and children up to the age of 3 years old are conducted at clinics and hospitals. Growth and development norms, as well as recommended daily dietary allowances are also charted. Starting from 1998, the Ministry of Education and the DOH had implemented mandatory health record for all elementary school student which updated biannually to record each student’s height and weight, eyesight, auditory and ENT conditions, oral hygiene, spine and

chest, skin, cardiac, and pulmonary system, and abdomen, as well as an examination of eye disease, parasites, diabetes and other health problems. Parents and local health units will each receive a copy of the student's health records for follow up inquiries and future reference.

Vision check ups—Since 1995, visual screening has been conducted in every city and country allowing the early detection of myopia, strabismus and amblyopia for preschool children by the age of five. By 2000, about 260 ophthalmologists were providing special outpatient services for students experiencing vision problems. The DOH has implemented a vision protection and screening program that includes preschool children and special occupational groups.

(2) Maternal care

The NHI program currently provides prenatal and postnatal care for early detection and treatment of pregnancy related diseases ensuring safe deliveries and maintains the health of both the infants and mothers. The Genetic Health Law *provides a legal basis for health services*, such as premarital health examinations, prenatal diagnosis, neonatal screening for congenital metabolic disorders and genetic counseling. In 2000, there were 722 institutions providing one or more of these services and about 99.1% of all newborns were screened.

(3) Adult and geriatric health

Currently, persons over 65 are entitled to free blood pressure, blood sugar and blood cholesterol tests at local health stations, and family records are kept at all health stations for efficient follow up care. As a preventive measure, adults over 40 years of age are encouraged to take the cardiac, diabetes and hypertension tests regularly.

(4) Cancer control

Cancer has been the leading cause of death in Taiwan since 1982, claiming 37,222 lives in 2005. Among men, the five most common forms of cancer were liver, lung, colorectal, oral, and stomach cancer. Among women, they were cervical, breast, colorectal, liver, and lung cancer. Following the promulgation of the Cancer Control Act in 2003, a five-year national cancer control program was implemented in 2005.

Cervical cancer—Since 1st July 1995, National Health Insurance has covered cervical smear tests for women aged 30 and over. In 2000, testing was conducted on about 2 million women, a 34.3% of women in this age group.

Breast cancer—Breast cancer programs focus on preventive measures; promoting self examinations and professional check up once every year are set up in 2000.

Oral cancer—In 2000, the DOH has started checking 500,000 habitual betel nut chewers for oral cancer and precancerous lesions. The DOH also formulated a community cancer screening spot check plan. The goal of the plan is to provide free cervical smear tests for 5.87 million over 30 years old, conduct breast palpation of up to 4.95 million women over 35 years old.

(5) Occupational disease

Taiwan has 6 occupational health promotion and protection centers located in the following institutions: Tri-Service General Hospital, Chang Gung Memorial Hospital, Changhua Christian Hospital, Kaohsiung Medical University Hospital, Chi-Mei Foundation Hospital and Tzu-Chi Hospital. These occupational health promotion and protection centers provide diagnosis, treatments, follow-up assessments and referrals. In addition, they offer free consultation services to public and private enterprises. Another 37 medical institutions provide special outpatient services for occupational diseases. In 2000, around 428 medical institutions were qualified to detect black lung disease and to conduct ordinary and special health examinations for workers.

(6) AIDS

The Acquired Immune Deficiency Syndrome (AIDS) Control Act was promulgated in December 1990 to provide free screening and treatment for patients and to deal with those who are HIV-infected and yet knowingly transmit the disease to the others. In order to battle AIDS, the DOH has initiated phases of prevention plans; the first phase was from 1994 to 1996, the second 1997 to 2001 and the third 2002 to 2006. The major measures include:

- (1) An immediate report system within 24 h of discovering an HIV or AIDS patient;
- (2) Free medical care to confirmed patients;
- (3) Comprehensive blood screening system;
- (4) Testing of HIV blood centers after 1st July 1995;
- (5) More education on AIDS;
- (6) Better training of physicians, nurses and health administrators;
- (7) Research and development.

People who suspect that they might be injected are now encouraged going to public health centers across the island or to the 25 hospitals authorized by the DOH to conduct free HIV tests.

Long term care

According to the 1996 Report of Status of the Elderly in Taiwan issued by the Ministry of the Interior, 56% of the

elderly had some chronic diseases, one out of ten of these required help, and one third of them had cardiovascular disease.

Approximately 92,000 elderly were unable to attend their daily life and needed help. From this report, the Department of Health has set a “3 year plan for the long term care of the elderly” started from 1st July 1998 to 30th June 2001. The plan required a budget of NT \$ 1.1 billion, a total of 10,000 beds is planned for elderly homes, and the strategies of the plan were to:

- (1) Establish effective channels for medical care and social resources;
- (2) Provide dependent elderly and their families with assistance;
- (3) Provide government funding and consolidate private sectors and hospitals;
- (4) Encourage establishment of more nursing home;
- (5) Develop manpower for long term care;
- (6) Increase community care resources and encourage home care;
- (7) Plan for long term care insurance.

In 2000, there were 299 hospitals providing services for 672,032 person case for chronically ill elderly whom required home care. There were also 507 institutions providing nursing and caring homes for 14,094 elderly. 19 day care centers were set up to provide care for 245,677 person cases. For cancer and chronic patients, the Sun Yatsen cancer center provides home care for cancer patients and there are 8 chronic hospitals for chronically ill patients. In terms of rehabilitation, there are 147 hospitals providing services for drug rehabilitation and there are also 46 psychiatric centers.

Performance in 2000 against goals set in 1985

Below lists out the comparison of the achievement of NHI against the goals set in 1985 in the aspect of capacity building.

[Goals of the Project by 2000]	[Health Status in 2000]
*13.3 physicians / 10,000	**15 physicians / 10,000
*35 hospital beds / 10,000	**56.8 hospital beds / 10,000
*10 psychiatric beds / 10,000	**6.7 psychiatric beds / 10,000
*35.2 nursing home beds / 10,000 elderly	**507 nursing homes for 14,094 elderly

Access

In terms of the access of medical services, the BNHI has made some arrangements to improve the accessibility

especially in the removal of geographical and financial barriers.

Removal of geographical barrier

In Taiwan area, there are 30 townships in the mountain regions and 8 on the outlying islands. The residents in those areas are difficult to reach the regional hospitals and medical centers. Therefore, local health stations and health rooms became their major source of medical services. Health stations are community-oriented. They provide the basis of primary healthcare such as general outpatient treatment, emergency medical care, educational programs, family planning and prevention. All health rooms in mountain regions can offer standard diagnosis treatment, testing, X-ray and ambulance equipment too. In response to the implementation of NHI, the DOH has actively improving facilities of health stations and health rooms and improving the special skills of doctors and nurses in order to increase the quality of medical and health treatment in the mountain regions and on outlying islands. Since 1979, the government has been sending the mobile services. In 1995, a specific boat was built for mobile medical purpose. Due to the improvement in telecommunications, the medical care network was built in 1989. Until 1995, there were totally 145 points of service in various remote areas. Teaching hospitals, medical centers, and regional hospitals have joined the network to offering help in patients' consultation. The network also serves as a platform to provide training for medical personnel. The BNHI also adjust the payment scheme by increasing the diagnosis and treatment fee for doctors to provide more incentive to serve in remote areas. At the same time, people who live in remote areas can enjoy a low co-payment rate in using the medical services. All these measures which mentioned above can effectively remove the geographical barriers and offer convenience in assessing the medical services. The BNHI initiated an Integrated Delivery System (IDS) in November 1999 that now covers all 48 mountainous and island districts in the country and benefits over 400 thousand people. Under the program, more than 20 NHI-contracted hospitals rotate medical personnel in and out of the areas to provide medical support services that include outpatient care, 24-hour emergency services, evening and overnight outpatient care, specialty services such as eye, dental and gynecological care, and mobile healthcare. In 2008, the IDS program offered an average of 1,793 specialty outpatient sessions per month at a cost of NT \$ 459 million for the year. The additional outpatient services, along with those regularly provided by local hospitals and clinics, drew 4.59 million patient visits at a total cost of NT \$ 3,431

billion. The IDS program had a 90% satisfaction rating as of 2008, with 100% satisfaction in the mountainous Wulai district of Taipei County, and 99% satisfaction in Nantou County's Renai Township and in Pingtung County's Majia and Sandimen townships.

Removal of financial barrier

When people who are facing the financial problem and found difficult in paying the insurance premium, there are some regulations can helping them and none of them would be rejected to receive medical treatment if necessary, such as the premium subsidies, relief fund loans, sponsorship referrals, and installment plans.

First of all, the BNHI can offer non-interest bearing loan from Premium Relief Fund to assist people with financial difficulties. The labor insurance will pay the premiums for those people who are unemployed. There are some charity organizations also can offer assistance. For people who age above 70 or categorized into low-income group, they do not need to pay the premium. In some situation, co-payment can be waived such as patients who are suffered from catastrophic diseases like cancer, chronic mental illness, hemodialysis and congenital illness. These illnesses involve medical expenses are too high for an average family to afford. In addition, the preventive health services and child delivery also with no co-payment. Low-income households and veterans can apply for the exemptions. The main theme behind these regulations are provided a safe net in the society to ensure everyone can enjoy healthcare services without delay.

Cost containment

Cost control has been a great challenge of NHI since its establishment in 1995. To control the cost, NHI not only focuses on the supply side strategies, but also the demand side strategies.

Supply side strategies

After the establishment of NHI, among those previously uninsured, per capita outpatient visits increases by 129%, and even among the previously insured group, per capita outpatient visits increased by 23%. Under the present fee-for-service system, not only are these increase caused by patient-initiated visit, but physicians, to maximize revenue, may also contribute to the increase through providing more services and charge higher fees, knowing patients do not pay the full cost of share. In addition, there may be a possibility of patient-physician collusion through charging for more visits by physicians than

actually occurred. Since under a fee-for-service system, healthcare providers have a strong influence on the level of medical care demanded by patients, to prevent the healthcare providers from providing excessive services and control payments under the present system, NHI has implemented global budgets, payment system as well as some administrative measures.

Global budgets

Dental global budget was implemented in 1998, and the NHI Cost Arbitration Committee has negotiated a 3.32% growth rate for medical expenditure per person starting 1st January 2001 (not including population growth). Meanwhile, global budget for Chinese medicine was started on 1st July 2000, with a medical expenditure growth rate of 6.33% for the first half of the year, and 3.0% for the latter half of the year (not including population growth). On 1st January 2001, the office based ambulatory care was implemented. Finally, hospital was included in global budgets on 1st July 2002.

Payment systems

The global budget payment system has been successful in containing the annual growth in the health insurance system's expenditures with spending growth leveling out at below 5% a year since it was fully imposed in July 2002. From 1998 to 1999, the BNHI has continued to include laparoscopic surgery, home iron-discharging agent pump, liver and lung transplantation in the payment standard and fees were adjusted accordingly. As NHI is not only reviewing payment items and the method of classification, but also actively promote the primary diagnostic group, there were additional 50 DRGs applicable to case payment. Furthermore, there were some pilot projects of capitation payment in remote area and outlying islands. The average growth rate of drug expenditure in 1998 and 1999 was 12%. To reduce the payments in drugs, BNHI is working on reasonable drug pricing and investigation of drug pricing. Pricing adjustments were made for both brand-name drugs and generic drugs with irrational high price in 1996 and 1997. To rationalize the pricing principle, and to reduce the price difference of drugs with same ingredients and same contents, classification and grouping of prices have been conducted between drugs with same specifications. Starting from 1999, grouping prices for large intravenous dip like normal saline and dextrose, as well as other 100 drugs items like Aspirin were implemented. To stop healthcare providers from making false reports on drug items of patients' prescriptions and from using low-price drugs but claiming high-price drugs, the BNHI continues to investigate into this behavior.

Under the program “Investigation Plan for Actual Trade Price of Pharmaceuticals”, the prices of total 19,209 drugs were adjusted. As a result, the growth of drugs expenditure reduced to 3.12% and 1.72% in 2001 and 2002, respectively. For medical devices, to resolve the price difference between similar medical devices, the payments of artificial blood vessels, transfusion tube, injection needles, injection caps and central venous pressure catheter were adjusted according to their functions.

Administrative controls

There were penalties on healthcare providers proven to misuse medical resources. In year 2000, a total of 633 cases were fined, suspended or terminated in contracts. The BNHI also holds regular audits on various projects and announces major violations to intimidate as well as educate the healthcare providers to reduce illegal occurrences. Up to 31st December 2001, 855 cases were sent to judiciary units due to violations committee and fraud reporting of medical claims.

Demand side strategies

To prevent the insured from misuse and overuse of medical resources, co-payment system of both hospitalization and outpatient service were introduced and reviewed.

Hospitalization

As there is no rapid increase in hospitalization after the establishment of NHI, the co-payment rate remained unchanged throughout these few years. The co-payment rate is 5% to 30% (Table 7), with co-payment rate increased with increase in duration of hospitalization. Under 30 days in the acute ward or 180 days in the chronic ward, the ceiling is NT \$ 24,000 (NT \$ 29,000 in 2010/6% of national income) per admission. The upper ceiling of co-payment for the entire calendar year is NT \$ 40,000 (NT \$ 48,000 in 2010/10% of national income).

Outpatient service

For the outpatient services, as in 1997 and 1998, there was rapid growth of expenditure in rehabilitation and drugs, respectively, from 1999 to 2001. To shape the cost consciousness of the insured, additional co-payments were

levied on pharmaceutical expenses, frequent users, and rehabilitation therapy. The co-payments are summarized as follows:

(1) Pharmaceutical co-payment (depends on drug expense)	max. NT \$ 200
(2) Physical rehabilitation co-payment (highest in academic hospital)	max. NT \$ 210
(3) Frequent user co-payment (increased with increase in visits)	max. NT \$ 100

1995 and 2000, the number of ambulatory visits provided by academic hospitals (medical centers) and regional hospitals together has increased by 61%. To discouraging the insured from self referred to the academic and regional hospitals, there was an increase in co-payment of outpatient services (Table 8) in those hospitals starting from 1st September 2002. The outpatient care co-payment in academic hospital (medical center) was increased from NT \$ 150 to NT \$ 210 and the co-payment in regional hospital was increased from NT \$ 100 to NT \$ 140. In addition, the laboratory and examination co-payment was increased from 0 to max. of NT \$ 300.

Comparatively, the co-payments in the above two hospitals are much higher than those of clinic and district hospital, which is NT \$ 50, without lab. and exam. co-payment for outpatients. The co-payments for outpatient and emergency care were adjusted several times during the system’s first 10 years.

The co-payment fee for a visit to a clinic is NT \$ 50. If patients go directly to hospitals for outpatient care without a referral from a clinic or another hospital will pay a higher co-payment. The co-payment for visits to dentists and traditional Chinese medicine clinics is uniformly NT \$ 50. Follow-up rehabilitation or traditional Chinese medicine treatments for the same course of therapy also carry co-payments of NT \$ 50. The outpatient co-payment for disabled persons is fixed at NT \$ 50.

Efficiency

Use of Internet (IT)

The BNHI is striving to upgrade performance efficiency and achieve government through a more convenient and timesaving service to the public. In order to enhance the efficiency, a series of IT facilities are employed.

Table 7 Co-payment rates for inpatient care

Ward	(Co-payment rate)			
	5%	10%	20%	30%
Acute		30 days or less	31–60 days	61 days or more
Chronic	30 days or less	31–90 days	91–180 days	181 days or more

Table 8 Co-payment schedule for outpatient care

Level of service provided	Co-payment fee
Clinic	NT \$ 50
District hospital	NT \$ 50
Regional hospital	NT \$ 140
Academic hospital (Medical center)	NT \$ 210

(1) Digital accreditation procedures

Medical practitioners have been working hard to improve the quality of medical services and hospital are gradually realizing the importance of hospital accreditation and accepting it as one of the most important tools for evaluating medical management quality. To cope with the challenges of the digital era, a website: www.tjcha.org.tw was established in order to offer services for hospitals. Hospital can apply for accreditation through the internet beginning from 2000. A database for providing applications information was established. Experts will be able to use the database for analysis and important reference for setting policies in the future.

(2) Cross-branch operation at one counter system

The BNHI has many offices at six branches in Taiwan. The public can receive complete service after submitting an application at one office, without having to make several trips since computer systems are connected in all branches.

(3) NHI Internet

Public can get information through the internet in the shortest possible time. The public may also communicate and share opinions with BNHI via e-mail, establishing an interactive communication with the BNHI. People may inquire about the BNHI's public announcements on the BNHI websites.

(4) Voice service systems

To serve the public who does not have access to the internet, the BNHI has developed the voice service system. The call-in services enables the public to make inquiries regarding the following matters: unpaid premium, re-issuance of a premium bill, codes for new group insurance applicants, and premium deduction regulations etc. The call-out service includes the followings: voice mails for noticing of insufficient back deposits, and notice to the insured for failure to pay a premium within a grace period.

(5) National Health Insurance IC card

This “all-in-one” card, officially launched in January 2004, allowing convenience when seeking healthcare services. Through the NHI IC card, they could inquire such information on insurance or outstanding premiums, medical records, etc. More-

over, the insured have access to more than 18,000 contracted healthcare facilities around the country offering inpatient and ambulatory care, dental services, traditional Chinese medicine therapies, child delivery services, physical rehabilitation, home nursing care, and chronic mental illness care among others. It would provide medical institutions with simplified outpatient procedures, increase the accuracy of medical expenses report information. The applicants are spared the inconvenience of renewing card administrative procedures. The BNHI could integrate various medical vouchers, reduce chances of abuse and reduce redundant inspections. As a result, the BNHI can more easily realize its objectives of simplified procedures, convenience for the public and to mitigate medical expenses.

(6) On-line data exchange of all banks

The electronic gate project allows electronic data exchange of all banks currently engaged in collection of premium expenses on BNHI's behalf and exchange in changes on information on insured in 369 villages and municipalities.

(7) Search functions for important medical orders

Starting January 2001, the 2nd generation Medical Payment Information System provides real-time search functions for important medical orders in various medical institutions through the Internet. Also, medical institution may conduct an on-inquiry on reporting of CT and MRI to provide more convenient electronic services.

(8) Broadband networks for NHI network

The network is upgraded to high speed and broadband networks. The performance of internet transmission and network traffic are greatly enhanced.

(9) Develop major healthcare information applications

Develop on remote medical services, establish health-related website evaluation competition system, establish and maintain long-term care information network, establish and maintain emergency medical information system, promote online medical public convenience services.

(10) Internal management

Document management: Develop an on-line inquiry in a CD-ROM Management Inquiry System for Filed Documents.

Personnel management system: BNHI staff can conduct an on-line application for leave and overtime as well as conduct on-line inquiry on data relating to the attendance data and business trips.

Administration support management: library inquiries, news clipping inquiries, pre-registrations of conference rooms, inquiries on procurement project.

Headquarter and its branches can use video-conferencing to conduct meetings. To cope with the

heavy loading of claims reviewing, the BNHI has developed an automated claims review system with its own internal logic that can weed out those that do not conform to the NHI fee schedule, the drug list, clinical guidelines, patient conditions (such as age, gender, and indications), and etc. It also helps to conduct profile analysis to monitor service utilization abnormality among hospitals. Those outliers will be picked up to undergo underlined peer view.

(11) Virtual Private Network (VPN)

The Bureau created a “Virtual Private Network” (VPN), which links it to hospitals and clinics, and other internet-based tools that provide other health-related information to the public. Now almost all contracted healthcare institutions have joined the VPN systems.

(12) Picture Archiving and Communication System (PACS)

In September 2006, a Picture Archiving and Communication System (PACS) to audit expense claims (including written information and images) was launched to help medical institutions electronically report their expenses.

(13) Multiple authentication internet platform

In January 2006, the Bureau updated its general services operating system and created a “multiple authentication Internet platform”, offering diversified online services that are periodically updated and expanded. This operating platform can also be accessed by other associations authenticated by the government.

clinics, home nursing care institutions, psychiatric community rehabilitation centers, physical therapy clinics and others.

To provide convenient and comprehensive healthcare services to the public, the BNHI has increased the number of its contracted healthcare providers. As referred to Part I—Delivery of this report, as at December 2000, there were 16,332 contracted healthcare providers, an increase of 163 from the previous year with a contracting rate (i.e. share of all institutions nationwide) of 90.47%. In addition to the contracted healthcare providers, the number of contracted pharmacies stood at 3,061, the contracted medical laboratories number 230, the contracted midwife clinics numbered 18, the contracted community psychiatric rehabilitation facilities numbered 38 and the contracted home care institutions (including home care services) numbered 304 for a total number of 19,983 contracted healthcare providers to meet different demands from the public. As of December 2000, there were 113,821 beds provided by NHI contracted healthcare providers, of which 88.2% were acute beds, 11.8% are chronic beds of which, NHI fully paid for 87,926 beds, patients paid for price differentials on 25,895 beds (Table 9).

By the end of 2001, 16,558 medical institutions, or 91% of all medical institutions, in the Taiwan area had joined the NHI program. 96.5% of all private and public medical care institutions have signed contract with the National Health Insurance to provide medical care services. As of August 2009, 18,936 hospitals and healthcare providers, or 92.47% of all healthcare facilities in Taiwan, were contracted by the NHI system. Another 4,370 pharmacies, 483 home nursing care institutions, 153 psychiatric community rehabilitation centers, 15 midwife clinics, 201 medical laboratories, 17 physical therapy clinics, 8 medical radiology institutions, and 1 occupational therapy clinic were also contracted with

Contracts

The healthcare institutions the BNHI contracts include hospitals, clinics, pharmacies, medical laboratories, midwife

Table 9 National health insurance beds (2000), (2003–2008)

Types	Number of beds		Differential bed	Total	%
Chronic beds	12,863		529	13,392	11.8%
Acute beds	75,063		25,366	100,429	88.2%
Total	87,926		25,895	113,821	100%
	(2003)	(2005)	(2006)	(2007)	(2008)
Acute beds per 1,000	3.04	3.095	3.10	3.2	3.11
Acute psychiatric beds per 10,000	2.4	2.55	2.78	2.87	3.0
Psychiatric beds per 10,000	6.3	6.65	6.72	6.83	7.0
Acute care hospital beds per 1,000 people (2007)					
Taiwan	3.2				
UK	2.6				
USA	2.7				
Germany	5.7				
Japan	8.2				

the BNHI. A fee schedule covering more than 4,200 medical service items, 6,400 medical devices and materials, and 16,000 drugs, remains the main base used by the Bureau to reimburse providers with a pre-decided reimbursement cap. As of the end of 2008, 4,323 services, 7,328 medical devices and 16,511 drugs were covered under the program. Of the drugs, 15,273 were prescription drugs, 1,169 were over-the-counter drugs and 69 were orphan drugs. As of June 2009, there were 318 community healthcare groups in existence, with 1,795 clinics, or 19.06% of the country's total, and 2,042 doctors, or 15.92% of the total, participating in the program.

Competition

Since over 96% of all privates and public medical care institution have signed the contract with National Health Insurance, there is absence of sufficient price competition and lack of external competition. However, the internal competition is great since the launching of NHI. There are 32 DOH supervised hospitals and 16,322 contracted healthcare providers. Under the fee-for-service (FFS) medicine, the more clinicians do, the more money they make. Owing to the economic growth, the demand for better hospital services is become greater and greater. In order to increase the competitiveness and improve service quality, hospitals conduct customer satisfaction survey and focusing group. ISO standard is also implemented.

Quality assurance

Accreditation

In recent years, calls for reforms of the medical education in Taiwan have been increasing. Many medical schools have moved to restructure their teaching method. Popular reform includes small group teaching, as well as problem-based learning (PBL). These varied reforms have led to increased disparities in the content of the medical education between different medical schools. All these highlight the need to provide an objective measure of the quality of medical education, so as to ensure that physicians are trained to provide adequate level of care for their patients. To do so, countries around the world relied upon a complete and systematic method of accreditation of medical schools. In Taiwan, it is also call for the development of accreditation was done by National Health Research Institute (NHRI) which evaluate the medical school in 5 criteria (www.nhri.org.tw):

- (1) Design and implementation of the curriculum;
- (2) Content of curriculum;
- (3) Evaluation of students' academic performance;

- (4) Student recruitment, academic counseling, career planning and the overall learning environment;
- (5) Utilization of teaching resources: funding, general facility, teaching facility, library and resources of clinical education.

Besides the medical school, hospital accreditation was also launched in 1978 and implemented by Taiwan Joint Commission on Hospital Accreditation (TJCHA). It aimed to upgrade the quality of medical care and to identify well-organized clinical teaching institution for medical students and residents (www.tjcha.org.tw). Senior physicians, nurses, pharmacists and hospital management specialists will visit and assess the hospitals based on a set of standards and operational procedures. The accreditation will be valid for 3 years and then the hospitals are required to apply for reassessment. By the end of 2000, 497 hospitals are qualified. The clinics in Taiwan are not subject to accreditation. They are required to apply for an operation licence. The requirements of licensing are set by local health station and the clinics are subject to periodic inspection by local health station personnel. They must be passed so as to renew their licenses.

Knowledge management

Taiwan is a heavily populated region with 23 million people living on a major island of 36,188 km² surrounded by several small isolated islands. On the average, there is approximately one physician per 800 people in Taiwan. However, most of the medical resources are unequally distributed in several big cities. The top 10 medical centers are all located in urban area, which consumed 1/4 of the national health expenditure. On the other hand, the medical resources and medical manpower are under-distributed in rural area. There are two reasons why medical personnel are unwilling to practice in rural areas [2]:

- (a) They are afraid of isolation from their peer;
- (b) They lack of chance to receive continuing medical education (CME) in rural environment.

In fact, practicing medicine in rural area is challenging. One must face and solve problems by oneself because of difficulties of distance and resources. Telemedicine is useful to solve this problem in Taiwan [2]. The development of telemedicine in Taiwan began under the National Information Infrastructure (NII) project. The NII Steering Committee is responsible for NII development. Significant progress in NII development has been made in the past years. In applications development, environmental project, such as distance education, teleconsultation, video-on-demand (VOD), and electronic library were launched and are progressing smoothly.

Standardization of clinical protocol

The main aim of standardization of clinical protocol is to prevent abuse use of medical service as well as misuse of budget. Bureau of National Health Institute (BNHI) specifies a list of treatment for different kind of illness. For those treatments which are not listed must be approved by BNHI. It ensure that the patient obtained same treatment no matter which hospital they go to. The Bureau started planning for a Taiwanese version of the DRGs since 2000. The classification framework of Tw-DRGs has been developed to reflect the local healthcare needs. The Bureau has but adopted 111 diagnosis-related groups into practice since January 2010 and would take 5 years to phase in the complete system.

Further coverage in Taiwan

NHI has covered over 96% of population in Taiwan. It is said to be well-covered, e.g. in 921 earthquake, all patients were waived of co-payment. Many people believed that private insurance market was insignificant in Taiwan. However, it is found that there is a rapid growth in the Taiwanese demand for private health insurance after the establishment of NHI [3]. We found that higher income and education levels are associated with increased probabilities and larger quantities of private insurance purchases. Married females, the employed, and the household heads working in state-run enterprise are more likely to purchase private insurance than their counterparts. The NHI system covers most forms of treatment, including surgeries, and related expenses such as examinations, laboratory tests, prescription medications, supplies, nursing care, hospital rooms, and certain OTC drugs. The system also covers certain preventive services, such as pediatric and adult health exams, prenatal checkups, pap smears, and preventive dental health checks, with the health promotion expenses from Bureau of Health Promotion. The NHI guarantees all Taiwanese access to healthcare regardless of their financial position. The medical care services covered outpatient care, inpatient care, dental care and prescription drugs. Although this program is generous, it does not provide 100% coverage of medical expenses. Patients are required to make co-payments when they receive outpatient or inpatient care, dental care, emergency care or Chinese medicine services. Ideally, these co-payments provide an incentive for patients to limit their medical visits, and thus limit the medical visits incurred by the government. In the case of Taiwan, even with the patient co-payments, medical expenditures increased rapidly since 1995 and the program began running financial deficit in 1998. With the Asian Financial Crisis of 1998 and resulting economic slowdown, one should expect a slowdown in medical usage. In Taiwan, the growth rate of medical expenditure was still over 10% suggesting that health services are a superior good

when compared to the Gross Domestic Product (GDP) growth rate of only 4.8%. Thus, it is doubtful that the co-payment system was effectively overuse of the medical system. As a result, the government adjusted the co-payment policies in 1999. One of the primary medical services with rapid growth is outpatient care. According to the recent statistics, outpatient expenditures were 68% of total medical expenditures and national average outpatient visits exceeded 15 visits per person in 1998. With the implementation of Article 34, NHI may adopt deductibles if the national average ambulatory care exceeds twelve visits per person per year for two consecutive years as a cost-containment method to reduce moral hazard. Instead of employing these deductible, the authority introduced co-payments for prescription drugs, an increase in co-payments for excessive medical visits, and another co-payment policy in rehabilitation services in August 1999. Thus, the Taiwanese government is rationing excess demand for medical care in Taiwan through co-payment policies. To reduce the increased potential private financial burden, some beneficiaries may try to purchase private health insurance for co-payments. Thus, rather than operating as substitutes, the Taiwanese public and private health insurance system appear to be complementary.

Part III

To carry out policy evaluation, we would like to firstly know the objectives of the NHI as follows:

- (1) To provide equal access to adequate healthcare for all citizens in order to improve the health of the people;
- (2) To control healthcare costs at a reasonable (or socially affordable) level;
- (3) To promote efficient use of healthcare resources.

The following sections will try to analyze the NHI system in Taiwan by going through three general evaluation criteria, namely: *quality*, *equity* and *cost efficiency*.

Evaluation criteria—*Quality*

From 2005 to 2009, 73 quality indicators were posted on the internet and had received 2,915,206 hits as of the end of December 2009.

The quality of healthcare service can be evaluated by the following criteria:

- (1) Technical quality;
- (2) Consumers defined quality;
- (3) Input;
- (4) Process;
- (5) Outcome.

Technical quality

The quality of doctors and nurses or other healthcare professionals are ensured by the qualifications required and relevant examinations offered by the examination authority. Overseas qualifications are subjected to the approval of DOH. Doctors should be graduates of medical schools or universities with suitable internship. After passing relevant examinations and joining local professional associations, graduates can be registered and practice as doctors. The registration will be renewed every 6 years with evidence of sufficient continuous education. Physicians may apply for specialist license after being certified in corresponding specialties. At February 2000, there were 28,518 specialists has been certified. Nurses should be graduates of nursing college or university with 2 years internship. After passing relevant examination and joining the local professional associations, graduates can be registered and practice as nurses. On the other hand, the Center for Drug Evaluation (CDE) was established in 1998. It is a dependable organization has a co-operative relationship with the Bureau of Pharmaceutical Affairs. Its objective is to assist in the evaluation of drug quality. The centers staff includes medical doctors and pharmaceutical specialists with outstanding academic research accomplishments. In addition, regulations for the GMP (Good Manufacturing Practice) standard has been upgraded into cGMP (current Good Manufacturing Practice) to upgrade mere drug quality control to drug quality assurance.

Consumers defined quality

There are some reported cases about the complaints on long waiting time, staff attitude and wrong diagnosis. However, there is no analysis about those issues. On the other hand, the satisfaction rate of the public to NHI was increasing gradually.

Input

At the end of 2000, there were 164,691 medical personnel in Taiwan. A brief summary is given below:

- (a) 1 doctor of Western medicine to 784 persons;
- (b) 1 doctor of Chinese medicine to 5,863 persons;
- (c) 1 dentist to 2,591 persons;
- (d) No. of population per hospital: 33,298 persons;
- (e) No. of population per clinic: 1,279 persons;
- (f) Total no. of bed: 126,476.

Process

A hospital accreditation system has been in operation since 1978. The evaluation based on the quality of personnel,

facilities, hospital management, community services and the quality of medical care. By the end of 2001, 545 hospitals have been qualified. They will continue to be supervised to improve their quality of services. Clinics must apply to the local health station for an operation license. It is to make sure the clinics maintain high standards at all level ranging from the quality of the facilities to the credentials of the medical staff.

Outcome

The life expectancy was increasing from 71.9 (male) & 77.8 (female) in 1996 to 72.8 (male) & 78.5 (female) in 2001. When comparing to other developed countries, the life expectancy is still lower, but is comparable to Korea (Table 10).

The mortality rate of Taiwan is similar to Korea, but higher than that of developed countries. However, there is no obvious improvement in standard mortality rate after the implementation of NHI, only with about 1.17% change (Table 11). However, in the recent years, communicable diseases receded in Taiwan, replaced with large shares by cancers, cerebral vascular diseases, geriatric diseases and accidents.

As a whole, the health condition of Taiwan, ranking by the Economist Intelligence Unit, EIU, Health International 2nd quarter 2000, was the second best among 27 countries in the world. The best one was Sweden and the third was Canada.

Evaluation criteria—Equity

To provide equal access to adequate healthcare for all citizens in order to improve the health of the people is one of the objectives of NHI. In this section, we are going to evaluate its equity nature and how it can achieve the objective of NHI system.

Universal coverage

NHI is a compulsory social insurance program with the entire population enrolled in the program. All of the insured are provided with the right to equal opportunity of access to healthcare services. Since its inception in 1995, the NHI has

Table 10 Average life expectancy and infant mortality rate (2007)

	(Life Expectancy)		Infant mortality rate (Per 1,000 live births)
	Female	Male	
Taiwan	81.7	75.5	4.7
Korea	82.7	76.1	4.1
Japan	86	79.2	2.6
USA	80.7	75.2	6.7
Germany	82.4	77.2	3.8
UK	81.1	77.1	4.8

Table 11 Outcome (10 leading causes of death)

Cause of death	Death rate per ten thousand		
	1995	2000	Change
All causes of death	554.62	561.12	1.17% (+)
Cancer	121.5	142.23	17.1% (+)
Cerebrovascular disease	66.45	60.10	9.5% (-)
Heart disease	52.93	47.56	10.1% (-)
Accidents	61.05	47.40	22.3% (-)
Diabetes Mellitus	33.97	42.60	25.4% (+)
Chronic liver disease	20.95	23.32	11.3% (+)
Kidney disease	16.55	17.45	5.4% (+)
Pneumonia	14.44	14.88	3% (+)
Suicide	7.61	11.14	46.4% (+)
Bronchitis	9.37	7.23	22.8% (-)

adopted and actively implemented various strategies to achieve its objective of universal enrollment. As of December 2000, there were 21.4 million enrolled in the NHI program, an enrollment rate of 96.16%. In order to achieve the universal coverage, the BNHI has adopted different strategies to assist and guide the public to enroll in NHI. As at December 2001 (Table 12), the NHI covered 21.65 million, achieving an enrollment rate of 96.25%.

Financing equity

The financing of NHI is a progressive contribution system. There is a low premium policy at a fixed rate at 4.25% bases on the salary. The higher income group should contribute more since the premium is payroll-related in nature. However, the premium is shared by employees, employers and the government. The calculation for the premiums of the insured is dependent on the category one belongs to, the contribution share corresponding to the category and the number of insured dependents. Therefore, different social group has different contribution shares. Apart from low premium rate and progressive contribution system, there are also some regulations, helping people who require financial assistance so that none of them would be rejected to receive medical treatment if necessary. Co-payment waiver system is also established for those patients suffered from catastrophic illnesses. These all contribute to the equity of the medical service in Taiwan, ensuring everyone, no matter the rich or the poor, can use healthcare services.

Utilization equity

Geographical factor

Expanding medical care in the aboriginal areas and outlying islands is one of the focus for BNHI. Not to say people in

city area can easily access to clinics, hospitals and other healthcare providers. In fact, there are some arrangements in place in order to remove the geographical barriers and enhance the accessibility of medical services for people in remote areas. To encourage healthcare providers to provide medical care to residents of those regions, various medical payment incentives have been implemented. At the same time, people who live in remote areas can enjoy a low co-payment rate in using the medical services. All these measures can effectively remove the geographical barriers and offer convenience in assessing the medical services.

Income factor

Income is positively related to healthcare expenditure as well as medical care consumption. It is found that the influence of the universal health insurance program on medical care utilization may differ among income groups. In 1994, the average number of physicians visits for the general population was about 10 to 12 per year. In 2000, the average utilization rate of the NHI outpatient service was increased to 14.80 visits per person per year, of which 12.38 visits in Western medicine, 1.12 visits in dentistry and 1.31 visits. A study on utilization of physician visits [4] found out that persons in the top quarter of household income had the smallest increase in such service utilization (11%), while for people in the middle-income group was 47% and that for the lowest quarter was 31%. Therefore, in Taiwan, with the implementation of NHI, the higher income individuals have less increase in consumption of medical service. But, as a whole, utilization of healthcare service has recorded an increase.

Evaluation criteria—*Efficiency*

Taiwan healthcare expenditure has an upward trend from 1991 to 1999. Despite of the clear objective of the National Health Insurance (NHI) program to control healthcare costs and promote efficient use of healthcare resources, the healthcare expenditure rises above 5% of GDP given the previous system. However, among the members countries of OECD (Organization for Economic Co-operation and Development), Taiwan's National Health Expenditure was higher than that of Mexico, Poland and Turkey, and lower than that of the Asian counterparts Japan and Korea. It is

Table 12 Universal enrollment (2001 & 2008)

	(2001)	(2008)
Population covered	96.25% (21.65 mln)	99.48%
Insured	96.25%	99.48%
Uninsured	3.75%	0.52%

difficult and complicated to truly benchmarking compatible countries in terms of healthcare system and cultural factors about cost-efficiency. Therefore, the focus would place on the evaluation on the micro-economic efficiency of Taiwan's NHI program. The NHI expenditure has grown rapidly since its implementation. During the first few months, total expenditure NHI paid had even increased dramatically. Excluding the first 4 months, compared with the second half (July–December) of 1995 and 1998, there was an increase from NT \$ 111.5 billion to NT \$ 149.4 billion, representing a 34% nominal increase or 27% real rate of increase after discounting the price level increase [5]. Its expenditure has quickly outweighed the amount of premium revenue around 1998 and continuously till now, making a financial crisis. Relating back to the efficiency of NHI in the delivery of healthcare services, several indicators prove it to be not improving but worsen. First of all, the number of physicians visits per capita per year maintained exceeding 12, but much higher than that of the OECD countries average, e.g. USA—5.5; Canada—6.9; Sweden—2.8. Secondly, low utilization rate of the acute hospital bed was recorded declining from 70% in 1995 to 63% in 2000. Thirdly, there is a misallocation of medical resources that the volume of health services provided by the medical centers and regional hospitals have increased since their relative cost is higher [6]. Such misuse of medical services is attributed to the capability for patients in Taiwan to freely choose their own preferred physicians and health facilities due to the lack of referral system / requirement under NHI [5]. However, the higher daily cost of hospital stay does not improve the efficiency of treatment and care. The average length of stay (days) keeps increasing from 3.2 in 1995 to 3.72 in 1998 (Table 13).

In short, the efficiency of healthcare delivery is not improved markedly as expected but rather negative in some aspects. There are three most possible explanations for the inefficiency of the initial NHI [6], namely:

- (1) The BNHI might be too oriented to the interest of the insured population with an example of the uniform fee schedule;
- (2) The healthcare market might have adjusted its structure either to take advantage of or to countervail the

efforts undertaken by the BNHI, so as to gain the most benefits in reimbursement of medical claims;

- (3) Inefficiency of the BNHI due to its monopsony power in the health insurance market in Taiwan and it is subject to bureaucratic inflexibility and political vulnerability.

Comparison with NHI objectives

From the above paragraphs, we can preliminary conclude that NHI in Taiwan can initially achieves in providing equal access to adequate healthcare for all citizens in order to improve the health of the people. However, there are still some consequences about failing in control healthcare costs and use healthcare resources efficiently.

Unforeseen consequences

Financing National Health Insurance (NHI) in Taiwan

Since the launch of the National Health Insurance (NHI) in 1995, the Taiwanese government has been optimistic about premium structure and the contracting of services arrangement from the private market. With all the enhancements putting into system since the launch, the Bureau of National Health Insurance (BNHI) had finally admitted their difficulties in maintaining a balance budget and sounded warning on the possible bankrupt of the system. BNHI had forecasted with medical expenditure increased in the rate of 6.26% a year and the premium rate at 4.26%. In 2001, NHI premium was at NT \$ 290 billion whilst the medical cost was at NT \$ 312 billion (Table 14). Till 2010, NHI expenditures grew at an average of 5.33% a year. By law, the ceiling for personnel and administrative cost of BNHI is limited to 3.5% of the total medical expenses the budget comes from the Department of Health. Being a single payer in the healthcare market, the BNHI has successfully lowered transaction and administrative costs to be around 1.6%. Designed to be financially self-sufficient and responsible for its deficits, the NHI system primarily relies on “pay-as-you-go” financing to balance its accounts in the short-term. By law, the BNHI cannot be for-profit and is required to maintain a reserve fund equaling 1 month of medical expenditures at least.

Tables 15 and 16 illustrate the difference in the budget and where the money comes and goes at NHI. Major spending on the medical costs were on the ambulatory care while the focus of the premium structure was remained on the individual contribution based on the deduction from the salary, the premium collection would be hampered as the GDP dropped and the increased in unemployment rate. Aside from the dropped in the GNP in the recent years, the

Table 13 Average length of stay (2007)

Taiwan	10
Japan	19.2
Korea	15.8
Germany	7.8
UK	7.2
USA	5.5

Table 14 NHI medical expenditure (2001)

Medical expenditure claims:	NT \$ 312 billion (US \$ 9 billion)
Ambulatory care	NT \$ 207 billion (67%)
Inpatient care	NT \$ 105 billion (33%)
NHI medical expenditures (1995–2008)	
	NT \$ billion
1995	156.8
1996	222.9
1997	237.6
1998	260.5
1999	285.9
2000	285.2
2001	301.8
2002	323.3
2003	337.1
2004	352.6
2005	367.4
2006	382.2
2007	401.1
2008	415.9

cost of medical expenses has increased in Taiwan because of the inability of the BNHI to control the following areas:

- (1) High outpatient usage rate;
- (2) High drug cost;
- (3) Increase demand of chronic and elderly care;
- (4) Low premium rate structure.

High outpatient usage rate

The number of outpatient visits has never been probably managed since the inception of NHI in 1995, with 16 visits in 1994 and never improved during the NHI period with close to 15 visits in 2000 (Table 17). However, the cost of outpatient visits is exceptional high with almost 70% of total medical costs is spent on outpatient.

And the outpatient cost is increasing year by year. The average number of outpatient visit in Taiwan as comparing with the world, the 15 visits per year in Taiwan is amongst the highest in the world just behind Japan with 16 in 1998 (Table 18).

Table 15 Trends of NHI financial status (1995–2008)

	(1995–2001) Average growth rate	(1995–2008) Average growth rate
Medical expenditures	6.26%	5.33%
Premium revenues	4.26%	4.34%

Table 16 NHI premium revenue (2001)

Premium revenue:	NT \$ 290 billion (US \$ 8.3 billion)
The insured	NT \$ 115 billion (40%)
Employers	NT \$ 94 billion (32%)
Governments	NT \$ 81 billion (28%)
NHI premium revenues (1995–2008)	
	NT \$ billion
1995	194.0
1996	241.3
1997	243.6
1998	262.3
1999	264.9
2000	284.2
2001	286.1 (290)
2002	307.6
2003	336.8
2004	352.2
2005	361.0
2006	381.9
2007	387.5
2008	402.0

High drug cost

Medication cost has been one of the major issues of the NHI in the recent years. It is estimated that 30% of the total outpatient cost is allocated to the cost of prescribing medications, the rest spread between two major areas of consultation and equipment fees. The structure of reimbursement of medications is directly from BNHI to the contracting providers, the contracting providers will debit the BNHI according to the market price of the prescribed drugs, but not the actual cost of acquiring the drugs. This form of reimbursement method has been under heavy criticism from the Taiwan public as well as the healthcare professionals and politicians. Another area that causes the inflation of medication cost is the over prescription of

Table 17 Outpatient usage rate (1994–2000), (2007)

1994	16.11
1995	16.10
1996	13.87
1997	14.49
1998	15.12
1999	15.41
2000	14.81
2001	14.4
2002	14.45
2003	14.24
2004	15.5
2007	13.9

Table 18 International comparison of outpatient visit

	Avg visit
(1998)	
Taiwan	15.1
Canada	6.4
France	6.5
Germany	6.5
Japan	16
OECD	5.7
(2007)	
Taiwan	13.9
USA	3.8
UK	5
Germany	7.5
Japan	13.6
Korea	16.4

OECD Health Data, Taiwan Health Statistics

antibiotics to the public. With the combination of increasing number of outpatient visits and the high medication costs, the cost of NHI has been suffering from the double impact of providers generated cost and also subsidizing “profit” from the medication for the providers.

Increased chronic care costs

In 2000, there is an imbalance of usage of medical care in the Taiwan healthcare system with 20% of the chronic patients using up 75% of the medical costs. The cost of treatment of these chronic patients is 12 times the cost of treating general patients due to the length and complication of these treatments. With NHI carrying the imbalance, there is minimal opportunity for the system to maintain break-even. Table 19 illustrates the hemodialysis treatment as the top rank chronic treatment following by cancer and heart disease.

Table 19 High vs low frequency user

% of user	% of total cost	Avg cost (NT \$)
(High frequency user)		
20%	74.4%	54,483
(Low frequency user)		
80%	25.6%	4,690
	Rank	Cost
Hemodialysis	1	83%
Cancer	2	56%
High blood pressure	3	55%
Flu	1	25.7%
Dental	2	19.3%
Gastritis	3	39%

Increase in elderly care cost

With the incremental aging population worldwide, Taiwan is of no exception from the trend of increasing elderly population. The National Health Expenditure growth factor in Taiwan has been gradually dominated by the factor on the aging population, from the ratio of 22% in 1995 to 58.5% in 2000. The cost of providing elderly care is similar to the chronic care with average cost of outpatient care that is 3.4 times more than the younger population and 7 times more expensive for inpatient care.

Low premium rate structure

When comparing the premium structure of Taiwan against the countries with similar social health insurance setup, Taiwan is the lowest of all with 4.25% with France topping the list with 19.6% which they were ranked by WHO in 2000 as the number one country in the world with the best overall performance health system. Table 20 illustrates the comparison between the countries in terms of premium structure.

Improvement initiatives

Increase in premium rate

In 2002, the NHI had issued a three-pronged policy to help narrowing the deficit of the NHI financing. The policy included:

- (1) Raising the premium rate from 4.25% to 4.55%;
- (2) Raising the civil servants, serviceman and teachers premium rate calculation from 50% to 80% of the salary;
- (3) Increase patient co-payment rate at the large hospitals by more than twofold.

This three pronged measure is expected to generate NT \$ 34 billion for the NHI program each year. Since August 2007, the average monthly premium for individuals in categories 4 (Military conscripts, alternative servicemen, military school students on scholarships) and 5 (Low-income household) has been NT \$ 1,317, which is entirely subsidized by the government. For individuals in category 6 (Veterans and their dependents; Other individuals), the average premium is NT \$ 1,249, with 60% paid for by the

Table 20 The comparison between the countries in terms of premium structure

Taiwan	Canada	France	Germany	Japan
4.25%	11%	19.6%	13.8%	8.5%

individual (NT \$ 749) and 40% by the government effective from 1st April 2010.

Having noticed the need to address the issue of NHI's financial problem, President Ma Ying-jeou proclaimed on 17th March 2010 that to ensure the sustainability of the NHI system, the plan for adjusting the NHI premium rate needs to be implemented as soon as possible. Thereafter, the Department of Health announced that the premium rate would be raised from 4.55% to 5.17% starting from 1st April 2010. As proclaimed by President Ma Ying-jeou, the current premium adjustment plan is only a transitional measure, and that the government will need to continue with the development of the "Second Generation National Health Insurance system", in which, the premium based will be expanded from individual's payroll to a family's total income (including investment gains). It is anticipated that the passage of a revised National Health Insurance law can be completed within 2 years, thereby helping to expand the funding base for the National Health Insurance system and making the sharing of the financial burden imposed by the system fairer and more equitable.

Drug reimbursement pricing program

The BNHI had put in the effort in 1999 to enforce reasonable drug pricing system, which was resulted in regulating 19,209 kinds of drugs for the NHI reimbursement. Between the years 1999 to 2000, the Bureau saved NT \$ 4.6 billion. In 2002, a dependent legislator had alleged the NHI contracted hospitals for excessively charging the Bureau for drug fees. The BNHI general manager had launched an investigation in November 2002 and another new set of drug reimbursement schedule as according to the investigated results would be launched in early 2003, which would have a further saving in drug costs in the coming years.

On the expenditure side, reimbursement claims for medical services in 2008 totaled NT \$ 415 billion. Two-thirds (66.75%) of the total submitted was for ambulatory services while the balance was for inpatient care. Medical centers were responsible for just over two-fifths of all outpatient (41.85%) and inpatient (43.08%) claims, followed by regional hospitals (36.92% of outpatient claims and 37.70% of inpatient claims) and district hospitals (21.24% and 19.22%).

Conclusion & outlook

Taiwan is a mirror and an interesting case study in the healthcare system. Government proposals for long-term care insurance are expected to take effect in 2011. The healthcare reform typically attempts to:

- (1) Improve the quality of healthcare;
- (2) Improve the access to healthcare specialists;

- (3) Promoting healthy aging;
- (4) Decrease the cost of healthcare;
- (5) Strengthening systems that prevent disease and promote the public's health;
- (6) Implementing interventions that eliminate health disparities;
- (7) Expand the array of healthcare providers consumers may choose among;
- (8) Broaden the population that receives healthcare coverage through either public sector insurance programs or private sector insurance companies;
- (9) Enact insurance market reforms that expand choice of affordable coverage and eliminate denials for preexisting conditions;
- (10) Assure that healthcare decisions are made by patients and their physicians, not by insurance companies or government officials;
- (11) Provide investments and incentives for quality improvement, prevention and wellness initiatives;
- (12) Implement medical liability reforms to reduce the cost of defensive medicine;
- (13) Streamline and standardize insurance claims processing requirements to eliminate unnecessary costs and administrative burdens.

Since the inception of the NHI in 1995, there has been no clear definition by the Taiwanese government on the objective for setting up of the system—should NHI be implemented as a social welfare or a social insurance system? This is vital to the NHI for the coming years in terms of the method of financing and also services provision for the patients. If NHI is a social welfare program, then the goal of the system would be to assist a small minority of the population with the collective assistance of the majority—the rich supporting the poor. Then each individual will require contributing a small premium in order to receive the services and protection of the program. Irrespective of the financing of the program, the government will be responsible for any earnings and losses of the program, and the general public must not be held accountable in any circumstances. However, if the system is a social insurance program, then each individual must pay a designated premium in order to keep the program running, the premium will definitely be more than the 4.55% as currently. The quality of the services and medical treatment received should also reflect the amount of insurance premium paid, which is against the current low level co-payment system by the patient in return for high quality treatment. Although there is no clear definition up to this moment, the Taiwan general public apparently sees the program as a social welfare system. This situation if not clear in near future, the NHI program probably will be facing an inevitable situation of increasing premium or rationing services year by year in order to keep the system going for the public.

Remember that our vision has to continue not only for the present, but for the future of our work in the global healthcare services. As a world-class metropolis, Taiwan's success depends very much on the persistence and can-do spirit of its people.

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