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# A Comparison of Health Care Reform in Taiwan, China, and United States

Nai-Wen Chang

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A Comparison of Health Care Reform in  
Taiwan, China, and United States

by

Nai-Wen Chang

A Capstone Submitted to the Graduate Faculty  
of Georgia State University in Partial Fulfillment

of the Requirements for the Degree

MASTER OF PUBLIC HEALTH

ATLANTA, GEORGIA

30303

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By

NAI-WEN CHANG

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**July, 26, 2013**

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**Author's Statement Page**

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### **Abstract**

Health care reform is important in order to modify health care systems so that they operate more efficiently. There are various studies that compare the reforms of different countries to understand how these countries adjust their systems. This capstone introduces the health care system in Taiwan, China, and the United States, discusses the challenges they meet, and offers a comparison of recent reforms.

The health care systems are introduced through three sections: collection of funds, pooling of funds and purchasing of services, and providing of services and exemptions. All three countries face the financing burden of health expenditure. To offer universal coverage and comprehensive benefit to its citizens, these three countries makes changes to qualifications for those insured, services provided to beneficiaries and payment systems for physicians, and contributions to pooling of funds.

These reforms address barriers in reaching universal coverage in the three dimensions which are indicated in a WHO issued paper, that explains how to remove financial risks and barriers to access, promote efficiency and eliminate waste, and raise sufficient resources for health (WHO, 2010). Despite the research, reforming the health care system to offer the accessibility of affordable services to individuals and to maintain sustainability of the health care financing will continually to be an issue.

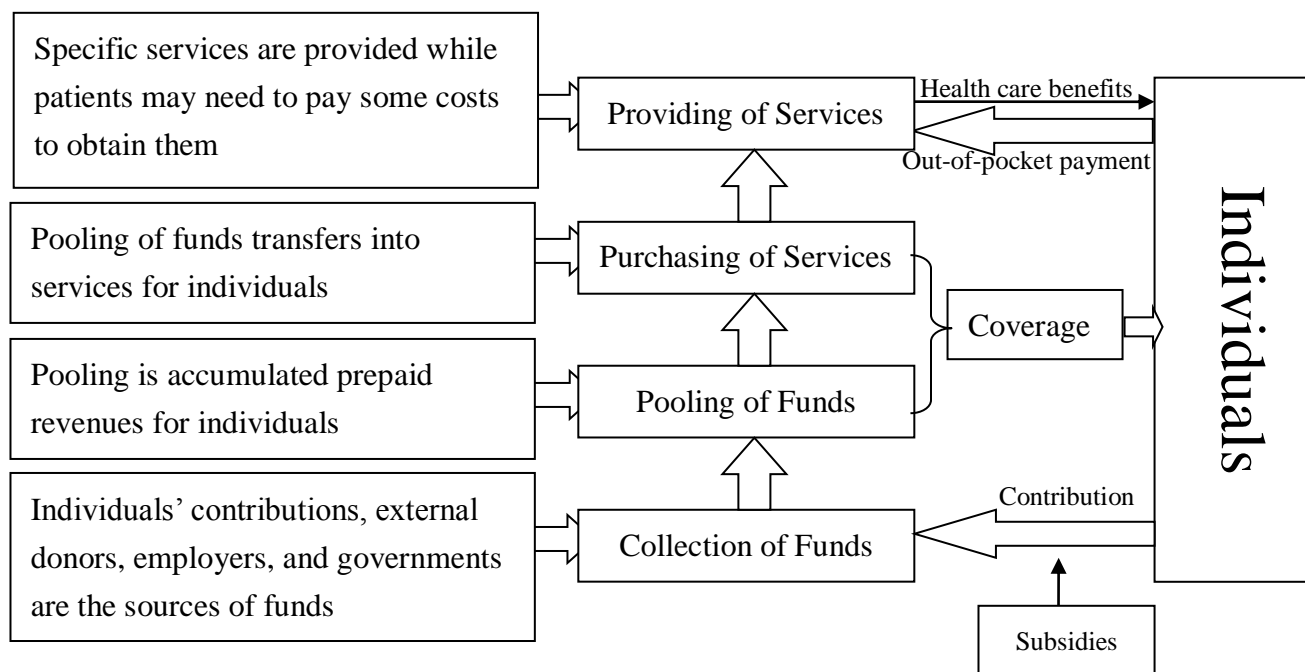


## **Introduction**

Health care reform plays an important role in the health care system by modifying it to match the country's health care needs. There are a number of studies that compare the reforms of different countries, but the objective of this capstone is to offer a comparison of Taiwan, China, and the United States (US.) It shows that governments try to offer accessible and affordable insurance within their abilities to finance the health care systems.

The capstone is organized as follows: three countries' background information, health care system, reform, and the conclusions. First, the background information section provides an introduction of the development of the health care system and health indicators. Second, the health care system section is divided into a collection of funds, pooling of funds and purchasing of services, and an explanation of services and exemptions. These parts flow as shown in figure 1, the individuals pay their premiums into the collection of funds where they are pooled with contributions from other sources. The funds go into agencies and they purchase services with the funds. Services are rendered by health care providers and individuals pay out-of-pocket payments (OOP) while utilizing them (some populations are qualified for OOP payment exemptions). Third, the reform section introduces the points and aims of reform, changes of coverage and services, and revenue. The conclusion, shows the trend, which is being accomplished through the three reforms.

Figure 1. Frame work of health care financing system



Source: Joseph, 2001; Kutzin et al., 2010, p.14

### Background Information

Taiwan integrated labor insurance, government employee insurance, and farmers' insurance programs to create the National Health Insurance (NHI) in March 1995. This merger achieved universal health coverage, equal access to medical services, and a reduction of social problems caused by poverty and illness. The Bureau of National Health Insurance (BNHI) collects premiums from the insured and provides preventive, medical services, prescription drugs, dental services, Chinese medicine, and home nurse visits. When the insured use medical services, they also make a co-payment. The medical providers file claims with BNHI to be reimbursed for services rendered. (Lu et al., 2003)

From the 1950s, China maintained a strong central controlled welfare health care system, in which the government operated all health care facilities. By 1978, the 10 years of the Cultural Revolution had made major changes — mainly from marketization process, through which government-owned units to for-profit enterprises, the system lost the funds from state-owned enterprises (SOEs). By the beginning of the 1980s, the central government decentralized the health care system and turned it into social health insurance. During the same period, the Urban Employee Basic Medical Insurance (UEBMI) scheme was established. The New Cooperative Medical Scheme (NCMS) and the Urban Resident Basic Medical Insurance (URBMI) scheme were not established until 2003 and 2007 for voluntary rural population and urban residents: children, students, the elderly, and the unemployed. (Blumenthal et al., 2005; Cao et al., 2012; Joseph, 2001) Each scheme offers different benefits, but main insurance schema commonly covers inpatient services. The insured are required to make OOP payments. (Shanlian et al., 2008)

The US has no central agency governing the health care system; instead, there are many third-party insurers connected the financing and delivery functions. Accessibility to health care services varies based on insurance coverage. (Shi, & Singh, 2000) 65% of Americans are privately insured, of that population about 55.1% are either fully or partially insured by their employer-provided health insurance. Americans aged 65 and older, people with disabilities, and those with specific diseases are eligible for Medicare. Families and

individuals with low income and resources are eligible for Medicaid. The qualifications vary between states. There are other programs available for specific populations. (American Medical Association, 2013; United States Census Bureau, 2013)

Table 1 presents key indicator data from each of the three countries. China and the US have greater territory and population than Taiwan. Among the three countries, the US has the highest gross domestic product (GDP) health expenditure, spending 17.7% of GDP on health. US spending is higher than the average of 9.5% in the Organization for Economic Co-operation and Development (OECD) countries, and almost double gains from the 9% of GDP spent in 1980. It is the highest per capita total expenditure on health (Blumenthal et al., 2005). Taiwan has the lowest fertility rate, which is among the three lowest in the world, and lowest infant mortality rate among the three countries. (Joseph, 2001) China has the highest population, but the lowest physicians rate per thousand citizens. The three countries all face the aging problem, which is exacerbated by higher life expectancy and growing population of elder people.

Table 1. Key indicators in comparison

	<b>Taiwan</b>	<b>China</b>	<b>US</b>
<b>Population (million)</b>	23.3	1,354	316
<b>Area (km<sup>2</sup>)</b>	35,980	9,596,961	9,826,675
<b>GDP/capita (PPP int. \$)</b>	38,749	9,162	49,922
<b>GDP health expenditure (%)</b>	6.6	5.0	17.6
<b>Public spending (%)</b>	25.2	55.9	45.9
<b>Per capita total expenditure on health (PPP int. \$)</b>	2515	347	8233
<b>Total fertility rate (per woman)</b>	1.11	1.6	2.1
<b>Infant mortality rate per 1000 live births</b>	4.55	15.2	5.9
<b>Life expectancy (m/f)</b>	76/83	74/77	76/81
<b>Population &gt;60 yrs (%)</b>	17	13	19
<b>Median age</b>	38	35	37
<b>Physicians per thousand population</b>	1.89	1.46	2.42

Sources: Department of Household Registration, 2013; Central Intelligence Agency, 2013;

World Health Organization, 2013; Department of Health, 2013

### **Health care system**

#### **Collection of Funds**

In Taiwan, all citizens, excluding convicts, are obligated to participate in the health care program. Infants born abroad are covered after meeting the four-month residency requirement, while those born locally are covered as their births are registered. Foreign nationals who meet the regulations and residency requirements must be insured, or they can rejoin it if they re-establish residency at a later date. Foreigners enroll in the system after meeting the four-month residency requirement, but employees hired by local employers are covered from the day their employment contract takes effect. There are six different

categories of premiums. Some are based on an applicant's regular salary, while others are based on the average premium of all participants. Taking wage and salary earners for example, individuals, employers, and the government contribute 30%, 60%, and 10%, respectively. In 2011, government subsidies accounted for 25.2% of NHI revenue in Taiwan. The average premium was NT\$ 1,249 (about \$41.60) per month for 2011. (Bureau of National Health Insurance, 2013; Department of Health, 2013)

In China, urban employees are mandated to join UEBMI, and rural and urban residents can voluntarily join NCMS and URBMI. Under the UEBMI scheme, employers contribute 6% and employees contribute 2%, which equals 8% of the payroll, and the annual premium is 1400 yuan (\$229.50). The central and local governments encourage more rural households to join the NCMS scheme by providing a large portion of the household premium. For example, the contributions for the annual premium of the central government, the local government, and the household were 40, 40, and 20 yuan (\$6.60, \$6.60, and \$3.30) in 2008, respectively. Since the URBMI scheme's launch in 2007, local governments were requested to provide a minimum subsidy of 40 yuan (\$6.60) and financial support for those who are disabled. In financially disadvantaged regions, the central government shares at least 50% of the costs of the subsidies. The annual premium was 350 yuan (\$57.40) per year for 2008. (Meng & Tang, 2010)

In the US, the average annual premium in 2011 for the individual market was \$2,580.

Individual plans screen applicants for risk and lower or raise premiums accordingly. On average, workers who had employer-based insurance contributed 26% of the total premium (\$1,090 for single and \$3,962 for family) while 74% was paid by employers (Kaiser Family Foundation, 2013). Individuals may also purchase individual plans. Taking Medicare and Medicaid as examples of governmental insurance, Medicare Part A (Hospital Insurance) is largely funded by the 2.9% payroll tax levied on employers and workers while other parts are funded by premiums paid by enrollees and general fund revenue. Medicare spent \$524 billion in fiscal year 2010 accounting for nearly 15% of the federal budget (Kaiser Family Foundation, 2013; The Centers for Medicare & Medicaid Services, 2013). Medicaid enrollees are charged premiums and fees according to the state policies in which they are enrolled. The states are partially reimbursed for their Medicaid spending from the federal government, these payments, the Federal Medical Assistance Percentage (FMAP), range from 50% up to 73.43% (The Centers for Medicare & Medicaid Services, 2013).

### **Pooling of Funds and Purchasing of Services**

NHI in Taiwan is a single-payer program; therefore, BNHI takes the responsibility of collecting premiums and paying fees to clinics and hospitals for the treatment, based on a fee-for-service plan. Medical services are paid according to their 'resource based points of value'. The value of a point is negotiated annually between the NHI and the providers. In 1997, the global budget payment system was introduced to control the escalating costs of

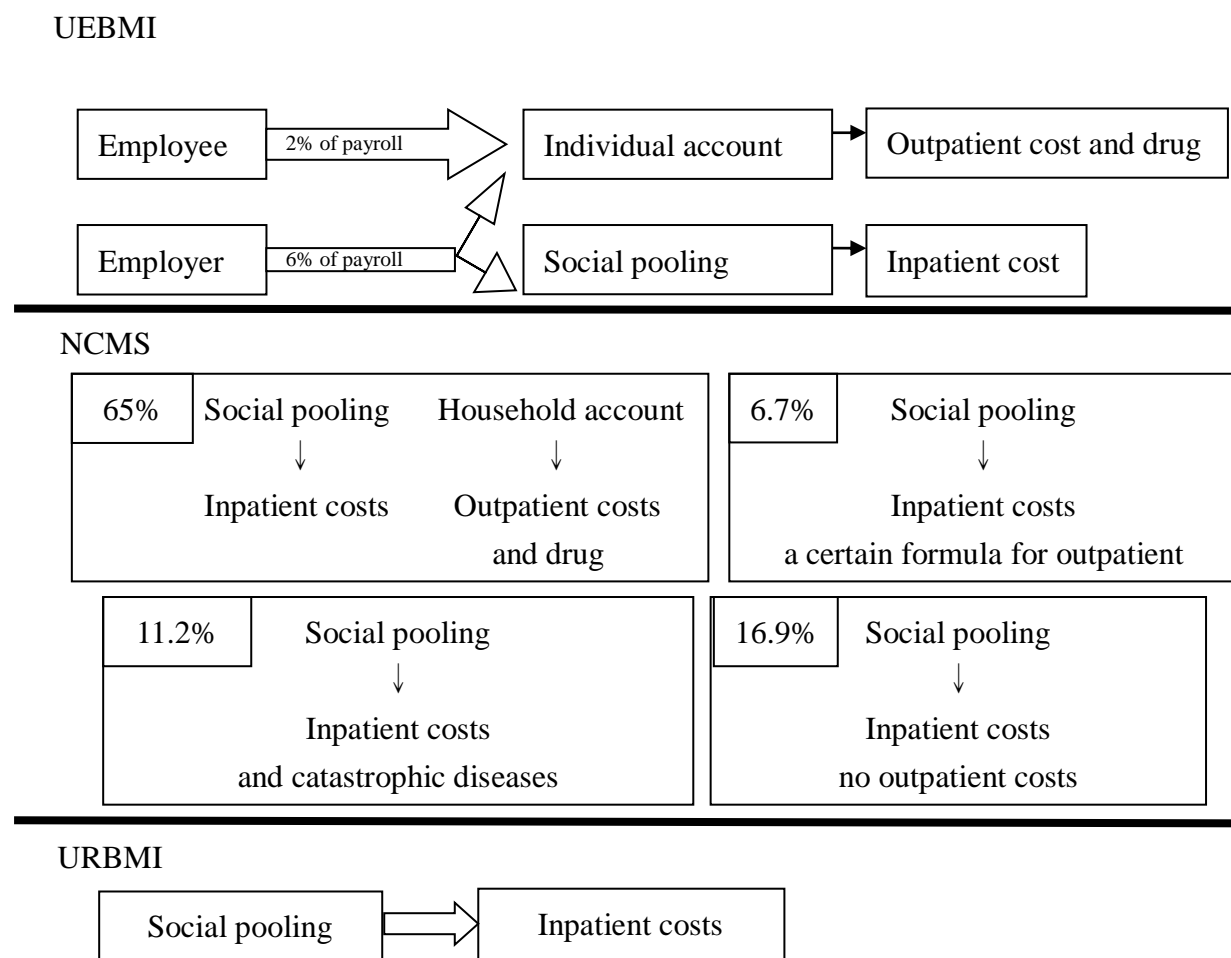
unnecessary treatment caused by fee-for-service program (Kwon, & Chen, 2008). The comprehensive and uniform benefits package offers accessibility to 92.62% of all health care facilities in the country and covers most forms of treatment even includes certain preventive services (Tsong-Mei, 2009). To control the expenditure of drugs, NHI set up the Pharmaceutical Benefit Scheme (PBS) for reimbursement listing and pricing. When health care facilities prescribe drugs, they collect copayments from patients and obtain the remainder from the BNHI based upon this scheme and the fee-for-services plan. (Chi-Liang et al., 2008)

In UEBMI scheme, pooled at the municipal level, China's Ministry of Labor and Social Security (MOLSS) supervises the collection of premiums and payment to outpatient and inpatient services. Contributions from employee and 30% of employers' contributions go to individual accounts which cover outpatient services, while 70% of employers' contributions go to social pooling. The insured must obtain services in designated health facilities in order to be reimbursed. (Cheng et al., 2011) The NCMS is under the supervision of the Ministry of Health and operated at the county level; and the benefit packages are varied in different counties based on the funds available. There are four main models in NCMS with different coverage: 1) inpatient care with social pooling and outpatient care with household account; 2) both inpatient and outpatient care; 3) inpatient and catastrophic diseases; 4) inpatient care only. The URBMI scheme has only a pooling account and primarily covers



inpatient expenses, and it is also supervised by MOLSS. Rural and urban residents' schema provides annual protection; therefore, there is no waiting period in order to be eligible for benefits (Wang et al., 2012; Wong et al., 2006; Yip et al., 2012). These three schemas all include reimbursed drug lists, but the number of drugs covered differs within each. Figure 2 offers a description of China's three schemas.

Figure 2. Three insurance schemas in China



In the US, health insurance is not controlled by a central agency; however, the Centers for Medicare and Medicaid Services (CMS) administers Medicare, monitors Medicaid, and supports some other programs. Multiple, independent insurers act as service purchasers--

processing claims and managing disbursement of funds to health care providers. At the same time, Medicare and Medicaid use their third-party administrators (private) and state agencies (public) to process claims and manage reimbursements. Both independent and public insurers, offer at least minimal hospital, clinical, and preventative services. The most common insurance options include health maintenance organizations (HMO), preferred provider organizations (PPO), high-deductible health plans with a saving options (HEHP/SOs). Other conventional health insurance plans and some hybrid options offer enrollees a variety of providers and options for OPP costs (Shi, & Singh, 2000; The Centers for Medicare & Medicaid Services, 2013).

### **Providing of Services and Exemptions**

In Taiwan, patients are required to pay co-payments when receiving services. For outpatient services, the co-payment for a visit to a clinic, dentist, or traditional Chinese medicine clinic is NT\$50 (\$1.70). The fee is higher for a hospital visit without a referral. With drugs, the progressive co-payment charged if the medication prescribed exceeds NT\$ 100 (\$3.3) starts from NT\$ 20 (\$0.70). The ceiling of the co-payment is NT\$ 200 (\$6.6) if the prescription exceeds NT\$ 1000 (\$33.3). In the case of inpatient care, a progressive co-payment rate is applied to hospitalization according to the type of ward (acute or chronic) and length of stay. (Williams, 2008) Co-payments are not required for those who are suffering from catastrophic illnesses, living in remote areas, or women giving birth. Other exemptions

are available for specific populations, such as veterans, household dependents of deceased veterans, low-income households, children under the age of three, and registered tuberculosis patients who receive treatment at specific contracted hospitals. (Bureau of National Health Insurance, 2013)

In UEBMI scheme of China, social pooling covers expenses beyond the deductible, which is fixed to approximately 10% of average payroll (up to 4 times the average payroll, and below the reimbursement cap). The individual account covers outpatient expenses until it is exhausted (Sarah et al., 2010). NCMS's deductible for inpatient expenses is 500 yuan (\$82), and the highest reimbursement is 20,000 yuan (\$3,279). In URBMI scheme, similar to the other programs inpatient deductibles range from 0 to 2700 yuan (\$0 to \$443), and reimbursement caps range from 25,000 to 100,000 yuan (\$4,098 to \$16,393) (Meng, & Tang, 2010). Medical Financial Assistance (MFA) was launched in 2003 as a pilot program to provide health protection for poor residents. It provides more accessibility to NCMS and URBMI, with coverage above eligible insurance reimbursements, and temporary medical assistance. The interface between MFA and basic medical insurance systems have been strengthened while more local governments cover outpatient services for common diseases.

In the US, health benefit packages and OOP costs vary according to plan. For employer-based HEHP/SOs, their average deductible amount is \$1,000 for single coverage and \$2,000 for family coverage (Kaiser Family Foundation, 2013; Towers, & National

Business Group on Health, 2013). Under Medicare's plan, part A has a larger co-insurance payment for longer benefit periods and \$147 deductible amount per year for part B in 2013.

20% of the Medicare population also qualifies for Medicaid (Kaiser Family Foundation, 2013); in some states' Medicaid will pay the beneficiaries' Part A and B premium, and part of their out-of-pocket expenses (The Centers for Medicare & Medicaid Services, 2013).

Through Medicaid states can charge copayments, co-insurance, deductibles, and other similar charges. Maximum co-payments and deductible amounts are updated annually due to the increasing cost of health care; however, Medicaid cannot impose OOP costs on emergency services, family planning services, pregnancy-related services, or preventive services for children. By law, exempted groups include children, terminally ill individuals, and individuals residing in an institution. (The Centers for Medicare & Medicaid Services, 2013)

Table 2 shows the three countries' percentage of GDP health expenditure, the amount of per capita total expenditure on health, the percentage of OOP health expenditures as part of total and private health expenditures, and the percentage of government health expenditure. Although these three countries all face escalating health costs, the rise of cost in the US is the largest, more than 30% since 2000. The percentage of OOP costs of total health expenditures indicate the portion individuals need to afford and the percentage of the private expenditure on health means the portion individuals need to pay except premium private insurance. Individuals in the US pay the lowest percentage of OOP health expenditures when

compared to China and Taiwan, which indicate that the US has a greater portion of private insurance. Taiwan and China have the higher percentage of OOP health expenditures. However, Taiwan has a growing proportion of OOP health expenditures, but a decreased proportion of public health expenditures. China is the opposite, currently trending to have a decreased portion of OOP health expenditures and an increase of public health expenditures.

Table 2. Health expenditure indicators in Taiwan, China, and the US

	GDP health expenditure (%)				Per capita total expenditure on health (PPP int. \$)			
	2000	2004	2008	2010	2000	2004	2008	2010
<b>Taiwan</b>	5.5	6.2	6.5	6.5	1126	1551	2094	2332
<b>China</b>	4.6	4.8	4.6	5.0	108	170	285	373
<b>US</b>	13.4	14.7	16.5	17.6	4703	5,911	7,720	8233
	Out-of-pocket health expenditure (% of total health expenditure) (% of private expenditure on health)				Government health expenditure (% of total health expenditure)			
	2000	2004	2008	2010	2000	2004	2008	2010
<b>Taiwan</b>	31.9	33.8	35.7	36.2	60.0	58.9	57.2	57.0
	79.7	82.3	83.4	84.4				
<b>China</b>	59	54	40	35	38.3	38.0	49.9	54.3
	95.6	86.5	80.8	77.2				
<b>US</b>	15	13	12	12	43.2	44.1	46.0	48.2
	25.5	23.9	23.1	22.7				

Sources: Department of Health, 2013; The World Bank Group, 2013; WHO, 2013;

International Monetary Fund, 2013

## Reform

### Point and Aim of Reform

Taiwan's NHI comprehensive and universal coverage resulted in high healthcare utilization rates. The average outpatient visit rate per person was 15.1 times per person in 2011, causing a big and imbalance in revenue and expenditure financial burdens. Splitting the burden of subsidies contribution led to the conflicts between central and local governments (Guang-Xu, 2010). A reform was needed to solve the problems, pursue fairness in premium contribution, enhance quality of medical care, and efficiency of administration. The second generation of the NHI reform program (2G-NHI), implemented on January 1, 2013, increased the contribution rate of premiums, increased the revenue, and reduced the expenditure of previous NHI (Bureau of National Health Insurance, 2013).

China's inadequate insurance coverage makes the insured face high OOP costs, while overall medical services costs have escalated due to providers taking advantage of the fee-for-service program by overusing some services (Shanlian et al., 2008). China developed their 2009-2011 reform according to the "Opinions on Deepening the Health Care System Reform", issued by the Central Committee of the Chinese Communist Party and the State Council in April 2009. The goal was to reach 90% coverage in social health insurance by 2011 and alleviate the health care financing burden by implementing a four-in-one reform framework (public health, medical service, social insurance, and drug system) (Cao et al., 2012).

US has approximately 46.3 million uninsured individuals, additionally 25 million are underinsured, while many other insured individuals pay high OOP costs (Schoen et al., 2011). Medicare and Medicaid accounted for 22.6% and 17% respectively of national health spending in 2010, and the coverage rate was 14.6% and 15.8%. That means less than 30% of the population (because some are dually qualified) accounted for more than 39% of total healthcare expenditures (The Centers for Medicare & Medicaid Services, 2013). The Patient Protection and Affordable Care Act (PPACA), signed into law on March 23, 2010, is expected to expand health insurance coverage to 32 million individuals by 2019. The present administration states it will reduce the deficit after its full implementation.

### **Coverage**

Taiwan's 2G-NHI changes the criteria of insured: (1) Individuals who have previously subscribed within the last two years and have a registered domicile in Taiwan, or have established a registered domicile for at least six consecutive months. (2) Infants born abroad shall be covered after meeting a six-month residency requirement. (3) institutionalized convicts (4) Foreign nationals who meet NHI regulations and residency requirements (5) Foreigners after meeting the four-month residency requirement (6) Employees hired by Taiwan-based employers (covered from the first day of their employment). The comparison of the 2G-NHI and the original plan is shown in table 3. (Bureau of National Health Insurance, 2013)

Table 3. Comparison of the original NHI and 2G-NHI

	NHI	2G-NHI
<b>Registered domicile</b>	previously subscribed	previously subscribed within the last two years
	four-consecutive-month residency	six-consecutive-month residency
<b>Infants born abroad</b>	four-month residency	six-month residency
<b>Institutionalized convicts</b>	X	O
<b>Foreign nationals</b>	rejoin the system if they re-establish residency	rejoin the system if they established residency within one year after the implementation of revision
<b>Foreigner</b>	effectiveness of employment contract	first day of their employment
	four-consecutive-month residency	six-consecutive-month residency

To incentivize individuals' participating in the insurance, China's government subsidizes the three schema differently to enhance the benefits and lessen the premiums. UEBMI targets retirees and employees of closed and insufficiently operated enterprises. In NCMS, the per capita premium was projected to reach 150 yuan (\$24.6) in 2011, which was three times of the premium of 50 yuan (\$8.2) in 2009. Additionally, the contributions from central government, local government, and household were 60, 60, and 30 yuan (\$9.8, 9.8, and 4.9,) respectively (Ke et al., 2009). URBMI was promoted nationwide in 2009 from a pilot program available in certain cities. per capita financing was projected to be as high as 170 yuan (\$27.9) annually in 2011.

In the US one of the most important components of the ACA expands healthcare insurance coverage by requiring states to establish a marketplace for consumers to shop for



health insurance. This is referred to as American Health Benefit Exchanges and Small Business Health Operations Program (SHOP) Exchanges. Exchanges would provide qualified packages, which can be divided into different levels by their "actuarial value" (AV) at a fixed price. Individuals and families with low income are eligible for premium credits and cost-sharing subsidies on a sliding scale. Medicare beneficiaries, Medicaid beneficiaries, military families, persons living overseas, and persons with religious objections are all excluded from utilizing the exchanges. There is an individual mandate whereby individuals without qualified coverage will face an annual tax penalty. Another important factor for expanding coverage is changing the laws around Medicaid. Medicaid would be expanded to individuals with incomes up to 133% of the Federal Poverty Level (FPL), and include low-income adults without children who were previously ineligible. The Federal government will pay the full premium for newly eligible individuals through 2016 (Kaiser Family Foundation, 2013). The states do have the option to not participate in Medicaid expansion.

The accessibility to health care has been enhanced by prohibiting rejection of insurance applicants with pre-existing medical conditions, allowing young adults under 26 years old to remain on their parents' insurance plans, eliminating the lifetime amount insurance will pay for certain conditions, and restricting annual limits. Individuals and families' with household income of 133% to 400% of the FPL are qualified for subsidies when they purchase their insurance through the exchange. Employers with more than 50

employees must provide health insurance or pay a fine if any worker receives federal subsidies to purchase health insurance. Small businesses that provide health insurance to employees may qualify for a tax credit (Miller, 2011).

### **Service**

To reduce the expenditure and improve the quality of care, Taiwan's 2G-NHI encourages different means of payment, including the Taiwan-Diagnosis-related Groups (Tw-DRGs) system for inpatient cost, the Pay for Performance (P4P) program for specific diseases, and the capitation payment system for primary care under the global budget system. In Tw-DRGs, starting in 2010 and planned to be fully implanted by 2015, a patient's treatment for a particular disease is reimbursed to hospitals as a framed package. Several Pay for Performance pilot programs began in late 2001; under a threshold system, the physicians would obtain an additional compensation supplement if they follow the standard treatment process or if patients improvement after treatment. The pilot programs for capitation payment started in 2010 (Bureau of National Health Insurance, 2013).

China's fee-for-service system is changed to alternative case-based payment systems, including diagnostic-related groups payment system (DRGs) for hospitals, capitation payment system for primary care, and prepayment for maternal and child services (Barber et al., 2011; Yip et al., 2010). In 2009, the first part of the essential medicines list (EML) was issued for the primary level, including 307 western and traditional Chinese drugs. This

measure could alleviate the cost of unaffordable drugs through guiding the retail prices determined by the central government. Furthermore, the new medical insurance reimbursement policy that ensures all essential medicines are in the list and reimbursed for higher rates was implemented in 2010 (Barber et al., 2011). The national clinical service guidelines attempt to cover all necessary clinical service. Although the system excludes some services, such as plastic surgery and preventive care and imposes a co-payment for advanced health technologies (Zhu, 2009). The average reimbursement rates for inpatient costs were projected to be 75% in UEBMI, 75% in NCMS and 60% in URBMI in 2011 (Cao et al., 2012).

Under the ACA, insurance plans, excluding existing individual and employer-sponsored, must provide an essential health benefits package. The package provides comprehensive services, and covers at least 60% of the actuarial value of the covered benefits. The current coverage gap or “donut hole” in Medicare Part D where all cost are paid by the beneficiaries would be gradually closed; therefore reducing OOP costs for many Medicare beneficiaries in the future. To increase the physicians’ participation rates in Medicaid, the primary care physician fee was increased to be at least as high as in Medicare. (Kaiser Family Foundation, 2013) In the ACA, accountable care organizations and bundled care payment for episodes of care are introduced. An Accountable Care Organization is a legal entity comprised of hospital(s), practitioners and other organizations that contract with

Medicare to provide services to a population of Medicare beneficiaries; the ACO can share in cost saving compared to fee-for-service Medicare. Through bundling payments a single payment is made to an organized system of care for an episode of care (Perry B., 2013).

### **Revenue**

The 2G- NHI program imposes an additional 2% supplementary premium on an insured's irregular income of the following six types: 1) annual bonuses amounting to over four months of the employee's salary reported to the BNHI for insurance purposes, 2) income from a professional practice, 3) stock dividends, 4) interest-derived income, 5) rental income, and 6) part-time job income. Other solutions to increase revenue include doubling the tobacco tax surcharge and raising the earnings ceiling on contributions. These measures ensure that the insurance system will have enough revenue and seek to halt the growth of premiums for the majority of population. The government and governmental enterprises will pay at least 36% of the premium, not including the other sources of the revenue, such as tobacco tax surcharges and public welfare lotteries (Bureau of National Health Insurance, 2013; Williams, 2008).

China added an additional 850 billion yuan (\$130 billion) from the central government to help implement the reforms in 2009. Two thirds of the fund directly went into the three schemas and supported the premiums, while the remainder went to set up regulations for drug prescriptions and hospital management (The Central People's

Government of the People's Republic of China, 2013).

In the US, to balance the escalating expenditure, the Medicare Payroll Tax increased by 0.9% and added an investment income tax of 3.8% for higher income taxpayers. To pay for the reform many measures were added including: an additional excise tax on insurers of employer-sponsored health plans with coverage exceeding \$10,200 for individual and \$27,500 for family, a tax of 2.3% on the sale of any taxable medical device, and a tax of 10% for indoor tanning services. New annual fees are imposed on the branded drug pharmaceutical manufacturers and the health insurance sector (Kaiser Family Foundation, 2013; Morgan, 2010).

Table 3 is the summary of the reforms in coverage, services, and revenue in three sections. In the coverage section, due to its universal coverage, Taiwan has made minimal changes, while China and the US aim to expand coverage through different means. In the service section, all of the countries enhance benefits and reducing the expenditure by modifying the payment systems. China also focuses on building new formulas for pharmaceutical and clinical systems. In the revenue section, the central government for these three countries all contribute to the pool(s) of funds, and Taiwan and the US also raise taxes.

Table 3. The summary of the reforms

	Taiwan	China	US
<b>C O V E R A G E</b>	Registered domicile: previously subscribed within the last two years	UEBMI: reach retirees and employees of closed and insufficiently operated enterprises	Exchanges: for individuals and small business
	six-consecutive-month residency	NCMS: the per capita premium reach 150 yuan (\$24.6) in 2011	An annual tax penalty on individuals without a qualified coverage
	Infants born abroad: six-month residency	URBMI: promote nation-wide in 2009 and per capita premium reach 170 yuan (\$27.9) in 2011	Medicaid: include income up to 133% of the FPL and low-income adults without children
	Institutionalized convicts: included		No rejections to pre-existing conditions
	Foreign nationals: rejoin if residency is established in 2013		Eliminate the lifetime amount insurance
	Foreigner: first day of employment		Restrict annual limits
	six-consecutive-month residency		Young adults remain on their parents' plans
<b>S E R V I C E</b>	Diagnosis-related Groups system for hospitals	Diagnostic-related groups system for hospitals	Essential health benefits package for services, and actuarial value of the covered benefits
	Capitation payment system for primary care	Capitation payment system for primary care	Accountable care organization for Medicare
	Pay for Performance program for specific disease	Prepayment for maternal and child services	Bundled care payment for episodes of care
		The essential medicines list for retail price	Cancel the "donut hole" in Medicare Part D
	The national clinical service formulary for clinical services	Increase the physicians'	

		The projected average reimbursement rates for inpatient costs: 75% in UEBMI 75% in NCMS 60% in URBMI	participation rates in Medicaid
<b>R E V E N U E</b>	2% supplementary premium on six types of insured's irregular income	The central government subsidize 850 billion yuan (\$130 billion)	The Medicare Payroll Tax increase by 0.9% and a 3.8% tax on investment income for higher income individuals and families
	Raise the tobacco tax surcharge		An excise tax on insurers of employer-sponsored health plans with higher coverage
	Raise the earnings ceiling on contributions		A tax of 2.3% on the sale of any taxable medical device
	Raise the contribution of government to at least 36% the rest of the expenditure		A tax of 10% for indoor tanning services
			Annual fees on the branded drug pharmaceutical manufacturer sector and the health insurance sector
			Federal government pays premium for new Medicaid insured through 2016

### Conclusion

This capstone has described and compared the healthcare systems, the point and aim of reform, changes in coverage and service, and revenue reforms in Taiwan, China, and the United States.

These three countries' patterns and healthcare systems vary from each other. China and the US have greater territory, population and variances between provinces and states than

Taiwan. They have developed different schema for different populations and authorized more flexibility for counties and states to adapt the system according to their condition; in contrast, Taiwan has only one scheme that applies for all. Examples of China and the US's variability in health care systems are URBMI's four pooling models and different Medicaid policies between states. However, all three governments are given more power to regulate the health care systems in the reforms. Even China, which just had a period of decentralization, has gained control of its health care system again. For instance, Taiwan's central government is taking the responsibility to subsidize the premium to the needy from local governments and the US is beginning to mandate individuals have insurance. On the contrary, China's voluntary insurance has almost reached universal coverage rate of 92% after the implantation of the reform (Yip et al., 2012).

Despite the fact that these three countries encounter escalating health costs, the causes are different. Taiwan and the US's governmental insurance have high health care utilization rates causing high health care expenditure. Taiwan's problem comes from its comprehensive coverage, while the US's is derived from the price for healthcare goods, services, and high usage of technology. Taiwan and the US government are trying to ensure adequate financing of their insurance plans. In the domain of accessibility, Taiwan's NHI has a cooperation rate of more than 90% of health care facilities, while in the US there are many health care providers who do not participate in Medicaid and others who do not participate in Medicare.



To provide universal coverage in health care, the paper “*Health Systems Financing*” indicates that, the three dimensions to consider when reforming healthcare are “removing financial risks and barriers to access, promoting efficiency and eliminating waste, and raising sufficient resources for health” (WHO, 2010). In the reform, all three countries address at least part of these three dimensions. To remove financial risks and barriers to access, they all redefined the qualifications of the individuals and regulated the premiums. Taiwan, which has comprehensive health insurance did not need to improve barriers to access, but China and the US sought to expand their insurance benefits to those who lack coverage. To promote efficiency and eliminate waste, the payment systems were changed. Both Taiwan and China are changing their fee-for-service payment system, which are criticized for encouraging over-servicing for insured and underservicing for uninsured. The new systems utilize capitation for primary care and other forms of case-based payment, such as DRG for hospitals. In the US, new models of care are being explored to replace fee-for-service. To raise sufficient resources for health, all three countries’ reforms increased the collection of funds from governments and individuals. In the US and Taiwan additional taxes were added.

Each country develops their health care system reforms according to their political situation, medical services needed, existing health care systems, and the problems they encounter. However, ensuring that individuals have access to affordable insurance and maintaining the sustainability of financing will continue to be a major issue in each country.

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