TAIWAN HEALTH SYSTEM
AND NATIONAL HEALTH INSURANCE STUDY REPORT
# Table of Contents

<table>
<thead>
<tr>
<th>BIL</th>
<th>CONTENT</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Executive Summary</td>
<td>4-5</td>
</tr>
<tr>
<td>2.</td>
<td><strong>Chapter 1</strong>: Governance - National Health Care In Taiwan</td>
<td>6-11</td>
</tr>
<tr>
<td></td>
<td>Author: Dr Najwa Misjan @ Misdan</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td><strong>Chapter 2</strong>: Regulation And Enforcement in National Health Finance</td>
<td>12-25</td>
</tr>
<tr>
<td></td>
<td>Author: Dr. Khairi Yakub</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dr. Ahmad Razid Salleh</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td><strong>Chapter 3</strong>: Financing - Taiwan National Health Insurance</td>
<td>26-92</td>
</tr>
<tr>
<td></td>
<td>Author: Dr. Rozita Halina Tun Hussein (Team leader),</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dr. Davis Johnraj</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dr. Azilina Abu Bakar</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dr. Zarina Mohamad Esman</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td><strong>Chapter 4</strong>: Primary Health Care</td>
<td>93-100</td>
</tr>
<tr>
<td></td>
<td>Author: Dr. Koh Kar Chai (MMA)</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td><strong>Chapter 5</strong>: Secondary &amp; Tertiary Care - Hospital Services in Taiwan National Health Insurance</td>
<td>101-125</td>
</tr>
<tr>
<td></td>
<td>Author: Dato’ Dr. Hj. Bahari Dato' Tok Muda Hj. Awang Ngah</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Head of Report Writing),</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Datin Dr. Asmah Samad</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td><strong>Chapter 6</strong>: Oral Health in Taiwan National Health Insurance</td>
<td>126-141</td>
</tr>
<tr>
<td></td>
<td>Author: Dr. Rusni Yusof</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dr. Maznah Mohd Nor</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td><strong>Chapter 7</strong>: Pharmacy Services in Taiwan National Health Insurance</td>
<td>142-157</td>
</tr>
<tr>
<td></td>
<td>Author: Cik Mariam Bintarty Rushdi</td>
<td></td>
</tr>
<tr>
<td>BIL</td>
<td>CONTENT</td>
<td>PAGE</td>
</tr>
<tr>
<td>-----</td>
<td>---------</td>
<td>------</td>
</tr>
</tbody>
</table>
| 9.  | **Chapter 8**: Public Health  
  Author: Dr. Rusdi b Abdul Rahman  
  Dr. Mohd Nizam Subahir,  
  Dr. Zaid Kassim | 158 – 170 |
| 10. | **Chapter 9**: Human Resource Development  
  Author: Dr. Mohd Fikri Yakub  
  Dr. Haris Fadzilah Che Hashim | 171 – 177 |
| 11. | **Chapter 10**: Information Technology in Taiwan National Health Insurance  
  Author: Dr. Fazilah Shaik Allaudin  
  Mr. Jaafar Ja'maan  
  Ms. Lidyawati Abdul Hamid | 178 – 199 |
1. Executive Summary

Taiwan is an island country located in Eastern Part of Asia near China. It is a develop
country with GDP of USD 18,588 per capita. The National Health Insurance (NHI) was
started in Taiwan since 1995 due to public pressure. Prior to implementation of NHI,
health services were pay out of pocket and through various insurance groups. The NHI
combined all this insurance groups into a single payer, the population to a single client and
the health services as multiple providers. This system has result in affordable and quality
health care to its population at a low administrative cost and with a high satisfaction rate by
the population.

A study team of 21 officers from the health ministry was selected to study Taiwan health
system in relation to NHI and the NHI itself. The team comprise of members from medical
practice, health finance, medical development, public health, dentistry, pharmacy, primary
care and ICT. This report consists of their finding in their respective area.

There are 9 technical chapters in this report. Each chapter stand by its own to enable
individual technical team in studying this report independently and to refer to other section
only if the need arise. Chapter 2 touches on the system of governance of health in Taiwan.
Although their system is similar to Malaysia, the health system is decentralized with the
regional/municipality (similar to state) have their own autonomous body in charge of
health. However, the central Department of Health (DOH) is the main policy and regulatory
body. The relationship of central and regional is through business activities such as budget
and programs.

Chapter 3 deals with the Acts that enable NHI to operate. There are 2 main Acts that are
critical on the success of NHI. First is the National Health Insurance Act that determines the
administrative body and its power. This Acts also determines the rule of NHI such as
making it mandatory for all resident citizens and foreign legal residents to contribute in the
NHI. The other Act is the Medical Care Acts that ensures all NHI clients are able to access
same standard of care where ever they are. These ensure public subscriptions to the NHI as
benefit are equitable.

Chapter 4 writes about the NHI itself. It describes the relationship of DOH with the NHI
governing authority that is the Bureau of National Health Insurance (BNHI). It describes
the BNHI structure, the characteristic of NHI, the premium calculation and collection
methods, the payment mechanism and its development, the claims regulation and
arbitration and lastly the issue of paying for quality and customer choice. All providers
have to be contracted to BNHI to enable it to claims. BNHI are able to set accreditated
standard for contract approval.
Chapter 5 to Chapter 8 studies the impact of NHI on service delivery. Services are provided by both the public and private. However, with almost all the population able to pay through NHI, the market is bigger. This created a competitive environment. Quality is monitored through the benefit packages and payment mechanism that has a penalty element if wrong claims were submitted. Payment is tied to productivity and target is frequently set for provider to achieve. In Chapter 6, primary care, there appears to be a remarkable difference of opinion by the doctors and the patients on the effectiveness of NHI. It also describes how the data collection from BNHI claim mechanism, is mine for surveillance and other information system such as the NIIS. Individual chapter also noted other service activity some not related to NHI but of significant to their division. This chapter also describes that the public facilities are almost fully autonomous and its impact on public hospital management.

Chapter 9 described, how health human resources are develop in Taiwan health care, how it is govern and how, under NHI, the civil servants are phased out with contracted staff. The teaching of health care personnel, being governed by Ministry of Education, is provided by both public and private sector that have to meet MOE accreditation standard.

The last technical Chapter 10 touches on the enable of NHI, which is the information network system. How the NHI provide a strong influencing impact on the need for individual provider to be ICT, the development of infrastructure and the coordination of such effort. The infrastructure was developed to cater for this need and a body was form to manage the ICT need. Institute of information industry was formed with the cooperation of both the public and private sector. It is a show case of the need of multiple agencies, government and the private, to cooperate for the successful implementation of ICT. The complexity of data being used, from administrative to individual patient management, user verification, review for in correct claim, data mining etc made it so. The use of smart card to ensure proper claims, transmitted recent patient data, inform of patient critical needs has been highlighted very often in our study by the Taiwan authority. The safety feature of this smart card is highlighted in this topic.

The study trip enabled the team to study closely not only the NHI but it impact on service delivery through our interaction with the care giver.
Chapter 1:

Governance
National Health Care in Taiwan

Author: Dr. Najwa Misjan @ Misdan
2. National Health System in Taiwan

2.1. Introduction

Taiwan is a country with the land area of 35,801 km². The country is made up of a main island, offshore islands, and mountainous regions. In 2010, its population reaches to 23 million. It has an aging society which encounters about 10.7% of its population. Taiwan’s birth rate has steadily declined over the years and currently is one of the lowest in the world at 0.895%. The life expectancy rate is 76 (Male) and 83 (female). The GDP is USD 18,588 per capita and the National Health Expenditure in GDP is 6.9%.

In 2009, the leading causes of death were chronic diseases such as malignant neoplasms, heart diseases, cerebrovascular diseases, pneumonia, and diabetes mellitus.

2.2. Organizational Structure of Health Administration:

Taiwan’s health administration originally consisted of three levels of agencies: central, provincial, and county/city. When the Local Government Act launched in 1999, health administration and organisation was streamlined down to just two levels: central and direct municipalities/counties making the healthcare system a decentralised system. Taiwan’s Healthcare system is a mixed of public and private provider. It is governed by the Department of Health headed by the Health Minister. The main function for DOH is policy development and regulations.

The highest competent authority on the central level is the Department of Health under The Executive Yuan. It’s the highest level health administration in Taiwan and it’s in charge of health administration affairs around the country, and responsible of providing professional work counselling, supervision and coordination to local health organisations.

Figure 2.1
Health administrations on the local level are: the health departments or bureaus, established in direct municipalities or county/city governments. These local departments or bureaus are responsible for regional health administration affairs, totalling 25 across the country. One health station is established in each township, totalling 371 around Taiwan. These local establishments are responsible for executing preventive health care services on a regional level.

2.3. The Health administration

The organization of the department of Health, the Executive Yuan is shown in Figure 2.1.

The Bureau of National Health Insurance was reorganised to be an administrative organisation under DOH on 1st January 2010 due to the interest of the public.

The DOH-initiated review and assessment of local authorities were designed to objectively measure and showcase the annual administrative performances of these regional establishments, and encourage them to improve public service quality and health administration efficiency. In light of the regionally distinct administration demands of various counties and cities, DOH integrates and streamlines the original assessment accordingly, simplifying the items into three major categories of:

1. Disease Control and Health Promotions
2. Food and Drugs
3. Medical Care

Supervising agencies of the local health centres are in-charge of handling follow-up incentives arrangement after evaluation.

2.4. Taiwan’s Healthcare System:

In 1985, a healthcare network project was initiated. Taiwan was divided into 17 medical care regions. The purpose is to allocate medical manpower and facilities to each region. The primary goal is:

1. To balance the distribution of medical care resources,
2. To shorten the regional differences between each region
3. To avoid repetitive investment on medical care resources, and
4. To increase standards of medical care in every region of the country

Figure 3 shows the number of hospital bed per 10,000 populations by Year. Now, after two decades the number of hospital beds has steadily become sufficient, the quality of medical care has also increased in advance.
DOH has established a regional medical care system in accordance to the Medical care Act and the medical care network project.

DOH has conducted regular inventory of resources to effectively gain control on the addition or reduction of hospital beds in each region, making sure the public rights are safeguarded and the resources for medical treatment are properly and efficiently utilised.

DOH conducted the 2009 Medical Region Counselling and Medical Resources Integrated Project to encourage medical institutions and private sector organisations to operate in line with related health policies set by DOH and seek autonomous development of medical features in each region to balance the allocation of medical resources.

Since 2008 DOH has been implementing the Pilot Project for the Construction of Integrated Community Health Care Service Network. This is to combine acute medical care resources for regional and categorised integration. In this project, health centres in each region act as operation hubs to connect various relevant agencies, such as clinics, community hospitals, medical institutions (E.g.: community pharmacy, medical examination stations, nursing institutions and psychiatric rehab institutions), social welfare organizations, educational institutions, community groups.

2.5. Emergency Medical Care

Local health authorities shall appoint emergency responsible hospitals that provide general public with frontline emergency injury treatment services. The central health authority is responsible for accreditation of emergency medical capability classification – borderline is rated severe-grade hospitals are the last line of hospital referral.

2.6. Psychiatry Care Services:

DOH subsidised municipality and county (city) governments, totalling 25, counties and cities to set up community mental health canters to provide community residents with mental health care, information, counselling services and mental health education.

2.7. Quality of Medical Care

DOH created:

1. patient safety-oriented medical care environment
2. new hospital accreditation system
ANNEX 1

DOH VISION & MISSION

The vision of the Department of Health has always been set on establishing “A Healthy Taiwan – Providing the Public a Healthy and Safe Lifestyle.” The department also promotes medical education, health care, and disease prevention, as well as food, drug and cosmetic management and health insurance affairs. The department also upholds the values of “abiding by the law and pragmatism, enriching the lives of and loving the people,” as well as achieving the four main missions of “serving as a catalyst in improving the health of the people, educating the people toward a healthy lifestyle, paving the road for the health industry, and participating in international health affairs.” Under the 2005 to 2008 medium-term projects of the department, six strategic performance goals have successfully been established - “improving the quality of health care”, “integrating health management into our lifestyle”, “making disease prevention a public responsibility”, “making food and drugs safe”, “industrializing health technology”, and “making health affairs an international issue”.

A. Improving the Quality of Health Care

The development of a professional, diversified, and regionalized nationwide long term care service system can help provide for the health care resources in communities in order to provide appropriate long term care for local citizens with disabilities.

1. Establish a holistic health care policy in the community to provide holistic health care and medical resources in the area.
2. Establish an evaluation system that focuses on the appraisal of medical quality with a focus on “localization”.
3. Improving and expanding the care services provided to the underprivileged in order to protect their hospitalization rights.
4. Planning the establishment of a health insurance resource allocation unit in order to be equipped with a decision-making mechanism for the allocation of health insurance and medical resources and the expansion of the public participation on health insurance policies and feedback measures.
5. Enhance the participation of public departments in medical and health care affairs in order to boost the GDP ratio along the ranks of developed countries.

B. Integrating Health Management into Our Lifestyles

1. Establish a eugenic health care-friendly environment.
2. Establish a public policy on health in order to develop the country’s health risk evaluation mechanism.
3. Establish a supportive environment in order to build a healthy lifestyle.
4. Enhance community mobility for the development of a healthier metropolitan.
5. A comprehensive chronic disease care network paves the way for integrative preventive health care services.

C. Making Disease Prevention a Public Responsibility
   1. Improving the contamination control system of hospitals to enhance the contamination control quality in hospitals.
   2. Establishing a medical system on emerging and re-emerging infections and promoting the idea of specialized infection treatments.
   3. Integrating and enhancing the current disease control system and establishing an effective case survey and track down system.
   4. Establishing a nationwide disease prevention and examination network and improving laboratory facilities, research and examination, and its quality.

D. Making Food and Drugs Safe
   1. Promoting the centralization of food and drug management, examination, and research in order to improve the quality of the management, examination, and research quality of food, drugs, cosmetics, medical devices, and biological products.
   2. Assisting the development of the biotechnical industry, establishing an international assessment system, and promoting the quality of local products.
   3. Ensuring the timely introduction of safe and effective food and drugs that have undergone proper monitoring in order to protect the health of the public.
   4. The effective supervision and control of 1st and 2nd degree drug channels in order to enhance drug abuse prevention.

E. Industrializing Health Technology
   1. Enhancing medical, drugs, sanitation and health policies and doing research on major diseases and health problems that affect the public in order to effectively deal with the health problems of the public.
   2. Establishing an environment to serve as the foundation for the development of drugs and biotechnology in order to enhance the quality of the biotechnical industry.
   3. Promoting national science and technology programs in order to promote the development of the national economy.

F. Making Health Affairs an International Issue
   1. Actively promoting entry into the World Health Organization.
   2. Enhancing international health collaboration and assistance.
   3. Planning the establishment of an international health and medical cooperation and assistance special unit.
   4. Training people to become international health professionals.
Chapter 2:

Regulation and Enforcement in National Health Finance

Author: Dr. Khairi Yakub, Dr. Ahmad Razid Salleh
3. Regulatory and Enforcement

3.1. National Health System

Before 1995, the Taiwan Government was responsible for the provision of medical and health services for its population through several types of insurance. During that period, approximately 59% of the population has medical insurance coverage. With the launching of the National Health Insurance (NHI), which is a single-payer social insurance in 1995, to date 99% of the population is covered.

The Malaysian Health System is mainly provided by the government together with the private healthcare sector (dichotomous system). The Federal Government provides its services to all citizens and subsidizes heavily on the provision of the healthcare. In 2010, about 90% of the all out-patient attendees and approximately 95% of all in-patients are treated in the government facilities.

3.2. Background

The public interest in medical protection started way back in 1950s when various sectors of society set up their own insurance schemes amongst others the Labor Insurance Program in 1950, the Government Employee Insurance program in 1958 and the Farmers’ Health Insurance program in 1989, the military and others. The healthcare system was familiar in caring for the patients through these social health insurances system.

Malaysia healthcare system has no experience to social health insurance. For the public healthcare system, financing is dependent on tax based budget. In the private sector, payment is fee for service through private health insurance or out-of-pocket expenses.

3.3. The driving force behind regulating the medical services in Taiwan

There are 2 main Acts that regulates the reformed healthcare system, namely; the National Health Insurance Act 1995 and the Medical Care Act 1985. The Medical Care Act 1985 provides standards of medical, allocation of manpower, services and facilities to 17 medical care regions of Taiwan. The National Healthcare Insurance Act 1995 promotes health of all citizens, to administer a national health insurance and to provide a mechanism of financing, reimbursement and payment for health services.

For provisions of health insurance, besides compulsory social insurance through the NHI Act, there is also Commercial Health Insurance Act which provides for voluntary insurance.

The Ministry of Health Malaysia financing is solely dependent by the allocation from the government from the tax-based budget. The administration of the funds is subjected to the
government financial procedures. The standards of health care in the MOH hospitals are directed by the Headquarters and executed by State Health Departments. Whereas on the standards of healthcare in the private sector, they were guided by the Private Healthcare Facilities and Services Act 1998.

3.4. The spirit of the National Health Insurance Act

The Act is to promote health of the population and administer a compulsory social health insurance in order to provide comprehensive healthcare services to the insured based on a uniform benefits package that covers a wide range of services for those suffering from illnesses, injuries, inpatient and ambulatory care, dental services, traditional Chinese medicine therapies, maternity services as well as mental illness and others.

In the Malaysia healthcare setup, we may add prevention of diseases to the long title of the proposed legislation. The benefit package may include immunization and other preventive healthcare as part of the service to be provided since it is one of the main services rendered by the Ministry of Health (MOH).

3.5. The National Health Insurance Act 1995

3.5.1. General provisions and characteristic of the statute

Promulgated in 1995, to provide general powers to the statutory bodies and stipulates the manner the insurance program is to be implemented. It describes the relationship between role of the statutory bodies, their functions and procedures and matters related to the health insurance program. It is observed that compliance to the regulations is generally good. This could be due to the provisions that enable flexibility in the implementation of the laws to promote self-regulation by the relevant bodies. Another observation is that the law as well the administrative directives of the Department Of Health (DOH) allows the participation of interested parties such as NGO, healthcare providers, medical association in various committees in making decisions. This is done regularly as prescribed by law or by directives.

There is a need for the proposed Social Health Insurance Act to enable a healthcare program to be implemented under 1Care. A similar structure and flexibility of control can be adopted. The competent authority should rest with the MOH.
3.5.2. Competent authority and statutory bodies

(i) DOH (NHI Task Force)

The DOH being the competent authority governs and provides stewardship in the healthcare system. It provides the highest level of health administration supervises the local health organizations and coordinates with relevant agencies. This role is more pronounced when the Bureau of National Health Insurance (BNHI) came under its wing in 2010. Apart from that, the Bureau of Medical Affairs is concerned with the medical care services in Taiwan. It is responsible to issue policies, directives and promulgate regulations to interpret the various Acts which are relevant to medical care. With regards to NHI, the DOH is empowered to determine the selection of members of the various committees under BNHI. It is to adjudicate if the negotiation in the Medical Negotiation Committee fails. It interprets the NHI Act, and other matters related to the coverage of insurance to the population.

It is also observed that to secure adequate funding from the government for specific purposes, the DOH enacts relevant regulations. For example;

   a) Article 27 of the Communicable Disease Control Act was amended to provide a legal source for the national vaccine fund;
   b) Regulation governing collection and review of relief fund for victims of immunizations;
   c) Regulation regarding payment for cost for Laboratory testing prevention and treatment of HIV.

(ii) Bureau of National Health Insurance (BNHI)

The BNHI is responsible for the overall planning, implementation and evaluation of the national health insurance program.

(iii) NHI Supervisory Committee (SC)

The powers of the SC includes setting up policies and review premiums, benefits package, allocation of payments, interpretation of this law, and supervises other insurance matters.

(iv) NHI Dispute Mediation Committee (DMC)

The DMC which is composed of medical experts are given powers to settle and review disputes. It is observed that the Dispute Mediation Committee help to reduce conflicts between interested parties before it is brought to the court. For example, if the healthcare professionals are not happy with the reimbursement based on the fees schedule, the matter
can be resolved in the Dispute Mediation Committee where adjustment in payment can be made.

(v) **NHI Medical Negotiation Committee (MNC)**

The powers of MNC include negotiation with contracting parties which are mainly the healthcare providers. On top of that, the Medical Negotiation Committee will deliberate budget allocation with relevant representatives before being presented for Peer Review. This decision is reached through consensus.

It is noted that the Ministry of Health’s function is similar to the DOH of Taiwan. To secure adequate funds for the various specific activities a similar approach can be considered. The present budgetary allocation mechanism may not ensure adequate funds as it has to be shared with the rest of the general health programs. The budget allocation in MOH for health programs is dependent on the amount allocated by the Finance Minister. Once announced it is not negotiable nor subject to review by interested parties in health (Peer Review).

Whereas in Taiwan, budget for health is planned 2 years ahead before the fiscal year and deliberated by providers and medical professionals.

**3.5.3. The health facilities and services**

The Bureau of Medical Affairs under the DOH is the main agency that is responsible for the provisions of health care at primary, secondary and tertiary level (termed respectively as clinic, district hospital, regional hospital and medical centres). Although all public hospitals belong to the Federal but at the districts they are controlled and operated by the local authorities. All health facilities follow the guidelines and directions of DOH in providing their services. The enforcement of laws is being carried out by the local health authorities.

BNHI make dealings with various contracting parties for providing health services to the insured citizens, and these include the following situations:

The BNHI contracts with the private clinics, public hospitals, corporate hospitals, dental clinics, pharmacy and Chinese Medicine facilities that provide or support the healthcare services. The NHI covers most form of treatment and related charges such as consultation, examination, laboratory tests, medications and others.

The BNHI also contracts with group insurance representing the insured persons e.g. the Farmers Insurance, the Government Civil Servants Insurance etc. For the informal groups and the poor, they are represented by the local authority and the social welfare department respectively and these bodies are linked with BNHI.
BNHI contracts with Institute for Information Industry (III), a quasi government agency to provide and maintain the ICT component in BNHI and interested contracted facilities. The ICT system is the backbone of the implementation of social health insurance. This system helps monitors proper utilization and provision of service. It also facilitates payment of insurance claims.

It is being observed that BNHI having this sound ICT system, which is very efficient in detecting and profiling non-compliance of NHI law to enable them to intervene and institute remedial action against the wrong doings.

By virtue of the Medical Care Act allows the participation of corporate hospitals, a not-for-profit entity, in the NHI program. This means that they have to comply with certain obligations such as churning back 20% of their profit to the patient care and research. Private hospitals are excluded from this program.

With regards to the Malaysia healthcare system, the stark difference between the “competent authority” in Taiwan and Malaysia is that the MOH here owns and operates the health facilities both at the central and state level. So the control measures to provide safe and quality care can be done smoothly. There is a need to provide a strong infrastructure of ICT system as the backbone to help ensuring success of 1Care.

3.6. Medical Care Act

3.6.1. Preliminary

This is a specific Act with intention of development of medical care industry, distribution of medical care resources, improving quality of medical care, to protect rights of patients and promote national health. This Act applies to both public and private healthcare institutions, medical and research and training centres.

In comparison, Malaysia does not have the equivalent of this Act. Our PHFSA only caters for the control of private healthcare facilities and services. In the advent of 1Care, it is necessary to have a similar law to govern the future national health system.

3.6.2. Medical Care Institutions:

The Act controls for the approval of the types, setting up and distribution of Medical Care Institutions in Taiwan. Examples of provisions are as below;

(i) Medical clinics are allowed to have beds not more than 9 but obstetric clinics are allowed up to 10 beds.

(ii) There can be branches of clinics or hospitals under the same ownership or management.
(iii) Supervising Physician (Person in-charge) of clinics and hospitals must be doctors.
(iv) Building license by Local Authority can be applied after approval by DOH. Zoning of hospitals are determined by DOH. There is no zoning for outpatient clinics.
(v) Medical Care Corporations are regulated under this act and comes under the control of DOH including submitting financial report using principles of Company Act. Medical Care Corporation too is governed under this Act where 20% of its income is to be used as its operation fund.
(vi) Public hospital and Medical Care Corporations have to allocate 10% of its income for research, community work, medical care services and Continuous Medical Education (CME).

It is observed that:
- the DOH controls the distribution of hospitals and clinics to ensure coverage and scope of services which are well distributed to serve populated areas;
- the law protects patient access to health facilities and the execution of medical practice;
- In case of emergency or disaster, the institutions have to comply with directives of DOH and they shall be compensated for the cost incurred.

The Act facilitates the practice of medical service, for example;
(i) Exempts paper documentation if it is done electronically and specify for the storage period;
(ii) Have control over human trials;
(iii) Ensures ethical practice being adhered to such as consent, advertising of facilities, rights to information, etc.

It is observed that Article 83 provides that the Judicial Yuan (Ministry of Justice) to set up special court to handle medical disputes and litigations with a judge with professional medical knowledge and trial experience. However, in reality, most complaints are settled by the individual medical institutions by compensating any faults done using a fund kept for this purpose.

Teaching hospitals are to get accreditation from DOH and Competent Education Authority. However, accreditation of teaching medical institution in Malaysia is done by the Malaysia Medical Council.

The Act requires the setting up of a Medical Review Committee to review improvement of medical care, new technology, promote ethics, establishment of new hospitals, specialist services etc.

Under the Malaysia healthcare system, the Private Healthcare Facilities and Services Act 1998 (PHFSA) also have similar control but does not allow clinics to have beds. Although
this Act provides zoning, however in practice this is not being enforced fully, it is currently being applied for establishment of private hospitals only.

There is no provision in our law to compel medical institution to allocate a percentage of their income to research, corporate social responsibility, or CME.

The provisions for medical practices are found in PHFSA, Medical Act, whereas policies on medical practices in MOH hospitals are found in the administrative directives. Under 1Care, the administrative directives and some provisions under Medical Act can be used to improve PHFSA and the future common law to be used by both public and private hospitals. Medical Act should concern itself for matters relating to registration of doctors, setting of standards of professional qualifications. The practices aspects should be incorporated into the future legislation under 1Care.

In 1Care, alternative dispute resolution methods such as mediation should be prescribed. The mediators may be appointed by MOH with terms and references being determined. The setting up of Medical Review Committee both at Central and State level is pertinent when 1Care is implemented to oversee the medical affairs.

3.7. Other health related Acts and directives

These are laws to supplement coverage in providing healthcare services to the less privileged groups: Example;

3.7.1. People with Disabilities Rights Protection Act 2007

For MOH, most of these regulations or administrative directives may be adopted with modification to provide a comprehensive care program in 1Care. Areas to consider are care for the elderly, Orang Asli, urban poor, etc.


This act provides comfort and compensation to Hansen Diseased Persons which is very specific to this group of patients.

3.7.3. HIV Infection/control and Patient Rights Protection Act 1990 (amended 2007)

There are related regulations protect the dignity and rights of the infected. Also the rights of personnel to safeguard themselves and compensation to persons infected with HIV in line of duty.
For MOH, since HIV/AIDS is on the decline and the present situation is under control there is no need to have a special law for this. The present Prevention of Communicable Diseases Act is sufficient to cater for the various situations.

3.7.4. Senior Citizens Welfare Act

This provides for the healthcare which stipulates for the caring institution for elderly people (Home Care/Community Care/Institutional Caring Services)

3.7.5. Other administrative directives to take care of special groups

Other target groups which are also covered under the NHI system, namely:
- New immigrants especially spouse of citizens and health screenings for foreign labours
- Long-Term Care for the Elderly with Dementia and Disabilities
- Yusho Disease (PCB related poisoning since 1979)
- The financially-disadvantaged

In Malaysia, presently the foreign labourers are screened for infectious disease and others have to subscribe to a specific insurance scheme to access to government hospital (SPIKPA)

3.7.6. Personal Information Protection Act and other ICT related laws:

There are provisions to describe the rights of personal information including the exceptions to the main rule. The exception includes use of information by government institutions without consent as long it is in line of its function. Consent from the insured is therefore not required. Official functions covered by law include those operated under the activities of NHI, control of infectious diseases, etc.

The Article 69 of the Medical Care Act stipulates the use of electronic medical records (EMR) in healthcare facilities without the need of paper documentation. The production of medical records is guided by Article 67 & 68 in the Medical Care Act. This is supported by the Electronic Signature Act for health certification.

Apart from these, the “EMR Regulation” which is a specific regulation on governing production and management of electronic medical records in medical care institutions’. Article 7 of the EMR Regulation stated that medical institutions that implement their EMR systems must make registration to the central/ regional health authority. As such, all medical institutions are linked to the central agencies, namely DOH and BNHI under the system for the management of patients’ databases.
A strong and secure ICT regulation is proven to be a useful essential in NHI. It would be the same when the future Long Term Care Insurance Act comes into being next year.

MOH: This is a useful clause to facilitate the duty of the future NHI body without fear of breaching the requirement of consent for use of personal information.

A sound IT infrastructure and regulation is necessary to for a social insurance scheme to be implemented as demonstrated by Taiwan experience. Malaysia has the necessary IT regulatory component but lack a proper infrastructure in the healthcare delivery system.

3.7.7. Regulations Governing Contracting and Management of the NHI Medical Care Institutions

This regulation describes the conditions and obligations of contracting parties viz. BNHI and medical care institutions. There are generic contract formats for different categories of medical care, e.g. medical centre, regional hospital, district hospital, clinics, traditional Chinese medicine, pharmacy etc.

3.8. Effects of the Acts:

3.8.1. To the population:

Approximately 99% of the people in Taiwan have access to healthcare. Since there is no system of gatekeepers, patients are free to choose providers for consultation and the frequency of visits are indirectly unlimited. The out-of-pocket co-payment is not a deterrent to this health seeking behavior.

Patients prefer to go to large hospitals rather than smaller ones or clinics because of the perception that larger hospitals provide better quality services.

3.8.2. To the Healthcare Facilities:

There is the condition that only not-for-profit hospitals can participate with the NHI. Due to the economics of scale, this has resulted in smaller facilities are forced to close down or amalgamate with corporate hospitals. Thus, the number of corporate hospitals has doubled in the last 15 years. Larger hospitals with beds with more than 1000 beds and above are being built increasingly. Interesting to note that since the implementation of NHI (1995), the total number of hospitals is on the decline with decrease by 39%. On the other hand, the total number of hospital beds has increased by 44%.

The regulation provides zoning and control on over building of healthcare facilities. For example no new hospitals are allowed to be built in Metropolitan Taiwan.
There is a limitation on the production of doctors. Annual production of new doctors is capped at 1300 in numbers. Similarly, there is no new medical school allowed to be built. However, the production of pharmacist, nurses and others are not capped.

3.8.3. Upholds patients rights:

Article 1 of the Medical Care Act expressed the will of the government to protect patients’ right.

Example of rights is as below;

- Right to access medical service to all health facilities (registered with NHI).
- Right to emergency treatment without having to pay first.
- Right to be referred to higher standard of care if his condition warrants.
- Right to complaint (to the NHI mediation committee)
- Right to information on the services and standard of care of NHI contracted institutions.
- Right to receive treatment despite of failure to produce identification.
- Right to protection of personnel information

Presently, under MOH, these rights are more than those found in the PHFSA.

3.8.4. Modifying health seeking behavior:

NHI Act promotes proper professional practice in a facility. There are standards of care to comply with before eligible for payment.

Patients will have to bear the cost of treatment if he fails to follow medical advice for e.g.

- patients will not be covered by NHI if he absconds from the hospital
- excessive hospitalization
- inappropriate repetitive medical visits
- undergo medical treatment in non contracted medical facilities
- violating relevant medical procedures

3.8.5. Brain drain:

Doctors from smaller hospitals shifted to bigger hospitals since the smaller ones cannot afford to give better pay because of lesser volume of patients.

3.8.6. Promote Accountability:

The law requires only qualified and licensed healthcare professionals to contract with BNHI, e.g. Pharmacist In-charge of a pharmaceutical service of any institution is answerable
on behalf of the institutions or services in matters related to pharmacy. They are issued with a smart card.

3.8.7. Ensuring better quality care:

Contracting facilities will have to meet the standards of healthcare of professionals and services set up by the BNHI. Only accredited hospitals by the DOH can contract with BNHI.

3.8.8. Promote self-regulation

The provider is given the flexibility to determine ways to meet the standards of care and facilities as long as it meet the provisions of the law and policies of DOH which is enforced by BNHI.

The reimbursement claims which is tied up with medical performance and quality indicators as provided by law is constantly reviewed by the Electronic Claims Review System of the BNHI. In addition, correctness of claims with regard to Fee Schedule, pharmaceutical reimbursement and standard price are also monitored.

Regulations and negotiation review decisions help in providing control measures.
It is also observed that this promotes self discipline and compliance to the standards set. Although it requires constant monitoring through electronic means, it does not require constant policing of health facilities by the DOH. Any non-conformance will face deduction of payment. Non-complying doctors or facilities will face peer review committee. If found guilty they are at risk of being de-registered by BNHI or face stiff fines.

Under MOH, self regulation is the way to go for the health industry. Using criminal justice system to control a health industry invites several adverse consequences which include

- Public naming and shaming of a health facility
- Erodes public confidence in modern medicine.

Indirectly, implies that the government-of-the-day cheats the public if it involves a public hospital.

(i) Transparency:

NHI computer system allows provider to view the performance of other institutions. The public can also access to the quality indicators of all institutions to make their own judgment e.g. infection rate, disease-specific indicators, HBA1C rate etc.
The Peer Review with Medical Association for specifications laid down by NHI are discussed and decision reached by consensus.
(ii) Upholds credibility of healthcare provider:

Appeal by any provider can be channeled to the Dispute Appeal Committee composed of officials from DOH and medical experts. Effectiveness in providing feedback to professional through the system has thereby able to reduce antibiotic abuse, unnecessary services or inadequate treatment. This provides useful feedback to the Medical Association.

(iii) Changing Health Laws

a) In just 11 years after the NHI program was implemented in Taiwan, the NHI and Medical Care Act have seen several amendments or planning to be enacted to meet the challenges such as below;

Under MOH, the experience from Taiwan that looked into knowledge of SHI of other countries, economic, social-cultural and political forces situation when drafting the NHI Act should our lesson learnt when drafting the future NHI here. The present challenges faced by Taiwan such as aging society, economic stagnation and imbalanced NHI chequebook should be our guide too. Taiwan experience shows that a good healthcare delivery system cannot last forever and needs regular review.

b) Long Term Care (LTC):

There are 2 Acts to be enforced in the near future, namely, The LTC insurance Act and the LTC Service Act. These acts are promulgated to answer the rapidly aging society's need for long term care. The law will cover saving for old age which start from 40 year old person, matters related to care including cash benefits, home nursing and quality of carers including using foreign maids. This piece of law seemed to be an after-thought after NHI could not extend the benefit package to include this due to financial constraint.

This statute complements the existing care for the aged e.g. Senior Citizens Welfare Act, Article 16 on Standards on Classification and Establishment of Nursing Homes.

For MOH, Malaysia should look into the financing of care for the aged even though it does not posed as a health problem current, as it costs so much to care for this group. Anyway, our population is progressively moving to become an aged society in the few years to come.
The regulations on Home Care Nursing under the PHFSA and hospice should be enforced. This is necessary to gain experience from the implementation for 1Care to provide a comprehensive package for the population.

c) Household premium
   This is part of the 2\textsuperscript{nd} Gen NHI to increase its revenue from payroll to household income and abolishing the categorization of premium holders.

d) BNHI as a quasi-government versus a government body;
   The debate never ends where if BNHI is a separate independent body it must be financially sustainable. If not, as in Taiwan case, after facing heavy financial deficit it received so much criticism and forced to became a bureau under DOH. However, DOH’s role would be the same as before i.e. acting both as the regulator and as well as the provider and this is seen as conflict of interest.
   It would be a different perception if BNHI is put under a different non-health government agency, say under Department of Labour.

3.9. **Summary**

From regulatory and enforcement aspects:

3.9.1. **A social health insurance was being implemented for several groups before the NHI system comes into place. This provides experience for the country in providing health insurance coverage for all citizens.**

For MOH, this could be implemented in phases for certain category of people/employees. It is recommended that certain parts of the system can be implemented in a pilot setting to gain experience before embarking on a large scale program.

3.9.2. **The Medical Care Act allows for regulation and monitoring of both public and private healthcare facilities and services.**

It is proposed that both public and private healthcare facilities and services be regulated by a common law. The provisions of the PHFSA can serve as the basis for this new Act.

3.9.3. **The BNHI is the insurer which will administer insurance business as provided by Art 8 NHI Act.**

MOH: There has to be a new legislation to provide for health insurance system and formation of a body to administer this system. It is proposed that the future responsible for health insurer is established as a statutory body under the MOH.
Chapter 3:

Financing - Taiwan National Health Insurance

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4. Taiwan National Health Insurance

4.1. Introduction (Health in Taiwan – Characteristics, Status, Indicators)

Taiwan is a country located at the Eastern part of Asia with the land area of 36,191 km². The country is made up of a main island, offshore islands, and mountainous regions. In 2010, its population reached 23 million. It has an aging society which encounters about 10.74% of its population. Taiwan’s birth rate has steadily declined over the years and currently is one of the lowest in the world at 0.895%. In 2010, the life expectancy rate is 76.2 for male and 82.7 for female. The GDP is USD 18,588 per capita and the National Health Expenditure in GDP is 6.9% (2009). In 2009, the leading causes of death were chronic diseases such as malignant neoplasms, heart diseases, cerebrovascular diseases, pneumonia, and diabetes mellitus. Taiwan’s Healthcare system is a mix of public and private provider. In 2010, there were a total of 508 hospitals and 20,183 clinics in the country.

4.1.1 Department of Health, Taiwan

4.1.1.1 Health Administrations

Healthcare in Taiwan is administrated by the Department of Health (DOH) which is the highest competent executive agency of the Executive Yuan. The health administration originally consisted of three levels of agencies: central, provincial, and county/city. However, in keeping with the Local Government Act (1999), health administration and organization were streamlined down to just two levels: central, direct municipalities/counties. The two levels structure makes the healthcare system a decentralized system. See Figure 4.1.1

Figure 4.1.1: Organization Structure of the Health Administration
Taiwan’s Healthcare system is governed by the Department of Health headed by the Health Minister. The main function for DOH is policy development and regulations. DOH as the highest authority on health is responsible for national-level health administration and the guidance, supervision and coordination of local health agencies in Taiwan. This includes the function for administration of the public health system, affordable and universal health care, hospitals, pharmaceutical, immunization programs and disease prevention.

The Minister for Health is the political head of the DOH. The minister is supported by two deputy ministers. The Secretary General is the top civilian bureaucrat in the department. The Department aims to maintain the health of all people in Taiwan by driving forward various health-related tasks with the hope that everyone will receive "friendly, convenient and efficient" health and medical service.

Current DOH vision(s) is to promote and protect the health for all and to let people live longer and happier. The DOHs chief policy objective is to promote a healthy living environment, allowing everyone to have full access to quality healthcare service and accurate health information, so that each individual can enjoy the right to health and take responsibility for maintaining their well being. This objective consists of establishing a social security network of national health insurance, improving the standard of medical care and well-being of people in Taiwan, eliminating the threat of infectious diseases, protecting the rights of medical consumers, developing medical/health technology and engaging in international cooperation.

Health administrations on local level are: the health departments or bureaus, established in direct municipalities or county/city governments. This local departments or bureaus are responsible for regional health administration affairs, totaling 25 across the country. One health station is established in each township, totalling 371 around Taiwan. These local establishments are responsible for executing preventive health care services on a regional level.

4.1.2 The Department of Health (DOH), the Executive Yuan

The Department of Health consists of 6 bureaus and committees, they are the Bureau of Medical Affairs, the Bureau of Pharmaceutical Affairs, the Bureau of Food Safety, the Bureau of Nursing and Healthcare, the Bureau of International Cooperation and the Bureau of Planning, plus several mission-driven agencies, such as National Health Insurance Task Force, the Information Management Center, the Science and Technology Unit, and the Hospital Management Committee.
Recently, in 2009 the Long-Term Care Insurance Preparatory Task Force was set up to address promotional campaigns and preparatory arrangements for long-term care insurance systems.

The second tier sub agencies reporting to the DOH are: the Bureau of National Health Insurance, the Centers for Disease Control, the Bureau of Health Promotion, the Food and Drug Administration, the Bureau of Controlled Drugs, the Committee on Chinese Medicine and Pharmacy, the NHI Supervisory Committee, the NHI Dispute Mediation Committee, the NHI Medical Expenditure Negotiation Committee, 22 DOH-affiliated hospitals, 6 DOH-affiliated sanatoriums and 1 Chest Hospital.

The Bureau of National Health Insurance was reorganized to be an administrative organization under DOH on 1st January 2010 due to the interest of the public. The DOH also financially supports the Corporate National Health Research Institutes, the Corporate Center for Drug Inspection and Examination, the Taiwan Joint Commission on Hospital Accreditation, the Corporate Foundation for Compensation for Drug Hazards and the Taiwan Organ Registry and Sharing Center. These are the Accreditation and Regulatory Agencies reporting to the DOH, except for the Taiwan Organ Registry and Sharing Center. See Figure 4.2.

The DOH initiated review and assessment of local authorities were designed to objectively measure and showcase the annual administrative performances of these regional establishments, and encourage them to improve public service quality and health administration efficiency. In light of the regionally distinct administration demands of various counties and cities, DOH integrates and streamlines the original assessment accordingly, simplifying the items into three major categories of:

- Disease Control and Health Promotions
- Food and Drugs
- Medical Care

Supervising agencies of the local health centres are in-charge of handling follow-up incentives arrangement after evaluation.
Figure 4.1.2: Organization of Department of Health, the Executive Yuan

- Minister
  - Deputy Ministers
    - Chief Secretary
      - Counselors
- Bureau of Medical Affairs
- Bureau of Pharmaceutical Affairs
- Bureau of Food Safety
- Bureau of Nursing and Healthcare
- Bureau of International Cooperation
- Bureau of Planning
  - Secretariat
  - Personnel Office
  - Accounting Office
  - Statistics Office
- Civil Service Ethics Office
- Legal Affairs Committee
- Petition and Appeals Committee
- National Health Insurance Task Force
- Information Management Center
- Science and Technology Unit
- Health Education Promotion Committee
- Public Relations Office
- Congressional Liaison Unit
- Hospital Management Committee
- Long Term Insurance Preparatory Task Force
- Bureau of National Health Insurance
- Centers for Disease Control
- Bureau of Health Promotion
- Bureau of Food and Drug Analysis
- Bureau of Controlled Drugs
- Committee on Chinese Medicine and Pharmacy
- NHI Supervisory Committee
- NHI Dispute Mediation Committee
- NHI Medical Expenditure Negotiation Committee
- Hospitals (22)
- Sanatoriums (6)
- Chest Hospital (1)
- Corporate National Health Research Institutes
- Taiwan Joint Commission on Hospital Accreditation
- Corporate Foundation for Compensation for Drug Hazards
- Taiwan Organ Registry and Sharing Center
- Corporate Center for Drug Inspection and Examination

- Directly affiliated
- Business association
4.1.3 Function of each organization

4.1.3.1 Bureau of Planning

In order to improve the Department’s overall efficiency, along with ensuring that governance responsibilities, and the needs of the public are being met, this division is responsible for the following tasks:

1. Health Planning
   - Implementing government organizational reform plans, by carrying out the organizational re-assignments for this Department and its various operational units.
   - Carrying out research and planning for health policy integration project.
   - Research and planning for the Department’s policy and program objective and annual governance reports.
   - Following up on administration for international travel related activity reports. Developing follow ups on the Department’s international lifestyle environment development and short-term employment stimulus plan.
   - Conducting health policy related conferences.
   - Preparing annual governance report to the legislature for their oversight.
   - Training of Health personnel.

2. Health Professions evaluation and accreditation
   - Social development plan annual performance accreditation evaluations and review.
   - Public infrastructure plan annual performance accreditation evaluations and review.
   - Medium term projects annual performance accreditation evaluations and review.
   - All departmental units’ annual performance evaluations and effectiveness review.
   - Administration and maintenance of the minister’s email system.
   - Performance evaluations of services to the public.
   - Follow-ups on delegated programs or decisions of the Executive Yuan or interdepartmental meetings.
   - Administration of official documents.
   - Matters related to invitations of mainland (China) health experts visitations to Taiwan.

3. Health policy promotion
   - Health policy promotion
   - Publication of health report
• Publication of Taiwan Public Health Report
• Health care voluntary service
• Gender impact assessment
• Health policy survey
• Department of health publication management
• Institutional risk management and risk response

4.1.3.2 Bureau of Medical Affairs

1. The Bureau of Medical Affairs is responsible for 8 main functions as listed below:
   • Planning the master plan of medical services
     ➢ Aim: equitable distribution
     ➢ Base on populations density
     ➢ In 6 regions and 63 sub-regions
     • Nursing
     • Policy and Regulation – expand medical care act.
     • Medical council
     • Postgraduate education
     • Hospital accreditation
     • A&E (ambulance services under fire department) and
     • R&D-clinical trial

2. In 1985 Medical Care Act (MAC) was passed that initiated a health care network project to balance the distribution of medical care resources, to shorten regional differences, to avoid repetitive investment on medical care and to raise the medical care standard in every region.

3. 17 medical regions were created with 63 sub-region base on the criteria of population density. MAC specify the number of acute beds per 10,000 population (50 acute beds/10,000 population or 12.5 beds acute beds /10,000 population for regional hospital) and local health bureau/department are given the responsibility to implement by using operation license.

4. The Bureau also is responsible for dental services that are via dental committee.

4.1.3.3 Hospital Management Committee

1. The Hospital Management Committee is responsible to monitor public hospital performance and appoint the medical superintendent.

2. This committee acts as board members for public hospital.
4.1.3.4 **Bureau of International Cooperation**

1. The personnel consist of Director, Deputy Director and Senior Technical Specialist

2. The Bureau is divided into 3 Sections: General planning, Bilateral Regions and International Organisations

3. The main duty of each section as listed below:
   - Mainland Affairs, general planning
   - Bilateral medical and health cooperation, international medical assistance, medical and health personnel training
   - Promoting the participation in and cooperation with health related international organizations

4.1.3.5 **Statistics Office**

1. The DOH Office of Statistics provides health and vital statistics which reflect the current situation of public health and national well-being and projected trends of development. The office shall serve as resource for the government when making and implementing the health policy.

2. The Office of Statistics is responsible for computing the following statistics:
   - Vital statistics (including statistics for causes of death)
   - Statistics on the current conditions and service of hospitals/healthcare centres
   - Statistics on national healthcare spending (including national healthcare accounting)
   - Statistics on national healthcare (including statistics on diseases)
   - Statistics on the National Health Insurance Plan (including medical payment under insurance coverage)
   - Statistics on the operations of DOH hospitals
   - Health-related statistical indicators
   - Statistics on DOH and its official functions
   - A compilation and comparison of international health-related statistical indicators.

3. With this information, the Office of Statistics prepares statistical and analytical reports, combining statistics from other departments for application purposes and further analysis, whenever necessary.
2.1.3.6 NHI Medical Expenditure Negotiation Committee

1. The NHI Medical Expenditure Negotiation Committee is in charge of negotiating the global budget and its allocation under the directives of the National Health Insurance Act and performing the following tasks:
   - Within the extent of global budget approved by the Executive Yuan, negotiating the global budget for national health insurance and budget allocation.
   - Negotiating the allocation ratios for ambulatory care and inpatient expenditures in respective districts.
   - Negotiating the allocation ratios for ambulatory care service providers of Western medicine, Chinese medicine and dentistry, the pharmaceutical services of pharmacists, and drug expenditure as well as the system of account separation for medical and pharmaceutical expenses.
   - Negotiating a certain percentage of the excess to be deducted from the quarterly global budget for ambulatory care expenditure when outpatient drug expenses exceed the preset global budget for drug expenditure.
   - Reviewing other medical expenditure items as instructed by the competent authority.

2. The global budget system for medical expenditure was a new system that had never been practiced in the country before. Therefore, the Department of Health (DOH) implemented this system in phases and applied it universally starting July 1, 2002.

3. The implementation status of the global budget system in each service sub-sector is summarized as follows:
   - Annual budget for medical expenditure under the national health insurance (NHI): Based on the scope approved by the Executive Yuan, the Committee has been negotiating since 2001 the global medical expenditure budget (grand total) and budget allocation for each fiscal year. Following negotiation, the 2011 global budget grows by 2.692% on a year-on-year basis.
   - Global budget for dental care: The global budget system for dental care was implemented on July 1, 1998. The negotiated global budget for regular dental care for 2011 grows by 0.541% on a year-on-year basis. Combined with a budget of NT$1,036.5 million designated for special programs, the 2011 global budget for dental care grows by 1.607%.
   - Global budget for Chinese medicine outpatient care: The global budget system for Chinese medicine outpatient care was implemented on July 1, 2000. The negotiated global budget for regular Chinese medicine care for 2011 grows by 2.482% on a year-on-year basis. Combined with a budget of NT$249.4 million designated for special programs, the 2011 global budget for Chinese medicine outpatient care grows by 2.370%.
• Global budget for Western medicine primary care: The global budget system for Western medicine primary care was implemented on July 1, 2001. The negotiated global budget for regular Western medicine primary care for 2011 grows by 1.197% on a year-on-year basis. Combined with a budget of NT$1,872 million designated for special programs, the 2011 global budget for Western medicine primary care grows by 1.716%.

• Global budget for hospital care: The global budget system for hospital care was implemented on July 1, 2002. The global budget for regular hospital care for 2011 as approved by the Department of Health grows by 3.171% on a year-on-year basis. Combined with a budget of NT$10,783 million designated for special programs, the 2011 global budget for hospital care grows by 3.007%.

4. Committee members
- The committee operates within a collegiate system, which consists of:
  - 9 representatives from medical service providers
  - 9 representatives from healthcare payers and the academic circle,
  - 9 representatives from relevant government agencies
- One (1) of the 27 members will act as the chairperson of the committee.
- Each member has a 2 year term, and may be extended.
- The chairperson and the members from academic circles are selected by the Minister of the Department of Health, while the other members are selected by other agencies and organizations at the request of the Department of Health.

5. The make-up of the committee is as follows:
- The 9 representatives from medical service providers are recommended by medical care institutions at four levels, and national physician’s, traditional Chinese medicine, dentistry, pharmacy, and nursing associations.
- The 9 representatives from healthcare payers and the academic circle except the experts, and scholars, are recommended by the Chinese National Federation of Industries, General Chamber of Commerce of the Republic of China, Chinese National Association of Industry and Commerce, Taiwan Farmer’s Association, Taiwan Provincial Fisherman’s Association, national labor unions, and consumer groups.
- The 9 representatives from relevant government agencies, with the exception of the chairperson, are recommended by the Ministry of Civil Service, Ministry of the Interior, Ministry of Finance, Council of Labour Affairs, Directorate-General of Budget, Accounting and Statistics, Taipei City Government, Kaohsiung City Government, and the Department of Health.

6. In future business development, the Committee will focus on the following undertakings:
• Establishing a fair and transparent negotiation mechanism for reasonable negotiation and allocation of global budget for NHI medical expenditure.
• In line with the DOH policies, changing the deployment and distribution of NHI medical resources and encouraging the improvement of service efficiency and outcome through budget allocation to materialize the ideal of purchasing health, not just health care.
• Taking into consideration the performance of respective service sub-sector in the implementation of the global budget system and the results of quality improvement in the global budget negotiation to encourage continuing enhancement of efficiency and quality by each service sub-sector.
• Building a global budget negotiation database to make scientific data on annual negotiation available and periodically monitoring and evaluating the implementation results of negotiated global budget to make sure the annual plan and the objectives of reform are realized.
• Continually evaluating and improving the global budget negotiation method and process.

2.1.3.7 Science and Technology Unit

1. Mission
• To establish an evidence-based, innovative and cost-effective research culture in science and technology to improve human health
• To promote major research projects and encourage exchange of knowledge and technology among academics in medical, pharmaceutical and health-related fields

2. Goals
• To strengthen our management in science and technology research
• To expand our medical, pharmaceutical and health-related resource capacity for research

3. Strategies
• To plan and improve our scientific policies in medical, pharmaceutical, and health-related research
• To evaluate and utilise our research findings and results in science and technology management
• To strengthen our all aspects of performance and strive for ongoing improvements
• To foster science and technology research and to produce more trained workers for science and technology management
• To establish a better research environment and promote exchange of information in science and technology development
2.1.3.8 Long-Term Care Insurance Preparatory Task Force

1. The DOH on July 23, 2009 officially established the Long-Term Care Insurance Preparatory Task Force, which is responsible for detailed planning work of the long-term care insurance system.

2. Some major tasks of this group include drafting the Long-term Care Insurance Act, undertaking survey on the national need for long-term care, and drawing up the long-term care insurance coverage and disbursement system.

2.1.4 Characteristics of National Health Insurance (NHI)

4.1.4.1 Overview of the NHI Program

The current health care system in Taiwan, known as National Health Insurance (NHI), was instituted in 1995. It is founded on the principle that everybody should have equal access to health care services.

NHI is a single-payer compulsory social insurance plan which centralizes the disbursement of health-care funds. The system promises equal access to health care for all citizens, and the population coverage had reached 99.51% by the end of 2010.

4.1.4.2 Financing

NHI is mainly financed through premiums, which are based on the payroll tax. The premium is shared by the employee (insured), employers, and government (both the central and local governments). Other revenues come from outside sources, e.g.: fines on overdue premiums, public welfare lottery contributions, health surcharge on cigarettes.

NHI financing is design to be self-sustained and responsible for its own deficits. By law, the BNHI cannot be for-profit and is required to maintain a reserve fund equal to one month of medical expenditure at least.

4.1.4.3 Benefits

Comprehensive and uniform benefits package covered by the program, however co-payment is required. Privileges premium and copayment subsidies for the disadvantaged.

Providers are contract based. More than 19,000 (92%) contracted health care facilities around the country offers inpatient and ambulatory care, dental services, traditional
Chinese medicine therapies, child delivery services, physical rehabilitation, home nursing care and chronic mental illness.

The 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 NHI 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 budget from Bureau of Health Promotion.

4.1.4.4 Payment

In the initial stage, Taiwan’s health care providers were reimbursed based on standard uniformed fee-for-service schedule. Most health providers operate in the private sector form a competitive market on the health delivery side and took advantage of the system by offering unnecessary services to a larger number of patients and then billing the government. This led to a spiraling growth of medical cost.

Later, in the face of increasing loss and the need for cost containment, NHI introduced a global budgeting system with capping overall expenditures in four medical sectors – dental, traditional Chinese medicine, Western medicine clinics and hospitals. By doing this prospective payment, it was phased in between 1998 and 2002. Another sector, ESRD has since also come under a global budget.

Under the global budget payment system, the NHI Medical Expenditure Negotiation Committee convenes and negotiates overall caps on total medical payments based on a set of equations and indicators prior to the beginning of a fiscal year.

A fee schedule covering more than 4,526 medical service items, 8,769 medical devices and materials, and 16,000 drugs, remains the main base used by the BNHI to reimburse providers with a pre-decided reimbursement cap. Other payment methods have been introduced, such as Pay-for-Performance (P4P) and a Taiwanese version of the Diagnosis Related Groups (Tw-DRGs)

The P4P system, first introduced in 2001, currently being used for breast cancer therapy, diabetes, asthma and hypertension treatment, schizophrenia, hepatitis B/C carries and chronic kidney disease.

The BNHI has adopted 164 diagnosis-related groups into practice since January 2010, and the DRG payment system would take 5 years to phase in the complete; the total number of diagnosis-related groups is 1029.
4.1.4.5 Claims Review System

A part of governing the healthcare system, BNHI is required to review reimbursement claims filed by contracted medical institutions. BNHI will screen the type, volume, quality and appropriateness of medical services provided under the NHI program.

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, and patient conditions (age, gender, indications) etc. The system helps to conduct profile analysis to monitor service utilization abnormalities among hospitals. Those outliers will be picked up to undergo closer peer scrutiny.

The review process includes two parts – procedural reviews and professional reviews. Medical service claims that are found to have violated insurance regulations will not be reimbursed with the reason noted on the file. Professional reviews of selected claims are conducted by a panel of related medical experts.

If the health care provider disagrees with the result of an audit, by law they can appeal against the decision. The BNHI commissions another peer review to evaluate the claims. If still dissatisfied with the result, the provider can appeal to the DOH’s Dispute Mediation Committee, which will serves as a device of grievance before the case makes its way to the judicial process.

4.1.5 Historical Background of NHI and Health Sector Reform

Before the existence of NHI, Taiwan has multiple social insurances i.e.

<table>
<thead>
<tr>
<th>No</th>
<th>Year</th>
<th>Insurance</th>
<th>Benefits</th>
<th>Coverage</th>
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<tbody>
<tr>
<td>1.</td>
<td>1950</td>
<td>Labor Insurance Insurers :&lt;br&gt;- Workers of government-run enterprises&lt;br&gt;- Private company employees&lt;br&gt;- Other blue-collar employees&lt;br&gt;- Fishermen&lt;br&gt;- Skilled hands&lt;br&gt;- Drivers&lt;br&gt;- Janitors of government agencies 15 – 60 years old</td>
<td>Cash compensation for child birth&lt;br&gt;Illness&lt;br&gt;Work-related injuries&lt;br&gt;OP and IP medical services</td>
<td>40.1 %</td>
</tr>
<tr>
<td>No</td>
<td>Year</td>
<td>Insurance</td>
<td>Benefits</td>
<td>Coverage</td>
</tr>
<tr>
<td>----</td>
<td>------</td>
<td>----------------------------------</td>
<td>--------------------------------------------------------------------------</td>
<td>----------</td>
</tr>
</tbody>
</table>
| 2  | 1958 | Government Employees’ Insurance Insurers:  
- Employees of government agencies  
- Elected public officers | Childbirth  
Physical examination  
Disease prevention  
Medical treatment for injury and illness | 8.5 %    |
| 3  | 1985 | Farmers’ Insurance Insurers:  
- Members of farmer association  
- Individual farmers aged > 15 years old | Compensation for childbirth  
Injury  
Illness  
Disability  
Death | 8.2 %    |

1987 Health Sector Reform Planning

4. 1990 Health Insurance for Low Households

1994 10 health insurance program within the social insurance framework 59 %

5. 1995 National Health Insurance

- Coverage:  
  Disease  
  Injury  
  Child Delivery  
- Scope:  
  Inpatient care  
  Outpatient care  
  Prescription drugs and certain OTC drugs  
  Dental services (ortho and prosthodontics excluded)  
  Traditional Chinese medicine  
  Day care for the mentally ill  
  Home nursing care

Taiwan started its health reform in the 1980s after experiencing two decades of double digits economic growth with democratic movement. People asked and put pressure on government to implement NHI. It was No 1 issue during legislator elections from 1980 – 1990. In 1987, the government set up The Council for Economic Planning and Development (CEPD) which acts as planning commission and looked abroad to study other countries’ health care systems. Taiwan looked at more than ten countries and combined their best qualities to form their own unique system.

In 1990, DOH took over the task and established in 1993 a Preparatory Office for NHI to engage in various preparations. In 1994, the NHI past the third reading in the Legislative
Yuan and became law. In 1995, Taiwan established the Bureau of National Health Insurance (BNHI) and NHI program was launched. NHI model is fundamentally the United States Medicare model.

### 4.1.6 BNHI Structure and Organizational Chart

Taiwan's NHI system is a social insurance program administered by the government. The three main components of the NHI system are the insured, the contracted healthcare providers and BNHI. The BNHI collects premium from the insured and issues insurance cards (Smart card). The medical providers make claims to BNHI for reimbursement of the services they have provided.

The BNHI is the executive organization of the NHI program. The DOH has jurisdiction over the Bureau and has established three committees under the NHI Task Force – the NHI Supervisory Committee, the NHI Dispute Mediation Committee, and the NHI Medical Expenditure Negotiation Committee. These three committees together with the BNHI, serves as agencies for planning monitor tasks performance and handling NHI related affairs.

The BNHI has the functions of planning, promotion, execution, supervision, research and development, training, information management and monitor tasks performed related to NHI. In additional to the headquarters, the BNHI has established six regional divisions across Taiwan. See Figure 4.1.3

**Figure 4.1.3: Organization Chart of the Bureau of National Health Insurance**

<table>
<thead>
<tr>
<th>Department of Health, Executive Yuan</th>
<th>NHI Supervisory Committee</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NHI Medical Expenditure Negotiation Committee</td>
</tr>
<tr>
<td></td>
<td>Enrollment Division</td>
</tr>
<tr>
<td></td>
<td>Finance Analysis Division</td>
</tr>
<tr>
<td></td>
<td>Medical Affairs Division</td>
</tr>
<tr>
<td></td>
<td>Planning Division</td>
</tr>
<tr>
<td></td>
<td>Medical Review and Pharmaceutical Benefits Division</td>
</tr>
<tr>
<td></td>
<td>Information Management Division</td>
</tr>
<tr>
<td></td>
<td>Administrative Function</td>
</tr>
<tr>
<td></td>
<td>Secretariat</td>
</tr>
<tr>
<td></td>
<td>Personal Office</td>
</tr>
<tr>
<td></td>
<td>Civil Services Ethics Office</td>
</tr>
<tr>
<td></td>
<td>Region Branches</td>
</tr>
<tr>
<td></td>
<td>Taipei Division</td>
</tr>
<tr>
<td></td>
<td>Northern Division</td>
</tr>
<tr>
<td></td>
<td>Central Division</td>
</tr>
<tr>
<td></td>
<td>Southern Division</td>
</tr>
<tr>
<td></td>
<td>Kaoping Division</td>
</tr>
<tr>
<td></td>
<td>Eastern Division</td>
</tr>
</tbody>
</table>

NHI Dispute Mediation Committee
These regional divisions handle directly local insurance applications, premium collection, claims review and reimbursement, and management of contracted medical institutions. Until December 31, 2010, the Bureau had 3,075 employees who are dedicated to providing the highest level of health care to Taiwan’s people.

4.1.7 Current status of NHI

4.1.7.1 Universal Coverage

The NHI program has successfully provided universal coverage, health care of up-to-par quality, comprehensive benefits, and convenient access to treatment, while keeping premiums low and health care expenditures under control. Socially and economically disadvantaged households have uncompromised access to the system through the many subsidies provided by the Bureau, and average households are protected from the fear of losing their health insurance from the fear of losing their health insurance or going bankrupt over medical bills. Satisfaction rate among public consistently above 70%.

4.1.7.2 Access to Health Care

By end December 2010, 99.51% of population was enrolled in the program. As of 2010, 19,388 hospitals and health care providers (92.13%), were contracted by the NHI system. Other facilities which were also contracted with the BNHI are:

- 4,706 pharmacies
- 528 nursing home
- 159 psychiatric community rehabilitation centers
- 14 midwife clinics
- 211 medical laboratories
- 15 physical therapy clinics
- 9 medical radiology institutions
- 1 occupational therapy clinic

Insured under the NHI program enjoys the freedom to choose any of these contracted facilities and institutions for treatment. These extensive resources also result in the absence of long waiting times to visit a doctor or undergo surgical procedures.

4.1.7.3 Financial Status

In 2010, the NHI system totaled revenues of NT$461 billion, with 95% coming from premiums, 5% from health surcharge on cigarettes, contributions from public welfare lotteries and investment income. Of the premiums, 38% were paid by the insured, 36% by insurance registration organizations (employers), and 26% by government agencies. By
law, the ceiling for personnel and administrative cost of BNHI is limited up to 3.5% of the total expenses, and the budget comes from the DOH.

Being a single payer in the healthcare market, the BNHI has successfully kept transaction and administrative costs to be around 1.6%. For medical expenditures minus the amount of copayment in 2010 totaled NT$443 billion. 67% of total expenditures were for hospital sector, 21% for clinics, 7% for dentals, 4% for Chinese medicine, the remainder (1%) for other designated uses.

4.1.7.4 Subsidy Programs for the Poor

To ensure that all of Taiwan’s citizens have access to care, a social safety net encompassing subsidies and other measures has been created that reinforces the system’s spirit of mutual assistance. A number of preferential aid programs have been designed to help prevent individuals or households from suffering severe financial blows because of a medical condition.

The assistance programs available for the poor or seriously ill include premium subsidies, relief loans and installment payment plans. The NHI system also provides medical and financial assistance to those living in remote areas or those suffering intense financial pressure as they cope with a rare disease.

4.1.7.5 Catastrophic Illness

The DOH has defined a list of catastrophic illnesses, from cancer and chronic mental illness to chronic renal failure requiring kidney dialysis and congenital conditions. Any insured individuals with a certificate proving they have a catastrophic illness are exempt from copayments for treatment of the disease.

Individuals with rare diseases, classified as catastrophic illness, are also exempt from paying copayments. Any drugs listed by the DOH as necessary medication for a specific rare disease will also be covered by the NHI system.

4.1.7.6 Integrated Delivery Service (IDS) for Remote Areas

Taiwan has a number of sparsely populated mountains areas and islands that were unable to attract health care providers and health care services. In November 1999, BNHI initiated IDS, which currently covers all 48 mountains 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, and specialty services such as eye, dental and gynecological care. Health care on the mobile vehicle is also available.

Patients can also get referrals to major hospitals for follow-up care, notably home nursing care, preventive care, disease screening, case management and health education, and remote diagnoses can be made by network hospitals. The IDS program had a 93% satisfaction rating as of 2010.

4.1.8 Management of Care Delivery

4.1.8.1 Classification and Category of Health Care Delivery

DOH classify the health care delivery into 4-tier system – consists of: clinic and community medical groups, district hospital, regional hospital and medical center. See Diagram 4.

This classification has bearing on cost paid by the BNHI, however the classification does not has any reflection on referral system. Based on the ownership, Bureau of Medical Affairs categorize hospitals into 3, 1) Private or corporate hospital, 2) Public hospital which own by the government - may under DOH, Department of Education or Ministry of Defence (Army); and 3) Local/ municipality hospital/clinic

Under the Medical Care Act 1985, hospitals are defined as medical facility with more than 9 beds. All hospital must be licensed by the local government and the creation of a hospital should align with the national health master plan. All hospital are run as a not for profit organization and must be accreditated to contract with BNHI.
In term of facilities, as of 2010 the private sector account for 426 (83.9%) hospitals whereas public sector only has 82 (16.1%) hospitals. These translate to 110,160 (70.7%) beds when compare to public beds of 46,580 (29.3%). Thus the present of private sector is very strong in Taiwan.

4.1.8.2 Hospital Management

Private hospitals are owned by doctor, whereas corporate hospitals are belonging to a business company or a foundation that have been given authority to run as a not-for-profit entity. These hospitals are governed by a board and have a physician accountable for its clinical practice and act as superintendent.

Health care providers working in these facilities are salaried by the organization and given additional benefit from their productivity and performance. The BNHI reimburse and pay claims direct to the hospital.

Public hospitals are owned by government and those under DOH are governed by the Hospital Management Committee. The committee acts as a board for all public hospitals. Their responsibility is to monitor performance of the hospital and appoint the medical superintendent.

Lessons Learned and Relevance to 1Care

1. The new reform must fit the culture of the country.
2. Health care reform requires well defined governance structures with clear roles, responsibilities and accountabilities.
3. The new health system must be coherent across all services especially in terms of structures, organizations, manpower and operations. The system should not be fragmented.
4. Guiding Principles of health system must be clear before reform can take place. The political masters must agree on the guiding principles and be committed before work on details of health reform can be worked out.
5. There should be champions for the health sector reform.
6. Strong community engagement in local health planning and delivery of health services.
7. The system is well integrated with strong gatekeeping function by general practitioners and other primary care providers.
8. The system has strong commitment to public health
9. The system has a strong public involvement.
4.2. Overview Of Taiwan's National Health Insurance (NHI) Program

4.2.1. Introduction of NHI Universal Population Coverage Program

Taiwan’s system has increased health insurance coverage from 59% to 99% of the population through implementation of the National Health Insurance (NHI) in 1995. It has also expanded access by waiving copayments for the very poor, veterans, and aboriginal populations.

Before 1995, Taiwan already has many types of insurance (which includes health component) for certain groups e.g. Labour Insurance (1950), Government Employee Insurance (1958), Farmer Insurance (1985), Low-income Household Insurance (1990) with population health care coverage of 59%. The military had its own system of coverage. However, 41% of the population did not have insurance, and they faced financial barriers to access to health care.

At that time, private insurance companies were not interested in offering health insurance, as the administrative costs were too high. Therefore, when politicians introduced NHI, a single-payer system, there was no strong opposition from the insurance industry. In addition, there was also no ideological split among the Government party and opposition, which becomes one of the momentum leading to NHI. With NHI, health component was taken out from all other insurances and was put under NHI. Other than that, Labour Insurance also provides medical benefits for occupational injury.

NHI is a single payer compulsory social insurance program that centralizes the disbursement of health care funds by the Bureau of National Health Insurance (BNHI). The system promises equal access to health care for all citizens. The population coverage had reached 99.48% by the end of 2008. Taiwan took 2 years to register more than 90% of their population when NHI was implemented in 1995. The people will be automatically registered when they seek care at any health facilities.

After NHI was implemented, Taiwan introduced National Pension in 2008 and is planning to implement Long Term Care Insurance in 2012.

**Lessons Learned and Relevance to 1Care**

The very important issue and obstacle to any reform is support from the Government, opposition and the people. Therefore, support from the Government, opposition and the people on 1Care proposal are needed to ensure it can be successfully implemented. A single payer system for health care cannot be achieved without support from the people. They
need to appreciate the benefits of a single payer system to ensure 1Care becomes a reality. The process of buy-in the people needs to be planned and done carefully and effectively.

The availability of many types of insurance before 1995 made easier for Taiwan to introduce NHI, as it does not need to start from the scratch. However, in Malaysia, currently there is only SOCSO that covers work related injury (0.4% of total health expenditure). The people also buy private health insurance to cover them from medical bills but only for those who can afford to pay the high premium. Therefore, Malaysia needs to start from the beginning. When 1Care is implemented, SOCSO can still play a role in covering work related injury while other components of health should be under 1Care.

Currently, civil servants receive health benefits from the Government as their employer. Most of employees in big company/agencies receive health care benefits from their employers. They might be afraid of losing this privilege when 1Care is implemented. The Government needs to modify the current health benefits for civil servants in 1Care. They should contribute a certain percentage of their income to the SHI Fund. This is similar to Taiwan where the civil servants received 100% subsidy from the Government under the Government Employee Insurance before 1995, and pay premium when NHI was implemented. Employers can pay the employer portion of their employees’ premium.

Malaysia already has a national pension for civil servants but we need to have a national pension for all employees both public and private sectors. This is to facilitate data warehouse for pensioners for easier administration and data/information (if pensioners also need to contribute).

4.2.2. Objective of NHI in Taiwan

The objective of NHI system is to provide universal coverage and guarantee equal access to health care services.

Lessons Learned and Relevance to 1Care

Health sector transformation under 1Care will involve reform of organization, service delivery and financing. One of the targets of 1Care is to ensure universal coverage of population, services and financing with equal access and equity of healthcare financing through the implementation of SHI.

Currently, Malaysia already achieved population and services universal health coverage in public sector. Under 1Care, we want to have all 3 components of universal health coverage for the people with the involvement of both public and private health sectors. This can be achieved through integration of public and private sectors and application of same payment scheme to both providers. They should be treated as the same.
Medical manpower and resources should be distributed evenly according to needs and population prior to SHI implementation to ensure access to healthcare and payment to physicians.

4.2.3. Population Coverage

The NHI system is a single payer SHI system. Its fundamental principle is everybody should have equal access to health care services. The working population in Taiwan must pay premium despite their geographical area (including aborigines who live in the mountains) and the Government will pay for the poor. With this, Taiwan’s health system has created equity within society.

Taiwan has a very comprehensive household data. The Ministry of Internal Affairs does household survey every 2 years and provides the data to the Department of Health (DOH) as a user. The people are registered under the household registration; therefore, the BNHI is able to detect the insured and their dependents e.g. who lives where. However, Taiwan’s healthcare system does not need to know the location of the insured, as there is no boundary limit for the insured to get treatment. They also do not really practice a family doctor concept that the people must register with a particular physician. The beneficiaries have freedom to choose and seek care from any doctor at any level of care. The majority of them choose the famous hospital even to get primary care services (their primary care includes specialist services as almost all doctors are specialists).

4.2.3.1. How to Get the People In

Taiwan makes the enrollment mandatory to get the people come into the system through NHI Act. Within the first year of NHI implementation, Taiwan managed to insure 95% of the population. That increased by 1% every year until they reached 99%. They had trouble with that last 1%, because some were living overseas and others were homeless. The government literally sent people to find the homeless and enroll them. The people also will be registered when they seek care at any contracted health care facilities.

Lessons Learned and Relevance to 1Care

The enrollment is compulsory for all citizens from birth and for qualified legal citizens to ensure universal health coverage. Enrollment of the people in 1Care also must be mandatory to get as many people to enroll in the system. This will ensure universal population coverage and support the SHI fund. A system that reach the people to get them in to the system is needed, especially those who live in remote area and do not have Internet access.
Due to lack of population and income data and access to remote area in Malaysia, we cannot identify those who live there which will affect population coverage and premium collection. There is a need to have a complete and valid household data/registry. A very good census practice is important to verify the household in Malaysia. It can be done in collaboration with Department of Statistics (DOS) and Economic Planning Unit (EPU) as the household survey 2010 is already completed. Other option is working together with the National Registration Department (NRD) where individual data can be matched or compiled together with the household registry. It also needs to be updated automatically during the registration of newborns and deaths; and if possible when a person is transferred to another place.

Equity is one of the 1Care targets, where the people have equal access and care despite their ability to pay. 1Care wants to achieve both horizontal and vertical equity. However, currently there is a gap between urban and rural in terms of access to healthcare, both facilities and providers. Access to both healthcare services and financing is needed to ensure equity in health. Therefore, gaps between urban and rural must be reduced (discuss under PPM and service delivery – provide incentives and money as start-up cost to health care providers to open clinic in rural area).

A universal coverage and good quality health care while still managing to control costs can be achieved by having a single-payer system. 1Care is proposed a single payer SHI system with mandatory enrollment.

4.2.3.2. Enrollment/Registration Process

Taiwan practice group enrollment where the insured enroll NHI through group insurance applicants/employer e.g. companies, craft unions, fishermen’s associations and distinct administration offices. This can be easily done as Taiwan already has several health insurance e.g. for farmers, fishermen and also a very strong and organized unions/associations which have a complete members’ data.

The people can register at any BNHI branch office or license office. They also can register online by signing for BNHI’s front desk service and apply for NHI IC Card issuance. The data will be sent to BNHI and store in the data warehouse registry. The card will be issued immediately without any payment. The enrollment flow chart is shown in Figure 4.2.3.2.
Lessons Learned and Relevance to 1Care

It is important to collaborate with other organisations/agencies across ministries and have access to their members’ data. However, it should be only 1 organisation to manage the enrollment data and only 1 organisation to manage data for a group of occupation e.g. for farmers FELDA, FELCRA, NAFAS etc. As Malaysia does not have a compulsory enrollment to unions, we might need to have a household enrollment when 1Care is implemented.

The enrollment process should be made easier, convenient and accessible for the people to register into the system. There should be an internet access for online registration; kiosk at shopping complexes and convenience stores; and at any post–office, NRD branch office, SHI Fund branch office or license office for the people to register to the system.

4.2.3.3. Enrollment Eligibility

The enrollment of eligible individuals is mandatory in the NHI system (citizens and legal foreigners). Newborn is covered from the day of his/her registration to household registry. However, 60 days grace period are given to the parents to register their newborn in the system. During that time, the newborn can use his/her parent’s smart card to access healthcare.

Legal foreigners must meet 4-month residency requirement prior to entering the system. Foreign employees hired by local employers are covered from the day their employment contract takes effect. Yet, Taiwan does not have many illegal foreigners like Malaysia.
Employer must subscribe to BNHI within 3 days from the date beneficiaries meet eligibility criteria and withdraw from coverage within 3 days from the date of the cause of withdrawal occurred.

Citizens who stay abroad for more than 6 months can choose either to maintain their health insurance or temporarily suspend their insurance status. Nevertheless, those who reside abroad for more than 2 years will be automatically removed from their household registration and out from the NHI system. If they come back to Taiwan, they can re-join the system after they re-establish their residency.

**Lessons Learned and Relevance to 1Care**

There should be a longer grace period given to the newborns under 1Care. This is to provide time to parents in remote areas to register to NRD that will automatically register the newborns into 1Care.

In Malaysia, foreign workers currently have private health insurance (paid by the employers) where the insurance company will pay for their health care bill when they seek care from public facilities only. They also must be made compulsory to enroll the 1Care system and get access to both registered public and private health care providers. The employer must be the responsible person to enroll the foreign workers once their contracts have been established. However, the illegal should be excluded from the system and pay out-of-pocket (OOP) for health care.

Maintenance, temporarily suspension of insurance status and rejoin the system need to be planned carefully. There are many Malaysian citizens who works abroad with their dependents are still in Malaysia. There would be an issue if the wife/husband is not working and cannot be dependents to other insured. Therefore, planning and decision on whether the person who works abroad must maintain their insurance, fall under which category and how they are going to pay premium is crucial. The eligibility rules of the beneficiaries must be stated in SHI Law.

**4.2.3.4. Beneficiaries**

Beneficiaries are the insured and their dependents. The people need to fulfill certain criteria to be beneficiaries of the system.

Dependents are the insured’s unemployed:
- Spouse
- Lineal blood ascendants
- Lineal blood descendants within secondary relationship below 20; or over 20 but in school or incapable to work
All income earners must contribute to the system and cannot become a dependent of other insured person.

Taiwan has classified their beneficiaries by category based on occupation status and how their premium is calculated and paid. There are 6 categories of beneficiaries (Table 4.2.3.4). The insured cannot opt for their category.

Table 4.2.3.4: Categories and Group Insurance Applicants

<table>
<thead>
<tr>
<th>Category</th>
<th>Insured</th>
<th>Dependents</th>
<th>Group Insurance Applicants</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Civil servants, voluntary military servicemen, public office holder, faculty &amp; staff of private school, employees of publicly or privately owned enterprises/institutions</td>
<td>a. Spouse, b. Parents, c. Children incapable of making a living.</td>
<td>Company/Organisation/school/institution</td>
</tr>
<tr>
<td></td>
<td>Employers, self-employed, independent professionals &amp; technical specialists</td>
<td>The mentioned above must be unemployed.</td>
<td>Company/institution</td>
</tr>
<tr>
<td>2</td>
<td>Occupation union members, foreign crew members</td>
<td>Same as Category 1</td>
<td>Craft unions</td>
</tr>
<tr>
<td>3</td>
<td>Members of Farmers, Fishermen and Irrigation Associations</td>
<td>Same as above</td>
<td>Farmer’s Association, Fishermen’s Association, Irrigation Association</td>
</tr>
<tr>
<td>4</td>
<td>Compulsory military servicemen, substitute services, military school students on scholarship</td>
<td>None</td>
<td>The general HQ of combined Service Force, Conscription agency, Ministry of Interior</td>
</tr>
<tr>
<td>5</td>
<td>Members of low income household</td>
<td>None</td>
<td>City/District/Town/Village/Municipal Administration Office</td>
</tr>
<tr>
<td>6</td>
<td>Unemployed veterans &amp; their dependents, unemployed community populations</td>
<td>Same as Category 1</td>
<td></td>
</tr>
</tbody>
</table>

Source: BNHI, 2011

Taiwan’s health care system ensures that a basic level of coverage is available to all population who meet minimum requirements of residency. Socially and economically disadvantaged households have uncompromised access to the system. The Government provides subsidy for members of low-income household and the BNHI provides free-
interest loan and installment payment plans for the near poor to pay their premium. Average households are protected from losing their health insurance or becoming bankrupt over medical bills.

A. **Subsidised group**

Taiwan’s health system has huge advantages in terms of social harmony. One key achievement is financial security, especially for the unemployed or poor, who would otherwise be catastrophically affected if they had major diseases or health issues.

A.1. Poor

The Government pays 100% of premiums for the poorest 1% of households. The poor is defined as people living in poverty whose incomes and properties are not higher than certain level of the figure deemed as low-income (Poverty Line Index - PLI) and whose annual household incomes do not exceed NTD10,000. Taiwan does not have a different definition for medical poor. It follows PLI set by the Ministry of Internal Affairs to identify the low-income household. The PLI is different by area and is reviewed yearly.

The poor will need to go through means test procedure prior to qualify to get benefits provided to the poor including health care. The findings of the means test are then consolidated in DOH data in the following year. The Ministry of Internal Affairs updates the data yearly where the identified poor households need to undergo verification process e.g. check their asset, verify bank account, etc. All members of that household are also considered as poor. The data is included in the NHI IC Card as a proof as an exempted person when seeking care.

A.2. Disabled

Disabled (no age limit) who are incapable to work will become dependent of his/her parents/ grandparents/ children/ grandchildren.

A.3. Prisoners

The Government pays premium for prisoners. Their dependents will fall into any 6 categories and need to pay their premiums.

B. **Un-employed**

Unemployed will be given 6 months exemption from paying premium. After 6 months, if the unemployed does not employed or become dependents of insured in category 1-5, he/she will fall under category 6.
C. Illegal

Illegal foreigners cannot be insured, as they do not meet requirement to be the beneficiaries of the system. Thus, they must pay OOP for any medical treatment received.

**Lessons Learned and Relevance to 1Care**

There is a need to define the beneficiaries, mainly the dependents. The dependents should not include everyone in the household, which will reduce the numbers of people to pay premium. All eligible income earners must contribute to the system. This is to ensure more people pay premium to support the SHI Fund. The insured will pay premiums for their dependents.

There should be safety net for the socially and economically disadvantaged group e.g. the poor and disabled. Government subsidy is still needed under 1Care for certain services and disadvantaged groups. Therefore, the groups that will be subsidised by the Government need to be identified. Prior to that, it is important to identify and set the level of income for the poor. Malaysia may need to have a different income level for medical poor or may use PLI by area set by the EPU. The process of means testing must be done to ensure those who are really poor are entitled to get the Government subsidy.

The insured can be classified to several categories by occupational status and other categories e.g. age and employment status that might overlap each other. However, it must be made clear for the people to avoid confusion. Planning for the unemployed e.g. grace period for exempted from paying premium, assistance to pay premium or whether they can be under subsidised group or not if they cannot be dependent of other insured need to be done and decided carefully by looking at both its pros and cons. This is because if the Government pay premium for the unemployed, it will encourage people not to work and become unemployed. However, there would be a humanitarian issue raised if the unemployed must contribute to the SHI Fund.

**4.2.3.5. Enrollment Data Flow and Update**

Beneficiaries including newborns can enroll into NHI through electronic data media, network or paper at any BNHI branch office or license office. All enrollment data will be kept in data warehouse system. This system is the largest data warehouse in Taiwan. Therefore, BNHI is able to identify all beneficiaries, their contribution status and premium payment status.

Hospital will report and provide a summary of death to BNHI if any death occurred in hospital. If a person died at any other place than hospital, the family member or police will report the death to BNHI. The BNHI will stop the enrollment status of the dead person and
his/her smart card will be suspended and cannot be used anymore. All data regarding enrollment and payment of premium done by the insured will be updated into the data warehouse. The flow of enrollment data is shown in Figure 4.2.3.5.

**Figure 4.2.3.5: Enrollment Data Flow**

![Enrollment Data Flow Diagram]

Source: Chen MS, 2011

**Lessons Learned and Relevance to 1Care**

It is important to have a good ICT system and household data registry/warehouse to facilitate 1Care implementation e.g. enrollment of the people, identification of premium payment status etc. The data should be automatically updated with the registration of newborns, death and transfer, and centralized at the national level. The organizational that manage the data should be linked to all other organisations that hold relevant data e.g. NRD, DOS, EPU etc. Currently, the NRD does not have an updated data on those who are transfer to other place.

Access to registration need to be available at all areas especially at remote areas without internet access. The SHI Fund organisation can collaborate with post-offices, license offices or open branches to make accessible for the people to register to the system.
4.2.3.6. NHI IC Card

Every insured person has a Smart Card with the patient’s history and medications that automatically bills the national insurance fund, which has resulted in expedited reimbursements. Taiwan citizen also has a separate national ID card. Smart card is separated from the national ID card for confidentiality purposes, as other people can access other information in the national ID card.

Information stored on the Smart card includes: personal information including the card serial number; date of issue and cardholder’s name, gender, date of birth, ID number, and picture; and NHI-related information including cardholder status, remarks for catastrophic diseases, number of visits and admissions, use of NHI health prevention programs, cardholder’s premium records, accumulated medical expenditure records and amount of cost-sharing. Information that is included in the card is more for verification. The insured can use that card at any clinic or hospital in the country. When swiped along with a physician’s card and hospital’s card, the smart card accesses a unified, national database that is a powerful tool for tracking health trends, such as the spread of SARs, flu etc.

The card is also used to identify and reduce insurance fraud, overcharges, duplication of services and tests; e.g. monitor utilization; surveillance of public hazards; prediction of patients values (provider will get less payment if they exceed the maximum number of patients – see more patients as their points will become less); anti fraud profile analysis; data bank for further application, academic research etc. It has a uniform system of electronic health records. With a single, unified electronic system, it improves treatment and it also vastly reduces claims processing. Smart card system runs 24 hours a day.

The insured need to update their card at least once a year. They will be given 6 visits upon update. They can update their card at any healthcare facility after they used all 6 visits. After every 6 patient visits, card information is uploaded online for data analysis, audit, and authentication. The 6 visits have been applied as a continuation of previously implementation of providing paper 6 visits for seeking care before NHI is implemented. This allows BNHI to check and verify whether the insured has paid premium or not.

If the card is lost or damaged, the insured need to report to BNHI office at local/regional level to get a replacement. He/She needs to pay NTD280 for a new card with photo or NTD200 without photo.

It is stated in the NHI Act that the NHI IC Card will be suspended if the insured person did not pay their premium more than 150 days. However, this raised unhappiness among the public as it affected almost 600,000 people. Therefore, there is a counter method to overcome this where the person needs to fill up a form before he/she can access healthcare. He/She has to pay the entire back dated premium in the future (legal action shall be taken
Lessons Learned and Relevance to 1Care

A smart card for each beneficiary is needed for identification as an enrollee of the 1Care/SHI system. The card might be separated from the national ID card. This is to ensure confidentiality of the information. There would be data that is mandatorily and voluntarily included in the card. The data that is mandatorily included will be used for monitoring purposes only. The cost per card needs to be calculated. The decision whether to include the administration cost to process each card prior to set charge for card replacement will depend on the Government policy.

4.2.4. Premium Calculation and Collection

SHI is built on the concept of mutual assistance and depends on the insured paying their premiums according to regulations. When people fall ill or sick, the central government uses the premiums it receives to help patients pay full or part of their medical and medication costs to contracted health care institutions. Therefore, patients pay less (copayment) for appropriate health care. In other words, by paying their monthly universal health care premiums on time, the insured are not only helping themselves but are also receiving the help of other premium payers. The system, therefore, depends on the healthy assisting the sick.

4.2.4.1. Premium Calculation

Premium is calculated as a percentage of an individual's payroll, capped at NTD182,000 per month. It is shared among individual, employer and government. Premium for dependents should be paid by the insured.

In NHI Taiwan, all income earners must contribute. Those who are qualified as the insured cannot be dependents. If both husband and wife in a household are income earners, both of them must contribute. One of them can choose who will take their children as dependents. The usual practice is the children will be under the lower income earner individual salary.

Premium is calculated based on their category (Table 4.2.3.4). Those classified in category 1 to 3 pay premium based on their payroll, while the premium paid by those in category 4 to 6 is based on the average premium paid by all participants in the system. The average monthly premium for individuals in category 4 and 5 is NTD1,376 (since October 2009), which is subsidised by the Government. The average premium for individuals in Category 6
is NTD1, 249. The individual pays 60% (NTD749) and the Government pays for the rest 40% (since 1st April 2010). The self employed individuals and independently practicing professionals and technicians who are in Category 1 or 2 pay their premium based on their income from professional practice. The formulas for premium calculation are shown in Table 4.2.4.1.

The insured pay for each dependent, up to a ceiling of 3. The employer pays for an average number of dependents. This is to avoid employer’s discrimination against individuals with a high number of dependents. The average number of dependents in Taiwan as of January 2007 was 0.7.

**Table 4.2.4.1: NHI Premium Formulas**

<table>
<thead>
<tr>
<th>Insured Category</th>
<th>Contributor</th>
<th>Formula</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wage earners</td>
<td>The insured</td>
<td>Payroll basis x Premium rate x Contribution ratio x (1 + Number of dependents)</td>
</tr>
<tr>
<td></td>
<td>Insurance Registration Unit (Employer) or the Government</td>
<td>Payroll basis x Premium rate x Contribution ratio x (1 + Average number of dependents)</td>
</tr>
<tr>
<td>Non-wage Earning Individuals</td>
<td>The insured</td>
<td>Average premium x Contribution ratio x (1 + Number of dependents)</td>
</tr>
<tr>
<td></td>
<td>The Government</td>
<td>Average premium x Contribution ratio x (1 + Actual number of dependents)</td>
</tr>
</tbody>
</table>

**Notes:**
1. Payroll basis: Amount of payroll on which premiums are levied based on a bracket table (Table 3).
2. Insurance premium rate: 5.17% since April 1, 2010.
3. Contribution ratios: Based on ratios set by the BNHI (Table 4).
4. Number of dependents: Maximum of 3 even if the actual number of dependents is higher.
5. Average number of dependents: Set by the BNHI at 0.7 as of January 1, 2007.
6. Since October 2009, the average premium for individuals in categories 4 and 5 has been NTD1, 376 which is entirely subsidized by the Government. For individuals in category 6, the average premium is NTD1, 249, with 60% paid by the individual (NTD749) and 40% by the government effective from April 1, 2010.

Source: BNHI, 2011

**Lessons Learned and Relevance to 1Care**

All eligible income earners must contribute. This is to get as many contributors as possible to support the SHI Fund. Although the enrollment is based on household, the insured need
to pay premium individually. This facilitates calculation and payment of premium as the insured may have different employer although they are husband and wife in a household.

There should be a limit on number of dependents in the calculation to satisfy those with fewer dependents. For those who have more dependents than the ceiling, they may or may not pay top-up or additional premium. This will depend on the Government decision and policy. There is also a possibility to implement an average number of dependents in the premium calculation of 1Care. But the number is higher than Taiwan as the average number of dependents might be higher in Malaysia.

Malaysia might have a different category of insured and calculation of premium. The formal and informal sector will be separated (instead of wage earner and non-wage earning individuals). The decision should be made whether premium charge will be based on wage or income. If the premium is based on income, the definition of income must be clear to all which state what should be covered in income e.g. salary, bonus, rental etc.

Under 1Care, Malaysia is planning to have a different income level for medical poor which might be higher than PLI set for the poor. Therefore, many non-income earners will fall under the poor category and get subsidy from the Government. In addition, there should be a ceiling for income charged on premium. Although the enrollment is mandatory, it will encourage the rich to enroll in and contribute to the system.

4.2.4.2. Payroll Bracket and Premium Charged

The DOH establishes a payroll bracket table, which is later approved by the Executive Yuan. The bracket is updated periodically. Amount of payroll on which premiums are levied will be based on the bracket table (Table 4.2.4.2).

Income levels for Category 1 are based on their actual income fitted in the table. For Category 2, the Union members must report their income of at least NTD21,900 per month, while the insured in Category 3 pay their premiums based on the pre-set monthly income of NTD21,900. People with irregular income in category 1 or 2 can select the proper insured payroll-related amount (income bracket) and declare to the BNHI. The BNHI has an authority to check and make adjustment at its own discretion if the insured payroll-related amount is found inappropriate.
Table 4.2.4.2: Insurable Income Grading

<table>
<thead>
<tr>
<th>Bracket</th>
<th>Tiers</th>
<th>Chargeable Payroll (NT$)</th>
<th>Actual Monthly Payroll (NT$)</th>
<th>Bracket</th>
<th>Tiers</th>
<th>Chargeable Payroll (NT$)</th>
<th>Actual Monthly Payroll (NT$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bracket 1</td>
<td>1</td>
<td>17,880</td>
<td>Under 17,880</td>
<td>Bracket 6</td>
<td>28</td>
<td>60,800</td>
<td>57,801-60,800</td>
</tr>
<tr>
<td>Bracket 1</td>
<td>2</td>
<td>18,300</td>
<td>17,881-18,300</td>
<td>Bracket 6</td>
<td>29</td>
<td>63,800</td>
<td>60,801-63,800</td>
</tr>
<tr>
<td>Bracket 1</td>
<td>3</td>
<td>19,200</td>
<td>18,301-19,200</td>
<td>Bracket 6</td>
<td>30</td>
<td>66,800</td>
<td>63,801-66,800</td>
</tr>
<tr>
<td>Bracket 1</td>
<td>4</td>
<td>20,100</td>
<td>19,201-20,100</td>
<td>Bracket 6</td>
<td>31</td>
<td>69,800</td>
<td>66,801-69,800</td>
</tr>
<tr>
<td>Bracket 1</td>
<td>5</td>
<td>21,000</td>
<td>20,101-21,000</td>
<td>Bracket 6</td>
<td>32</td>
<td>72,800</td>
<td>69,801-72,800</td>
</tr>
<tr>
<td>Bracket 2</td>
<td>6</td>
<td>21,900</td>
<td>21,001-21,900</td>
<td>Bracket 7</td>
<td>33</td>
<td>76,500</td>
<td>72,801-76,500</td>
</tr>
<tr>
<td>Bracket 2</td>
<td>7</td>
<td>22,800</td>
<td>21,901-22,800</td>
<td>Bracket 7</td>
<td>34</td>
<td>80,200</td>
<td>76,501-80,200</td>
</tr>
<tr>
<td>Bracket 2</td>
<td>8</td>
<td>24,000</td>
<td>22,801-24,000</td>
<td>Bracket 7</td>
<td>35</td>
<td>83,900</td>
<td>80,201-83,900</td>
</tr>
<tr>
<td>Bracket 2</td>
<td>9</td>
<td>25,200</td>
<td>24,001-25,200</td>
<td>Bracket 7</td>
<td>36</td>
<td>87,600</td>
<td>83,901-87,600</td>
</tr>
<tr>
<td>Bracket 3</td>
<td>10</td>
<td>26,400</td>
<td>25,201-26,400</td>
<td>Bracket 8</td>
<td>37</td>
<td>92,100</td>
<td>87,601-92,100</td>
</tr>
<tr>
<td>Bracket 3</td>
<td>11</td>
<td>27,600</td>
<td>26,401-27,600</td>
<td>Bracket 8</td>
<td>38</td>
<td>96,600</td>
<td>92,101-96,600</td>
</tr>
<tr>
<td>Bracket 3</td>
<td>12</td>
<td>28,800</td>
<td>27,601-28,800</td>
<td>Bracket 8</td>
<td>39</td>
<td>101,100</td>
<td>96,601-101,100</td>
</tr>
<tr>
<td>Bracket 3</td>
<td>13</td>
<td>30,300</td>
<td>28,801-30,300</td>
<td>Bracket 9</td>
<td>40</td>
<td>105,600</td>
<td>101,101-105,600</td>
</tr>
<tr>
<td>Bracket 3</td>
<td>14</td>
<td>31,800</td>
<td>30,301-31,800</td>
<td>Bracket 9</td>
<td>41</td>
<td>110,100</td>
<td>105,601-110,100</td>
</tr>
<tr>
<td>Bracket 3</td>
<td>15</td>
<td>33,300</td>
<td>31,801-33,300</td>
<td>Bracket 9</td>
<td>42</td>
<td>115,500</td>
<td>110,101-115,500</td>
</tr>
<tr>
<td>Bracket 3</td>
<td>16</td>
<td>34,800</td>
<td>33,301-</td>
<td>Bracket 9</td>
<td>43</td>
<td>120,900</td>
<td>115,501-120,900</td>
</tr>
<tr>
<td>Bracket 3</td>
<td>17</td>
<td></td>
<td></td>
<td>Bracket 9</td>
<td>44</td>
<td>126,300</td>
<td>120,901-126,300</td>
</tr>
<tr>
<td>Bracket 3</td>
<td>18</td>
<td></td>
<td></td>
<td>Bracket 9</td>
<td>45</td>
<td>131,700</td>
<td>126,301-131,700</td>
</tr>
<tr>
<td>Bracket 3</td>
<td>19</td>
<td></td>
<td></td>
<td>Bracket 9</td>
<td>46</td>
<td>137,100</td>
<td>131,701-137,100</td>
</tr>
<tr>
<td>Bracket 3</td>
<td>20</td>
<td></td>
<td></td>
<td>Bracket 9</td>
<td>47</td>
<td>142,500</td>
<td>137,101-142,500</td>
</tr>
<tr>
<td>Bracket 3</td>
<td>21</td>
<td></td>
<td></td>
<td>Bracket 9</td>
<td>48</td>
<td>147,900</td>
<td>142,501-</td>
</tr>
</tbody>
</table>

Bracket 1 NT$900
Bracket 2 NT$1200
Bracket 3 NT$1500
<table>
<thead>
<tr>
<th>Bracket 4</th>
<th>Tiers</th>
<th>Chargeable Payroll (NT$)</th>
<th>Actual Monthly Payroll (NT$)</th>
<th>Bracket</th>
<th>Tiers</th>
<th>Chargeable Payroll (NT$)</th>
<th>Actual Monthly Payroll (NT$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NT$1900</td>
<td>17</td>
<td>36,300</td>
<td>34,801-36,300</td>
<td>49</td>
<td>150,000</td>
<td>147,901-150,000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>18</td>
<td>38,200</td>
<td>36,301-38,200</td>
<td>50</td>
<td>156,400</td>
<td>150,001-156,400</td>
<td></td>
</tr>
<tr>
<td></td>
<td>19</td>
<td>40,100</td>
<td>38,201-40,100</td>
<td>51</td>
<td>162,800</td>
<td>156,401-162,800</td>
<td></td>
</tr>
<tr>
<td></td>
<td>20</td>
<td>42,000</td>
<td>40,101-42,000</td>
<td>52</td>
<td>169,200</td>
<td>162,801-169,200</td>
<td></td>
</tr>
<tr>
<td></td>
<td>21</td>
<td>43,900</td>
<td>42,001-43,900</td>
<td>53</td>
<td>175,600</td>
<td>169,201-175,600</td>
<td></td>
</tr>
<tr>
<td></td>
<td>22</td>
<td>45,800</td>
<td>43,901-45,800</td>
<td>54</td>
<td>182,000</td>
<td>Above 175,601</td>
<td></td>
</tr>
<tr>
<td>Bracket 5</td>
<td>23</td>
<td>48,200</td>
<td>45,801-48,200</td>
<td><em>Table took effect from January 1, 2011.</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NT$2400</td>
<td>24</td>
<td>50,600</td>
<td>48,201-50,600</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>25</td>
<td>53,000</td>
<td>50,601-53,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>26</td>
<td>55,400</td>
<td>53,001-55,400</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>27</td>
<td>57,800</td>
<td>55,401-57,800</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Table took effect from January 1, 2011.*

Source: BNHI, 2011

**Lessons Learned and Relevance to 1Care**

Malaysia may not need to set income bracket as the proposal is to charge premium based on the actual income. The income bracket will lessen the equity that 1Care hope to achieve, as those who are in the bracket need to calculate their premiums based on the fix amount of salary although their wage is lower than the amount.

Self-employed may report their income to SHI Fund organization and the organization has an authority to check, verify and make adjustment on their income. Therefore, there is no need to set a fixed amount of premium for the self-employed. This is because it will raise another issue where the rich self-employed contribute only a little premium compared to amount that they should actually contribute (if they are in the formal sector).
4.2.4.3. Premium rate

The maximum premium rate is set at 6% (NHI Act 1994). Current rate is 5.17% (since April 2010). As stated in the NHI Act, the rate will be revised and recalculated every 2 years to ensure financial sustainability of the system. The actuarial process at least once every 5 years should be made for the premium finance. During the process, the BNHI estimates and projects revenues and expenditures for 25 years; then, determines the rate that balances both revenues and expenditures. The results become a reference for the policy planners to adjust premium rate in the future. The BNHI proposes the new rate to DOH and the Executive Yuan will make the decision.

Within 15 years of NHI implementation, the rate has only been adjusted twice due to deficit. The adjustment is needed to address the issue of NHI's financial problem (expenditure more than revenue - deficit). This is because a flat revenue growth compared to increasing growth of medical expenditures. Therefore, premium revenues have not kept pace with growth in real income. However, the provision to adjust the premium automatically when the national health system depletes its reserves was not incorporated into the law. The politicians refused to increase the premium rate especially when it is near to election. They were afraid that they would lose their voters. Consequently, the BNHI tries to cut the fees for hospital and physician services. But eventually these fee reductions will adversely affect the quality of health care.

*Lessons Learned and Relevance to 1Care*

It is proposed to set the maximum premium rate and state it in the SHI Law. The rate needs to be revised and recalculated periodically. The projection of both revenues and expenditures should also be done to project the sustainability of the system. An actuarial process is needed to do this.

Health care costs are increasing faster than wages that leads to fund deficit. When there is deficit in fund, the premium has to go up. The decision whether readjustment of the premium rate must be stated in the SHI Law or not, should take accounts its pros and cons. If it is stated in the SHI Law, it encourages inefficiency of SHI Fund organisation in managing fund. However, if it is not stated in the SHI Law, the system might face problem like Taiwan where the politician refused to increase the premium when the national health system depletes its reserves.

4.2.4.4. Contribution Ratio

The premiums are determined, calculated and paid according to the insured’s category. Six categories of insured pay at different levels, scaled against income, with ceilings. The working population pays premiums split with their insurance registration organization
(employers), others pay a flat rate with government help, and the poor or veterans are fully subsidised. The insured, employer and government contribution shares are different by category (Table 4.2.4.4). The decision made on contribution rate was from the consensus of all stakeholders.

Table 4.2.4.4: NHI Premium Contribution Ratio

<table>
<thead>
<tr>
<th>Classification of the Insured</th>
<th>Contribution Ratio (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Insured</td>
</tr>
<tr>
<td><strong>Category 1</strong></td>
<td></td>
</tr>
<tr>
<td>Civil servants, volunteer</td>
<td>30</td>
</tr>
<tr>
<td>servicemen, public office</td>
<td></td>
</tr>
<tr>
<td>holders</td>
<td></td>
</tr>
<tr>
<td>Private school teachers</td>
<td>30</td>
</tr>
<tr>
<td>Insured and dependents</td>
<td></td>
</tr>
<tr>
<td>Employees of publicly or</td>
<td>30</td>
</tr>
<tr>
<td>privately owned enterprises</td>
<td></td>
</tr>
<tr>
<td>or institutions</td>
<td></td>
</tr>
<tr>
<td>Insured and dependents</td>
<td></td>
</tr>
<tr>
<td>Employers</td>
<td>100</td>
</tr>
<tr>
<td>Self-employed</td>
<td></td>
</tr>
<tr>
<td>Independent professionals</td>
<td></td>
</tr>
<tr>
<td>and technical specialists</td>
<td></td>
</tr>
<tr>
<td>Insured and dependents</td>
<td></td>
</tr>
<tr>
<td><strong>Category 2</strong></td>
<td></td>
</tr>
<tr>
<td>Occupation union members</td>
<td>60</td>
</tr>
<tr>
<td>Foreign crew members</td>
<td></td>
</tr>
<tr>
<td>Insured and dependents</td>
<td></td>
</tr>
<tr>
<td><strong>Category 3</strong></td>
<td></td>
</tr>
<tr>
<td>Members of farmers',</td>
<td>30</td>
</tr>
<tr>
<td>fishermen's and irrigation</td>
<td></td>
</tr>
<tr>
<td>associations</td>
<td></td>
</tr>
<tr>
<td>Insured and dependents</td>
<td></td>
</tr>
<tr>
<td><strong>Category 4</strong></td>
<td></td>
</tr>
<tr>
<td>Military conscripts,</td>
<td>100</td>
</tr>
<tr>
<td>alternative servicemen,</td>
<td></td>
</tr>
<tr>
<td>military school students</td>
<td></td>
</tr>
<tr>
<td>on scholarships, widows of</td>
<td></td>
</tr>
<tr>
<td>deceased military personnel</td>
<td></td>
</tr>
<tr>
<td>on pensions</td>
<td></td>
</tr>
<tr>
<td>Insured</td>
<td></td>
</tr>
<tr>
<td><strong>Category 5</strong></td>
<td></td>
</tr>
<tr>
<td>Low-income households</td>
<td>0</td>
</tr>
<tr>
<td>Household members</td>
<td></td>
</tr>
<tr>
<td><strong>Category 6</strong></td>
<td></td>
</tr>
<tr>
<td>Veterans and their</td>
<td>0</td>
</tr>
<tr>
<td>dependents</td>
<td></td>
</tr>
<tr>
<td>Dependents</td>
<td>30</td>
</tr>
<tr>
<td>Other individuals</td>
<td>60</td>
</tr>
<tr>
<td>Insured and dependents</td>
<td></td>
</tr>
</tbody>
</table>

Source: BNHI, 2011
Lessons Learned and Relevance to 1Care

Under 1Care, it was proposed to have only one ratio each for the employee, employer and government for formal sector. The government will pay premium for the subsidized persons e.g. the poor and eligible disabled. The self-employed will pay premium at a fixed amount/rate. However, Taiwan’s experience/practice where the self-employed declare their wage to the BNHI and the BNHI have authority to verify their income can be applied in 1Care. Consequently, there is no need to have a different premium rate for formal and informal sectors.

4.2.4.5. Premium payment

Taiwan’s citizens no longer have to worry about going bankrupt due to medical bills. The insured pay low premiums and copayments. Average premium is about USD1000/year or USD80/month, which is about 2% of household income.

The BNHI issues monthly payment bills to the insured. The insured pays monthly full month premium by:

a. Transferring money via banks through:
   i. Direct deduction from contracted account
   ii. ATM
   iii. Online payment
b. Paying at bank counter or convenience store.

However, the premium is exempted on the month of withdraw.

The premium must be paid before end of the following month. A grace period of 15 days is given to the employer and the insured. If they do not pay premium after 15 days, a delinquency charge shall be levied on them. The charge is an accumulation of 0.1% of payable premium for each day delay with upper limit to 15%. If the premium is not paid for 2-3 months, the BNHI office will send a reminder to the insured. If they still do not pay premium after the reminder was sent to them, the BNHI will block the insured’s smart card and the benefits will be suspended. The premium during the temporary suspension of benefits still is collected. Then, the BNHI will cooperate with the Ministry of Justice to investigate. When proven that the insured are able to pay premium, a legal action will be taken on them e.g. deduct from bank account etc.

Nevertheless, the BNHI provides financial assistance for the near poor (2% of total populations) to pay their premiums to remove financial obstacles to healthcare. Types of assistance provided are:

i. Interest-free loans to cover premiums;
ii. Helped them to get financial assistance from charitable groups/private sponsor by referring the person to the groups;
iii. Offered installment payment plans; and
iv. Raised funds from new sources e.g. earmarked tax from cigarettes etc.

The collection rate is over 98% that can be divided into:
   a. pay on time – 93.56%
   b. pay before reminder – 1.91%
   c. pay after reminder – 0.56%
   d. pay after enforcement – 1.74%

There is only about 2% of unpaid premium payment (Figure 4.2.4.5).

**Figure 4.2.4.5: Premium Collection Ratio**

The premium is tax deductible; however, the insured needs to provide evidence of income status to the BNHI. The BNHI will send bill with the highest premium/contribution amount to the insured. He/She must provide proof of paying tax and the amount of tax he/she has paid.

*Lessons Learned and Relevance to 1Care*

The premium must be prepaid i.e. payment must be made early of the month prior to get benefits.
- Paying premium should be made easier and accessible for the people. Therefore, the SHI Fund might need to work together with the available convenience stores, Pos Malaysia, banks, companies that offer Internet access etc. to offer channels to pay premium.
• The grace period need to be planned and decided for those who do not pay premium on time and legal action that should be taken to those who do not pay premium.

• Might need to plan assistance for the near poor to pay their premium e.g. installment plan, interest-free loan etc. This is to encourage people to contribute and ensure SHI Fund collect enough money from the eligible insured persons.

• Currently, those who have private health insurance are eligible to get tax deduction for the premium they paid to the private insurance company up to RM3,000. The premium paid to SHI Fund also should be tax-deductible with or without adjustment to the ceiling. This would encourage those who pay tax also pay premium to SHI Fund.

• With 1Care, income for premium calculation should not exclude amount of tax paid to the Government if there is a tax deductible for the premium paid to SHI Fund.

4.2.4.6. Premium Revenue

The NHI is primarily funded by the premium (95%), which is based on the payroll tax. Another 5% of revenues come from outside sources e.g. health surcharge on cigarette, budgets from Centre of Disease Control (CDC), welfare relief fund and emergency relief fund. All money is pooled in single fund for continuum of care. Of the premiums, 38% were paid by the insured, 36% by the employers and 26% by the government agencies (Figure 4.2.4.6).

![Figure 4.2.4.6: Distribution of Premium Revenues by Source](image)

The fund is mandated to carry a one-month buffer but not more than 3 months of medical expenses based on actuarial principles. The reserve fund can be from:
a. Surplus from each fiscal year;
b. Premium overdue charges of the insurance;
c. Profits generated from the management of the reserve fund;
d. Social health and welfare surcharge on tobacco and alcoholic products imposed by the government; and
e. Incomes from sources with statutory grounds other than the NHI Act.

The BNHI can invest the fund in treasury bonds, treasury bills and corporate bonds. However, in the actual practice, it does not invest. The insurer keeps the money in government owned banks.

The NHI system is underfunded and overused. The revenue base is capped so it does not keep pace with the increase in national income. Politicians regulate premiums and they are afraid to raise premiums because of voters. The revenue is been in deficit since 2007, with the government forced to borrow money with low-interest rate from banks to cover costs.

**Lessons Learned and Relevance to iCare**

The SHI Fund’s revenue may come from the premium. However, earmarked tax from tobacco and alcohol can be used to increase its revenue. Budget for public health activities e.g. immunization, communicable diseases etc. must come from the Government, channeled to SHI Fund to support the activities provided by health care providers.

Capping of income will encourage participation of the rich; however, it does not keep pace with the increase in national income. Therefore, it must be revised periodically with the increasing of the national income.

In the case of fund deficit, there must be a counter actions put in place e.g. government may provide assistance to the SHI Fund, the organization may get low-interest loan from bank etc.

There should be a fund reserve and a decision need to be done on the number of months/amount for the reserve. The fund may not be invested. But if it can be invested, a decision of where to invest need to be stated in SHI Act.

**4.2.4.7. Second Generation Health Care Reform**

The Department of Health (DOH) and the BNHI is planning to introduce the second generation NHI. Reform is set for implementation in 2012. This is to address the problem of budgetary deficit in the view of rising medical costs and an aging population.

The new reform aims to improve quality and standards of medical services, achieve a
balanced budget and formulate a fair system with wider fund contribution. It proposed changes to the premium payment system and supervision of medical services.

The new system will calculate insurance premiums based on the insured’s gross household income, which includes payroll and other sources of income e.g. stock dividends, bonuses and rental incomes. There would be a dual-track premium system. The basic premium (4.91%) will be based on monthly payroll while for the supplementary premium (2%); it will be based on 6 categories of non-payroll income.

The reform will increase the overall income base for Taiwan’s NHI fund. It will improve the financial performance of the government’s health care fund with a balanced control of costs and premium income. In the short term, the second generation NHI will generate more income from the premium rate increment and improve the financial health of NHI. The NHI will cross over to achieve a more equitable redistribution of wealth from high-income classes to low-income classes. In the long term, it will establish better system integration between the NHI disbursement payments to service providers.

**Lessons Learned and Relevance to 1Care**

1Care proposed premium be calculated based on income to reduce the financial gap and increase financial equity among income earners.

**4.2.4.8. Co-payment**

Specific groups are exempted from paying copayments i.e.:

- those suffering catastrophic illnesses;
- living in remote areas (e.g. in the mountain) or offshore islands;
- delivery of baby;
- veterans;
- household dependents of the deceased veterans,
- low-income HH;
- children below 3 or 6 years (depends on local government); and
- Registered tuberculosis patients who received treatment at contracted hospitals.

Copayment is also not required for health promotion.

**4.2.4.9. Private Health Insurance**

One of the factors for making NHI easily accepted and implemented in 1995 is there was no private health insurance existed in that time. Currently, private health insurance offers health insurance to pay additional payment for luxurious services only e.g. additional
payment for single bed etc. They are not allowed to pay for the same services in the benefits packages.

**Lessons Learned and Relevance to 1Care**

Role of private health insurance (PHI) under 1Care needs to be defined. The PHI may have complementary and supplementary roles which support 1Care and does not compete with SHI.

**4.2.4.10. Long Term Care (LTC)**

One of the future challenges of NHI is declining birth rate and increasing aging population. The situation leads to financial deficit because premium revenue depends on number of working population that contributes to the fund. The fund will reduce with the decrease of working population, which indicates lack of capability to mobile social resources. Hence, the Government will implement the LTC services for aging population in 2012.

**Lessons Learned and Relevance to 1Care**

Malaysia also may face the same problem with Taiwan as there is increasing numbers and percentage of elderly and longer life expectancy. Currently, Malaysia defines elderly as those who are aged 60 and above. The definition of age for elderly needs to be set clearly because the number/percentage of elderly will increase as the age becomes lower. The current definition may be revised, as Malaysia becomes a developed country. With the trend of increasing elderly, the LTC might need to be planned under 1Care.

**4.2.4.11. Integrated Delivery System (IDS)**

Health care services provided in 28 remote mountainous areas and 19 offshore islands are funded through capitation using the family doctor concept with referral system. The BNHI has contracts with medical teams to provide the services including certain specialist services and telemedicine. Helicopters are used to reach these areas despite not many people living in the areas.

**Lessons Learned and Relevance to 1Care**

Health care services need to be provided to remote areas although it may not have health care facilities nearby and no health care providers want to open clinic in the areas. Currently, MOH already provided flying doctor services to serve people in the remote areas of Sabah and Sarawak. There are also doctors provide outreach services to rural areas. These services could be continued under 1Care and health care providers would be contracted to provide the services.
4.3. Provider Payment Mechanism in Taiwan

4.3.1. Introduction to Provider Payment Mechanism

Providers obtain their revenues from 3 sources: 1) payments by the NHI; 2) patient user fees and co-payments. Others sources of revenue include sale of products and services not covered by the NHI.

Currently NHI pay provider mainly by fee for service (FFS), however NHI have experimented with different payment systems, such as diagnosis-related groups (DRGs) for hospitals, primary care capitation for certain population groups, and performance-based payments. DRGs were phased in for the 50 most common diseases and treatments, which effectively reduced the average length-of-stay in hospitals.

4.3.2. Fee-For-Service (FFS)

The government acts as the single-payer system with a uniform payment schedule that has effectively controlled the cost shifting that occurred frequently before the implementation of NHI. Initially, NHI providers were paid on a fee-for-service basis; however providers were able to make sizable profits by overprescribing medications and ordering unnecessary procedures, leading to quickly rising per person expenditures. The Bureau of National Health Insurance (BNHI) estimates that overuse and misuse of health care may constitute up to a third of BNHI’s expenditures.

Such a payment mechanism promoted physician-induced care that may not always be clinically indicated. Providers in Taiwan can and do respond to low fees for some services by profiting from the sale of products and services not covered by the NHI or by emphasizing the sale of NHI-covered products on which the NHI allows larger profits. Prominent among these are prescription drugs. Drugs constituted 22 percent of total national health spending in 2000 and 23.8 percent in 2001.

Due to escalation cost and the need to cost containment, BNHI introduced a reasonable volume standard for outpatient visits coupled with a sliding fee schedule for visits above the volume standard, which discouraged supply-induced demand and reduced the number of visits per person.

4.3.3. Cost sharing by patients

Out-of-pocket spending by households represents services not covered by the NHI, such as orthodontics, prosthodontics, lab tests that are not medically necessary, extra charges for non-NHI beds, special nurses and physicians requested by patients other than those
routinely assigned by the hospital, long-term care, and nursing home care. It also includes "user fees" and copayments for NHI-covered ambulatory care, inpatient care, and pharmaceuticals. User fees are levied per contact with the provider. They are set by the relevant providers’ associations, with ceilings imposed by the BNHI. Copayments are levied on each component of a treatment. Exceptions are made for major illness or injury, deliveries, certain preventive services (such as pediatric immunizations and pap smears), and medical services delivered in defined mountainous and remote areas and to low-income households, veterans, and veterans’ sole survivors. Co-payment is waived for patients referred by primary physicians. It is also waived for catastrophic diseases, child delivery, medical services at mountain areas, low income households, veterans and children <3 years old. Moreover, copayments vary by type of provider. They are highest for outpatient care at medical centers and lowest for clinics.

**Increased copayments**

Even before the September 2002 premium increase, the BNHI raised copayments in July 2001 for certain types of visits, drugs, and inpatient care. Copayments rose again in September 2002, and the BNHI started to charge copayments for lab tests and examinations at that time.

**Outpatient co-payment**

Co-payment for outpatient ranges from NT$50 for District Hospitals/Clinics to NT$250 for Regional Hospitals and NT$360 for Medical Centres. The payment is slightly more for the Emergency Care. While for Dental care and Chinese medicines, the co-payment is standardised at NT$50 and for drugs at 20% (ranges from NT$0-25). Co-insurance for Inpatient acute care is 10% for the first 30 days, 20% for 31-60 days and 30% for above 60 days. The ceiling is NT$28,000 and NT$47,000 cumulative for the entire calendar year.

**Lessons Learned and Relevance to 1Care**

1. In 1Care, since PHCP will function as a family doctor and will be the gatekeeper, there may not be much abuse of the system to seek direct specialist care. Care must be taken that PHCP does not over-refer under a capitation system which has opposite incentive compare to FFS

2. Since in 1Care, PHCP will function as a gatekeeper, if co-payment needs to be implemented, it can be uniform for access to all PHCP.

3. For inpatient, there must a standardised coinsurance of a range which can be similar to Taiwan model of 10% with a maximum amount per admission and per year. Whether
there should be an increase in co-insurance with increase in the length of stay requires further discussion. This is not an issues when paying by DRG where the incentive where be to discharge patient quickly

4. Co-payment for drugs dispensed for outpatient services need to be discussed. However, for inpatient services, the co-insurance (if instituted) should be a % of the DRG payment which also includes drugs.

4.3.4. Development of payment system and Global Budget

Taiwan modified the payment system according to need. Initially, the payment was through FFS+Case payment. In order to control cost, global budget was introduced between 1998 – 2002 for Dental Care (1998), Chinese Medicine (1999), Clinics (2001), Hospitals (2002) and OPD Dialysis (2003).

Global budgeting

In the first few years of the new program, the Bureau of National Health Insurance (BNHI) reimbursed healthcare providers on a fee-for-service basis. As a result of this, plus the low cost to consumers for virtually unlimited access, government spending on health care increased rapidly: spending on outpatient services, for example, increased 25% between 1996 and 2000. In recent years the BNHI has experimented with other payment methods, such as diagnosis-related groups (DRGs) for hospitals, primary care capitation for certain population groups (such as residents of remote areas), and even payments linked to clinical outcomes, in an attempt to control costs and improve quality. The ultimate cost control measure, however, has been the imposition of global budgets, phased in sector by sector, a process completed in September 2002 with global budgets for the huge hospital sector. BNHI adopted global budgets, first for dental services in 1998, then traditional outpatient Chinese medical services in 2000, Western-based medical clinics in July 2001, and finally for hospitals, both inpatient and outpatient care, in July 2002. Frequent reviewing and evaluation was done by BNHI.

Global budgeting incorporates an aggregate fixed sum budget imposed on all hospitals in Taiwan collectively, creating a zero-sum game in which the players cannot effectively police one another. Reimbursement contracts are negotiated with health care providers on a fee-for-service basis with a uniform pay schedule. A deflation mechanism engages once a service quota is reached, resulting in declining reimbursement rates. Under the global budget payment system, the NHI Medical Expenditure Negotiation Committee convenes and negotiates overall caps on total medical payments based on a set of equations and indicators prior to the beginning of a fiscal year.
BNHI also took several measures to control the demand for selected types of health care, such as increasing copayments for high users of drugs and outpatient services. The global budget payment system with these measures 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 implemented in July 2002.

Taiwan’s global budgeting system uses the expenditure cap approach. Before the start of each fiscal year the NHI Expenditure Committee discusses the national budget for each major healthcare category (dental services, traditional Chinese medical care, clinics, and hospital services) with the BNHI and with representatives of health providers. For example, in 2010 the executive Yuan approved a growth rate of 1.8% - 3.5% and NHI Medical Expenditure Negotiating Committee (MENC) agreed on 2.8% with 1.94% for Dental, 1.49% got Chinese medicine, 2.24% for clinics and 2.73% for hospitals. Once the committee sets the overall national budget for a category, that budget is divided among six healthcare regions, with the share of each region determined by a combination of historical expenditure levels and risk adjustments. Each region then has its own subsidiary NHI Expenditure Committee to administer their budget for each healthcare category.

Currently most of the budget goes to hospital care (66%), followed by Primary care (21%), Dental care (7%) and Traditional Medicine (4%) and others (2%). Organ transplant gets funding from a separate government funding.

Experts in Taiwan appear to believe that the absolute level of fees paid by the NHI is too low and that many fees are considered to be below cost. In the absence of effective volume controls, providers’ simplest response to low fees is to expand the volume of services they provide while reducing the resources going into each unit of service (for example, shortened visit length).

**Point Value Process**

If the global budget for a region’s hospital sector be B, because B is a fixed expenditure level set for the region before the start of the fiscal year, payments to individual providers must be adjusted according to the overall quantity of services provided. For instance, suppose Hospital \( i \) supplies \( q \) service units during the fiscal year. The price that each hospital receives in reimbursement for each unit of service it provides is:

\[ p = \frac{B}{Q}, \]

where \( Q = \sum q_i \) is the total number of service units provided by all hospitals in the region during the fiscal year. The value \( p \), known as the point value, fluctuates with the volume of service units supplied so that reimbursements do not exceed the fixed budget B. Specifically, if the number of service units supplied exceeds the amount expected when the budget was determined, the point value will be less than one. Thus, when making supply decisions providers know their region’s annual hospital budget, and they know the number...
of service units associated with supplying specific medical services and thus the quantity of service units that they are supplying, but they do not know the ex poste point value at which service units will be reimbursed: providers must make supply decisions while uncertain of the final point value. Point value will be calculated quarterly and value will be settled by 3 months after the quarter e.g. if 1st season (January – March), then the settlement will be by 1 July. The difference in payment will be made after a lag of 6 months.

In this situation individual hospitals have an incentive to increase their income by increasing the number of service units they generate (either by increasing the volume of patient visits or the intensity of treatment during a visit). Collectively, however, hospitals will find that as they all increase the amount of service they provide, the point value will float downward. In fact, the average point value across all regions, which was first calculated in the second half of 2002 at about .96, decreased to .95 in 2003, then fell to .90 for 2004 and 2005, before rising again to .94 in 2006 (BNHI, 2009), suggesting that in every year hospitals have provided more service units than expected.

**Lessons Learned and Relevance to 1Care**

1. Introducing global budget will allow NHFA to pre-specify the amount to be spent on health care in a period and hence giving more control over expenditure. This will enable NHFA to predict health expenditure for the year which can be co-related to the premium collection. This will also prevent doctors from over-prescribing and over servicing especially in the hospital sector.

2. Global budget limits the budget and hence forces health care providers to use their own judgment on how to use the limited resources and to be efficient. This has also shown to improve medical quality efficiently.

3. Global budget also gives the providers the incentives to reduce costs by eliminating unnecessary services and increasing the efficiency.

4. This model has been successful in containing medical expenditure in Taiwan and other OECD countries and should be emulated. This has also shown to improve medical quality efficiently.

5. Global budget enables reallocation of budget to maximise value for money.

6. Proportion to hospital, primary health care and dental need to be discussed and decided based on current proportion and policy decision in 1Care e.g. increasing the proportion for PHC as the thrust of Malaysian health care.

7. Point value system should be based on current utilisation to prevent over-servicing.
4.3.5. Payment for Drugs

The global budget scheme for hospitals treats reimbursements for drug prescriptions differently from reimbursements for other health services. Expenditures for drugs (D) are removed from the budget before the ex post point value is calculated, so that the point value is:

\[ p = \frac{(B - D)}{Q} \]

a practice known as the Pharmaceutical Benefit Scheme (PBS) (NHI, Global Budget Q&A Manual).

Hospitals thus have an incentive to spend more on drug treatments so as to avoid the uncertain return associated with services reimbursed by the usually discounted point value. Further, the certain profit margin from drug expenditures is higher than that of other medical services. As might be expected, from 1996 to 2003 drug reimbursement grew 50%, from NT$62.2 billion to NT$ 94.5 billion, and reimbursements for drugs as a percentage of total health expenditures are significantly higher in Taiwan than in other countries.

The BNHI has adopted several strategies to contain drug expenditures by lowering drug prices. Nevertheless, drug expenditures are still reimbursed at cost before the remaining portion of the budget is divided to determine the floating point value used to reimburse other medical services. It thus remains the case that the removal of drug reimbursements from the global budget creates two potential sources of profit for hospitals, one for drug expenditures that is certain and relatively high, and one for all other expenditures that is uncertain and lower. Hospitals therefore have an incentive to increase use of drugs so as to increase profits from the certain source.

BNHI responded by reducing the high profit margin that clinics and hospitals can obtain from dispensing drugs by reducing the reimbursement rates for drugs, using reference pricing, and encouraging the use of generic drugs.

Profit from Pharmaceutical Products

A feature that Taiwan’s health system shares with other health systems in Asia is that hospitals are allowed to sell patients drugs at prices far above their acquisition cost, which they negotiate with the drug companies. Coupled with the physician fee system of rewarding hospital-based doctors, permitting hospitals to profit from the sale of drugs led to a serious conflicts of interest, as it invites the overmedication of patients, including a perilous overmedication with antibiotics. According to a December 2002 study report by the DoH, close to half of the doctors in Taiwan prescribe four to five drugs per visit for upper respiratory infections, and 10 percent prescribe more than eight drugs; in only fourteen of 103,024 outpatient visits did the doctor not prescribe any drugs.
BNHI responded by cutting prices for 8,961 drugs in 2000, 10,248 drugs in 2001, and thousands more in 2002. The BNHI also stepped up claims reviews, eliminated subsidies for medical education, and introduced DRGs for hospitals.

**Lessons Learned and Relevance to 1Care**

1. There should be an appropriate drug pricing with certain percentage to mark up for profit but not excessive profit.

2. Need to do an international drug reference pricing to ensure the drug prices are reasonable and the amount reimbursed to providers are not exorbitant.

3. Payment to providers should not be tied to the number or type of drugs prescribed.

4. Rather than having a comprehensive drug price list according to type or brand, there should be a uniform pricing for each drug according to propriety or generic only.

5. Overprescribing should be monitored with appropriate disincentives.

**4.3.6. Fee Schedules**

The NHI pays providers on a classic fee-for-service (FFS) basis, at uniform, national fee schedules. Unlike the fee schedules used by the U.S. Medicare program, Taiwan’s fee schedules are not based on the estimated relative resource costs of providing the services in the schedules. Instead, the NHI simply adopted the relative value scales of the fee schedules used by the Labor Insurance and Government Employees Insurance in place prior to 1995, albeit at higher absolute fee levels. For example, in 1996 NHI fees for physician visits were 17–34 percent higher and for inpatient days, 19–33 percent higher than those under the Labor Insurance fee schedule.

When assigning a reimbursement price for a new product, the BNHI will compare the new product with similar products currently on the market. Generally, the BNHI will request that an applicant provide a list of published reimbursement prices from ten specific countries: U.S., Canada, Japan, Australia, the UK, Germany, France, Switzerland, Belgium, and Sweden. If reimbursement prices are not available, then the actual market prices for these countries should instead be provided.

Typically, the BNHI will grant a reimbursement price that is in the low-to-middle range of the ten reference prices. If only a limited amount of data (only a few of the ten countries) can be provided by the applicant, the BNHI may refuse the reimbursement application altogether, or offer a very low reimbursement price. If a low reimbursement price is granted, the applicant may have difficulty promoting the product, since medical facilities
and patients could opt for a similar product with a higher reimbursement price. However, the applicant also has the option to refuse the reimbursement price via an appeal. A maximum of two appeals is permitted, each taking three to four months to complete.

**Lessons Learned and Relevance to 1Care**

1. In the initial phase, in the absence of accurate costing, the NHFA can use the current fees structure which can be adjusted later.

**4.3.7. Case Payment**

In case payment, providers are reimbursed on the basis of each episode; the payment rate was determined by historical fee-for-service claim data. The Global Budget System uses a case-payment scheme (similar to the Diagnosis-Related Group (DRG) reimbursement system in the U.S.) for specified medical and surgical procedures as classified by the BNHI. Once a surgical procedure is selected for case-payment, the procedure is reimbursed at a fixed number of points, and no itemized medical fee, ward care fee, medication, or material will be allowed for additional claims by the medical organization.

The first pilot project was for normal delivery (clinic) since 1995. Currently, there are approximately 50 types of medical procedures that are reimbursed under the case-payment scheme, including C-section, gynecological surgery, appendectomy, hernia repair, kidney transplant, cataract removal, and orthopedic surgery procedures. By 2014, BNHI will adopt a case payment system for all in-patient services in Taiwan and discontinue the fee-for-service system entirely. Currently 53 items (48 items for inpatient and 5 items for outpatient) out of which 46 items are DRGs in 2010.

Taiwan DRGs are adapted from US Medicare AP-DRGs. Currently 1029 DRGs used for inpatient only under the inpatient global budget. Coding by ICD9-CM. By 2014 all inpatient payment will be by using DRGs. Currently 164 groups used since 2010 and accounted for 17.36% of the total inpatient care expenses. The medical care quality improved using clinical pathway.

Items excluded from DRGs include mental disorders, cancers, AIDS, Hemophilia, Rare Disease, ALOS > 30days, complications of organ transplantation, ECMO, chronic hepatitis, TB, Hospice care, Ventilator dependents.

Payment formula uses a standardised payment (SP) for those within the calculated range. While the low outlier will be paid FFS and upper outlier will be paid 80% of extra claim + SP. Payment is adjusted according to hospital type (academic MC, Regional and Community), extra payment for children, and mountain areas/ offshore islands. The outcome of using DRG was that those cases using DRG reduced LOS by 4.6% in 2010.
The DRG is adapted from US Medicare RBRVS method. Revised fee since 1999 and implemented in 2004. 20 doctors assisted in calculation with data from many hospitals. More than 3,000 specific Western Medical procedures were reviewed.

**Lessons Learned and Relevance to 1Care**

1. Taiwan’s experience clearly shows that paying providers by FFS will increase overservicing and increase health care inflation. Taiwan is emulating other OECD countries in paying inpatient services using DRG. In 1Care, it is recommended that DRG be implemented in all hospitals and payment to hospitals will be based on DRG.

2. Even with DRG, global budget for the various health sector deliveries should be used to ensure predictability of expenditure, containment of health care cost and improve efficiency.

3. RBRVS can be used similar to Taiwan to pay for the DRG case payment to hospital and not to pay doctors as done in the US.

**4.3.8. Integrated Delivery System (IDS Plan)**

Bureau of National Health Insurance implemented the integrated delivery system (IDS) plan. This plan encourages doctors to work in these areas to solve the medical problems so people could have prompt medical treatments there. So far, the IDS plan has been launched in all 48 aboriginal townships.

IDS provides outpatient care, 24-hour emergency, Night-time & on-call services, Preventive care, Home care, Chronic care, Referral transport services, rotation services, disease screening, etc. They also provide specialty services e.g. ophthalmology, obstetrics and gynecology, dentistry, physical rehabilitation, kidney dialysis, radiation, etc.) and telemedicine services monthly of bimonthly during the weekend.

The funding for IDS is given by BNHI to the agency which is participating in this project to provide health care services. In Pinxi, the fund is channeled to the Chung Gang University to provide the agreed services.

Medical expenditure for IDS increased from NT$2,690 million in 2002 to NT$3,730 in 2010. Extra funds grew from NT$330m in 2002 to NT$380m in 2010. Satisfaction rate in 2010 was 93%.
**Lessons Learned and Relevance to 1Care**

1. IDS provide good integration of private and public sector while providing integrated care for an identified population. This can be applied in 1Care where the NHFA can contract with providers to provide certain services in rural area where currently there are no doctors.

4.3.9. **High Frequent Patient**

As there is no limit to the number of clinic/hospital visits, there is a tendency for some patients to abuse this system. Those who visited more than 20x in a month, more than 50x in a season and more than 100x in a year will be referred to the local public health bureaus, bureaus of social affairs and veterans affairs bureaus to assist with consultation. There has been a decrease in the visits frequency after this consultation. If the frequency doesn't decrease after this consultation, the patients will be referred to specific medical institution to protect the safety of the patient’s medical treatment and to save medical resources.

**Lessons Learned and Relevance to 1Care**

1. In 1Care which emphasises minimal or no payment at the point of seeking care, there may be a tendency for the population to abuse the services. Hence, the high frequent patients need to be monitored and counseled, if necessary.

4.3.10. **Prevention of Fraud**

Through real time transmission of medical visits data, the BNHI can find out the abnormal visits. BNHI will review medical expenditures including computer review, random individual review and on-site review. If there is fraud, BNHI will not pay for the fees and will refer to judicial department for investigation.

To prevent abuse of the system, the penalty for fraudulent insurance claims and medical expenses will be increased to up to 20 times the amount illegally received. The current fine is set at twice the illicit gain.

4.3.11. **Second Generation (2G) NHI**

To ensure quality health care for the entire population, the 2G NHI protects the rights of the disadvantaged via continuous coverage and reduced co-payments, and incorporates convicts into the system.
Meanwhile, the government will cover at least 36 percent of annual premiums, up from 34 percent. “The 2-percent increase is expected to require roughly NT$30 billion in government contributions during the first year of implementing the new system.

4.3.12. Claims Review

Medical claims review is done by the Medical Review Division with Units in the 6 regions. The review is undertaken by Medical Review Committees and Peer review by physicians. The purpose of the medical claims review is “to ensure the right services, right amount and good quality (Article 52, NHI Law)”.

The ICT system collects comprehensive data content which includes summary file from each hospital transmitted monthly. The Detail File contains one record for per patient (per visit/admission) with physician no., physician ID, patient ID, diagnosis code and subtotal for different fee categories. The Order File contains all the drug or treatment information regarding each patient’s medical visit which includes drug code, procedure code, treatment code, and unit price and claim amount. Every day the crude information e.g. name, sex, date are updated daily while detailed information is updated monthly.

Method for claims review

a. Computerised review – to reduce incorrect claim data, promote review efficiency and save medical review cost.
   - Auto-adjudication – to detect claims which may be atypical
   - Profile analysis indicators include:
     i. Hospital
        - 14-day readmission rates
        - Antibiotics usage of ambulatory services
     ii. Clinic
        - Duplication rate of antacid per visit
        - Injection medicine usage for ambulatory services
     iii. Dental Care
        - Endodontic treatment complete rate within 90 days
        - Full mouth scaling rate for 13 years up
     iv. Chinese medicine
        - Duplication visit in the same day
        - Duplication rate of Chinese medicine drugs in the same day
     v. Dialysis
        - Peritoneal infection rate
        - A-V shunt reconstruction rate
b. Peer review using sampling review as number of claims is too huge to review (30 million OP claims and 0.26 million IP claims a month). If fraud is detected, the amount the provider denied payment will be same ratio of the denominator e.g. if one in 20 record is checked, the amount denied will be 20X the amount claimed.

Information on utilization and quality indicators are frequently given to health care providers. The quality indicators are also publicly disclosed for the people to have information on the quality of services. However, there is not ranking given.

If patient is readmitted within 14 days into another hospital, BNHI will review the medical records to study the reason for readmission before making the payment.

**Disease Specific Quality Indicators**

Indicators for 4 diseases:

a. Total knee replacement
   - Infection rate of surgery

b. Hypertension
   - Duplication rate of hypertensive drugs in the same day
   - Thiazide diuretics usage of hypertensive patients with gout

c. Asthma
   - Readmission rate of asthma patient
   - Admission rate of asthma patient under 6 years

d. Mental illness
   - Ambulatory follow-up of mental illness patient within 30 days of discharge
   - Duplication rate of anti-schizophrenia drugs in the same day

**4.3.13. Managing Service Volume and Quality**

a. Review system
   - Computerised review (Auto adjudication and profile analysis)
     - Reduce incorrect claim, promote review efficiency and save medical review cost
     - Must follow related review and reimbursement regulations e.g. Fee schedule, Review regulations and notes, Pharmaceutical reimbursement regulation and price standard, etc.
     - Check order files, detail files and summary files
     - Eligibility of the insured
     - Check NHI Benefit scope
     - Verify ID, Check Price, Physician specialty and gender-age check and duplication claim
- Restriction of claim frequency of specific-item (e.g. same procedure within 6 months), Items which cannot be claimed simultaneously in the same visit/admission.
- Restriction of certain dental position for specific order.

- Peer review

b. Information feedback to healthcare providers
   - Utilisation indicators
   - Quality indicators

c. Public Disclosure of quality indicators
   - No ranking of the providers
   - Only quality of the providers

**Negotiation-based Review: Refusing Payment Indicators**

Integration of the NHI Supervisory Committee and Medical Expenditure Negotiation Committee to form the new NHI Supervisory Commission, a move designed to bring revenues and expenditures more in line. This body, composed of representatives of the insured, employers, medical service providers, experts in related fields and health care authorities, will be tasked with reviewing issues such as premium rates, the scope of benefits and total yearly payments to contracted medical facilities.

**Regulation-based Review**

ICT system is programmed to review based on fee schedule, regulations and pharmaceutical pricing. The system will also check between order files, detail files and summary files for inconsistency. Claims can be automatically rejected if there is inconsistency. Sometimes BNHI will mail to the patient to verify treatment and medication given to verify accuracy and prevent fraud. The patients also can complain to BNHI if there are any discrepancies in the treatment given.

ICT also does Adjudication check to check the eligibility of the insured, NHI benefit scope and fee schedule and pharmaceutical benefit scheme adjudication rules e.g. price check, physician specialty check (e.g. if physician doing surgery) and gender-age check (e.g. hysterectomy only for females).

**4.3.14. Provisional payment**

In order to get pre-paid tentative amount, the institution must submit their claims data before the 20th of next month. Pre-payment will be made <15 days after submission electronically or <30 days after submission non-electronically. The proportion prepaid is
90% for newly contracted, otherwise will depend on the previous denial rate for each institution.

**Lessons Learned and Relevance to 1Care**

1. ICT will play a major role in claims review in 1Care. There should be computerised review which should be able to detect any discrepancy with regard to treatment given, patients, etc.

2. Peer review will also play an important role for random checking whether the treatment given is appropriate

3. Need to determine on the penalty should fraud be detected.

**4.3.15. Payment For Performance**

This payment is based on voluntary participation by primary care physicians, hospitals, or clinics and other care facilities. To participate in the program, providers must adopt the following quality assurance measures:

- Meet formal qualification/certification requirements for participating medical personnel (physicians, nurses, and dieticians) hospitals and clinics.
- Follow treatment guidelines such as the widely accepted guidelines for DM care developed by the U.S. based ADA.
- Establish case-based Electronic Medical Record (EMR) and medical record management systems.

A. The “Original 5” indicators for performance was implemented late 2001
   - Asthma (based on process measures)
   - Diabetes (based on process measures)
   - Breast cancer (based on outcome measures)
   - Cervical cancer
   - Tuberculosis

B. The new indicators were commenced in January 2006
   - Hypertension
   - Depression

Reporting was based on claims data, supplemented by self-reported performance data on the outcome and process parts, using a special webpage outside of regular claims filing channel
Breast Cancer

This indicator was commenced in November 2001. The payment was based on outcome, contingent upon year-end total survival and disease-free survival. 3 medical centers, 5 hospitals, 2 regional hospitals with a combined total of 200 professional medical personnel committed to the program. 2,381 new patients covered in the program in 2004 which was equal to 44.34% of all BRAC patients in Taiwan. The outcome-based bonus payment was paid on top of regular case-based payment as below:

1% of regular case payment at 1st yr. survival  
2% of regular case payment at 2nd yr. survival  
5% of regular case payment at 5th yr. survival

The is the sole P4P program among the 5 that bases payment on outcomes, the BRAC P4P met 100% target goals for 5-year total survival and disease-free survival and patient satisfaction extremely high.

Diabetes Mellitus

This indicator was started in November 2001. This indicator was chosen as DM was the 4th leading cause of death in Taiwan (2003), accounted to 11.5% of NHI spending, poor quality due to the fragmented care under the FFS payment system, previous attempt yielded mediocre results, thought to be due to lack of structural support and financial incentive to providers to deliver appropriate care. Using disease management team care model, chronic care services are delivered by certified DM physicians, nurses, and dietitians 4 x per year. The required services include and tests for HbA1C, urine micro-albumin, eye examination, BP and LDL check, foot care, and patient counseling. The percentage of DM patients enrolled in DM-P4P program was:

<table>
<thead>
<tr>
<th>Year</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>17.3%</td>
</tr>
<tr>
<td>2005</td>
<td>19.7%</td>
</tr>
</tbody>
</table>

The provider participation was as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>9/2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospitals/Clinics</td>
<td>159</td>
<td>313</td>
<td>464</td>
<td>596</td>
</tr>
<tr>
<td>Cases</td>
<td>32,267</td>
<td>80,207</td>
<td>125,530</td>
<td>143,148</td>
</tr>
</tbody>
</table>

The payment was based on complex process-based bonus scheme, where 1 point = NT$1

- 1845 points for initial visit for new patient
- 875 points for each repeat visit (up to 3x per year)
- 2245 points for annual evaluation visit
- 200 points for drug refill prescription
- separate payment for eye examination
Other medical services and drugs for DM patients enrolled in the program are paid under the traditional FFS payment scheme.

The result showed improvements across the board in 2004 over previous studies.

The outcomes indicators also showed marked improvement:

<table>
<thead>
<tr>
<th></th>
<th>Pre-trial*</th>
<th>Post-trial**</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>No-HbA1c</td>
<td>22.1</td>
<td>16.1</td>
<td>- 27.0%</td>
</tr>
<tr>
<td>Systolic BP</td>
<td>44.5</td>
<td>40.4</td>
<td>- 9.2%</td>
</tr>
<tr>
<td>Diastolic BP</td>
<td>24.2</td>
<td>22.5</td>
<td>- 7.0%</td>
</tr>
<tr>
<td>LDL</td>
<td>14.1</td>
<td>13.6</td>
<td>- 3.5%</td>
</tr>
</tbody>
</table>

ASTHMA

This indicator was started in November 2001 while in January 2004 payments were increased for care for co-morbidities of asthma patients.

The provider participation was as follows:

<table>
<thead>
<tr>
<th></th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>9/2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospitals/clinics</td>
<td>110</td>
<td>320</td>
<td>982</td>
<td>1,252</td>
</tr>
<tr>
<td>Cases</td>
<td>7,229</td>
<td>31,344</td>
<td>106,353</td>
<td>148,831</td>
</tr>
</tbody>
</table>

In the first year, the payment is as follows:
- NT$ 500 ‘management fee’ for new patients
- NT$ 200 for 2\textsuperscript{nd} visit
- NT$ 200 for 3\textsuperscript{rd} visit
- NT$ 900 for year-end (4\textsuperscript{th}) visit

While in the second year, the payment for each visit is as follows
- 4 visits @ NT$ 200, 200, 200, and 900 for ea. visit

After 2 years, the results showed the following:
- No apparent difference in frequency of outpatient visits
- Cost for outpatient care: ↑ 16.27%
- Cost for TOTAL care: ↑ 9.17%
- Frequency of emergency visits: ↓ 39.94%
- Cost for emergency care: ↓ 30.90%
- Frequency of hospitalization: ↓ 46.31%
- Cost of inpatient care: ↓ 44%
- Length of stay: ↓ 51.74%
Funding For Payment for Performance

Beginning in 2006, funds for bonus payments are made available through a special, earmarked budget line item titled “Other Budgets” within the NHI’s overall global budget. Therefore, the P4P system is not budget-neutral. Instead, performance payments are made in addition to the regular FFS payments for services rendered.

Total funding for P4P committed in 2006, by source of funding:
GB for primary care   NT$ 356 ml.
Hospital GB                         NT$ 725 ml.
Other sources                     NT$ 69 ml.

Total Funds Committed:   NT$ 1,166 ml.

At this time, total P4P spending under Taiwan’s NHI is between 0.3% and 0.4% of total NHI spending, but it is slated to grow in the future.

It would appear that, based on the results of the P4P programs currently being adopted in Taiwan, financial incentives do play an important role in the delivery of better quality care and better outcomes.

Finally, whatever one may think of single-payer health insurance systems, Taiwan’s single payer system is an ideal platform for P4P programs, because the system embodies an information infrastructure that yields comprehensive and up-to-date information on the care actually delivered to patients.

It allows Taiwan to base its P4P system more heavily on claims data, rather than on the less reliable, self-reported performance data now so widely used for P4P throughout the world. Of course, to the extent that claims for payment may be fraudulent or miscoded, such data are no more reliable than self-reported performance data.

Lessons Learned and Relevance to 1Care

1. In 1Care, need to discuss and determine the performance indicators which will be used for the evaluation of the providers.

2. In the absence of new funds for P4P, it should be made mandatory for all the providers to participate and rewarded according to performance.

3. ICT need to play an important role to analyse data on the performance of the providers.
4. Experience in Taiwan has shown that the providers respond to incentives and their performance improved along with quality care.

4.3.16. Capitation Pilot Project

Under the current NHI payment system, although part of hospitalization claims paid under the diagnosis-related group (DRG) payment method, most medical services are still paid on a fee-for-service basis. As a result, medical care providers tend to provide more services for more payment. There is a lack of incentive for medical care providers to improve the insured’s health. In view of this, the BNHI has realized that in order to encourage medical institutions to enhance preventive health care such as providing health education on correct diet/living style for patients so as to decrease medical expenditures and to improve public health, it is necessary to promote the capitation payment system to deliver greater benefits to the public, medical care providers, and the insurer.

This project has openly recruited pilot teams since February 23, 2011, and as of March 31, a total of 25 medical institutions/teams nationwide have applied. 8 medical institutions (or teams) have been chosen as official pilot hospitals or teams. More than 300,000 people could be included in this pilot project. This pilot project started from July 1, 2011 and will run for 3 years. The budget for 2011 is NT$300 million.

This project uses 3 pilot models. The first is the regional integration model which targets all registered population in the involved administrative region, with the integrated service provided by medical institutions/teams. The second is the community medical group model: the community medical group involved in the "Family Physician Integrated Care Project" will take charge of this model, and service will also include hospitalization. The third is the hospital-loyal patient model: the target population will be the loyal patients participating in the "Project of Establishing Integrated Care Model with Gradual Progress towards Facilitating Medical System Integration", and service will include hospitalization as well. Considering the convenience to seek medical care, during the implantation of pilot project, the insured is free to choose any medical institution for treatment.

4.3.17. Physician fees

With rare exceptions, hospitals in Taiwan reward their staff physicians individually for bringing in revenue. Traditionally, hospital-based physicians in Taiwan had been paid fixed salaries. In recent years more and more hospitals have shifted partially (mainly large public hospitals) or wholly (all private hospitals and some public hospitals) to the "professional fee" (PF) system. This system compensates doctors mainly on the basis of their revenue productivity which includes the number of patients seen, procedures performed, lab tests ordered, along with teaching and scientific articles published, speeches given at outside institutions, and even articles written in newspapers (these are all public relations work
aimed at attracting new patients or raising the name recognition of the hospital). Although seniority counts as well, the higher the service volume a doctor or a hospital delivers, the greater will be the hospital’s revenue and the doctor’s pay. Government responded by changing the fee structure so as to try to limit the number of patients each provider can treat during a given day.

Physician fee schedules are fairly coarse, with very few fee categories. Sources of physician fees include consultation fees (outpatient, emergency, and inpatient), surgical fees, examinations (endoscope, pathology, etc.) and treatments given. The physician fees can a fixed amount or fixed ratio.

In Taiwan hospital industry pay most of their attention to physician compensation program. Physician fees used to predominate in private hospitals but now prevail in most hospitals. However, some public hospitals only pay the salary with little or no additional payment for services provided. The major difference among hospitals is the proportion of salary coming from physician fees. In public hospitals, major proportion of the income is from salary while in private hospitals only a small portion comes from salary and a major proportion from physician fees based on the services provided. For each service ordered by the physician, a certain portion of reimbursement will become his/her pay.

The more complicated and more time consuming the treatment, the higher the percentage of physician fees. If the total number of treatment given increases, the percentage will reduce. If the physician only supervises but not directly involved, then the percentage will be less. If use expensive high technology equipment, the percentage will be lower. Hospitals in Taiwan are also known to reward their staff physicians individually for bringing in revenue, further encouraging physician-induced over-prescription.

**Fixed Amount Physician fees**

Outpatient consultation : NT$140 except for psychiatry (NT$175)

Inpatient consultation : Ranges from NT$140 – 450 depending on type of room, ICU (NT$330), New born (NT$140), Isolation ward (NT140)

Single room : NT$180
Twin : NT$180
Luxury : NT$450
ICU : NT$330
New born : NT$140
Isolation : NT$140
Burn Care : NT$155
Pediatric isolation : NT$155
Referred consultation
Hemodialysis  Adult  :  NT$300
                  Pediatric :  NT$200
EEG             :  NT$250

Fixed ratio

Diagnostics and treatment:
  a. Invasive (operation + reading/ treatment) e.g. endoscopy, laparoscopy, etc. – 35%
  b. Non-invasive (operation + reading/ treatment) e.g. ultrasound – 25%
  c. Non-invasive (reading only: less quantifiable and difficult) e.g. linguistic, speech audiometry, low vision inspection, etc. – 15%
  d. Non-invasive (reading only: more quantifiable and easy) e.g. ECG, colour blind examination, etc. – 10%

Aspiration Biopsy
Breast, thyroid, bone marrow, tracheoesophageal – 50%
Surgery – all kinds  - 50%

Physician fees for Emergency Department

<table>
<thead>
<tr>
<th>Revenues</th>
<th>PF %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 20,000,000</td>
<td>50%</td>
</tr>
<tr>
<td>20,000,000 – 20,100,000</td>
<td>45%</td>
</tr>
<tr>
<td>20,100,000 – 20,200,000</td>
<td>40%</td>
</tr>
<tr>
<td>20,200,000 – 20,300,000</td>
<td>35%</td>
</tr>
<tr>
<td>20,300,000 – 20,500,000</td>
<td>30%</td>
</tr>
<tr>
<td>20,500,000 – 20,600,000</td>
<td>25%</td>
</tr>
<tr>
<td>20,600,000 – 20,700,000</td>
<td>20%</td>
</tr>
<tr>
<td>20,700,000</td>
<td>15%</td>
</tr>
</tbody>
</table>

For each incremental 100K in revenue, the PF rate is reduced by 5%

Lessons Learned and Relevance to 1Care

1. Doctors in the public sector should continue to be paid a basic salary but with additional component for productivity e.g. no. of patients seen and fulfilling performance indicators.

2. There should be no incentives for doctors to order investigation, prescribe drugs or promote services not covered by the SHI.
3. Care should be taken no to develop incentive system that reward over treatment within the specified BP or treatment outside BP

4. Introduce reasonable volume standard and sliding fee schedule to ensure quality and ensure distribution of patients (especially to junior doctors). The issues is a provider should not have too many patient

5. In 1Care reward should also be targeted to the particular department/discipline which includes doctors and the support staff rather than individual doctors.

6. Seniority and extra training should be considered in the salary of the physician in public hospitals

7. There should be harmonisation of payment to health care personnel between the hospitals and also between private and public sector.

8. FFS has clearly shown to cause supplier-induced-demand and should not be used a major payment mechanism to hospitals. Fees for services not in the package should also be regulated or have a standard guideline to prevent abuse by providers.

9. There should be strong negotiation committee to negotiate drug prices to develop reasonable drug pricing to prevent excessive profiteering by the providers

**Pooling of Physician Fees**

Physician paid = IPF x 80% + ∑IPFₖ x 20%/n

While physician gets 80% of the income on the PF, he will get inversely proportional to the total number of patients seen based on the 20% of the total physician income. At the same time there is a ceiling of highest revenue for an individual physician and the no. of patients is also controlled.

Please clarify further

**Lessons Learned and Relevance to 1Care**

1. Introducing pooling of fees ensures there is some distribution of income and to prevent the junior doctors from being disadvantaged in terms of income.

2. Need to control the total number of patients seen by a doctor to ensure quality and fair distribution among providers
4.3.18. Clinical Staff

Nurses are mostly paid fixed salary. The clinical staff receives relatively less attention. There are some profit-sharing plans for certain types of clinicians serving in particular departments e.g. nurses in hemodialysis centre, physical therapists in rehab centre. Recently, the DOH has worked with the public hospitals to give better remuneration to the nurses.

*Lessons Learned and Relevance to 1Care*

1. Bonus for performance should not only be for doctors alone but also for the entire multidisciplinary team/department.

4.3.19. Long Term Care Insurance

Currently, for long term care, people still need to pay 30% of the cost and subsidy is only granted to low-income people who are also severely disabled. It is becoming expensive for people and their family to obtain long-term care services. Therefore, the government of Taiwan is currently proposing Long-term Care Insurance to facilitate risk-sharing social insurance system so as to protect the families from financial catastrophe.

*Subjects and subsidy principles of the Ten-year Plan for Promoting our Long-term Care System (Source: BNHI website)*

<table>
<thead>
<tr>
<th>Service subjects</th>
<th>Family financial status</th>
<th>Governmental subsidy</th>
<th>Self-pay (co-pay) percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>People requiring assistance in daily living activities (as assessed for ADLs and IADLs), including the following four types of disabled people:</td>
<td>Low-income households</td>
<td>100%</td>
<td>0%</td>
</tr>
<tr>
<td>1. Elderly aged over 65</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Aboriginal senior citizens aged over 55</td>
<td>Near poor households</td>
<td>90%</td>
<td>10%</td>
</tr>
<tr>
<td>3. Mentally and physically disabled people aged above 50</td>
<td>Other households</td>
<td>70%</td>
<td>30%</td>
</tr>
<tr>
<td>4. Elderly live-alones with only difficulties of the IADLs</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes: 1. Activities of Daily Livings (ADLs) include bathing, dressing, getting in or out of bed, getting around inside, toileting and eating.
2. Instrumental Activities of Daily Livings (IADLs) include light housework, laundry, shopping, preparing food, getting around outside, managing money, taking medications and telephoning.
Service contents of the Ten-year Plan for Promoting our Long-term Care System
(Source: BNHI website)

<table>
<thead>
<tr>
<th>Service Type</th>
<th>Service contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home care service, day care service, family support service</td>
<td></td>
</tr>
<tr>
<td>Home nursing</td>
<td></td>
</tr>
<tr>
<td>Home and community rehabilitation</td>
<td></td>
</tr>
<tr>
<td>Purchase or leasing auxiliaries, and improvement of home barrier-free environment</td>
<td></td>
</tr>
<tr>
<td>Respite care</td>
<td></td>
</tr>
<tr>
<td>Transportation service</td>
<td></td>
</tr>
<tr>
<td>Institutional care</td>
<td>Institutional long-term care services</td>
</tr>
</tbody>
</table>

**Lessons Learned and Relevance to 1Care**

1. As the population of Malaysia ages, the need for long term care will increase. Therefore, there will be a need to plan an insurance to cover the payment for long term care.
Chapter 4:

Primary Health Care
Author: Dr. Koh Kar Chai (MMA)
5. Primary Healthcare

A. Taiwan Healthcare System

*Lessons Learned and Relevance to 1Care*

1. Understand the Taiwan Healthcare system.

We are at the moment looking at the possibility of having a single payer social health insurance scheme, similar to the Taiwan health system. There may be lessons to be learnt here, especially in obtaining the buy-in from the relevant stakeholders and also the mistakes which they have encountered since the day of implementation.

There are two important factors to look at in the implementation of the healthcare system in Taiwan.

The first is that they adopted the Fee for Service method as regards the payment to the healthcare providers. Even though the fees are regulated, it provided the opportunity for the healthcare providers to earn extra if they wish to do so. This is not to be interpreted as a chance to cheat the system for extra income. Healthcare providers choose to be in the private sector as it gives them the flexibility that they need. There is discontentment among doctors in the private clinics in Taiwan because of the introduction of payment methods which seeks to restrict their practice of medicine.

The other is the absence of a gatekeeper system which gave the public freedom to see whichever healthcare provider they want, whenever they wish to do so. They are able to visit any healthcare facility or doctor which suits them.

Though these can be seen as faults in the system which they are currently seeking to rectify, it cannot be refuted that they enabled the buy in from everyone concerned.

Hospital Financial Management & Decisions

B. Hospital Financial Management & Decisions

*Lessons Learned and Relevance to 1Care*


Hospitals in Taiwan are not for profit organisations.

The hospitals in Malaysia comprise of both the private and public hospitals. With the view of possible integration in the payment system of both the private and public hospitals, there is a need for those in the public hospitals to understand how private hospitals are managed.
All hospitals in Taiwan are not for profit and hence may pose a radical change to the way hospitals operate in Malaysia if the same model is adopted.

C. Department of Health of Taiwan.

*Lessons Learned and Relevance to 1Care*

1. Overview of the Taiwan Department of Health.

Though the Malaysian Ministry of Health's vision for a healthy nation shares certain similarities with the Taiwan Department of Health's vision of 'Improving and safeguarding healthfulness for all people, so that everyone lives a longer and happier life' and 'Creating a Safe and Healthful Living Environment and Bridging the Gap of Health Differences for All as a Trusted Health Promoter', the way the DOH is structured is in a way markedly different to that of our MOH which may or may not be relevant to us, depending on how 1Care is ultimately structured.

Since the beginning, the private sector in Malaysia has been left to fend for itself, with the Ministry of Health acting as a 'policeman' to ensure that that the healthcare providers remain ethical. With the implementation of the new healthcare system, the Ministry of Health should also safeguard the interests of the private sector. The proposed 'integration' of the public and private sector may mean that the whole healthcare sector will be seen as one and managed as such, but there is always the lingering feeling that the public sector will remain as such, since they are only being offered an autonomy.

D. Taiwan National Health Insurance System and Organisational Structure.

*Lessons Learned and Relevance to 1Care*

1. The organisation structure of the Bureau of National Health Insurance in relation to the Taiwan Healthcare system.

There is a need to understand the reason for BNHI’s change in human resource from being managed by privately salaried personnel to public servants. The lack of autonomy of BNHI may not be what we envision for 1Care.

E. National Health Insurance Financing

*Lessons Learned and Relevance to 1Care*

1. What are the principles of NHI and how the financial challenges are managed
On the surface, it seems as if the Taiwan NHI is what 1Care aspires to be. The characteristics of coverage, administration, financing, benefits, providers, payment and privileges (with the exception of no gate keeping) seems to fall in line with vision of 1Care. But it is more complex than that, as evidenced by the frequent evolvement of the Taiwan NHI.

F. Premium Calculation and Collection

*Lessons Learned and Relevance to 1Care*

1. NHI’s method of premium calculation. The method of collection and the process of enrolment.

The method of collection as well as the process of enrolment in Taiwan may not be applicable to our Malaysian multi plural society. There are many factors (unique to Malaysia) which need to be considered before we can even begin to calculate the premium, let alone attempt an enrolment of 100% of the Malaysian population.

The data showing the vast difference between the spending for public sector and private sector primary healthcare may not be too accurate given that data from the private sector is not too forthcoming.

The public sector spending has increased in part due to the improvement and increased availability of primary care services in the public sector. Conversely, there may also be a perceivable decrease in the private sector spending due to this reason.

It is to be noted that the almost free primary care service in the public sector also caters for people who can afford their own healthcare which causes a drain on the government healthcare budget.

The impending healthcare system seeks to address this by ensuring that those who can afford it will need to pay a premium on their healthcare. Therein lies the problem of how to convince people who have hitherto been enjoying almost free services to start paying for it.

Then, there are the other groups who have been paying out of pocket for primary healthcare services by choice. With the availability of public primary healthcare service, paying out of pocket is almost never a necessity but a choice by those who want a different service than that being offered by the public sector. This group will then resist paying a premium for a healthcare system which may restrict their freedom of choice.

All these need to be looked at when calculating a premium that is acceptable to all and when looking at factors affecting enrolment.
G. Provider Payment Methods and Payment Mechanism.

**Lessons Learned and Relevance to 1Care**

1. The various payment methods.
2. Evolution of payment methods, from fee for service to the possibility of capitation along with a mix of Global Budget and P4P.
3. The benefit package design.
4. The need for incentives to improve health outcome.

All very relevant as proper provider payment methods and mechanism will be what ensures a good health outcome of 1Care. In short, you get what you pay for.

All healthcare providers expect to be appropriately remunerated for the service which they have rendered. This is the basis of medical practice in the private sector. Indeed, it is the basis of any business transaction in the world. Higher quality of products and services equate to better remuneration. Therefore, doctors with better outcomes of treatment tend to be able to command a higher remuneration. There is however, a limit to the amount of remuneration, especially at primary care level. Due to intense competition, most GPs will not overcharge their patients, but instead undercharge in order to retain their clientele.

Any attempt to tell a doctor how much to charge; in short, telling a doctor how much he/she is worth will meet with protests. At the moment, market forces dictate how the doctors should charge, which as mentioned earlier, is rather low in Malaysia, but perceived to be high in view of the almost free treatment at primary care level in the public sector.

Benefit packages should be comprehensive enough to take care of most requirements of the public. But it should exclude non essentials in order to allow the healthcare providers and facilities to practice a bit of entrepreneurship. Good governance is then needed to ensure that the public are not unnecessarily burdened by unethical medical practice. Instead of giving out punishments to ensure efficiency, incentives should be given, as in the Taiwan model. People work for rewards. Doctors are no different.

H. District Public Health Centre.

**Lessons Learned and Relevance to 1Care**

1. The organisational structure and management of a public health centre.

The public health centres are privately managed with incentives offered to ensure that human resources are available. These are learning points for the remote health centres of Malaysia.
Doctors tend to avoid opening up primary care clinics in remote areas as the population is sparse which may equate to lower income. This can be rectified by allocating more patients per doctor in the remote areas. However, as the clinics will be owned by the doctors, it will mean that they will have to plan on being located in such areas until the day they decide to shift out. They will have to think of the welfare of their own families then. As such, incentives must be given to make it worth their sacrifice.

I. Introduction to Medical Claims and Review Process

*Lessons Learned and Relevance to 1Care*

1. Linked Global Budget Management involving Dental Medicine, Chinese Medicine, Physician Clinics and Hospitals.
2. Process for claims and payment.
3. Fraud detection.

Whilst 1Care is looking at only Dental Medicine, Physician Clinics and Hospitals (largely allopathic medicine), there is also a need to look at how Chinese Medicine is being managed under the Taiwan NHI. With Traditional & Complimentary Medicine being recognised by the MOH in Malaysia, this is not to be pushed aside. Will the primary care doctors be made responsible for the poor health outcome of their registered population who go for traditional and complementary medicine?

Processing of claims is important as it will mean proper provider payment in the health system. All providers would want to be paid in a given short time frame. Delay of payments will place unnecessary financial burden on the healthcare providers.

Fraud is ever present and the Taiwan NHI is not spared. Proper remuneration will reduce fraud. Fraud can never be eliminated, but inadequate remuneration will give rise to higher levels of fraud.

J. NHI Information System

*Lessons Learned and Relevance to 1Care*

1. The Smart Card system.

We would also be looking at having a 'smart card' system for 1Care, especially since our population is already equipped with 'Mykad'.

The point to note is the confidentiality of medical information which may be compromised if it is stored in 'Mykad'. However, having a separate card may lead to the public not having
the card on hand when seeking primary healthcare. In tertiary healthcare, most of the visits are planned and hence the likelihood of having the card on hand. There is the need to look into the possibility of having the medical information stored in a separate folder on the electronic chip of 'Mykad' which can only be opened with the correct password. Having a separate card which is not password protected does not protect the confidentiality of the information.

K. Hospital Information System

*Lessons Learned and Relevance to 1Care*

1. All public hospitals share a common information system, whereas private hospitals have their own unique information systems.
2. There is need for a common interface with the Taiwan NHI system to ensure an effective information system.

Private hospitals in Malaysia have their own information systems. Also, not all public hospitals are 'talking fluently to each other' as far as their information systems are concerned.

The point of creating a common interface for sharing of information is crucial. This should also be offered at primary care level to allow a flow of crucial information.

L. Integrated Delivery System and Telemedicine Application System.

*Lessons Learned and Relevance to 1Care* 

1. Integrated Delivery System ensures delivery of healthcare to underserved communities.
2. Telemedicine Application System designed for healthcare providers in remote areas access to essential instant guidance in the care of their patients.

1Care is also for the population in out-reached areas. The above mentioned two systems are very relevant here as they are designed for proper healthcare to the people in remote areas.

The telemedicine application should not be only for remote areas. Primary care centres in urban areas may also benefit, especially in instances where the cases can be handled at primary care level and also when transfer of a patient to a tertiary centre is not possible due to either the condition of the patient or the infamous traffic conditions in cities.
M. Development process of NHI in Taiwan.

**Lessons Learned and Relevance to 1Care**

1. How was the buy-in from various stakeholders managed?
2. When is the right time for a new health system to be launched?

Buy-in from the various stakeholders in Malaysia is needed to ensure the success of 1Care. This has already been discussed in A.

As for the right time for a new health system to be launched, the question should be "Is Malaysia prepared for such a health system yet?". Or to rephrase the question, "Has Malaysians been prepared to accept a change in the present healthcare system?".

N. The Taiwan NHI as seen by Primary Care doctors.

**Lessons Learned and Relevance to 1Care**

1. Most primary care doctors have a post graduate qualification.
2. Private clinics resent a high level of control by authorities.
3. Remuneration by the Taiwan NHI is not viewed favorably.

Most primary care doctors have a post graduate qualification in various specialties as the public view an additional qualification as an indication that the doctor is better qualified. The doctors are driven to take up a specialty in order to attract patients to see them. There is no compulsion from the DOH.

Malaysia should ensure that there are avenues for doctors to upgrade themselves at minimum cost as this will enrich our healthcare system in the long run. The other two points have already been touched on earlier.
Chapter 5:
Secondary & Tertiary Care - Hospital Services in Taiwan National Health Insurance
Author: Dato' Dr. Hj. Bahari Dato' Tok Muda Hj. Awang Ngah (Head of Report Writing),
Datin Dr. Asmah Samad
6. Hospital Services in Taiwan National Health Insurance

6.1. Introduction

Taiwan, also known as Formosa, is located in the Western Pacific about 160km off China’s southeast coast, midway between the Japan and the Philippines. In 2006, Taiwan had a total population of 23 million, with a density of 620 persons per square kilometer.

<table>
<thead>
<tr>
<th></th>
<th>Taiwan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>23 mil</td>
</tr>
<tr>
<td>Land area</td>
<td>35,801 km</td>
</tr>
<tr>
<td>Aging</td>
<td>10.6%</td>
</tr>
<tr>
<td>GDP</td>
<td>USD 16,353 per capita</td>
</tr>
<tr>
<td>NHE</td>
<td>USD 1,126 per capita</td>
</tr>
<tr>
<td>NHE in GDP</td>
<td>6.9%</td>
</tr>
<tr>
<td>Life expectancy</td>
<td>76.03(m)/82.34(f)</td>
</tr>
</tbody>
</table>

6.2. Medical service system

Before the dawn of the 20th century, no government in Taiwan played a significant role in health care delivery and financing. Chinese medicine used to be the mainstream of health care delivery in Taiwan, but there was no formal school education and licensing systems for it. Western medicine did not exist until James L. Maxwell, a philanthropic medical missionary from the Presbyterian Church of the United Kingdom (UK), started his medical practice in Tainan in 1865.

After World War II the government had undertaken was mainly to assure each of the 21 counties and cities have at least one public hospital and to set up military and veteran hospitals. In the early 1970s, Taiwan had fewer than 0.5 physicians and 2.5 hospital beds per 1000 population.

With the establishment of the Department of Health (DOH) under the national cabinet in 1971, Taiwan’s health care system moved into a new era, characterized by the government’s active involvement in health care reforms. Since then, Taiwan’s health care system has undergone two important periods of development: pursuing health care for all (1971–1995) and moving toward a high performing health system (1995-present).

Initially medical care was finance by out of pocket in fee for service delivery system. Various organization were form to help finance individual members for health services such as 1950 Labour insurance (40% population covered), 1958 Government Employee’s Insurance (8.5% population covered) and 1985 farmers’ Insurance (8.2% population...
covered). In 1995, the government consolidates all the health insurance into a national health insurance program where the enrolment is compulsory for all citizens and permanent stay foreigners.

6.3. Health Administration and organization

The establishment of the DOH as a Directorate General in charge of health affairs directly under the Executive Yuan in 1971 marked the development of health policy in Taiwan moved into a new era characterized by the government's policy focus on the supply of health care professionals and hospital capacities, and then tackling an uneven distribution of health care resources and quality issues.

The Department of Health of the Executive Yuan at the central level is the highest health authority in Taiwan to be responsible for the health administration of the country, and also the technical assistance, supervision and coordination of local health agencies. In each of the two municipalities, there is one city health department; and in each county/city, there is a health bureau, totaling 25. In each township, there is a health station, totaling 372. They are responsible for the administration of local health affairs.

**Figure 6.1 : Organization Structure of Health Administrator**

6.4. Department of Health

There are under the Department, bureaus of Medical Affairs, Pharmaceutical Affairs, Food Safety, Nursing and Health Care, International Cooperation, and Planning, and several task-oriented units such as the National Health Insurance Task Force, Information Management
Center, Science and Technology Development, and Hospital Management Committee. Affiliated organizations under the Department include the Bureau of National Health Insurance, Center for Disease Control, Bureau of Health Promotion, Bureau of Food and Drug Analysis, Bureau of Controlled Drugs, Committee on Chinese Medicine and Pharmacy, NHI Supervisory Committee, NHI Dispute Mediation Committee, NHI Medical Expenditure Negotiation Committee, 22 DOH hospitals, six sanatoriums and one chest hospital. In addition, there are also the DOH financially supported units such as the Corporate National Health Research Institutes, Corporate Center for Drug Inspection and Examination, Taiwan Joint Commission on Hospital Accreditation, Corporate Foundation for Compensation for Drug Hazards, and the Taiwan Organ Registry and Sharing Center (Figure 6.2).

Figure 6.2: Organization of the Department of Health, the Executive Yuan
The DOH allocates some budget to municipality and county/city health organization to operate its services. The main bureau that is responsible for hospital services are the Bureau of Medical Affairs (BMA) while the hospital management committee are responsible for the operation of public hospitals.

6.4.1. Bureau of Medical Affairs (BMA)

The Bureau of Medical Affairs is responsible for 8 main functions listed below:
- Planning of medical services (master plan) for equitable distribution, 6 regions and 63 sub-regions based on population.
- Nursing
- Policy and Regulation – expand medical care act.
- Medical council
- Postgraduate education
- Hospital accreditation
- A&E (ambulance services under fire department) and
- R&D-clinical trial

In 1985 Medical Care Act (MCA 85) was passed that initiated a health care network project to balance the distribution of medical care resources, to shorten regional differences, to avoid repetitive investment on medical care and to raise the medical care standard in every region. 17 regions were created with 63 sub-regions based on population density. MCA 85 specified the number of acute beds per 10,000 population (50 acute beds/10,000 population or 12.5 beds acute beds/10,000 population for regional hospitals) and local health bureau/department are given the responsibility to implement by using operation license.

The BMA also are responsible for dental services that are handled via dental committees.

6.4.2. Hospital Management Committee

The Hospital Management Committee's responsibility is to monitor public hospital performance and appoint the medical superintendent. It acts as board members for public hospitals.

6.4.3. Bureau of National Health Insurance (BNHI)

The Bureau of National Health Insurance (BNHI) is the executive organisation of Taiwan National Health Insurance Programme. It was reorganized to be an administrative organisation in January 1st 2010. It is the powerful and influential body that governed and controlled the whole system of NHI in Taiwan. It provides planning, promotion, execution, supervision, research and development, training, information management and auditing.
services. To hasten the function further, the BNHI has established six regional divisions across Taiwan. The branches handled local insurance applications, premium collection, claims review and reimbursement and management of contracted medical institutions. Through BNHI, the claim reviews were conducted to reduce fraud in the system. It is responsible in determining the premium rate and also determining the global budget for each facility. The Bureau’s operation is fully funded by the government through taxation. The organisation’s structure of the Bureau is as shown in the diagram below.

Table 3: Organizational Chart of the Bureau of National Health Insurance

<table>
<thead>
<tr>
<th>NHI Supervisory Committee</th>
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<tbody>
<tr>
<td>NHI Medical Expenditure Negotiation Committee</td>
</tr>
<tr>
<td>Enrolment Division</td>
</tr>
<tr>
<td>Finance Analysis</td>
</tr>
<tr>
<td>Medical Affairs Division</td>
</tr>
<tr>
<td>Planning Division</td>
</tr>
<tr>
<td>Medical Review and Pharmaceutical Benefits Division</td>
</tr>
<tr>
<td>Information Management Division</td>
</tr>
<tr>
<td>Secretariat</td>
</tr>
<tr>
<td>Personal Office</td>
</tr>
<tr>
<td>Accounting Office</td>
</tr>
<tr>
<td>Civil Services Ethics Office</td>
</tr>
<tr>
<td>Taipei Division</td>
</tr>
<tr>
<td>Northern Division</td>
</tr>
<tr>
<td>Central Division</td>
</tr>
<tr>
<td>Southern Division</td>
</tr>
<tr>
<td>Kaoping Division</td>
</tr>
<tr>
<td>Eastern Division</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Department of Health</th>
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</thead>
<tbody>
<tr>
<td>Executive of Yuan</td>
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</table>

<table>
<thead>
<tr>
<th>Bureau of National Health Insurance</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.4.4 Medical Review &amp; Pharmaceutical Benefit Division</td>
</tr>
</tbody>
</table>

This division is responsible to examine, review and process the claims and applications by the contracted providers. Together with the Medical Review Committee, this division, plan the review system, set up protocols for peer review, and develop indicators for profile analysis and auto-adjudication rules. In addition, it also supervises the six regional medical review units in terms of claim processing and payment. The purpose of medical claims review is to ensure the delivery of health services to the public are appropriate and are of
quality. It is also to ensure that the providers conform to the NHI fee schedule, drugs list, clinical guidelines, and patients conditions (such as age, gender and indications).

Other than these, it also helps in profile analysis and monitoring abnormalities in service utilization among the providers. These activities are done through automated claims review system (procedural review) and also professional reviews via random sampling. The random sample is reviewed by peer review committee which consists of panel of related medical experts. Through these review system, the incorrect claims will be returned back to the applicants whereas the inappropriate claims will be subjected to claims deduction and finally to judicial process if the appeals is rejected by the Department of Health’s Dispute Mediation Committee.

6.4.5. Information Management Division

The information communication system (ICT) forms the backbone of the National Health Insurance system throughout the country. The main ICT network used in this system are through BHNI Virtual Private Network and internet-based tools which links the Bureau to the hospitals and clinics. The information system enables automated data collection, sharing of information, computerised profile review, processing of claims and payment and also processing of all applications of National Health Insurance Smart Card throughout the country within a specified time frame. All of the health facilities in the country, both private and publics that are contacted to BNHI are equipped and connected to BNHI through information communication system. Data transfer for claims reimbursement and NHI smart card applications from all over the country are done through ICT. The management of the whole NHI information system throughout the country is done by the Information Management Division of the Bureau. In the year 2011, there are about 157 IT staffs work in the Information Management Division which contribute to 5% of the total of NHI staffs.

6.4.6. Planning Division

The planning division of the Bureau is responsible in setting up clinical guidelines, determine NHI fee schedule, preparing the drug list and the benefit package as well as the payment systems and mechanisms. This division has developed a series of plans that are structured to improve the quality of care while keeping costs under control. The payment schemes initiated by the Bureau encompasses the fee for service (1995), case payment (1995), global budget payment system (1998), pay for performance (2001), TW-DRGs phase I (2010) and capitation pilot plan (2011).

6.4.7. Financial division

This division deals with premiums calculations, determine the income level on which premiums for individuals is classified, setting up and review the co-payment fee schedule
and revise the premium rates in every two years as stipulated in the NHI Act in order to ensure the system sustainability. In determining the premium rate, the BNHI has to estimates revenues and expenditure for 25 years into the future. However in view of political reason, the premium rate has only been adjusted twice in the past 16 years. After the revision in 2010 the premium rate is adjusted to 5.17% as compared to 4.25% from the time the system put into place in 1995. The BNHI cannot be for profit (NHI Act) and its function is to maintain the revenue primarily from premiums paid by the insured, employers, and the central and local governments. Other revenues are from fines, welfare contributions and surcharge on cigarettes. But since it was implemented, the BNHI has always been in deficit. This is because the premium rate was fixed based on an individual income. Amongst the objective of the second generation reform is to look into this matter. Premium rate shall be based on the household income.

6.4.8. Enrolment

All Taiwan citizens whose household is registered in Taiwan are obligated to be enrolled into the National Health Insurance system beginning four months to the day after residency was established. (At present, those who are employed in Taiwan or who have previously been insured under the system are not subject to the four-month wait. Babies born in Taiwan are enrolled in the program from the day their birth is registered.) Individuals who are out of work or who are in the process of changing jobs must remain enrolled in the program if they are still residents of Taiwan. Individuals who reside abroad for more than two years without returning automatically have their household registrations terminated and can no longer participate in the health insurance program. They should complete the necessary procedures to withdraw from the system. If they re-establish residency in Taiwan at a later date, they can register again to enroll in the program.

6.4.9 Committee and Function

There are three committees and Bureau under the NHI Task Force. They are

i. NHI Dispute Mediation Committee
This committee has fifteen members and consists of the following:
   • Two specialists of health insurance
   • Four specialists of law
   • Seven specialists from medical disciplines
   • Two representatives from Department of Health
Its function is to review the disputed cases.

ii. NHI Supervisory Committee
NHI Supervisory Committee consists of twenty nine (29) people:
   • Six Medical Specialists
• Six representatives of insured
• Five employers
• Five Health Care Providers
• Seven representatives of Government

This committee is responsible for consulting the NHI policies and regulations, reviewing the NHI reports and auditing the NHI financial accounts.

iii. NHI Expenditures Negotiation Committee
This committee has twenty seven (27) members:
• Nine healthcare providers
• Nine representatives of payers and medical specialists
• Nine representatives of Competent Authority

Its duty is to negotiate and review of NHI medical expenditure

6.5. Municipal and City/County Health Department

For administrative purposes, Taiwan is divided into municipalities and counties. There are two municipalities and twenty three counties. There is a local health department in each municipals and a health bureau in each counties. Their functions are as follows:
• Review the establishment or expansion of medical care institution under their purview
• Review of medical fee standards
• Mediation of medical dispute
• Promotion of medical ethics
• Review of other medical affairs
• Issuance practicing license to medical institution
• Members in Hospital Management Committee and Hospital Evaluation Committee
• Responsible in Hospital Accreditation
• Responsible in disease control activities following the outline and plans by the Centre for Disease Control, Department of Health.

The above functions are basically concern with the medical institution under their purview in accordance to the Medical Care Network established by the DOH.

Under the provision of Medical Care Act 1985, the development of any new hospital in any area or its extension shall get approval from the municipal/county competent authority before it can be developed, though it is in line with the Medical Care Network Plan that was determined by DOH. The local government has the authority to recognize and license the medical institution/hospital under their purview. This means that before the hospital can
be operationalized it has to get approval from local authority. Similarly, medical practitioner / doctors must get approval and practicing license from the local authority before he / she is allowed to practice.

Though the local health authority and the public hospital functions independently from the DOH, they normally outline and execute the implementation plan following the national health agenda that was set by DOH. These include all of the public health responsibilities in disease prevention such vaccination, health screening and health promotion such as healthy hospitals, healthy work place, etc.

In terms of budget, the DOH also allocates some budget to the municipalities / counties for them to carry out some of the activities that were planned by DOH in upgrading the quality of health services in accordance to national health agenda. For example DOH subsidised municipalities and counties in setting up community mental health centres to provide the community residents with mental health care, information and counseling services and to promote mental health education.

The budget for the local health authority to perform their daily work however comes from the local government. Municipalities/counties also allocate some budget to the public hospital under their purview to assist them run some of the activities in the public hospital. But other than this, the budget in running up the hospital is from the global budget and hospital's revenues.

### 6.6. Hospital Services

There are 37,880 doctors in Taiwan of which majority are specialist. Thus even in small hospital, specialist service are available. There generally no specializes hospital such as cardiac hospital except for mental, respiratory (Tuberculosis) and Hansen hospital. These hospitals are generally fully funded by the government.

Under the Medical Care Act 1985, hospitals are defined as medical facility with more than 9 beds. All hospital must be licensed by the local/ department health bureau at each zone before they can operate. For license to be approved, the creation of the hospital should be aligned with the national health master plan. All hospital are run as a not for profit organization and must have accreditation.

Under the BMA hospital are divided into 3 main categories listed below

- Private or corporate
- Public hospital which own by the government under DOH, Department of Education and Army
- Local/ municipality hospital/clinic
Under BNHI hospital are categories according to size i.e. small/district (100 beds), Medium/regional (300 beds) and medical center (> 500 beds). Each category is given different weight age in co-payment and price of benefit package.

Private/corporate sector account for than 81.1% (417) hospital whereas public sector account for only 29.9% (79) hospital in 2009. These translate to 88,803 beds when compare to public beds of 45, 913. Thus private/corporate sector have a very strong present in Taiwan. All hospital must be accreditated to contract with BNHI

6.6.1. Private and corporate Hospitals

Private hospital are owned by doctor, whereas corporate hospital are hospitals belong to business company that have been given authority to run a not for profit hospital. These hospitals are governed by a board and have a physician accountable for its clinical practice. It is audited by DOH that set a certain percentage of its profit must be allocated for research and patient care. Most of the doctors working in these facilities are given salary by the organization and additional benefit from their productivity. The BNHI reimburse only to the hospital.

6.6.2. Public hospital

Based on bed numbers and services provided, the public hospitals is divided into at least three categories that is District hospitals (100 -300 beds), Regional Hospitals (300-500 beds) and Medical Centres (more than 500 beds). The public hospital that is owned by the universities is classified as teaching hospital and those owned by armed forces are under the military hospitals. There are also public hospitals that cater for veterans and also some for specific purposes such as psychiatric, chest (basically for isolation of tuberculosis patient) and leprosy hospitals.

Before the implementation of NHI, the numbers of public hospital outnumbered the private. They dominated the market supply and were larger in size. However since 1970, large private non-profit hospitals were introduced and since then had grown rapidly. After the implementation of NHI in 1995, the competition between hospitals, private and public became more prevalent. Patient’s factor has contributed to a tremendous change in the health care industry. With the perception that larger hospitals have better service, more patients go to bigger hospitals. This market forces has resulted in closure or merging of some smaller hospitals due to their inability to sustain their operational costs. Hospitals became larger in size and more beds were opened. This phenomenon is also observed in public hospitals.

At present, there are only about 82 public hospitals in the country. Twenty two (22) of them are DOH hospitals. Public hospitals only account for 16.1% of the total hospitals in the
country. The numbers of public hospital's bed are 46,580 beds which are about 29.3% of the country’s hospital’s bed.

The head of the hospital or the Medical Superintendent is accountable for the running of the hospitals and is appointed by the DOH. Those hospitals belong to the county / municipality, the Medical superintendent will be appointed by the respective competent authority. The services provided are quite comprehensive range from outpatient, inpatient care, hemodialysis, dental services, rehabilitation, Traditional Chinese medicine, day care for the mentally ill, laboratories and home nursing.

In running the hospital, the Department of Health provides some allocation for the public hospitals for its functions. The other categories of hospitals will be supported by their corresponding ministries. But ever since, the government has reduced their subsidies. The hospitals are managed by their own funds from NHI’s claims reimbursement, co-payment and out of pocket payment from other activities that is not covered by the NHI. With the introduction of global budget, cost has been the determining factors in service provision and quality of health care has been given less attention. Hospitals have becoming more autonomous. They are allowed to plan and deliver their services though it has to be approved by the DOH and Local County. The relationship between the hospital and the DOH remains only as business relation. Not much monitoring is done by DOH. The Bureau of National Health Insurance (BNHI) is more powerful and influential in governing the whole system.

All of the public hospitals are contracted to BNHI as medical providers. The three level of care exist in the hospital. The outpatient department to cater for the needs of the outpatient is becoming bigger and serves as an important department as it maintains the inpatient flows and high revenue earner. Cost effectiveness and efficiency is the key in management. Many hospitals have brought in the business management method in managing hospital. Services will be purchased out or outsourced if it is more cost effective. Shorten consultation time to cater for many patients are observed. The use of generic drugs is common in public hospitals as this is cheaper. Patient who requires branded drugs or the drugs required is not in the BNHI approved price list has to be paid from out of pocket.

Except for the civil servants, the hospital authority can manage their own staffs accordingly. They have the authority to hire and fire and these has enables the hospital to hire more skilled and competent manpower in running the hospital. For this, the government has reduced the civil servant in the hospital to only 10 – 20 % of the total hospitals staffing which means that the post for the retired staff will not be filled up by the civil servant but instead the hospital is allowed to fill it up with contract doctors. More than 50% of the doctors are local contract and most of the nurses are local contract nurses. The doctors in the public hospitals are paid with fixed salary minimal bonuses as compared to their
counterpart in private hospitals. However, most hospital gives a lot of weight age to physician fees.

There are some variations in physician fees from one hospital to another. The sources of physician fees normally come from outpatient and inpatient consultation, management of emergency cases, procedures including surgery and treatments. This is called productivity benefit. The physician will also be given some incentives with regards to procedures they performed. It will either be paid by fixed amount or in terms of ratio but in case of Emergency Department, it will be paid directly to the department. Some hospitals will give higher incentives to physician and some may give fixed incentives. But normally for public hospitals, the incentives are quiet low and fixed because public hospitals normally did not have much revenues. During the initial phase when the NHI was just started, the physicians were paid base on case and pay for service. During this period, physicians and hospitals make a lot of income through patient consultation, procedures and also through pharmaceuticals. But after the Global Budget was introduced, the expenditure and reimbursements was cap to certain amount. This is done in effort to control spending and prevent inflation in health care industry. It is also part of the effort to ensure quality and patient safety as well as preventing abuse of the the NHI system, over prescribing and unnecessary procedures done to patients.

In terms of co-payment, the amount for this is not much. The governments apply little charges in a form of co-sharing to prevent abuse of the system by the public. At the same time, the governments do not want to burden the public with high co-payment. However the co-payment varies from one type of hospital to another. For example, Medical Centre will charge higher co-payment than Regional Hospitals. The amount and variations are as shown in the table below:

<table>
<thead>
<tr>
<th>Type of Facility</th>
<th>Outpatient Care (USD)</th>
<th>Emergency Care (USD)</th>
<th>Dental/Chinese medicine (USD)</th>
<th>Drug (20%) (USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical Centre</td>
<td>12</td>
<td>15</td>
<td>1.7</td>
<td>0~6.7</td>
</tr>
<tr>
<td>Regional Hospitals</td>
<td>8</td>
<td>10</td>
<td>1.7</td>
<td>0~6.7</td>
</tr>
<tr>
<td>District Hospitals / Clinics</td>
<td>1.7</td>
<td>5</td>
<td>1.7</td>
<td>0~6.7</td>
</tr>
</tbody>
</table>

If the patient is required to be admitted to the hospital, the patient will be charged (out of pocket) certain percentage of co-insurance. The amount of co-insurance depends on the length of stay and is shown as follows:
Table 5: Co-insurance for inpatient care

<table>
<thead>
<tr>
<th>Length of Stay</th>
<th>Co-insurance Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Within 30 days</td>
<td>10%</td>
</tr>
<tr>
<td>31 – 60 days</td>
<td>20%</td>
</tr>
<tr>
<td>Above 61 days</td>
<td>30%</td>
</tr>
</tbody>
</table>

Though the co-insurance is charged based on length of stay but the ceiling per stay would be USD933 and USD1,576 for the entire year for the same disease.

Both the co-payment and co-insurance will become the revenue for the hospitals. The surpluses from the revenue are allowed to be used as incentives to employees in a form of bonuses as well as for the running of the hospital as a whole. At least ten per cent of the total income is used for research, training of staffs and for carry out of other social obligatory work.

The management of the hospital is governed by the regulations and policies determined by both the DOH and local authority, but the running up of the hospital are fully autonomous. The Medical Superintendents are clinical specialist and is responsible in clinical as well as corporate governance of the hospital.

In view of cost saving, some hospitals has reduce the number of staffs especially nurses and paramedics. This has some impact on patient’s clinical management and monitoring. Patient’s safety may be put at risk if little attention is given to this aspect. Staffs are expected to be multitasked. If the performance is monitored closely, this in fact has a good point because it can reduce wastage and redundancy. But this should be done carefully so that patient’s safety will not be jeopardized.

Other than the above, public hospitals also have more social obligation than private hospitals. Those patient who are poor, not insured and not able to pay are normally sent to public hospitals for treatment if need to. Public hospitals also conducted some of the public health roles in disease prevention and health promotion. Activities such as vaccination, screening for cancers, activities for health promotions are also carried out in the hospitals.

6.7. National Health Insurance

The National Health Insurance (NHI) in Taiwan was introduced in March 1995. It is a mandatory social insurance and was established as an effort to eliminate financial barriers and to protect the public against financial crisis due to illnesses. The three main components of the NHI system are the insured, the contracted healthcare providers and the Bureau of National Health Insurance (BNHI). The premiums are collected from the insured by the Bureau which in turn will issue insurance card to the insured. The insured are free to
choose the health providers they wish, at any level of care and they do not have to pay for the services provided. The health providers will then submit their claims to the BNHI for reimbursement.

Figure 6.3: Organization Structure of the National Health Insurance Task Force

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<th>Characteristics of NHI</th>
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<td>Coverage</td>
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<td>Administration</td>
</tr>
<tr>
<td>Financing</td>
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<td>Payment</td>
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<td>Privileges</td>
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The NHI offers a comprehensive and uniform benefit package to the Taiwanese. It covers all kinds of diseases and injuries as well as child deliveries.
The scope of BNHI benefits include:
- Inpatient care (most forms of treatment including surgeries)
- Outpatient care
- Prescription drugs and certain OTC drugs
- Dental services (orthodontics, prosthodontics excluded)
- Traditional Chinese medicine
- Day care for the mentally ill
- Home nursing care
- Laboratories tests
- Hospice care
- Physical rehabilitations

It also covers pediatrics and adults medical examinations, antenatal check-ups, pap smears screening and preventive dental screening. Government paid fully the premium of those who cannot afford who are the low income household, children under 18 in the near poor household, citizen over 70 in the near poor household and indigenous citizens.

The NHI has brought about many positive values. Since initiated it has benefitted almost 99 percent of the total population. The satisfaction rate among the Taiwanese has always more than 70%. These can be attributed to the facts that the population has freedom to visit any physician that they wanted to at any level of care, the comprehensive coverage from western medicine to Chinese traditional medicine and from preventive to home nursing care and almost no waiting time.

6.8. Impact of NHI on Medical Services

The establishment of NHI has brought many changes to the Taiwan healthcare industry. Before the NHI was implemented, the health system in Taiwan was fragmented with the majority of the health facilities and providers dominated by the public sector.

Only about 57% of the Taiwanese population were insured through three different insurance schemes namely:

- Labour Insurance
- Government Employee Insurance and
- Farmers Insurance

During this period, the medical expenses were from out of pocket and physicians were paid based on pay for service and these enabled them to make sizable profits. There was no control over prescribing and drugs dispensing. Proliferation of new and expensive medical technology was seen to be encouraged. These have resulted in high health spending.
Those who are poor, unable to pay and those who lived in remote areas such as in the mountain regions and islands were inaccessible to health care. The health resources were inadequate and not equally distributed. Consequently, a health sector reform was initiated in 1983 with the planning of medical care network and promulgation of the Medical Care Act was done in 1985.

Two factors were favourable for this reform, that is:
- Political will and
- Stable high economic growth

The reform was initiated with two main objectives:
- Providing equal access to health care
- Cost containment (to reduce inflation in the health sector).

The NHI was then established in 1995. Enrolment to the system was made mandatory. By end of 2000 about 98% of the population were covered. Major transformation of the health industry was observed.

**a) “M” Phenomenon**

The health sector has become more market driven (market orientation). There are no controls over the public. The system gives the freedom to the public to choose the physician they wish to consult and they can go to any level of care at any time. The benefit package is very comprehensive and the co-payment is minimal. Public's perception is that bigger hospitals have better service and better physicians. These factors have pushed the health sector to develop bigger hospitals with more sophisticated medical technology.

Competition among the health providers becomes more apparent and prevalent. The smaller hospitals were forced to either close or merged to be able to financially sustain because people tend to visit bigger hospitals than smaller ones. This caused a reduction in the total number of hospitals and instead the size of the hospitals got bigger to cater for the increased number of hospital beds and other facilities such as outpatient department. The public dominance disappeared. Most hospitals are currently either private owned or conglomerate. Up till now more than 80% were private owned hospitals. This observed changed is called "M" phenomenon.

**b) Business Management Pattern in Hospital**

The management patterns were also changed and transformed into more business orientated where hospitals also look into opportunities for revenue; they also become more innovative, more proactive and very sensitive to market change. Hospital management committee is now replaced with board of directors.
c) Effect of Global Budget and Capitation

Since global budget with capitation was introduced into the system, hospitals becoming more engrossed on the aspects of cost effectiveness and cost efficiency. Price and cost is the determining factor in running the hospital. Services will be outsourced if it is found to be more cost effective. Number of staff is kept to the minimum and they are expected to multitask. More contract workers and skilled workers are hired. Generic drugs are often used as it is cheaper. If branded drugs are to be used, it has to be from out of pocket payment.

However it was observe that most hospitals focus more on the physician fees than other clinical stuff. This is because though the physician does not perform the tests but the order for the tests comes from the physician. In view of this, majority of the hospitals work extra hours including lunch time and some even offer 24 hour service to get more revenue. Consultation time is kept minimal (most are less than five minutes) so that they can see more patient. More popular hospitals have better revenue than those smaller and unpopular. The staffs are kept minimal and multitasked. However, we were not able to elicit many quality indicators such as KPI/NIA at the hospital level. At the national level general health indicator is used. It should be noted that the used of DRG in line with standard practice where case-mix index can be use as quality indicator, it not utilize as such.

d) Information Technology

ICT – is becoming the most important enabler and important tool in managing the whole system. It forms the backbone of the health care industry. All of the hospitals that are contracted with BNHI are equipped with information communication system. This has improved hospital efficiency.

e) Autonomy

As for the public hospitals, government subsidies are reduced each year and they become more autonomous in running the hospital. Money is power. Even though, the policy is determined by the DOH, the scope of services has to be approved by DOH, and the whole system is controlled and governed by the BNHI, but the running of the hospital is totally independent of both of this body or the local county. As for the public hospital, except for the civil servant, the hospital management has full authority towards the workers. Most staffs are contract staffs. The management can hire and fire. The staffs are paid by performance. The management of the hospital are fully autonomous. The hospital can choose what IT system they want to use, what service is to be outsourced etc.
f) Innovation and creativity

Market driven health industry, competition among hospitals, business orientated management styles has forced the hospital to be more innovative and creative. Some hospitals prepare packed food that cater for patient with special needs for example food for diabetic patient, food for renal failure patient etc and this later become commercialized and this alone can attract more patient to come to their centre for treatment while generating extra revenue.

Some popular physician advertises themselves via internet and appointment can be made via internet. This is so convenient to both physician and patient. Public Private Partnership / Integrated Delivery service is also another component of creativity and innovative way in improving access to health care. The resources are shared by both and this are more cost effective.

Incentives such as Medical Development Fund and Low Interest Loan are good example of innovative way to invite private and medical institution to participate in the service delivery as an effort to increase accessibility.

g) Level of care

As a result of market force and the comprehensive benefit package, all levels of care exist in the hospital. Primary, secondary and tertiary levels of care are provided in the same hospitals. The services offered range from Western Medicine to Traditional Chinese Medicine and also include day care for elderly and home nursing.

h) Quality of health Services

Each year, many initiatives were introduced into the system to make it more stringent and to minimise abuse as well as to improve on the quality aspect. Examples of these are:

- Different payment mechanisms – global budget, pay for performance, DRGs and capitation
- Claims review mechanism
- Drugs Coding System
- Requirement for Accreditation
- Incentives given to hospital / health clinics who refer patient to hospital
- Incentives also given to hospital that implement DRGs and pay for performance

Though in the recent years a lot of attention has been given to the quality aspects of the health services we were not able to illicit other clinical standard indicator such as our NIA/KPI. Some of the above activities mentioned are still based on voluntary participation.
For example pay for performance is based on voluntary involvement rather than is made compulsory. Patient selection into the system is also left to the physician to decide.

6.9. Lesson Learned

6.9.1. NHI

*Lessons Learned and Relevance to 1Care*

i. Mandatory membership of all citizen and permanent residence result in BHNI has total monopoly of the market. This is as they have the largest client list. Those who unable to pay can now pay through NHI. Premium of the poor, indigenous children and elderly were paid by the government while those employed contribute a percentage similar like Perkeso. Poor rural population who are elderly and use health care more often become a viable business option. Various mechanism are used to ensure services are paid such as NGO’s or donation funds control by BNHI.

ii. This result in BNHI able to influence provider behaviour through benefit packages that was decided via negotiation. Benefit package provider were comprehensive consist of treatment that was currently given at the time. Those who did not follow benefit package can lose all monetary gain as BNHI will not pay. Incentive given such as bonuses via pay for performance result in provider following standard treatment thus better outcome. Taiwan DRG result in provider monitoring DRG cases so that it would not incurred unnecessary additional cost.

iii. As a single payer, all claims are sent to BNHI. This result in a massive data collection. It is in the interest of the provider to ensure that the data sent were correct, failing which claim are process late and if fault are found, a penalty is impose. This result in low administrative cost (2%). Data consist of proper diagnosis and procedure done.

iv. Data collected are mined for surveillance purposes and research. This increase the national capacity for international research. Data collected are also used for benchmarking between hospitals which are display on the net for public perusal. This result in hospital taking initiative to improve care to attract patients.

v. As rural area become more viable for business endeavour, the private hospitals collaboration is more forthcoming. With the setting of soft loan and part of startup operation budget, private companies are willing to provide care in rural area thus reduce burden on the government. An integrated delivery system enable the private sector, the NGO’s and public sector to cooperated in delivering care using common facility.
vi. The BNHI uses multiple paying systems using what was available and improving it on a small skill. This result in easy implementation and faster adaptation by provider.

NHI implemented correctly can be beneficial to the government, provider and user.

6.9.2. Service Delivery

*Lessons Learned and Relevance to 1Care*

i. Taiwan health system practices no gate-keeping mechanism. Patients are allowed to seek services in clinic or hospital and to see a generalist or specialist. This has result in a high visit rate of patient with average of 12 to 15 times a year. However public support such behavior and the satisfaction rate are high. The decision not to have gate-keeping is a strategic one to gain public support. It has been noted that this also result in improper use of services. To encourage this, Taiwan has started a capitation project.

ii. Hospitals also provide general outpatient services. Not only this is what the public wants but it also generates substantial income for the hospital enabling it to cover cost for inpatient care.

iii. A co-payment mechanism was introduced to give value for the service provided and to ensure correct use of facilities. However the co-payment is not high enough to be a deterrent.

iv. Hospitals also provide health screening activities taking over the role of primary health prevention.

MOH has try to separated general outpatient from hospital but have to revert it recently due to public pressure. It may be strategically important for 1 care to be accepted that Taiwan experience is copied. However a significant co-payment should be impose for incorrect use of services.

6.9.3. Ensuring equitable resource allocation

*Lessons Learned and Relevance to 1Care*

i. DOHS through BMA created a health care delivery and network master plan to ensure resource are allocated equitably in all regions. This master plan was implemented on a 5 year basis with no of beds/10,000 population as a basic criterion. The master plan was imposed through Medical Care Act that covered both the public and private sector. The Act mandated a need for licensing by DOH before a facility can be operational. In ensuring the license the criteria of the master plan is used thus ensuring resource
allocation in accordance to needs. It is important as every person who enters the NHI should have equal access to services as they have already paid.

Malaysia has it 5 year development plan. The ministry may want to study and map the facility available to ensure that distribution is equitable. The use of NHI may enable the private sector to invest in rural area thus reducing the public burden. Incentive to attract doctor working in the rural should be proposed to ensure the rural areas are service.

6.9.4. Strengthening Public Hospital

Lessons Learned and Relevance to 1Care

i. After the implementation of NHI, some public hospitals were facing difficulty to balance cost. As a result these hospitals either merge or downgrade it services. The main reason was attribute to the inability of public hospital to be efficient.

ii. As most of the Doctors in Taiwan are gazette as specialist, even the 100 beds provide specialist services. However, for convenience, public tend to by past this hospital and seek out regional or medical center for treatment. The number of this hospital has steadily declined.

iii. At present the public hospital are headed by doctors. Most have some management experience or qualification. The hospital employed minimal number of civil servant. Majority of the nurses are contracted. The DOH allocations to public hospitals have been reduced to 15%-20%. Thus public hospitals need to be financially viable. The hospitals are given almost full autonomy except in area of service provision. These include the allocation of spending for service, replacement of equipment, bonuses and service expansion. Similarly the hospitals are given the right to hire and dismiss contract worker. For services provision, approval from the DOH (central or local) must be sought. The public hospital are expected to have more social responsibility and instructed to provide services such as methadone therapy, treatment of citizen not in the NHI system, community education and others.

Most of the public hospital directors are not trained in management. There is at present a course conducted by IHM to accreditation this doctors. Both financial and health care management are necessary for these doctor managers to ensure efficiency is translated to better clinical outcome. Their role should be properly recognized to attract more competence doctor as manager as they shoulder a heavy burden of the whole institution.

There is already a trend of by passing smaller district hospital to bigger specialist hospital in Malaysia. These results in overcrowding of specialist hospital and under utilize district hospital. A merger of district hospital and specialist hospital within a feasible geographical
under one management will make this smaller hospital as satellite specialist hospital. Thus specialists in the bigger hospital are directly responsible to patient in this smaller hospital. A system can be plan for rotation and specialist can be concentrated in big hospital without effecting patient care. Another approach is to place family physician in the smaller hospital thus ensuring that cares in this hospital are given by specialist.

The autonomy given in Taiwan could also be considered in the 1 care plan but it call for a competent director in both health service delivery and financial matters. The ability to hire and dismiss will enable the hospital management to look for competent staff and ensure right staff for right job.

6.10. Governance

*Lessons Learned and Relevance to 1Care*

i. Taiwan is divided into 7 medical administrative regions. There is only business relationship between Central (DOH) and the region. Thus each region is independently managed answerable to local authority but report to DOH. This is similar to NHS in UK.

ii. Public hospitals are under the preview of hospital management committee that have the authority to approved service provision, review performance and appoint key officer of the hospital. Hospital under DOH are manage by its committee while those in the region by its own local bureau committee. They act like board members.

iii. The public hospitals are headed by a doctor as provided in the MCA 1985. The hospitals are given almost full autonomy in creating its administrative structure. As all public hospital has to be financially viable there is a lot of multi-skilling and multi-tasking.

iv. All hospital has to undergo hospital accreditation before being allowed to contract with BNHI. This ensured the quality of service given. Incentives are also given such as pay for performance to encourage standard practice. Taiwan DRG is also use to ensure that treatments are in accordance to guideline and protocol approve by DOH. Hospital performances are accessible in the web thus result in competition and bench marking.

v. Under the MCA 1985, 10% of the profit is allocated for research. This encourages the hospital to be innovative as successful research not only give branding to the hospital but will enable to generate income. Example was the healthy food package that is being commercialized.
vi. Incentives are also provided for CPD activities. Specialists are required to show their CPD to be regazzeted every 3 year ensuring competence of practitioner.

The decentralization of central control is similar to the governance system in the UK. It may be more feasible that all state hospital and major specialist hospital be place directly under MOH and other specialist hospital and none specialist hospital under the control of state. Better supervision and implementation of policy should ensure.

The autonomy given to public hospital in Taiwan is ideal to ensure that hospital is run efficiently. However the training of the hospital director needs to be address to enable this change to take place as state earlier.
The use of DRG and case-mix index has been proven to encourage standard practice and good clinical outcome. However for initial implementation, Taiwan strategy could be use as it would be easily understood by all providers.

Other than case-mix, pay for performance, regazzement of specialist and accreditation of organization should be use as a tool to ensure quality. However this needs a good ICT system for data collection and analysis

6.11. Public private integration

*Lessons Learned and Relevance to 1Care*

i. The NHI has made the public hospital function more like a private entity. In another view, the NHI transformed private entity for public service. Every hospital has to decide the number of NHI beds available. As the payment are the same, patient are able to access both private and public facility. BNHI form the largest client list thus the volume make private hospital accommodating to public need.

ii. Incentive by BNHI and DOH such as higher payment, soft loan and partial start up operation cost result in private practice servicing the rural community. Some innovation were created to provide 24 hour daily service in rural such as group practice and integrated delivery system in which service are provided via rotation using common facility.

If the 1 Care NHFA were created as a single payer system, the public service given almost full autonomy, then the public service will function more like the private and vise versa. It could be one of the goals of 1 Care.
6.12. Professional autonomy, doctors perspectives and role of associations

*Lessons Learned and Relevance to 1Care*

i. There appears to some lost of professional autonomy as any procedure out of benefit package were slow to cater for. In interview with doctors, some may defer prefer treatment of pay out of organization fund if it was found to be clinically indicated. BNHI were run mainly by none doctors. Decision for change is made through committee that consists of doctors but this slow down process of approval.

ii. Most doctors interview complaint of the decrease in income from NHI compare to pay for service. However the public still perceive the income of doctors are still higher than average.

iii. Association plays a major role in deciding benefit package, determining resource allocation and service expansion.

The NHFA should have doctors group to ensure clinical matter are resolve quickly and efficiently, ensuring good patient care. Doctor groused should be address as they form a trusted group in the community. The doctor fraternity in our country is at present fragmented. There may be a need for them to consolidate to ensure that they negotiate in one voice. However, this may be a disadvantage to the government.

6.13. Used of Smart Card

*Lessons Learned and Relevance to 1Care*

i. Smart card is use for the public to access NHI services. The smart card act as verification of user eligibility, verification of visit and enable the hospital to make claims. Using smart card, patient visit, diagnosis and treatment are available for the last 6 visit. To ensure confidentiality, both patient and doctor have to use their smart card to initiate care.

The smart card system enables sharing of information through facility with patient consent. Thus the personal information Act is adhered to.

6.14. Conclusion

Though Taiwan National Health Insurance Programme is not perfect but Taiwan has done tremendous. It has good coverage, comprehensive and most of the population are now financially access to health care. The ICT has shown and proven to be very important tool in ensuring fast and efficient system.
Chapter 6:

Oral Health in Taiwan National Health Insurance

Author: Dr. Rusni Yusof
Dr. Maznah Mohd Nor
7. Oral Health Services in Taiwan National Health Insurance

7.1. Taiwan Health Care System

In 2010, Taiwan has a population of 23 million. Taiwan’s economy has developed rapidly in the last 60 years and there is a rapid transition from agricultural-based to industrial-based economy. Life expectancy is 76 yrs. for males and 83 yrs. for females compared to UK 77.4 yrs. for males and 81.6 yrs. for females. It has an aging society which encounters about 10.7% of its population. Taiwan’s birth rate has steadily declined over the years and currently is one of the lowest in the world at 0.895%. The GDP is USD 18,588 per capita and the National Health Expenditure in GDP is 6.9%.

The current health care system in Taiwan, known as National Health Insurance (NHI), was instituted in 1995. Taiwan already has many types of insurance (including health component) for certain groups before NHI was introduced and this made it easier for Taiwan in the implementation of NHI program.

NHI is a single-payer compulsory social insurance plan which centralizes the disbursement of health-care funds. The system has successfully provided universal coverage and accessible medical treatment for all citizens and the population coverage had reached 99%.

The NHI system offers a comprehensive and uniform benefits package to all those covered by the program. With a valid health insurance card, the insured have access to more than 19,000 contracted health care 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.

NHI is mainly financed through premiums, which are based on the payroll tax, and is supplemented with co-payments and direct government funding. In the initial stage, fee-for-service predominated for both public and private providers. Most health providers operate in the private sector and form a competitive market on the health delivery side.

However, many health care providers took advantage of the system by offering unnecessary services to a larger number of patients and then billing the government. In the face of increasing loss and the need for cost containment, NHI changed the payment system from fee-for-service to a global budget, a kind of prospective payment system. In 2002, 92% of healthcare providers i.e. 25,000 providers joint NHI.

The National Health Insurance program is facing a burdensome financial future, as its income from health premiums is insufficient to cover enormous expenses. Taiwan is proposing revised formulas for calculating NHI premiums based on total household income rather than individual salary. The overall satisfaction rate has consistently been over 70%.
and the next big challenge for Taiwan is to improve quality of care and striving for improvement so that everyone in Taiwan can enjoy a longer and healthier life.

_**Lessons Learned and Relevance to 1Care**_

1Care is looking into a single payer social health insurance scheme, similar to the Taiwan health system with good accessibility and universal coverage. In Malaysia, this can be achieved through integration of public and private sector and application of same payment scheme to both providers. In Taiwan, comprehensive coverage cover almost all services from dental care to traditional Chinese medicine, from preventive services to elderly home care. There is short waiting time with no waiting list and patients can generally see any specialist they wish to during working hours.

Of concern is the quality of outpatient visit whereby part of Taiwanese culture to seek medical help frequently (average outpatient visits is 14 x / year /person). Seeing 50 patients in the morning are quite common for GPs in Taiwan, hence each patient may receive no more than 5 minutes during a consultation. Weak referral system and gatekeeper role of family doctors is relatively weak. To encourage gatekeepers’ role, BHNI is offering discounts on copayments for patients referred by GPs to specialists in hospitals.

_7.2. Department of health (DOH) Organisational Structure_

Taiwan’s health administration originally consisted of three levels of agencies that is central, provincial and county/city. When the Local Government Act was launched in 1999, health administration and organisation was streamlined down to just two levels that is central and direct municipalities/counties making the healthcare system a decentralized system. Taiwan Healthcare system is a mixed of public and private provider. It is governed by the Department of Health headed by the Health Minister. The main function for DOH is policy development and regulations.

The highest competent authority on the central level is the Department of Health which is in charge of health administration affairs around the country, and responsible in providing professional work counseling, supervision and coordination to local health organisations. Health administrations on the local level are the health departments or bureaus, established in direct municipalities or county/city governments. These local departments or bureaus are responsible for regional health administration affairs, totaling 25 across the country. One health station is established in each township, totaling 371 around Taiwan.

These local establishments are responsible for executing preventive health care services on a regional level.
The Bureau of National Health Insurance (BNHI) is an executive organisation of the NHI program. The BNHI was reorganised to be an administrative organisation under DOH on 1st January 2010 due to the interest of the public.

The Bureau of Medical Affairs under DOH is responsible for provision of dental services in public hospitals. In Taiwan, public dental clinics are only located in public hospitals. Dental services in Taiwan are available in private and public hospitals and at the private dental clinics. There are a total of 508 hospitals in Taiwan out of which 82 public hospitals (16.1%) and 426 private hospitals (83.9%). Dental services are also provided by private dental practitioners contracted by BNHI. Dental delivery system is basically private sector dominance. In 2009 there are 11,351 practicing dentist and a total of 6,226 private dental clinics participate in the NHI. In Taiwan an average of 4.91 dentists are practicing to the 10,000 population.

Under DOH, there is a Bureau of Health Promotion which is responsible for health promotion in Taiwan which includes oral health. Some of the activities of this health promoting bureau are health promoting school, healthy city, healthy workplace and community health. In 2009, policy making and administrative highlights focuses on promoting dental care services for children and the disabled. Patients have access to public and private dental clinics and have freedom of choice to get dental treatment with minimum co-payment.

In 2003, Oral Health Act Article 1-12 was specifically enacted for the promotion of national oral health. For matters not regulated in this Act, the regulations of other laws will be applied. This act also looks into the promotion of national oral health and treatment of oral disease covered under NHI. There is also a committee on dental medicine formulated in 2003 with 17-19 members for a term of 2 years. The chairperson is appointed by the Minister of Health and other members are also appointed by minister of health from government organisation, dentist association, universities and specialist. The Oral Health Act and detailed guidelines are in Appendix 1

**Lessons Learned and Relevance to 1Care**

In Taiwan dental services are provided by private dental clinics and dental clinics in public hospitals and those in the public hospitals are under the Bureau of Medical Affairs. Dental practitioners at public hospitals are salaried by the hospital with incentives from the hospital depending on the number of case/procedures treated. There is no structured primary oral healthcare programme for toddlers and school children done by public dental clinics, mostly contracted out to the private dental clinics. Secondary and tertiary dental services are provided by public and private hospitals similar to Malaysia.
Unlike Taiwan, Malaysia provides comprehensive school dental service to primary and secondary schoolchildren. Oral health promotion in Malaysia is carried out by dental officers and dental nurses unlike Taiwan whereby in remote areas, public health nurses does dental screening and health promotion.

The way the DOH is structured is in a way markedly different to that of Ministry of Health Malaysia which may or may not be relevant to us, depending on how 1Care is ultimately structured.

7.3. National Health Insurance Financing

The NHI program is a mandatory, single payer social health insurance system founded on the principle that everybody should have equal access to health care services. National Health Insurance is a compulsory enrollment for all Taiwanese citizens (except the convicts who are covered under a separate medical care program), foreigners with resident permits and dependents of the aforementioned.

The BNHI collects premiums from the insured and issues them the insurance cards. Every Taiwanese citizen has a NHI IC card. When the insured use medical services, they do not need to pay the medical expenses but a co-payment as user fees. The medical providers make claims to BNHI for reimbursement of the services they provide.

The NHI provides a comprehensive benefit package that covers inpatient care, outpatient care, laboratory tests, prescription drugs and certain OTC drugs, dental services, traditional Chinese medicine, day care for the mentally ill and home care. Benefit packages comes with co-payment and the amount of co-payment depends on type of care and facilities (medical centres, regional hospitals and district hospitals/clinics).

The NHI incorporated a $5 co-payment for each outpatient visit to clinics, an $8 co-payment for each visit to hospital outpatient clinics, and 10 per cent coinsurance for inpatient services but capped the total amount that a patient has to pay each year at 10 per cent of the average national income per person. Exemptions of co-payment are catastrophic diseases, child delivery, medical services offered at defined mountain areas or on off shore islands, low income households, veterans and children under the age of three.

Those that are fully subsidised by the government are:
1. Low-income households
2. Children under 18 in the near-poor households
3. Citizens over 70 in the near-poor households
4. Indigenous citizens
The system is primarily funded by the premiums paid collectively by the insured, employers and the Government. Other revenue comes from outside sources such as fines on overdue premiums, public welfare lottery contributions, and health surcharge on cigarettes. The insured are classified into 6 main categories and 15 subcategories and the percentage of premium paid by insured varies. Unit of payment is mainly fee for service although case payment is used for certain diagnosis and per diem payment is allowed for chronic psychiatric problems and community services. Every service is accompanied by copayments which vary in different institutions. For those who cannot afford co-payments, they receive public assistance.

According to Article 17 of the Income Tax Act, when people file their income tax returns and choose to take “itemized deductions” rather than “standard deductions,” they can claim National Health Insurance premiums as an itemized deduction without limitation. Insurance premium paid is Tax deductible. Benefit package for dental services comes with minimum co-payment of USD 1.5 compared to medical care; co-payment for dental services is the same for all types of facilities (medical centres, regional hospitals and district hospitals/clinics).

Benefit packages for dental services covered a wide range of treatment such as:- Examination and Diagnosis (E&D), prophylaxis and scaling twice a year, filling, extraction, RCT, periodontal treatment, root planning, minor oral surgery, emergency care, dental x-rays, endodontic, pulpotomy. The whole range of treatment is documented in a handbook which is given to all dentists contracted with BNHI for reference. Those not covered under BNHI are orthodontics and prosthodontics (dentures, crown, bridge, implant, prosthesis) mainly cosmetic dentistry.

**Lessons Learned and Relevance to 1Care**

Taiwan NHI is what 1Care aspires to be in terms of coverage, financing, benefits and privileges. Under 1Care, the enrolment must also be made mandatory (citizens and legal foreigners) to ensure all population is covered and enough funds to run the system. Benefit packages for dental treatment for 1Care should look into the wide range of treatment offered by BNHI with minimum co-payment (NTD 50/ RM 5) which may or may not be relevant to our proposed system.

**7.4. Provider Payment Methods (PPM)**

Taiwan has a market-driven health care delivery system with a mix of public and private hospitals (35% of beds are public, 65% private). Sixty-three per cent of physicians are employed by hospitals and paid on a salaried basis; some receive bonus payments based on productivity. The remainder are fee-for-service private practitioners. Before the implementation of its National Health Insurance (NHI), Taiwan’s providers were paid fee-
for-service. Provider payment methods include: Fee for service /FFS, Pay for performance/P4P, Disease related groups/DRGs and capitation (which is being piloted).

Global Budget is given to 4 sectors: Dental services (1998), TCM (2000), Clinic-Base Service (2001) and Hospital Base service (2001). These four sectors have to bid for the money under global budget from DOH through the MENC (Medical Expenditure Negotiation Committee). Advantages of Global budget:

- Government able to control expenditure
- Healthcare providers use own judgment on use of limited budget to satisfy health care needs of patient
- Incentive to reduce cost by eliminating unnecessary services

The first sector to be given global budget was dental services due to non-complexity of the services, and the strong group in the negotiation committee which are able to analyse and review the data base as evidence to bid for the budget. Special fund under the global budget was also given for dental outreach programs for the special needs and those from the remote mountainous areas and off shore islands. For private dental practitioners that are contracted by BNHI, they are paid Fee for Service.

In 2010, 7% of the global budget is for dental care and total expenditure for dental care was NTD 35,755 million. Global budget is distributed to 6 areas under BNHI and point value will be calculated 4 times yearly. Calculating of global budget and method of allocation by NHI Negotiation Committee following is through the point value (Budget/Medical Points). Point value is calculated in each global budget. There are point values in different areas and for dental services for example point value in Taipei area is quite low compared to remote area example eastern area. Example of point value is 0.8783 in Taipei area compared to 1.0931 to Eastern area. The value of the index ranges from 0 to 1. Counties with scores closer to 1 tend to be more equitable in the financing of their health care than those with lower scores.

The population covered by the NHI is well protected against uncertain large medical expenses, other than long-term nursing home care. Furthermore, the calculation of national health spending shows that patients’ out of-pocket payments fell from 48 per cent of the total amount spent on health care in 1993 to 30 per cent in 2000.

**Lessons Learned and Relevance to 1Care**

The various payment methods from fee for service to the possibility of capitation along with a mix of global budget, P4P and DRGs are all very relevant as proper provider payment methods and mechanism will be what ensures a good health outcome of 1Care. There is also a need for incentives to improve health outcome.
For dental services the various payment methods are relevant depending on services rendered at primary care and secondary care level. Various options for PPM such as capitation should also be considered for certain age groups and fee for service for certain procedures.

7.5. Information Technology

Taiwan has a good Information Communication Technology system and infrastructure that is able to connect to all the facilities under NHI. The Institute for Information Industry (III), a not-for-profit research institute mainly under the Ministry of Economic Affairs Taiwan plays a big role in the development of ICT in Taiwan including e-health. The planning, developing and operating of the NHI information system is by BHNI, with 5% of total employees are IT personnel. The IT annual budget of BNHI is 6% of total annual budget of BNHI, funded by DOH.

There are three main components of e-health in Taiwan:
- National Health Information Network – funded by the Department of Health
- National Health Insurance System – funded by the Bureau of NHI
- Integrated Hospital Information Systems – funded by Hospitals

15,000 clinics, each has their own Health Information System and there are plans to design interface among hospitals. Their paperless programs include:
- Online enrolment
- Online Claims
- Online Utilisation Reviews
- Online Exchange Information (PACS: X-Ray images, MRI images & text)
- Online Inquiries
- A VPN for Data Security

The core systems of NHIS are:
- Enrolment & underwriting
- IC card management system
- Medical payment system

NHI IC card has security features such as
- Cardholder’s picture background – anti-forgery characteristic
- Microchip – verification mechanism
- Online transmission – Virtual Private Network

NHI IC Card Contents
- Basic personal information
- Records of recent doctor visits
• Preventive medical test results  
• Personal characteristics e.g. drug allergies  
• Drug prescriptions & medical test records  
• Catastrophic illness records  
• Organ donation  
• Hospice care

Virtual private Network  
• BNHI closed network  
• Reinforced by a 2-tiered firewall to prevent information leakage  
• Provide 2 way communication channel with health care institutions – verify & update IC cards, file expense claims & report clinical trial  
• Almost all contracted health care institutions have joined VPN systems

Functions of the NHI IC Card  
• Simplify managerial process  
• Daily update of medical visit data  
• Utilisation monitoring

Manage high utilisation case through profile analysis  
• Anti-fraud

Detecting unusual medical claims  
Surveillance of public hazards (Heavy users’ detections and management.)  
• Tracking down suspects of communicable diseases (Infectious disease tracing and monitoring)

BNHI also issues HCA/Health Care Certification Authority Card to the facilities/clinics and this card has electronic signature of medical professional.

Dental clinics within the public hospital also have their own clinical information system that is integrated with the BNHI network. Dental provider also has access to this IT system to make their claims and as a provider they will also receive a HCA card.

*Lessons Learned and Relevance to 1Care*

Taiwan has a good Information Communication Technology system and infrastructure that is able to connect to all the facilities under NHI. IT Infrastructure for 1Care has to be in place for networking and access to make medical claims. We should also be looking at having a ‘smart card’ system for 1Care.
There is also a need for a common interface with the various systems to ensure an effective information system. Private hospitals in Malaysia have their own information systems and so does public hospitals and the systems are not ‘talking to each other’ as far as their information systems are concerned.

There is also a need to develop a framework for Health IT system in support of the restructured health delivery system. The framework must support the Funding & Governance structure, Health Delivery System and professional/independent bodies as proposed in the restructuring. The point of creating a common interface for sharing of information is crucial.

7.6. **Primary Care**

DOH has set up Public Health Centres to cater for the rural areas especially mountain areas and off shore islands. They offer community oriented primary care services.

Public Health centres are headed by a director (FMS/ doctor) with staffs consisting of public health head nurse, public health nurse, technologist, clerks and a driver. All the staffs are paid by the Department of Health (fixed salary). If there is any outbreak of epidemic for example dengue, SARS, it is the responsibility of the doctor to notify or inform Centre for Disease Control/CDC for further management.

Health Promotion Activities carried out at this centres are healthy diet class, weight losing class, tobacco cessation class, and health education. For preschool children screening of hearing, vision and dental caries is carried out by public health nurse. For adult, they do screening for malignancy –cancer of oral cavity, colorectal, cervix, breast and liver.

Immunisation is carried by the community nurse. Volunteer clinics are available 4 times a year and mobile medical services also provided as annual project.

Cancer is one of the leading causes of death. 27,000 people are diagnosed with colorectal, breast, oral cancer and cervical cancers accounting for 33% of all cancer. Oral cancer screening is one of the activities carried out of the bureau of health promotion. Promotion of cancer screening is done through mass media and working with NGOs and enterprises The BNHI contract dental services from the private dental clinics. The dentists at the public hospital are salaried by the hospital with incentives from the hospital depending on the number of case/procedures treated.

7.6.1 **Primary Oral Health Care**

Dental services at primary care level are provided by dentists to remote areas such as in the mountainous areas and off shore islands. Provision of service is by private dentist from
private hospital or private dental clinic contracted by the BNHI and also by dentists in public/private hospitals.

There are no public dental clinics in the remote areas. DOH outsource to private dentists. For a private clinic that wish to provide services to remote areas, the DOH will help in the Initial setting up of the clinic and under the contract they have to provide services at least 5 times a week according to schedule. Basic package includes basic treatment for example extraction, filling (redo filling for the same tooth is allowed within 3 years), RCT, scaling (maximum 2 times a year). Mobile services to schools within the remote areas are also provided by the private dentist. Health promotion such as tooth brushing drill for the school children is carried out by the community nurse.

Dental Services are also included in Integrated Delivery System (IDS) in Taiwan which covers the remote areas. IDS/Integrated delivery system that brings care to remote areas started 12 years ago. In IDS, private hospital work together with other agencies (private clinics and other private hospital). The private hospital is contracted by BHNI to provide this service. Dentist from private hospital comes over to this remote area twice a month to provide dental treatment. Among the activities by the private dentist is the outreach program for the school for example oral examination and screening of dental caries. Those who need treatment will be referred to the dental clinic within the health centre run by the same dentist contracted with BNHI. Example of the IDS system is delivery of health care to the aborigines in Taiwan.

Other oral health promotion activities are as follows:

- Dental fluoride application, dental inspections and dental health education programs are provided to children under the age of five twice a year. The DOH also offers weekly mouth rinsing with fluoridated water as part of a cavity preventions program to 2,651 primary schools in 25 counties and cities nationwide. In 2010, about 98.5% of school children took part in this program,

- To conduct a study project on oral health care for children with developmental delay. The study aimed to provide oral check-up services for the children and to instruct teeth cleaning skills as well as knowledge of oral health care for care givers.

- Oral cancer screening is one of the activities carried out of the bureau of health promotion. In remote areas this activities are done by public health doctor or community health nurse

- DOH also conducted 25 tobacco-free community projects for tobacco free living spaces and DOH collaborated with Minister of Defence to conduct” Integrated Tobacco and betel nut hazards Prevention Projects” on military bases army
• Smoking cessation services were contracted to medical institution with complete
drug therapy to help people quit smoking with 6 month success rate of 22.5%

The NHI covers preventive dental health checks with the health promotion budget from
Bureau of Health Promotion

Lessons Learned and Relevance to 1Care

The primary care level of dental services in Taiwan is not as comprehensive as in Malaysia.
Public dental clinics are only in public hospitals and the rest of the dental clinics are
privately run. However, there is a good public private integration in the delivery of services
in the remote areas under the integrated delivery services. Primary oral health care in
Malaysia is more structured and dental nurses are operating auxiliaries who gives
treatment to schoolchildren <17 years. These dental nurses carry out health promotion as
well. For Malaysia emphasis should be more on prevention and oral health promotion with
the public private integration and maybe incentives for providers to carry out health
promotion.

7.7. Conclusion

Development of the reformed health system has to be guided clearly by MOH taking the
lead role and governance. Gaps in the delivery of health services between urban and rural
must be reduced. Public private integration in the delivery of oral health services especially
in remote areas is to ensure universal coverage as practiced in Taiwan. Introduction of
incentives for healthcare provider and staffs for providing services in unpopular remote
and mountains area had improved the accessibility and delivery of healthcare in Taiwan.

Oral health services in Malaysia must have strong commitment to public health and this
new system must be coherent across all services in term of structures, organization and
manpower.
APPENDIX 1

Oral Health Act

Passed at the Ninth Meeting of the Third Session, the Fifth Assembly of the Legislative Yuan, on April 29, 2003
Promulgated on May 21, 2003.

Article 1. This Act is specifically enacted for the promotion of national oral health. For matters not regulated in this Act, the regulations of other laws will be applied.

Article 2. The competent authorities mentioned in this Act shall be the Department of Health of the Executive Yuan at the central level; the municipality governments at the municipality level; and the county/city governments at the county or city level.

Article 3. The government should conduct programs for the prevention of oral diseases and the maintenance of oral health, and initiate and develop the following items relevant to oral health:
   1. Surveys of oral health condition;
   2. Promoting preventive oral medicine;
   3. Conducting programs for oral health education;
   4. Supervising and improving oral hygiene products;
   5. Research on oral health issues;
   6. Other items related to oral health promotion.

Treatment of oral diseases should be covered in the National Health Insurance. The scope of payments for dental care may be covered according to the regulations of the National Health Insurance Act.

Article 4. The competent authorities should prepare budget every year for the implementation of programs related to oral health promotion.

Article 5. The competent authorities should strengthen the prevention and control on the risk factors of oral health, as well as dissemination of the knowledge about this issue.

Article 6. The competent education authorities should enhance the promotion of school-based oral health education.

Article 7. While the competent authorities and the competent education authorities conduct oral health education programs, all organizations, schools, groups, and mass media concerned should comply with these authorities accordingly.
Article 8. Municipality, county, and city governments should strengthen the measures of oral health for the following groups:
   1. The elderly, the physically and mentally disabled;
   2. Pregnant women, infants, early childhood and young children.

Article 9. The competent authorities should prepare budget for survey and research on oral health-related issues; organizations concerned, schools, or professional groups relevant to oral health may be commissioned or subsidized to conduct them.

Article 10. Municipality, county, and city governments should appoint a full-time person, and the central competent authorities should establish a unit, to be fully responsible for the implementation of matters concerning oral health.

Article 11. The central competent authority should establish a Committee on Dental Medicine. The missions of the Committee are:
   1. To make proposals on oral health policy making;
   2. To review and resolve epidemiological surveys on oral diseases;
   3. To review and resolve measures for the prevention of oral diseases;
   4. To review and resolve matters concerning the promotion and implementation of oral health education;
   5. To review and resolve matters concerning oral health promotion for pregnant women, infants and young children;
   6. To review and resolve matters concerning oral health promotion for the elderly, and the physically and mentally disabled;
   7. To provide counseling on oral health promotion for school children;
   8. To review and resolve control strategies of risk factors of oral cancer, and other factors hazardous to oral health;
   9. To provide counseling on the standards and efficacy of oral hygiene products;
   10. To review and resolve matters concerning research and development of oral health;
   11. To review and resolve other matters concerning oral health.

The central competent authority shall decide the organization and authority of the aforementioned Committee such as the number and composition of the members, and meeting proceedings.

Article 12. This Act shall be implemented on the day of announcement.
Guidelines on the Organization of the Committee on Dental Medicine of the Department of Health, the Executive Yuan

Formulated and announced on October 14, 2003, under Order Shu-Shou-Kuo No 0920500997 by the Department of Health, the Executive Yuan.

1. The Department of Health of the Executive Yuan (hereafter referred to as the Department), in order to promote national oral health and improve quality of dental care, acting in accordance with regulations of Paragraph 2, Article 11 of the Oral Health Act, establishes the Committee on Oral Medicine (hereafter referred to as the Committee).

2. The missions of the Committee are:
   i. To make proposals on oral health policy making;
   ii. To review and resolve epidemiological surveys on oral diseases;
   iii. To review and resolve measures for the prevention of oral diseases;
   iv. To review and resolve matters concerning the promotion and implementation of oral health education;
   v. To review and resolve matters concerning oral health promotion for pregnant women, infants and young children;
   vi. To review and resolve matters concerning oral health promotion for the elderly, and the physically and mentally disabled;
   vii. To provide counseling on oral health promotion for school children;
   viii. To review and resolve control strategies of risk factors of oral cancer, and other factors hazardous to oral health;
   ix. To provide counseling on the standards and efficacy of oral hygiene products;
   x. To review and resolve matters concerning research and development of oral health;
   xi. To review and resolve other matters concerning oral health.

3. There shall be 17 to 19 members in the Committee, each for a term of two years, and may be reappointed after termination of the term. One of the members shall be appointed by the Minister of the Department of Health (hereafter referred to as the Minister) as the Chairperson. The rest of the members shall be appointed by the Minister from the following fields:
   i. Three representatives of government organizations;
   ii. Four to five representatives of the Dentist Association;
   iii. Four to five representatives of scholars from dental medicine/dentistry; and
   iv. Five specialists, scholars, and fair-minded individuals of the society. The sum of the members under subparagraph 2 and subparagraph 3 of the preceding paragraph shall not be fewer than one-half of the total number of members.
4. There shall be an Executive Secretary in the Committee. The Executive Secretary shall, upon directions of the Chairperson, assist in the management of the affairs of the Committee. There shall also be three to seven staff members to, under the directions of the Executive Secretary, administer affairs of the Committee. The Executive Secretary and members of the staff shall be appointed by the Minister from the existing staff of the Department to serve concurrently for the Committee. When missions listed under Item 2 involve certain organizations and units of the Department, these missions shall be executed jointly.

5. The Committee may, pending on the needs of its missions, establish task groups to study and discuss relevant issues. Staff members of the task groups shall be assigned from the existing staff of the Department to serve concurrently for the Committee.

6. The Committee shall meet once every two months, and when necessary, may hold provisional meetings. All meetings shall be convened by the Chairperson. The Chairperson shall preside at meetings. If the Chairperson is unable to attend a meeting, a member of the Committee shall be appointed by the Chairperson to be president. The meeting must be attended by one-half majority of the members. All resolutions for implementation shall be approved by one-half majority of the members present.

7. Members of the Committee are non-remunerative. Members not concurrently staff members of the Department may be remunerated transportation fees by regulations.

8. When the Committee or task groups is in session, upon actual needs, representatives of relevant organizations (institutions) and groups, and scholars and experts may be invited for consultation.
Chapter 7:
Pharmacy Services in Taiwan National Health Insurance
Author: Ms Mariam Bintarty Rushdi
8. Pharmacy Services in Taiwan National Health Insurance

8.1. Background

Taiwan’s NHI system is a social insurance program administered by the government. The three main components of the NHI system are the insured, the contracted healthcare providers and the Bureau of National Health Insurance (BNHI). The BNHI collects premiums from the insured and issues them the insurance cards. When the insured use the medical services they do not have to pay the medical expenses other than the copayment as user fees. The medical providers will claim the reimbursement for the services they have provided from BNHI.

The NHI system offers a comprehensive and uniform benefits package to all those covered by the program. With a valid health insurance card, the insured have access to more than 19,000 contracted health care 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.

8.2. Characteristics Of NHI

Coverage : compulsory enrollment for all citizens and legal residents
Administration : single payer system run by the government
Financing : payroll based premium, government and employers share Contribution for the insured and its dependents
Benefits : uniformed package, co-payment required
Providers : contract based, 92% contracted with NHI
Payment : uniformed fee schedule under the global budget
Privileges : premium and co-payment subsidies for the disadvantaged

8.3. Lesson Learn

a. Organization structure

The Department of Health of Taiwan, at central level consists of 6 competent bureaus and committees consist of Bureau of Medical Affairs, Bureau of Pharmaceutical Affairs, Bureau of Food Safety, Bureau of Nursing and Healthy Care, Bureau of International Cooperation and Bureau of Planning and other mission-driven agencies.
Bureau of pharmaceutical

The second -tier sub agencies reporting to DOH are Bureau of National Health Insurance, Centers for Disease Control, Bureau of Health Promotion, Bureau of Controlled Drugs, Committee on Chinese Medicine and Pharmacy, the NHI Supervisory Committee

The Food and Drug Administration (TFDA) of the DOH, is a unified agency that combines food management, analysis, legal regulation and scientific studies under the jurisdiction of one centralized agency. The TFDA would become an integrated administration, inspection and research institute in charge of food, drugs, cosmetics management and preventing the abuse of controlled substances.

Lessons Learned and Relevance to 1Care

Under the proposed 1Care for 1Malaysia model, it is suggested that the Pharmaceutical Services Division (PSD) headed by the Senior Director of Pharmacy Services remains as one of the main divisions under the Ministry of Health. The role will be to develop policies, oversee and review legislative and regulatory issues, set the direction for pharmacy practice involving the public and private sectors, establishment of quality standards, human resource planning and development, governance and procurement.

It is suggested that the current model at the state level in the public sector be maintained as it is now but with strengthening of role of pharmacists at the primary care level i.e. at the district and health clinics

b. Law relevant to Pharmaceutical Regulation

1. Physicians Act and Medical Care Act: Medical practices and medical behaviors, Pharmacists violating Physicians Act in providing prescription medicines without a physician's prescription and involves diagnosis, treatment or therapy
2. Pharmaceutical Affairs Act: governing pharmaceuticals, medical devices, pharmaceutical companies and related affairs
3. Pharmacists Act: governing the practices of pharmacists
   - Drug Hazard Relief Act: Drug relief payment for serious drug adverse reactions as a result of legal drug uses.
4. Rare Disease Control and Orphan Drug Act
5. Controlled Drugs Act/Illlicit Drug Hazards and Prevention Act
   - National Health Insurance Act: Pharmaceutical Benefit Scheme, NHI Contract Pharmacy
   - Statue for Control of Cosmetic Hygiene, Act Governing Food Sanitation, Health Food Control Act, etc.
Lessons Learned and Relevance to 1Care

No major change is required in the way drugs are regulated in Malaysia as it is in line with international standards and practices. However, it would be worthwhile to study the possibility of making NPCB a statutory body which will regulate medicines and devices and give it more independence to develop and function more efficiently (A study conducted in the past found that it is not feasible to corporatize/privatise NPCB due to legal impediments to the law). It is also suggested that the Poisons Board and the Medicines Advertisements Board be incorporated under the regulatory agency.

The scheduling of products containing scheduled poisons should also be reviewed as the shift of drugs with good safety profiles from Group B to Group C poisons or Over-The-Counter status will reduce the burden on the government as patients will be able to buy these products from the pharmacies.

It is also suggested that pharmacy enforcement activities pertaining to products be undertaken by the regulatory agency.

a. Primary Care

- DOH at county level employ pharmacists to oversee the pharmacy practice and for monitoring clinical governance at primary care level

- the community pharmacist are mainly involved in dispensing medicine based on clinic prescriptions, procurement and also involve in other public health activities

- Physician of the clinic may own or operate pharmacies and employ pharmacist to dispense medicine.

- Patients would be able to refill their prescription at the original hospital or at contracted community pharmacies. They are not allowed to refill at other hospital.

- In remote areas public health clinic may not have pharmacist to dispense medicine instead staff nurses will do the dispensing.

- Integrated Delivery System (IDS) covers all 48 mountainous and island districts of the country. This programmed provides, 24 hr emergency services and specialty services e.g. eye, dental and gynecological care. Medicines are dispensed by the health care provider.

- Dispensing separation is not fully implemented in Taiwan
- All medication shall be obtained from the pharmacies within 3 days, after those days prescriptions are not valid.

- The refill prescription is valid for three months and can be filled up to three times, with 28-30 days of medicine dispensed per refill. The pharmacy shall verify patients’ health insurance IC card every time the prescription is filled but it will not deduct a doctor’s visit from the card’s allotted amount. It will simply enter the medications used under the refill prescription on the card, and no medication copayment.

b. Secondary / tertiary level

- Pharmacists are responsible for pharmacy practice at the hospital level which includes dispensing, procurement, clinical pharmacy and medicine management.

- All public and private hospitals provide outpatient and inpatient services and pharmacists are employed to provide pharmacy services.

- Medicines for inpatients are supplied in a unit dose system.

- Discharged patients from the wards would be supplied with medicine for not more than 1 month.

Lessons Learned and Relevance to 1Care

Primary Care

Separation of prescribing and dispensing at primary care/community level is recommended under the proposed 1Care model. Currently in Malaysia this separation already exists in the public sector and has proven to work well. Separation is also practiced in private hospitals where doctors prescribe but all prescriptions are dispensed by pharmacists.

Mapping of the distribution of community pharmacies to GP clinics has already been done by the Pharmacy Division. This will facilitate proper planning and zoning of community pharmacies under the 1Care model.

Under the proposed 1Care model, the separation of prescribing by GPs and dispensing by community pharmacies will allow for better price control of drugs, enable better monitoring to ensure compliance with clinical practice guidelines and provide for better patient safety as there will be counterchecking of prescriptions before medicines are dispensed to patients. The legal framework for this change will need to be established.
Under the present system, there is overlapping of services being provided e.g. in the Harm Reduction Program where MOH and the National Anti-Drug Agency are involved in supplying methadone to patients. Streamlining of such services needs to be undertaken in order to reduce costs and optimize human resources.

In preparation for 1Care, patients will need to be better educated on self-medication for minor ailments so that they will be more amenable to buying medicines from community pharmacies for such conditions. Community pharmacies should also be better prepared to handle treatment of minor ailments and self-limiting conditions.

Clinical governance and better monitoring of dispensing activities by community pharmacies will need to be established. Continuous professional development programs will also need to be made mandatory to ensure that the community pharmacists’ knowledge is kept up to date.

As patients currently go to the doctor because they want/need a medical certificate to excuse them from work, a review of the present system needs to be undertaken if the workload at the primary care is to be reduced and patients encouraged in taking responsibility for their health and well-being. An incentive or reward system for workers with few/no medical leave should be considered in the 1Care model as this will improve productivity and efficiency and reduce medical costs to the government.

**Secondary/Tertiary Care**

At present, pharmacy services in the public sector hospitals in Malaysia are very well developed. Pharmacists are already involved in ward pharmacy, pharmacokinetic services, parental nutrition teams, oncology pharmacy and the preparation of radiopharmaceuticals. Monitoring of patients with long term illnesses such as DM, HPT, epilepsy is actively carried out through the Medication Therapy Adherence Clinics (MTAC).

In Taiwan such services are at initial stage and being done by pharmacists in hospitals. The momentum which has been set for clinical pharmacy practice and specialised pharmacy services continue to grow during implementation of the 1Care model.

In Malaysia, pharmacists in the public sector have already initiated home medication reviews for geriatric and psychiatric patients together with other members of the home-care teams. In Taiwan such services are not available.

A present, there is a great disparity between pharmacy services being provided in private hospitals c.f. government facilities and mechanisms will need to be instituted to improve the scope and quality of pharmacy services in the private healthcare facilities.
c. **Co-payment For out patient**

i. Amount of copayment would be according to class / type of institution

ii. Copayment for western drugs according to the range of total cost of drugs.

Follow up rehabilitation or traditional Chinese medicine treatments for the same course of therapy also carry copayments of NT$50

### Copayment for drugs

<table>
<thead>
<tr>
<th>Drug expenses</th>
<th>Copayment (NT$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 and below</td>
<td>0</td>
</tr>
<tr>
<td>101 - 200</td>
<td>20</td>
</tr>
<tr>
<td>201 - 300</td>
<td>40</td>
</tr>
<tr>
<td>301 – 400</td>
<td>60</td>
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<tr>
<td>401 – 500</td>
<td>80</td>
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<tr>
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<td>120</td>
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<td>801 – 900</td>
<td>160</td>
</tr>
<tr>
<td>901 -1000</td>
<td>180</td>
</tr>
<tr>
<td>1001 and above</td>
<td>200</td>
</tr>
</tbody>
</table>

Those exempt from copayments on prescribed medication:

i. Patients with chronic illness refill prescriptions (the Bureau of National Health Insurance has listed 98 ailments as chronic illnesses, including hypertension and diabetes.

ii. Patients receiving care for one of the ailments covered under the “per case payment” system.

Those exempt from rehabilitation (including traditional Chinese medicine traumatology therapy) copayments:

Patients undergoing “moderate to complicated” rehabilitation (including traditional Chinese medicine traumatology therapy), defined as undergoing three or more types of “moderate” therapy, such as electrical muscle stimulation and 13 other therapies, for a total of more than 50 minutes.

Patients undergoing “complicated” therapeutic treatment requiring specialized therapists, such as balance training and six other therapies. Limited to prescriptions issued by rehabilitation medicine specialists.
d. For in patient

i. Copayment according to length of stay in the hospital

ii. Copayment Rates for Inpatient Care

<table>
<thead>
<tr>
<th>Ward</th>
<th>5%</th>
<th>10%</th>
<th>20%</th>
<th>30%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute</td>
<td>-</td>
<td>30 days or less</td>
<td>31-60 days</td>
<td>61 days or more</td>
</tr>
<tr>
<td>Chronic</td>
<td>30 days or less</td>
<td>31-90 days</td>
<td>91-180 days</td>
<td>181 days or more</td>
</tr>
</tbody>
</table>

a. Note: Copayments on multiple acute ward stays of fewer than 30 days and chronic ward stays of fewer than 180 days for the same ailment are capped, with the ceilings adjusted annually. From January 1, 2009 to December 31, 2009, caps on hospital stay copayments for acute ward stays of a total of fewer than 30 days or chronic ward stays of fewer than 180 days have been set at NT$30,000 for a single hospital stay for a particular condition and at a cumulative NT$50,000 for the entire calendar year. Those who pay more than the established ceiling can apply for a refund in the following year.

b. No copayment for drugs as it is included in the ward charges.

e. Pharmaceutical Benefit Package

i. General Principles

- Pharmaceutical Benefit Scheme for National Health Insurance (to be called as PBS) is specified according to the 51st article of the National Health Insurance Law. The PBS shall be reviewed annually in principle.

- Drugs reimbursed by the National Health Insurance are limited to those listed in the PBS.

- Price adjustment for National Health Insurance reimbursed drugs is implemented according to “Guidelines for price adjustment for National Health Insurance reimbursed drugs”. Guidelines shall be specified by the insurer and be announced after authority approval.

- Items not listed in the PBS may be listed after insurer approval for listing application by drug certification owned company; Insurer described above shall approve the listing temporary according to the principles of listing and
pricing. The insurer shall submit approval results annually to the authority for announcement and listing in the PBS.

- Drug items shall be reimbursed as approved or adjusted result by the insurer temporarily when the authority has not announced listing or adjustment. Valid date of temporary approval by the insurer

- New items for listing application: Valid date for items approved on date prior to 15th (inclusive) of this month shall be the first date on next coming month; Valid date for items approved on date posterior to 15th of this month shall be the first date on next second month.

- Price adjustment for listed drugs:
  i. Valid date shall be the first date on next second quarter from the approval date; Annual price adjustment according to “Guidelines for price adjustment for National Health Insurance reimbursed drugs” is not limited in the above valid date principle.
  ii. One month since new price announcement to valid date shall be
  iii. Registration by central health authority, and have acquired buffer time for special case.

ii. Principles on Drug Reimbursement Listing in National Health Insurance

- Drugs that may submit application for listing in National Health Insurance Reimbursement

- Drugs that pass the approval and drug license which is one of following classifications:
  i. Drugs limited to be used by physicians only.
  ii. Drugs that should be prescribed by physicians.
  iii. Drugs used by physicians or medical technologists
  iv. Drugs limited to be used by dentist only.
  v. Drugs limited to be used by anesthetist only.
  vi. Drugs limited to be used by optical physicians only.
  vii. Drugs limited to be used by physicians and dentist only.
  viii. Drugs that pass the approval and registration by central health authority without license are orphan drugs. The insurer shall review case by case and reimburse after approval.
  ix. Non-prescription drugs are not included in the reimbursement list. Non-prescription drugs that approved in previous government employee insurance and labor insurance shall be reimbursed temporarily for physician's prescription. But insurer shall discuss then narrow the reimbursed items gradually.
x. Reimbursement for Chinese traditional medicine shall be limited to those concentrated “only for dispensing a prescription” and “prescription only used by physicians (Chinese medicine)” and manufactured by approval GMP Chinese medicine company; Compounding concentrated Chinese medicine shall be listed in “Standard formula of clinically common used Chinese medicine” edited by central health authority; Chinese medicine shall be reimbursed according to the “Payment Schedule of National Health Insurance.”

- Drugs that may not be reimbursed:
  i. Agents approved by central health authority to be not essential for medical purpose, such as contraceptive, hair tonic, dark spots detergent, patch for quit smoking, shampoo.
  ii. Vaccine for disease prevention.
  iii. Drugs examined by the insurer to be not essential or not economical effective.
  iv. Drugs are not applied to the indications that documented on the license and “Payment Schedule for National Health Insurance drugs” set by the insurer. But special episode may apply previous review and reimbursed after approval.
  v. Other drugs not reimbursed by authority announcement.

- Drugs that may not be reimbursed and have included in related reimbursement in National Health Insurance

- Detergent, vehicles, radioactive preparations, diagnostic medicine.

- Other related payment included in National Health Insurance payment schedule.

8.4. Principles on Drug Reimbursement Price Approval of National Health Insurance

A. Drug classification under National Health Insurance:

i. New drug: Indicating a newly applied pharmaceutical product that owns a new chemical entity, new dosage form, new administrated route or new therapeutic effect compound to the listed items in the PBS.

ii. New item of listed ingredients and dosage forms in the PBS.

iii. Compounding prescription and special potency drugs:
   a) Water, Saccharides and Electrolytes supplementary injections
   b) Amino acids and Nutritional injections
c) Multivitamins
d) Complex common cold preparations
e) Antacids

B. Other prescription drugs:

i. Drugs from original R&D pharmaceutical company:
   a) Products that their active ingredients, contents and dosage forms are as same as those products manufactured by their original mother factory or its subsidiary factories.
   b) Products that their active ingredients, contents and dosage forms are as same as those products designated manufactured or collaborated sold in Taiwan under written authorization from original R&D pharmaceutical company during the authorization time period.

ii. BA/BE generic drugs:
   a) Generic drugs that have performed bioavailability or bioequivalence (BA/BE) studies and have approved by central health.

iii. Common generic drugs:
   a) Generics other than BA/BE generics.

8.5. Principles of approval of reimbursement prices:

A. New drugs: Price shall be jointly reviewed and approved by experts in medical and pharmaceutical field and insurer (BNHI).

B. New items of listed ingredients and dosage forms in the PBS:
   i. Using the drug prices collected by the Department of Health of Executive Yuan from public healthcare sectors (all prices distributed in 5% and 95% extreme value of statistical analysis have been deleted) to reimburse, price difference of 20% for single brand drugs is the dividing line:
      a. When the price difference is below 20 % (inclusive), the reimbursed price of drug will be as the lowest price in current public healthcare sectors.
      b. When the price difference is over 20%, the reimbursed price of drug will be as the 25th percentile price in current public healthcare sectors.

   ii. Price of identical ingredient and dosage form drugs shall be calculated by commonly used dosage as the base. Price of manifold dosage shall not be over 90% of the multiple.

   iii. Compounding prescription and special formed drugs: Price shall be reimbursed
as the lowest price in the same form of drugs but not exceeding following price:

a. Water, Saccharides and Electrolytes supplementary injection

Saccharides injections:

<table>
<thead>
<tr>
<th>Volume Concentration</th>
<th>500 ml</th>
<th>1000 ml</th>
</tr>
</thead>
<tbody>
<tr>
<td>5%</td>
<td>NT$ 31.5</td>
<td>NT$ 56.7</td>
</tr>
<tr>
<td>10%</td>
<td>NT$ 31.5</td>
<td>NT$ 56.7</td>
</tr>
<tr>
<td>20%</td>
<td>NT$ 31.5</td>
<td>---</td>
</tr>
<tr>
<td>50%</td>
<td>NT$ 63.0</td>
<td>---</td>
</tr>
<tr>
<td>10% Maltose</td>
<td>NT$ 143.0</td>
<td>---</td>
</tr>
</tbody>
</table>

b. Electrolytes or Saccharides electrolyte supplementary sinjections

<table>
<thead>
<tr>
<th>Classification</th>
<th>Volume</th>
<th>Upper limit reimbursement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saline Solution</td>
<td>500 ml</td>
<td>NT$ 31.5</td>
</tr>
<tr>
<td>Dextrose + Saline</td>
<td>500 ml</td>
<td>NT$ 31.5</td>
</tr>
<tr>
<td>Ringers Solution</td>
<td>500 ml</td>
<td>NT$ 31.5</td>
</tr>
<tr>
<td>Lactated Ringers</td>
<td>500 ml</td>
<td>NT$ 40.0</td>
</tr>
<tr>
<td>Lactated Ringers + Saccharides</td>
<td>500 ml</td>
<td>NT$ 60.0</td>
</tr>
<tr>
<td>Lactated Ringers + Maltose</td>
<td>500 ml</td>
<td>NT$ 130.0</td>
</tr>
<tr>
<td>Saccharides + Electrolytes solution</td>
<td>400 ml</td>
<td>NT$ 60.0</td>
</tr>
<tr>
<td></td>
<td>800 ml</td>
<td>NT$ 108.0</td>
</tr>
</tbody>
</table>

Note: so called “Saccharides” herein are saccharides exclusive of Maltose, including Dextrose, Fructose, Xylitol, Sorbitol, etc.

c. Amino acid and Injected Nutrients

1. Big volume of amino acid injections

<table>
<thead>
<tr>
<th>Classification</th>
<th>Volume</th>
<th>Upper limit reimbursement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common amino acid injection</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concentration $\leq$ 3%</td>
<td>500 ml</td>
<td>NT$ 200</td>
</tr>
<tr>
<td>3% $\leq$ 5%</td>
<td>500 ml</td>
<td>NT$ 220</td>
</tr>
<tr>
<td>5% $\leq$ 7%</td>
<td>500 ml</td>
<td>NT$ 240</td>
</tr>
<tr>
<td>Concentration $&gt;$ 7%</td>
<td>500 ml</td>
<td>NT$ 310</td>
</tr>
<tr>
<td>Amino acid injection for liver dysfunction</td>
<td>500 ml</td>
<td>NT$ 630</td>
</tr>
</tbody>
</table>
2. Lipolipids

<table>
<thead>
<tr>
<th>Volume Concentration</th>
<th>100 ml</th>
<th>200-250 ml</th>
<th>500 ml</th>
</tr>
</thead>
<tbody>
<tr>
<td>10%</td>
<td>NT$ 242.0</td>
<td>NT$ 384.0</td>
<td>NT$ 630.0</td>
</tr>
<tr>
<td>20</td>
<td>NT$ 380.0</td>
<td>NT$ 435.0</td>
<td>---</td>
</tr>
</tbody>
</table>

d. Complex Antacids:

1. Oral tablet, capsule, granule : NT$ 2.0
2. Single dosage packed suspension : NT$10.0/pack
3. Bottled suspension (price of every 5 ml):
   a. Common suspension: NT$1.2/ 5ml
   b. Simethicone added: NT$1.5/ 5ml
   c. Oxethazine added: NT$1.9/ 5ml

e. Complex common cold preparations:

1. Oral tablet, capsule, granule: NT$ 4.0
2. Syrup: (price of every 1 ml)
   a. No contain plant extract or Codeine: NT$ 0.2/ml
   b. Contained plant extract: NT$0.3/ml
   c. Contained Codeine: NT$0.45/ml

f. Multivitamins:
   vi. Oral NT$ 3.0
   vii. Injection NT$ 15.0/ml

8.6. Other prescription drug

a. Original R&D pharmaceutical company:

1. Original R&D company drugs which locally found BA/BE drugs with identical ingredient and dosage form shall be divided into under-surveilled drugs and non-under-surveilled drugs:
   a. Upper limit reimbursed price shall be as the median price in top 10 industrialized countries for under-surveilled drugs.
   b. Upper limit reimbursed price shall be as 85% of the median price in top 10 industrialized countries for non-under-surveilled drugs.

2. Upper limit reimbursed price shall be as the median price in top 10 industrialized countries for original R&D company drugs that have not locally found BA/BE drugs
with identical ingredient and dosage form.

3. Drug prices in top 10 industrialized countries described above are prices in England, Germany, Japan, Switzerland, USA, Belgium, Australia, France, Sweden, Canada. Insurer shall periodically announce price publication and exchange rate of those countries for reference.

b. BA/BE generic drugs:

1. Reimbursement for newly approved BA/BE drugs shall not be approved to exceed the lowest reimbursed price of listed BA/BE drugs with identical ingredients, volume, dosage forms and dosage in the PBS.

2. Generic drugs may re-apply for price approval after BE implementation.

3. Prices of BA/BE drugs shall not exceed prices of original R&D company drugs that with identical ingredient.

c. Common generic drugs:

1. Reimbursement for newly approved drugs shall not be approved to exceed the lowest reimbursed price of listed common generic drugs with identical ingredients, volume, dosage forms and dosage in the PBS.

2. Reimbursement for common generic drugs shall not exceed the reimbursed price of BA/BE drugs, also shall not exceed 80% of reimbursed prices of original R&D company drugs.

3. Reimbursement for common generic drugs shall not exceed the 3 folds of 50 percentile reimbursed price of general generic drugs.

d. Other principles:

1. Regarding reimbursed price of Essential Drugs and Orphan Drugs, insurer shall respect to the market price. Items and classifications of drug shall be submitted by medical and pharmaceutical groups at all time as needed.

Lessons Learned and Relevance to 1Care

The Pharmacy Division has already started collecting drug prices but it is currently on a voluntary basis. In preparation for 1Care, a drug tariff will need to be established and decisions made on the reimbursement scheme, co-payment system and dispensing fees.
If a co-payment for prescriptions is to be introduced, the implications on compliance, categories of patients who are exempted from payments and the usefulness of such payments will need to be studied in detail.

Models which will need to be studied in detail are the NHS model and the Pharmaceutical Benefits Scheme of Australia. The Taiwan Pharmaceutical Benefit Scheme should also be considered which is more inclined to usage of generic drugs for cost containment.

A legal framework will need to be developed to enable this new model for the dispensing of medicines.

### 8.7. Hospital (Pharmacy) Technology in Taiwan

1. Most public hospitals are equipped with Hospital Information System (HIS) which integrated to electronic medical claim system provided by BNHI.
2. Fee Schedule and Pharmaceutical Benefit Scheme are included as adjudication rules in HIS.
3. Electronic prescription within the same facilities or through LAN.
4. Medical data is included the HNI card which provide the medication history of insured. Reference for refill medication.
5. Medical Application of Radio Frequency Identification (RFID) has enhances patient safety via drug identification (management of supply in and out patients) and assists in patient identification and tracking.

### Lessons Learned and Relevance to 1Care

QUEST3: A model for the online submission of applications for drug registration, licensing, surveillance and pharmacovigilance has been developed and rolled out. It should be sufficient for the present time.

PHS: In the process of developing for public healthcare facilities.
TPC: In the process of rolling out the whole country (by stages) and expected to interface with CPS which is in the stage of developing for health clinics.

A national drug dictionary containing information of all the drugs authorized for sale in the country and the relevant prescribing information can probably be extracted from the QUEST database.

Through the National Medicines Utilization Survey, a system has been developed to capture and analyze drug utilization data from hospitals and GPs. However, this program only allows for data to be collected in terms of generic names of drugs and does not allow a
comparison to be done in terms of innovator: generic utilization data which is required for costing studies.

Under the 1Care model, the current IT systems being used in the hospitals will need to be upgraded and improved, better systems developed to capture drug utilization data and new systems developed for reimbursement purposes.
Chapter 8:
Public Health
Author: Dr. Rusdi Abdul Rahman
Dr. Mohd Nizam Subahir,
Dr. Zaid Kassim
9. Public Health

9.1. Flow of data within BNHI and DOH

It is noted that there is a very good and efficient network which connects all the health care providers to the BNHI. However there is no clear interfacing between networks belong to DOH those belong to BNHI.

9.1.1. Entering diagnosis data in the system

*Lessons Learned and Relevance to 1Care*

1. Within the BNHI system, all doctors are requested to fill up the diagnosis before sending the claim, using ICD9 coding system. This approach will help them in the surveillance system. This surveillance data is used by interested parties such as DOH, universities etc.

Under 1Care, all doctors must fill up diagnosis using the latest version of international classification of diseases. The system must be created in such a way that the doctors will have to fill up the diagnosis part. If they have not fill up the diagnosis, then they should not be allowed to proceed to the next page or seeing the next patient. This is to ensure the completeness of our surveillance data. There should also be an interfacing between NHFA network and those belong to other divisions in MOH.

9.1.2. EWAR (early warning system)

Early Warning System is an important system in order to prevent outbreak or to detect an outbreak at a very early stage. This is important in ensuring the outbreak can be controlled at a reasonable duration, thus reducing morbidity and mortality rate.

*Lessons Learned and Relevance to 1Care*

1. EWAR is not being integrated into the BNHI information system. The Centre for Disease Control (CDC) will have to depend on mandatory reporting by the doctors. It is not clear how will they receive a warning regarding the possibility of an outbreak.

This kind of mistake should not be happening in 1Care. EWAR should be integrated in the system. There has to be integration between the flows of data from all the doctors, wherever they are practicing, and the CDC Division under MOH. If all the doctors are connected very smoothly with the NHFA, then there should not be any reason why the flow of data to CDC is halted in any way.
9.2. Public Health Centres and Clinics

9.2.1. Doctors and the team are given certain target

*Lessons Learned and Relevance to 1Care*

1. Doctors and the team are given certain target in terms of Public Health activities particularly Health education activities, Immunisation, special programs (e.g. community oriented primary care and community integrated screening for cancer and non-communicable diseases), Infectious disease control activities such as vector surveillance and DOTS for TB treatment. Their bonus will be cut if they fail to achieve the target. The basic salary will not be affected.

1Care should use similar strategy to ensure the achievements of all targets. It seemed that bonus or incentive will be a drive force for health care providers to work hard to achieve the targets. Auditing should be done by either by MHDS or MOH or independent body from time to time to ensure quality medical care is provided to the patient.

9.2.2. Doctors are having own backup data.

Having their own medical data as a back-up will give them opportunity to analyse their own data and health problems among their patients and community.

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Having their own medical data as a back-up will give them opportunity to analyse their own data and health problems among their patients and community.

*Lessons Learned and Relevance to 1Care*

1. 1Care should not follow this as this lead to wastage of medical and human resources at the nearest clinic. All clinics must take care of all pregnant mothers in the area of their coverage.

9.3.2 Postnatal care

*Lessons Learned and Relevance to 1Care*

1. Due to low birth rate and low fertility rate problems in Taiwan and also issue of precious baby, post natal mothers went to see specialist (pediatrician and obstetrician) for post natal care. They will also admit themselves into a postnatal care centre for a month. The centre will take every aspect of postnatal care, including traditional medicine.

All post natal mothers must be managed by trained health care providers such as doctors or public health/community nurses at all clinics under 1Care.
9.3.3. Vaccination programme

*Lessons Learned and Relevance to 1Care*

1. Vaccines are supplied by Department of Health (DOH), delivered to the target group and monitored by clinics. This includes vaccination to all school children in the operation area. Coverage of vaccination must be 100% to all target group being identified earlier by DOH. Their bonus will be cut if they fail to achieve the target. Their basic salary will not be affected. A proper record and documentation and data entered into NHI database. These data basewill be audited at the end of the year.

1Care should implement the same system. Procurement of vaccines will be made by MOH, delivery of vaccines to the clinics will be done by the supplier. Immunisation must be included into benefit package. Specific coverage target for immunisation must be clearly spelled. If they fail, then certain punishment in whatever form it may be should be carried out against the health care provider.

9.3.4. Clinics are undergoing accreditation exercise annually.

*Lessons Learned and Relevance to 1Care*

1. Accreditation pertaining to medical procedures (e.g. cold chain management) and medical equipment (e.g. instruments calibration, x-ray machine maintenance) at the clinic is done by DOH either annually or on the spot if there is any public complaint received by them. If failed accreditation, bonus will be deducted.

All clinics and hospitals under 1Care must be accredited annually by an independent and professional body elected by either MHDS or NHFA. This is to ensure the quality of care is being practiced and shown by all the clinics and hospitals under 1Care.

9.3.5. Fever screening counter is implemented every time regardless of the presence or absence of SARS or influenza

*Lessons Learned and Relevance to 1Care*

1. A clear direction to patient entering the clinic is patched on the entrance of the clinic, mentioned that if they are having fever, must informed directly to staff at counter for further management and isolation.

Under 1Care, the fever screening counter will be opened as per requirement.
9.3.6. **There is no gate-keeper.**

Patients are free to choose any health facility to get treatment, clinic, district hospital, regional hospital or medical centre.

**Lessons Learned and Relevance to 1Care**

1. There are positive and negative impacts to this practice. The positive impacts are; patient satisfaction will be very high (as shown in Taiwan where patient satisfaction rate is always more than 70% every year) as they can go directly to see the specialist they like and trust (only specialist care is trusted, no more medical officer or general practitioner (GP) care is required). This will motivate more doctors and GP to become specialist (as in Taiwan, the percentage of GP is less than 2% for the whole country). The negative impacts are; a lot of unnecessary visits to specialists which lead to wastage of consultation time, medical equipment, drugs and human resources. The patients tend to shop for "best treatment" from one clinic to another. On top of that, quality of medical care will be affected as the waiting list and queue to see favorite specialist will be high.

There should be a gate-keeper in our health care system. Hospitals should be receiving referred cases from primary care physician only. It may not be a popular choice but due to the problems mentioned above, it would be a better choice for our country. Otherwise we will be experiencing the same problem that Taiwan is facing now. It will be difficult for us to change back to gate keeping, once we have started the no-gate-keeping concept.

9.3.7. **Ambulance services is under fire department**

**Lessons Learned and Relevance to 1Care**

1. As a part of Disaster Management Plan in Taiwan, which is being exposed to earthquake and typhoon, ambulance services is put under Fire Department. A patient will just have to dial 911 for the service. Usually, a public health clinic will have one ambulance with driver to handle any emergency case within the area. If there is outbreak or disaster, then the ambulance under Fire Department will be involved.

Under 1Care, ambulance services should either be managed by other ministries such as Road and Transport Ministry or given to an autonomous body. Other ambulance services from other public and private agencies as well as NGOs should be allowed to operate but must be coordinated by this autonomous body.
9.3.8. Integrated Delivery System by hospitals

Lessons Learned and Relevance to 1Care

1. Department of Health Taiwan executed the Integrated Delivery Services (IDS) for residents in remote, mountain areas and offshore islands. It consists of regular scheduled visits every month by primary care physicians and other clinical specialists from various hospitals to give preventive, promotive and curative care to the residents. Their services also include transporting critically ill or emergency patients from these areas using ambulance or helicopter to the nearest hospital. Good incentives are given by BNHI to health care providers who are willing to provide services to these areas. The incentives may be based on key performance indicators (KPI) which was set by DOH.

This service is relevance to 1Care especially in delivering specialist health care services to remote areas which are not easily accessible. It is just like many places in East Malaysia and inner sides of the West Malaysia. Appropriate incentives should be given to health care providers (based on KPI) to serve this area.

9.4. NHI Claims process and payment mechanism

9.4.1. Co-payment for patient with infectious disease

Apparently, patients with infectious disease were not included among those who are exempted from paying co-payment. It means all patients with infectious diseases will have to pay co-payment every time they are admitted into any hospital or get treatment from any clinic. This may lead to a scenario when a patient with TB infection, for example, may just stop from taking medication just because they refuse to pay co-payment.

Lessons Learned and Relevance to 1Care

1. Asking a patient with infectious disease to pay co-payment may lead us to a disaster that is as far as control of communicable diseases is concerned. There will be a scenario when a patient with TB infection may just stop taking medication, just because they refuse to pay co-payment. This will lead to default in treatment, drug resistance and so on. Number of patients with multidrug resistance TB will increase and the mortality rate of TB will definitely increase.

Under 1Care we must make sure that all patients with any kind and form of notifiable infectious diseases must be covered by NHFA. They should get all the treatment required and there should never be co-payment for them. This is to ensure that all patients with curable infectious disease with be completely cured and become non-infectious at the end of treatment.
9.5. Surveillance of Infectious Diseases

9.5.1. Populous institution surveillance

It is very interesting to note that under Taiwan CDC Surveillance system, they are able to include 2069 institution (95% of the total) into their surveillance.

*Lessons Learned and Relevance to 1Care*

1. All populous institutions in Taiwan are required by law to notify any infectious disease (ID) cases which are detected and diagnosed by them. They are notifying the Bureau of Health (BOH) through phone calls, email and internet. This means that all infectious disease cases in all populous institutions will be detected and all possible outbreaks can be detected at an early stage. However, this will also means that their surveillance system is very much depending on the notification by the institution. If the institution fails to notify then there is no way for the BOH to know about the existence of a CD case or occurrence of an outbreak.

It is expected that by the time 1Care is being established in Malaysia, the digital networking has already been well established in the country. Assuming that this is happening in the near future, there will also be a digital networking with all populous institutions in the country. This kind of digital networking is important in ensuring an establishment of a comprehensive communicable diseases surveillance which includes all populous institutions in the country. These institutions will be able to notify the CD cases in a timely manner.

9.6. Non-Communicable Disease (NCD) Surveillance

9.6.1. Position of NCD Control Program

Within the Taiwan Ministry of Health, NCD program is placed under the Bureau of Health Promotion (BHP).

*Lessons Learned and Relevance to 1Care*

1. The NCD program is placed under BHP because all the screening and treatment of NCD cases are being handled by the providers under BNHI. What is left is only the health promotion and preventive activities for non-communicable diseases. Health promotion activities implemented by staffs at PH Centers, Local Government, school and NGO. Budget provided by Bureau of Health Promotion.
Under 1Care, all NCD health promotion and preventive activities should be contracted out to the Health Promotion Board. It is the responsibility of the board to plan, implement and monitor the running of all health promotion and preventive activities under them. The NCD division is responsible to analyze the surveillance data, come up with the reports and disseminate them to the stakeholders. They are also responsible to plan a study on the impact of all the activities conducted by the Health Promotion Board. The actual study may be contracted out to any relevant institution such as university. The NCD division must also plan new strategies in reducing the incidence of chronic cases in the country.

9.6.2. Screening program for NCD cases are under BNHI

Under Health Care system in Taiwan, the screening and management of all NCD cases are being implemented by all providers under BNHI

**Lessons Learned and Relevance to 1Care**

1. Almost all healthcare providers in Taiwan are under BNHI. All these providers, be it a clinic or hospital, will not only treat patients with chronic diseases but also conduct screening program. These include screening for metabolic syndrome (hypertension, DM and hyperlipidaemia), cancer, renal diseases etc.

Under 1Care, all the screening activities should also be carried out by providers under NHDS. They must be given certain target to achieve, failing which will result in their bonus being cut. They should not only do the screening but also the management of the cases that they diagnosed during screening processes.

9.7. Communicable Disease Control

9.7.1. National Health Command Centre

This centre is headed by DG of CDC, is in-charge of coordinating all data and activities during disaster

**Lessons Learned and Relevance to 1Care**

1. The National Health Command Center (NHCC) was established in 2005 and put in charge to coordinate information supplied by various central government agencies, local governments, and private health organizations. The information is then employed as real-time data required for an integrated disaster management mechanism and as frames of reference for commander-in-chief for decision-making.

Under 1 Care, health disaster management should be put only under one Command Centre just like what Taiwan did to coordinate all information from various agencies. The flow of
data must be in a real-time manner, so that certain measures came be taken at that point of time and may change accordingly depending on situations. Further, in light of the implementation of the International Health Regulation 2005 (IHR 2005), a point of contact was set up to facilitate communication with other countries to expedite notifications and ensure timely responses to crucial outbreaks and health emergencies.

9.7.2. **Laboratory related to CDC is contracted out.**

*Lessons Learned and Relevance to 1Care*

1. The Research and Diagnostic Center under the CDC is the highest-level supervision and execution agency for testing various communicable diseases. The Center is responsible for identifying pathogens as well as conducting research and development of new testing technologies, ensuring technology transfer and formulating testing standards. In addition, to effectively meet the demands of various communicable disease tests, ten virus laboratories, nine tuberculosis bacilli labs, and 151 testing agencies for communicable disease have been contracted or certified.

National Public Health Laboratory (NPHL or MKAK) under Centre of Disease Control Malaysia as the highest-level supervision and execution agency for testing of various communicable diseases. NPHL should be responsible in identifying pathogens, the research and development of new testing technologies, technology transfer and the formulation of testing standards. NPHL should consolidate all information and data from other Regional Public Health Laboratory, Veterinary Laboratory, and contracted Private Laboratories which are accredited by NPHL. All relevant data and information can be access through secured internet system.

9.7.3. **Transportation of clinical specimen**

*Lessons Learned and Relevance to 1Care*

1. “National Management Program for Collection and Transportation of Clinical Specimens” is instituted to ensure the quality, timeliness and safety of contagious specimen deliveries. The contractor is responsible to collect and transport the specimen to specified laboratories.

Under 1Care, a similar collection and transportation system should be employed to ensure the quality, timeliness and safety of contagious specimen deliveries. The performance of all contractors must be monitored by NPHL. Certain penalty should be imposed on the contractor if they fail to achieve the target. All contracted Private Laboratory adhere to the guidelines and Standard Operating Procedure which was given by NPHL under CDC Malaysia NPHL may disclose the black listed laboratory in internet to alert the public.
9.7.4. Disease Reporting and Consulting Center

**Lessons Learned and Relevance to 1Care**

1. To provide a convenient channel for communicable disease reporting and counseling, Taiwan CDC has operated the easy-to-remember, toll-free “1922” hotline since 2003. It provides 24-hour, round-the-year service for disease reporting, counseling and information on prevention policy control measures. The 1922 hotline received 77,000 calls in 2010 and referred 43,000 for handling. To measure customer satisfaction, starting at the beginning of the year a survey was conducted covering our main topics: waiting time, service attitude, explanation clarity and response time. Among 3,842 responses gathered in 2010, 96% of people said they were either extremely satisfied or satisfied.

Under 1 Care, our planning to integrate the Centre of Disease Control can also provide this toll-free such as “2020” Disease Reporting and Consulting Centre to assist public and also health provider to report communicable diseases and obtain consultation and information on communicable disease policies. Through empowering public to participate in this kind of program will enhanced the communicable disease control and prevention in Malaysia.

9.7.5. Harm Reduction in HIV Control program using vending machine for Needle Syringe Exchange Program (NSEP)

**Lessons Learned and Relevance to 1Care**

1. The Department of Health (DOH), Taiwan has been offering the Methadone Maintenance Treatment (MMT) Program, complemented by follow-up consultation, awareness workshops and referral programs to substance dependents. 1,000 service stations offering clean needles and health education were set up and 321 vending machines selling clean needles were installed to offer clean needles and syringes free of charge. Needle recycling has improved over the years, with the recycling rate up to 80.3% now.

Harm Reduction Program should be continued under CDC Division of MOH. For those hard core Inject able Drug Users (IDU) and still not interested in Methadone Maintenance Treatment, Vending Machine can be considered as an alternative to offer clean needles and syringe. These machines should be located in strategic places such as drug addict “port” etc. Certain mechanism may be employed to control the users by providing them a card just like an “Auto-Teller Machine”. The users must give back the needles and syringe they already used. The area also must put under CCTV surveillance. This innovative program will be able to reduce the HIV/AIDS and also other blood borne diseases such as Hepatitis incidence in Malaysia.
9.7.6. National Immunization Information System (NIIS)

Lessons Learned and Relevance to 1Care

1. To handle a variety of situations, including immunisation demands and the enhancement of data bank efficiency, as well as to keep pace with rapid advances in information and network technologies, Taiwan CDC established the National Immunization Information System (NIIS) in 2004. Taiwan CDC used the system and the Internet to consolidate immunization data scattered among various health stations into one database. This has greatly improved work efficiency because authorities can directly manage operations that take place within their jurisdictions. NIIS, together with household registration authorities and medical institutions, has used functions such as the computerization of case referrals and allocations, along with real-time establishment of databases, to improve the management of immunization operations and the efficiency of storage and retrieval of immunization information.

Ministry of Health Malaysia as a highest competent authority regarding health should establish the National Immunisation Information System (NIIS) to consolidate immunization data scattered among various health stations into one database. Establishment of this NIIS could be taken off even before the 1Care. Through NIIS, officers can contact parents by text and e-mail to remind them of their children's immunization time. The system may also alert the health care providers if any of their patients do not follow the immunization schedule. Certain mechanism such as follow-up of cases will help to increase our immunization coverage.

9.8. Organisational structure

Taiwan implements 2-tier system in its Health delivery system. They have Bureau of Health under the Ministry of Health and another Bureau of Health under the Local Government.

Lessons Learned and Relevance to 1Care

1. Having 2-tier delivery system gives the power to the Mayor of Local Authority in handling all the issues related to health in his jurisdiction. The officers at district and regional level will be answerable to the Mayor and the Director of BOH at the Local Government. The officers from DOH at the Ministry of Health will become the technical advisor to BOH of Local Government. By doing so, there will be miscommunication between the officers at the 2 levels of authority.

Under 1Care, we should not do the same mistake. We should maintain the 3-tier organisational structure. All levels of departments of health will be answerable to a single commander that is the Director General of Health, Malaysia. By doing so, the DG will have
direct command to every level of administration of health without having to go through 
other complicated channel of commands.
Chapter 9:

Human Resource Development

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Dr. Haris Fadzilah Che Hashim
10. Human Resources in Taiwan Public Health Services

10.1. Introduction

Registered population in Taiwan was 23.12 million in 2009. 10.6% of the population are people age 65 and above. The average life expectancy for men in 2009 is 75.9 whereas for women the average life expectancy is 82.5 years.

10.2. Taiwan Civil Service

The Ministry of Civil Service (MOCS) Taiwan is the agency charged with the formulation, deliberation, and planning of national civil service personnel policy. Under the direction of the Examination Yuan, the MOCS actively promotes the improvement and reform of the personnel system to contribute towards a clean, professional and efficient government. Further, it fosters the enhancement of civil servant caliber to elevate the entire civil service corps to a level characterized by such fine attributes as "clean, decisive, proactive, friendly, practical, constructive, innovative, and diverse.

The Taiwan government has created a specialized organization that is responsible for administering the national examinations; this is the Ministry of Examination. There are two major categories of examination held under the Ministry of Examination. One category of examinations governs the entrance of new personnel into the civil service. The other category includes examinations for the professional occupations that involve public interest and the security of life and property, e.g. physician, lawyer, architect, accountant, etc.

Within the civil service examinations, there are two main types of examinations. The first includes the senior, Junior and Elementary Examinations for recruiting ordinary administrative personnel: the Senior Examination is limited to those of college education and above, the Junior Examination requires at least high school education, and the Elementary Examination has no educational prerequisites. All of these examinations are used to recruit basic civil service manpower for various levels of job specifications. The second type of civil service examinations is the Special Examinations. These are held to recruit manpower for government agencies requiring personnel with specialized capacities, such as diplomats, national security personnel, prosecutors, and judges.

In general, when the administrative agencies of the government experience a manpower shortage, they can report their need and await the Ministry of Examination’s annual examinations. Aside from this, the administrative agencies can negotiate with other agencies for the transfer of personnel who have already qualified for government service. That is to say, civil service personnel can circulate through appropriate positions in different government agencies. In addition, in times of sudden increases in the workload or of urgent need for personnel, the administrative agencies can apply for the employment of
temporary personnel. But because this kind of employee does hold qualification through the civil service examinations, they cannot be utilized as routine civil service manpower.

The Central Personnel Administration (CPA) Taiwan was created on September 16, 1967. As a professional staff agency of the Executive Yuan in human resource management, the CPA is responsible for the overall personnel administration of all the ministries and agencies under the Executive Yuan. In compliance with the Five-Power Constitution System, the CPA’s affairs relating to examination and personnel institutions are overseen by the Examination Yuan. The CPA administers the overall planning and implementation of personnel administrative institutions; the management of personnel agencies and personnel staff; the compensation and welfare of civil servants; and the training and appraisal of civil servants. The CPA expects to bring about the full-scale improvement of the government personnel system and thereby enhance government competitiveness. Retired age for civil servants are 65 years old, however they can option out after 25 years of service and enjoyed the benefit as retired government servant.

10.3. Taiwan Healthcare Delivery System

In the Medical Care Network program, Taiwan was divided into 17 medical care regions for allocation of medical care manpower and facilities to each region. The underserved medical sub-districts are defined as areas with less than 20 general beds per 10,000 population and the saturated ones as those with more than 50 general beds per 10,000 populations.

In keeping with local government act 1999, health administration and organization was streamline to two levels: central, direct municipalities / counties. Central Department of Health (DOH): in charge of health administration affair around the country, responsible for providing professional work, counseling, supervision and coordination to local health organizations.

Health administrations on local level are the health department bureaus, established in direct municipalities or county/ city governments. They are responsible for regional health administration affairs. One health stations each township responsible of executing preventive health care services on a regional region.

Delivery system: private sector dominance (97% doctors in private practice; 84.8% hospitals private). Numbers of Hospitals, Clinics and Beds as in Table 5.

<table>
<thead>
<tr>
<th></th>
<th>Public</th>
<th>Private</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital</td>
<td>82 (16.1%)</td>
<td>426 (83.9%)</td>
<td>508 (100%)</td>
</tr>
<tr>
<td>Clinics</td>
<td>461 (2.3%)</td>
<td>19,722 (97.7%)</td>
<td>20,183 (100%)</td>
</tr>
<tr>
<td>Beds</td>
<td>46,580 (29.3%)</td>
<td>110,160 (70.7%)</td>
<td>158,922 (100%)</td>
</tr>
</tbody>
</table>
10.4. **HealthCare Human Resources**

According to licensing system for professional medical personal, there are 14 laws and regulation governing the management of medical personnel:

- Physician Act
- Pharmacist’s Act
- Midwifery Personnel Act
- Dietician’s Act
- Nursing Personnel Act
- Physical Therapist Act
- Occupational Therapist Act
- Medical Technologist Act
- Medical Radiology Technologist Act
- Psychology Counseling Personnel Act
- Respiratory Therapist Act
- Audiologist Act
- Dental Technician Act
- Language Therapist Act

Numbers of Taiwan healthcare personal in 2009 as in **Table 6**

<table>
<thead>
<tr>
<th>Category</th>
<th>No. of licence persons</th>
<th>No. of practising persons</th>
<th>No. of practising persons per 10,000 population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physician</td>
<td>55,186</td>
<td>37,880</td>
<td>16.38</td>
</tr>
<tr>
<td>Dentists</td>
<td>14,992</td>
<td>11,351</td>
<td>4.91</td>
</tr>
<tr>
<td>Chinese medical doctors</td>
<td>11,639</td>
<td>5,290</td>
<td>2.29</td>
</tr>
<tr>
<td>Pharmacists</td>
<td>60,624</td>
<td>29,587</td>
<td>12.80</td>
</tr>
<tr>
<td>Nursing personnel</td>
<td>358,931</td>
<td>125,081</td>
<td>54.10</td>
</tr>
</tbody>
</table>

10.5. **Mechanism of Health HR Supply**

**ii. Undergraduate:**

Initial target of one physician per 1000 population, the government took multi-faceted action to increase medical student enrolment, which had reached roughly 1200 per year by the mid-1980s. The enrolment expansion was made possible through opening up two new public medical schools (in 1975 and 1983), scaling up the enrolment class size at existing medical
school, and launching in 1982 several new five-year postgraduate programs. The government revised the pre-set target of one physician per 1000 population to one physician per 750 populations in 1987.

(DOH) adopts quota system – numbers of medical students enrolled is limited to 1300 per year. Other categories of medical personnel are based on special quota system. For control purposes, Ministry of Education approval is needed for new medical program to be introduced. The seven-year curriculum of medical schools, 1st & 2nd year pre-med, 3rd & 4th year basic sciences, 5th, 6th & 7th year clinical medicine (including clerkship and internship)

The National Board of Medical Examination is handled by the Ministry of Examination, the governmental office dealing with the professional board of all walks of life. The national board examination for the medical profession started in 1968. For medical graduate from unrecognized universities they need to pass degree verification exam before they can be allowed to sit for Taiwan medical license exam. Only those who pass Taiwan medical license exam will be allowed to practice medicine in Taiwan.

iii. Postgraduate

The DOH has commissioned professional medical associations to conduct screening and review of specialty physician to upgrade quality of medical professional training. There are more than twenty specialties of residency training programs in teaching hospitals, and the required duration of the training varies from three years to six years. Each specialty has its own professional society, which establishes its own “residency review committee” to be responsible for evaluating the performance of the residency programs and giving the specialty board examination/certification.

Hospital for training of specialist are accredited and need to be recertified every 3 years, to ensure consistent quality of professional medical training and manpower balance among medical specialties.

Quality of other categories of healthcare provider are also being monitored and improved, for example 2 years post graduate training program for dentist before independent practice was introduced in 2008.

10.6. HR Quality Assurance - Credentialing and Privileging

The medical school has 7-year curriculum, including a 1-year (the 7th year) internship. The hospital trains interns from the Schools of Medicine, Dentistry, pharmacy, Nursing, Medical Technology, and Physical and Occupational Therapy.
DOH also sought to promote quality of care and had enacted relevant policy instruments in implementing the resident training program as well as specialty licensure system. As stipulated by the Medical Care Act, the practicing physicians needed to complete at least a two-year resident training program before becoming a responsible physician and to obtain a specialist qualification in the case of being responsible for specialty clinics and hospitals.

Abiding by the Medical Care Act, the DOH entrusted the specialist licensing examination to medical specialty associations and required physicians to finish a special training program and participate in continuous medical education before becoming eligible for a valid specialty license.

10.7. Incentive For Working In Unpopular Areas:

Under medical development fund, DOH provides medical care subsidies to remote areas (19 regions) with inadequate medical resources aimed to facilitate the development of medical care, improve the quality of medical care services. There are 30 townships in the mountain regions and 8 on the outlying islands. There is a total of 39 health stations and 200 health rooms. There are four health stations on both Kinmen and Matsu.

The most significant policy intervention to address the mal-distribution of physician workforce was the ‘group practice center’ (GPC) program introduced in 1983 as part of a series of policies laid out to enhance the infrastructure of rural communities and to improve farmers’ income levels. The GPCs were normally set up in under-served areas and shared capital facilities with local health stations. The DOH, for its part, subsidized large teaching hospitals to send their physicians to practice in the centers and concurrently allowed the staff physicians to retain 80% of net profits as a bonus, which greatly enticed physicians to practice in rural areas. In addition, starting in 1984, the government assigned public-sponsored medical graduates 3 to practice in the GPCs, which assured a steady flow of staff physicians for the GPC’s.

DOH has over the years commissioned medical schools to provide on-the-job training for personnel working in health stations or health rooms in townships and communities in the mountain regions or on outlying islands to strengthen the skills of local doctors and nursing personnel. They have also been compensated for working on duty, home visits and extra local expenses to encourage doctors and nursing personnel to serve in the countryside.

Medical Care Act prohibited the construction of new hospitals of more than 100 beds or hospital expansion projects in saturated areas, which indirectly slowed the growing demand for urban physicians as well as narrowing the disparity gap.

Integrated Delivery Service was introduced for remote, mountain and unpopular areas in 2008. This Integrated Community Health Care Service Network combine medical resources
from various agencies involving public, private and volunteer organization to provide comprehensive holistic medical care in prevention of disease, chronic disease care and integration of medical and health information management. For example in Fu-Shing District there are 3 healthcare providers- from Chang Gung Medical Centre, St Paul's Private Hospital and Private Clinic who provide service according to agreed scheduled. Another example in Pingsi Community Clinic is run by 4 healthcare providers, i.e., Public Health Clinic, Private Dentist, Teaching Hospital and Private Hospital.

10.8. Continuing Professional Development

To ensure that the practising skill of all licensed medical personnel improving with times, 14 categories medical personnel must undergo certain hours of CPD activities every 6 years before license to practice can be given.

10.9. Accreditation and Certification

DOH has conducted reforms on accreditation system of hospital and teaching hospitals. Hospitals are encouraged to develop different type of specialties focusing on the health needs of the community residents. Reforms of the accreditation system for teaching hospital place more emphasis on the development of training plans for physicians and medical personnel of various disciplines.

Taiwan hospital accreditation started with teaching hospitals in 1978. It is the fourth country that started accreditation project in the world and the first one in Asia area. It expanded to all hospitals in 1986 by law. Over the years, the accreditation standards have been revised periodically to reflect the international trends and domestic needs.

More than 1,000 on-site surveys were conducted for accreditation or certification for hospitals or clinics. In addition, major revision in standards and survey methods to focus on patient centeredness and safety were initiated.

10.10. Conclusion

Taiwan had achieve his target healthcare human resources needs, however due to high seeking behavior and health conscious of their population, the healthcare providers continued to have high workload, especially the physician. They still need to work long working hour. The healthcare provider qualities are constantly monitored, accreditation for facilities and staffs involvement in CPD activities are made possible by laws and regulations. Introduction of program and incentives for healthcare provider and staffs for providing services in unpopular remote and mountains area had improved the accessibility and delivery of healthcare in Taiwan.
Chapter 10:

Information Technology in Taiwan National Health Insurance

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Mr Hj. Jaafar Ja’maan
Ms Lidyawati Abdul Hamid
11. Information Technology in Taiwan National Health System

11.1. Background

Taiwan, with population of 23 million people is the fastest aging society in the world. Its land area is 36,191 sq km which is slightly larger than Pahang State (36,137 sq km). In 2010, 10.74% of its population is above 65 years of age. Life expectancy in Taiwan is 76.2 (Male) and 82.7 (Female). National Health Expenditure in Taiwan is USD1,126 per capita which is 6.9% in GDP (USD18,588 per capita). Taiwan healthcare system is predominantly private (85% of hospitals and 98% of clinics). Taiwan has a long history of social insurance since 1950, amongst others, the Labor Insurance, Farmer’s Insurance and Low Income Household Insurance. However in August 1994, the National Health Insurance (NHI) became a law and in 1 January 1995, Bureau of National Health Insurance (BNHI) was established. Later in March 1995, the National Health Insurance programme was set up and all the health components of the previous programmes were consolidated into the NHI. There is very little role of commercial private health insurance in Taiwan.

The population coverage of NHI is 99%, a great achievement of a universal coverage. In 2010, the number of claims for outpatient treatment per month is 31 million and for inpatient treatment are 260,000 per month. The number of pharmacy claims is 6 million per month. Almost all hospitals and 90% of clinics are contracted with NHI. More than 900 hospitals, 9000 clinics and almost 4500 pharmacies are contracted with NHI as end of 2010. On top of this, many other providers are in the system, amongst others, Chinese Medicine, Home Nursing, Medical Lab Institutions and Radiology Centres.

Looking at the numbers above, NHI has the largest data repository in Taiwan. It has many different data sources, complicated business rules and valuable nationwide database. The administration of such a huge complex ecosystem is only possible with a solid national e-health infrastructure and systems.

The Institute for Information Industry (III), a not-for-profit research institute mainly under the Ministry of Economic Affairs Taiwan plays a big role in the development of ICT in Taiwan including e-health (Refer Figure 11.1). It was named III in 1979, and funded jointly by government and private sector with a goal to develop world-class information industry in Taiwan. Besides this, III also assist the Government in planning and management of mega projects. III also plays a big role in training people in the ICT industry. Basically, the III’s roles in e-health are:

- Define and promote industrial & information standards
- Infrastructure planning
- System design, development & deployment
- System roll-out and user training
The Government Think Tank of III developed the National ICT Infrastructure blueprint (1996-2001). The III also plays a significant role in the development of ICT in DOH. The DOH is responsible for the National e-Health Information Network in Taiwan.
The National Health Insurance programme is managed by Bureau of National Health Insurance (BNHI). The DOH has jurisdiction over the Bureau and has established three committees; NHI Supervisory Committee, NHI Dispute Mediation Committee and the NHI Medical Expenditure Negotiation Committee to help plan and monitor tasks performed related to NHI. BNHI which is centrally located in Taipei has six (6) regional divisions across Taiwan (Diagram 3). The planning, developing and operating of the NHI information system is by BHNI, with 5% of total employees are IT personnel (157). The IT annual budget of BNHI is 6% of total annual budget of BNHI, funded by DOH. However the regional divisions directly handle local insurance applications, premium collections, claims review & reimbursement and management of contracted medical institutions.
NHI and its implementation are regulated from the following list of Laws & Regulations:

- National Health Insurance Act
- Standard of Filing Fees for The National Health Insurance Certificate
- Operation Directions for Issuing National Health Insurance Certificates
- Fee-charging Standards for Requesting Data from Bureau of National Health Insurance Department of Health Executive Yuan
- Regulations for Installment Payment of NHI Insurance Premium and Overdue Fine
- Enforcement Rules of the National Health Insurance Act
- Principles of Drug Reimbursement Listing in National Health Insurance
- Principles of Drug Reimbursement Price Approval of National Health Insurance
- Guidelines of Price Adjustment for National Health Insurance Reimbursed Drugs

11.2. National E-Health Systems In Taiwan

There are three main components of e-health in Taiwan:

1. National Health Information Network – funded by the Department of Health
2. National Health Insurance System – funded by the Bureau of NHI
3. Integrated Hospital Information Systems – funded by the Hospitals
Their paperless programs include:
1. Online enrollment
2. Online Claims
3. Online Utilisation Reviews
4. Online Exchange Information (PACS: X-Ray images, MRI images & text)
5. Online Inquiries
6. A VPN for Data Security

11.3. National Health Information Network (NHIN)

The DOH proposed the NHIN to the Legislators in 1987, and issued the overall planning project to III in 1988. The main objectives of NHIN are establishing a common platform to exchange and share medical information among agencies and build the infrastructure to facilitate NHI program.

From 1989 to date, the III has executed several phases of the NHIN projects (pilot project to phase I-V). The entire Taiwan is connected with fiber optics and a secured Virtual Private Network (VPN) for the healthcare services was established. The VPN, provided by the Telcos, was set up to provide a two-way communication channel with healthcare institutions, which now use it to verify and update IC cards during patient visits, file expense claims and report clinical trial plans. Now almost all healthcare providers have joined the VPN systems. Every hospital/clinic subscribe to the VPN based on bandwidth speed they require. Taipei Hospital for example has bandwidth connectivity of 10 Mbps.

The e-Health infrastructure focused around the Department of Health as a common platform of standard, data interchange and security. On top of this, the NHIN application systems is established, mainly NHI system, public health systems (infectious disease and reporting), healthcare administrative systems and other local systems to healthcare facilities/departments.

Other projects include the long-term care information network mainly connecting long-term care, nursing home and community care. Telemedicine is also widely used especially in remote areas. The integrated Hospital Information System was developed to accelerate the promotion for hospital computerization. The diagrammatic view of the National e-Health Systems in Taiwan, the Taiwan e-Health Infrastructure and NHIN Projects Application System are shown in Appendix 1.

11.4. National Health Insurance System (NHIS)

The prerequisite for the NHIS are the laws, rules & regulation, principles and guidelines to the system as mentioned above. The National Health Insurance Act plays the pivotal role in designing the system. The major part of this system is developed and supported by
International Integrated Systems Inc., a subsidiary of III. However there are various vendors involved in many aspects of the system including the smart card. The total investment budget to develop the system was about NT$0.1 billion (excluding the Healthcare Smart Card project). The NHI administrative framework surrounds three main players, Bureau of NHI, providers and insured as illustrated below in Figure 4:

Figure 11.4: NHI Administrative Framework

![Diagram of NHI Administrative Framework]

Source: BNHI

Thus the system architecture is designed around these three main players (Figure 5). The core systems of NHIS are:

1. Enrollment & underwriting
2. IC card management system
3. Medical payment system

The administrative functions in operating BNHI for eg Human Resource, Office Automation and Document Management modules are also part of the system.
Almost every process in NHI is now done electronically. Less than 1% of the process is manual. The enrollment process results in issuance of the health card, however this first enrollment can only be done at branch office or any licensed office. The health care system is the heart of the NHI program. The payment process can be done via multiple channels including auto deduction from salary/bank account, ATM, online and convenience stores. The two important processes in medical payment information system are claim processing.
and payment to providers. However standard data defined by BNHI must be submitted for claim processing.

Standard coding table has been published for the purpose of unified claim submission which includes diagnosis code, hospital and provider identifier, treatment code, procedure code and drug code. At the moment, ICD-9-CM has been used for both diagnosis and procedure. There is a plan to move towards ICD-10-CM. Thus, the system must be robust and flexible to timely cope with NHI regulation changes from time to time.

All processes with the BNHI are conducted through a VPN as illustrated by the diagram below.

**Figure 11.6: NHI Network Architecture**

![NHI Network Architecture Diagram](image)

The Government Service Network (GSN) is only for Government agencies communications. However all communications to BNHI is through the VPN where data encryption is done for health data. The health card processing centre (IDC) is located separately from the Headquarters however operated by BNHI. For mobile health care providers, 3G connection with VPN was established since last year.
Currently the entire NHI information system is on a distributed architecture at all regional branches hosted on mainframe (Figure 11.7). However the two major data centers are in Taipei (northern) and Kaishung (southern). These centers are designed with no single point of failure (Figure 11.8). These include disaster recovery and local backups. The plan for future is to centralize for easy management and reducing duplication of resources including manpower. The future advancement in cloud computing is being looked at in Taiwan.
11.4.1. NHI Smart Card System

From 1995 to 2003, Taiwan used a NHI paper card. In early 2000, smart card project was initiated and project awarded to a vendor in April 2001 with a budget of NTD 3.7 billion (USD 123 million). The system implementation was less than 3 years and in January 2004, the card was launched officially. The IC Card Data Center was established and now it is operated by BNHI (refers to Figure 11.6). In the initial phase, one card reader was issued for free for every provider. Training courses were also conducted for hospitals and end-users.

The smart card is a microcontroller-based card (Figure 11.9) and has 32 kilobytes (Kb) of memory, of which 22 Kb is used for personal information, NHI-related information, medical service information, and public health administration information. However 10 KB of memory has been reserved for future use.

Diagram 11.9: Healthcare Smart Card

![Diagram 11.9: Healthcare Smart Card](source: BNHI)

The explicit data on the card has name, ID number, date of birth and photograph (optional). The microchip has four important sections which is encrypted:

- Basic data: name, ID, DOB, expired date
- Insurance data: Hospital ID, inpatient/outpatient expenditure, copayment, exemption status, medical visit data
- Medical care data: major examination, chronic disease/outpatient prescriptions, allergic medicines
- Public health data: childhood vaccination records, organ donation, DNR

More than 60 GB data is transmitted per month via this card. This card allows daily monitoring of utilization, instant check up of patient’s eligibility and quick data exchange. It
has simplified administration management process with significant cost savings. The public satisfaction rate is high and the card becomes a simple, portable personal medical record summary with information of last 6 visits and last 60 drugs prescribed. With high security features, the card prevents fraud and abuse. This card may evolve with the 2\textsuperscript{nd} generation NHI reform.

BNHI has adopted strong privacy and security requirements for the Taiwan health care smart card, including a defined privacy policy, multiple smart card security mechanisms to prevent counterfeiting and protect cardholder information, mechanisms to protect the security of information during transmission, practices to prevent computer viruses and a crisis management and response plan.

The card is designed with security features of anti-counterfeit printings, which include guilloche pattern, rainbow printing, optical variable ink and UV printing. The embedded microchip employs a number of verification mechanisms to protect the information it contains. Online transmission is conducted within the VPN, which is reinforced by a multi-tiered firewall to prevent information leakage.

Key factors in smart card security and privacy mechanisms are:
- High-grade card printing, comparable to payment cards.
- Encryption of information stored on the card.
- BNHI-issued SAM card for each smart card reader, with a strict authorization and mutual authentication process to access on-card data.
- Cardholder personal identification numbers (PINs) to protect on-card personal information.
- A health professional card (Healthcare Certification Authority, HCA) that authorised health care provider access to medical information on the IC card.

To ensure physical, platform and application interoperability, the following has to be considered in future for the successful smart card project implementation:
- A comprehensive system security plan to guard the cardholder privacy
- Certification of security control at each step
- A comprehensive plan for managing the first issuance of the card, which must involve as few errors as possible to reduce cost
- A comprehensive plan for the entire information system structure
- An assessment of the efficiency of system operations
- A marketing project plan
- Integration testing and acceptance procedures
- Card application development to ensure that the necessary card applications are available when needed
11.4.2. Electronic Medical Claims

In the initial phase of NHI, the e-claim was low; however after one-year of implementation, e-claim rate was 80%. Today, the medical claims by electronic is almost 100%. In early implementation, incentives were provided to promote clinics computerization. Many hospitals have already implemented some form of computerization much earlier. Free and simple software were offered to small providers. BNHI also provides various data exchange e-services, such as table download function (code table, drug approval price), internal claim processing information and preapproval case submission.

To improve claim data quality, BNHI announces claim data each field’s editing rule and provides pre-check computer program. BNHI is moving towards 100% correct claim data to proceed the payment processing procedure. The system rejects automatically if the claim data is not 100% accurate. Thus, it is the responsibility of hospital/clinic to do the pre-check.

The provider has to transmit data daily (batch processing at night) on utilization that is basically data of smart card. However, the e-claim is usually done at the end of the month. These claims go through two levels of review, administrative review and professional review. Administrative review which is done automatically include matching the daily visit data to the monthly claim. Professional review is performed by physicians and insurance law expert to detect fraud. The provisional payment (about 90% of the claim) is given within 30 days while process of claim review is done. The final payment (reimbursement) calculated by point value is paid within 60 days of claim. All data via medical claims system is de-identified by scrambling all the ID code and stored in BNHI data warehouse (refer Figure 11.5).

11.4.3. BNHI Data Warehouse

The data warehouse is used as data analysis platform to produce information and reports (EIS). It is used as Information Supply Gateway System. The enterprise data warehouse is at BNHI with analytical server distributed over all branches. Dynamic analysis (ad-hoc query, pre-defined query, multidimensional analysis) and nationwide profile analysis (utilization analysis, national medical quality indicators) on the data is performed.

Major outputs of the data analysis system include:

- Medical quality monitoring indicators
- Disease-specific quality indicators
- Indicators of P4P pilot program
- DRG’s related indicators
- Drug safety indicators
- Specific medical appliances monitoring indicators
• Medical treatment peer group comparison
• Medical institution quality indicators (for public information disclosure)

Public disclosure is limited with no ranking done for the providers.

11.4.4. E-services for the public by BNHI

Public query portal is developed for public to get general NHI business query and on-line query for personal information. However for personal information, query is done under authentication for security and privacy.

11.5. Integrated Hospital Information Systems

Almost all hospitals in Taiwan have computerized system because of NHI. The DOH has a HIS system that is used by all the DOH hospitals in Taiwan. However there is no policy of a single system in Taiwan. The other hospitals and clinic may have different systems in their facilities.

The DOH hospitals abide to procurement regulations of government and ICT implementation, operations and support of hospitals are outsourced. The investment and operations budget of ICT is by the hospitals with very little support from the DOH. The DOH budget for hospitals is mainly for public service personnel’s salary. The operating budget for ICT is 2-3% of hospital budget. In Taiwan, the operations, maintenance and support are about 1.5-3% of capital investment, unlike many countries which can run up to 5-10%. This is mainly due to low prices of hardware in Taiwan. Hardware upgrades are usually done by 5 years of implementation and system upgrades by 10 years.

The HIS modules covers aspects of patient safety, service quality and operations efficiency including registration, clinical documentation, hemodialysis system, LIS and PACS. Diagram 10 illustrates the various components of HIS. Financial management system and executive dashboards are also a very important component of the HIS. The HIS must also be able to cope with NHI regulation change from time to time. Mobile platform is built upon the HIS, so most of the applications can be used via wireless on mobile devices. The smart card and e-claim system are integrated into the HIS. There are also stand-alone national systems in hospitals for e.g. registration of childbirth and infectious disease reporting system.
For the convenience of customers, e-appointment system is available for 2 months appointment in advance. Other services available include registration kiosk in hospitals, and Cellphone Message Information System. Another innovation is the multimedia display and queuing system with real time information displayed on Internet. So patient leaving nearby the hospitals can check their queuing and waiting time status via Internet on mobile devices.

The RFID pilot project by DOH is done to improve patient safety. Taipei Hospital being one of the pilot centres uses RFID as auto-ID system for patients, employees, medical assets and medicine supply. Some medical devices (weighing machine, BP set) also embedded with RFID tag for auto registration and recording of data in Hemodialysis Unit. Two types of RFID are used, the passive and active. The active RFID is mainly used for isolation/psychiatry patient as it transmits signal and has sensor reader. The active RFID tag is about USD 100 per unit. Diagram 11 is the illustrative diagram of this project.
TW-DRG information system which is provided by BNHI is also integrated into the HIS, both for inpatient order system (used by doctors) and medical record system (used by coders). TW-DRG now covers up to 155 categories mainly simple surgical cases for inpatient care. Thus, for inpatient conditions paid based upon DRGs, doctors see real time resources used with costing. Coders are also able to rectify coding done by the doctors based on DRG categories.

Some of the proposed implementation strategies for HIS learnt from Taiwan include working with experienced teams (consultant of health Insurance System and e-health system), adopt proven solutions and phased out implementation with seamless integration.

The hospitals have realized key successful factors in the implementation of HIS which include:

- Support of Hospital Management Team (policies, objectives, BPR, adequate resources, delegation)
- Right Solutions (successful running package, scalability, seamless integration, user friendly, supports de facto standards, support future service needs)
• Delivery team experiences (work with local partner with SLAs, offshore & remote 2nd tier O&M experience, certified project management)

11.6. Future Road Map

The EMR/EHR development in Taiwan is evolving. Taiwan’s e-health program has started more than 15 years and in the very beginning started with e-claim for NHI reimbursement. Then HIS/EMR development in single hospital or single health care group started. Later it evolved to multiple hospitals throughout the nation.

Recently, a National EMR Development Committee was set up including the establishment of National EHR Exchange Center for sharing of EMRs. The EMR Office, a DOH outsourcing contractor, was established to help DOH in coordination, management and tracking projects related to EMR adoption programme.

Production of medical records in Taiwan is guided by Article 67 & 68 in the Medical Care Act. The Medical Care Act Article 67 indicates that: The medical records shall:
- Be produced by a physician in accordance with the Physicians Act;
- Contain each examination and inspection report, & other records produced by medical personnel during practice.

Article 68 indicates: Medical care institutions shall instruct its medical personnel to personally make documentation of medical record, affix signature or seal, and add the year, month and date of inspection when conducting medical practices. In the case that the medical records referred to in the preceding Paragraph is revised or amended, the signature or sign and date shall be affixed to the revised or amended portions. Amended records shall be drawn out with a line, and not deleted. The physician’s orders shall be clearly stated in the medical record or in written form. However, in case of emergency, the physician’s orders may be given orally, and documented within 24 hours.

Also in Taiwan, EMR has been defined as: “An electronic medical record is a medical record which can be produced & stored by a computer, and compliant with the EMR regulation”. The EMR Regulation in Taiwan is the regulation on governing production and management of electronic medical records in medical care institutions. The EMR implementation is guided by Article 3, 4 & 7 of the EMR regulation.

Article 3 indicates: EMR systems should implement the following management mechanisms:
1) Standard procedures for system operating, maintenance, auditing & control, and all those activities must be logged and traceable.
2) Policies for access control including access, addition/deletion, retrieval and duplication to EMRs.
(3) During the retention period of medical records, the person, time and activity that access, addition/deletion, retrieval and duplication to EMRs must fully be logged for auditing and inspection.

(4) Mechanisms for emergency responsiveness to the failure of the system.

(5) Mechanisms for ensuring data security of EMRs and correctness of the system time.

Article 4 indicates: An EMR must be associated with a digital signature (within 24 hours after it is documented).

Article 7 indicates: Medical institutions that implement their EMR systems must make registration to the central/ regional health authority. The EMR systems in Taiwan may facilitate paperless, facilitate clinical decision-making, facilitate utilization of medical resources and improve efficiency & quality of medical services.

Several strategies for adoption of EMR Systems in Taiwan has been implemented:
   a. Established a National EMR Development Committee (EMRDC)
   b. Set up an EMR Program Office: a staff team for supporting the EHRDC in planning, coordinating, and auditing EHR projects at national level
   c. Implement the National EMR exchange center & infrastructure (NEEC)
   d. Standardize document templates for EMR exchange (has been developed based on CDA R2 for medical image & reports, discharge summary, laboratory blood test reports and outpatient medication summary)
   e. Allocate incentive money for EMR adoption & exchange
   f. Set up inspection mechanisms for EMRs/Exchange
   g. Continue reviewing & improving current status of ELSI policies relevant to EMRs
   h. Enhance system security: offering training courses for data security seed professionals, and provide incentive funds for compliance with ISO 27001 security standards.
   i. Promote applications of EMRs for NHI reimbursement & Hospital Accreditation

Currently Taiwan has established an Image Exchange Centre where all radiological images is sent to a central repository (Figure 12). This facilitates remote reporting and also avoidance of repeating radiological examination.
The framework for EMR exchange has been established too in Taiwan. To accelerate adoption and exchange of EMR projects, evaluation indicators have been set for 2010, 2011 and 2012 for EMR adoption in hospitals, primary care clinics and EMR exchange as in Table 2. By December 2010, total of 133 hospitals has been certified for EMR exchange in various templates.

### Table 8: Indicators for EMR adoption/exchange

<table>
<thead>
<tr>
<th>Evaluation Indicators</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMR adoption (Hospitals)</td>
<td>20% (OK)</td>
<td>23% (115 hospitals)</td>
<td>26% (130 hospitals)</td>
</tr>
<tr>
<td></td>
<td>(133/100 hospitals)</td>
<td>(before 40%)</td>
<td>(before 50%)</td>
</tr>
<tr>
<td>FMR adoption (Primary care clinics)</td>
<td>10% (2,000 clinics)</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>(OK, 2413, 25%)</td>
<td>(before 40%)</td>
<td>(before 70%)</td>
</tr>
<tr>
<td>EMR exchange (interhospitals)</td>
<td>50 hospitals (10%)</td>
<td>55 hospitals</td>
<td>75 hospitals</td>
</tr>
<tr>
<td></td>
<td>(DMI+RPT) (delay due to NEC)</td>
<td>(DMI + RPT + LTR + DS + OMS) (before 100)</td>
<td>(DMI + RPT + LTR + DS + OMS) (before 300)</td>
</tr>
</tbody>
</table>

DMI: medical images; RPT: Radiology reports; LTR: lab blood tests reports; DS: discharge summary; OMS: outpatient medication summary

Source: Prof Chien-Tsai Liu, EMR Office 2011
11.7. Conclusion

The Department of Health Taiwan plays a pivotal role in planning and executing the national e-Health system with the cooperation from the Institute for Information Industry (III), a not-for-profit research institute under the Ministry of Economic Affairs Taiwan which also plays a big role in the development of ICT in Taiwan including e-health.

The main driver for the computerization more than 15 years ago is the national health insurance program which requires online medical claim processing for provider payment. The population coverage for NHI is 99%. The administration of such a huge complex ecosystem is only possible with a solid national e-health infrastructure and systems which grew over the years. However, The EMR/EHR development in Taiwan is evolving.

With a strong political leadership and financial leadership for a National Program for IT, Taiwan is moving towards a culture in which information is characterized by openness, transparency and comparability.

The Taiwan implementation validates the framework and architecture that has been proposed in ICT aspect of 1Care. The experience and lessons learnt in Taiwan can be used to further improvise 1Care ICT framework, hence strategizing short term action plan for 2012 in moving forward (refer to Tabulated Learning ICT V7.0).
APPENDIX 1

Figure 1A: National e-Health Systems in Taiwan

Source: Institute of Information Industry 2011

Figure 1B: Taiwan e-Health Infrastructure

Source: Institute of Information Industry 2011
Figure 1C: NHIN Projects Application Systems

Source: Institute of Information Industry 2011