

Report

Macroeconomics and Health Framework for Investing



Bureau of Policy and Strategy
Ministry of Public Health
Thailand
31 December 2005

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for Investing in Health-Thailand

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Preface

This document is the product of the study designed primarily to follow the recommendations of the Report of the Commission on Macroeconomics and Health 2001. This report offers new goals, vision, missions, strategies and a 10-year-investment plan for investing in health for economic development in Thailand. The study has utilized a number of methods: qualitative and quantitative methods. Moreover, health futures techniques have been used in the construction of vision and alternative scenarios in strategic planning.

Chapter 1 (Overview) provides background information, the objectives and the methods applied in this study. Chapter 2 (Summary of situations and trends) reveals the situations and trends of the following aspects: population, health-related indicators in the Millennium Development Goals, health care financing and health insurance system, current health care coverage system, resources for health (human resources in health, pharmaceutical supplies, health infrastructure), risk assessment and burden of disease, and recent Mega Project in Health initiative. Chapter 3 (Strategic framework and investment plan) is the result of the phase 1 of this study on the analysis of the current situations and presents the strategic framework and investment plan. Chapter 4 (Goals, vision, missions, and investment plan 2006-2015) presents the goals, vision, missions and investment plan for 2006-2015. There are three parts in the investment plan: infrastructure and human resources for health, health insurance coverage, and health risk reduction. The last chapter ends with the proposed mechanism for the National Commission on Macroeconomics and Health (NCMH) which will serve as a body that coordinates the scaling up in investing health.

We hope that this report will be useful to the future National Commission on Macroeconomics and Health and also to policy makers, health administrators, health planners, and researchers.

31 December 2005

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Acknowledgements

The WHO financial support is gratefully acknowledged. The researchers wish to thank Dr. Pakdee Pothisiri, Secretary-General of Food and Drug Administration, who has supported us from the beginning of the study. We also would like to thank Prof. Dr. Siripen Supakankunti, Director of the Centre of Health Economics, Dr. Charvit Tharathep, Department of Health Service Support, Dr. Kanitha Boonthamchareon, Dr. Aeungfa Singthippan, Mrs Ngamjit Chantharasatit, Mrs Aree Wadwongtham, Mrs Nichakorn Sirikranokwilai, who contributed so much to this study. Last but not the least; we would like to thank Mr. Lamba, WHO-SEARO, Dr. Somchai Peeraprakorn, WHO-Thailand, who provided valuable suggestions to this report. Finally, we would like to thank all staff of Bureau of Policy and Strategy who supported us throughout the study.

Executive Summary

The report of the Commission on Macroeconomics and Health (CMH) provides guidelines for development of nation health policy, inter alia, by furnishing international data experiences that can enrich a country's choice of strategies for improving health through appropriate macroeconomic policy. Similarly, the Millennium Development Goals (MDG) set clear objectives towards global security for countries in nutrition; access to safe water; maternal and child health; infectious disease control; and access to essential medicines. These are of strategic importance within a broad area of health agenda that builds on the Alma-Ata Declaration on Primary Health Care for achieving Health For All. Further, the World Health Report 2002 on "Reducing Risks, Promoting Healthy Life", also provides useful means to quantify health risks and identify cost-effective interventions for major disease that impose major burden and account for most of the health deficits.

In September 2002, the Ministry of Public Health, Thailand, responded to the CMH report by setting up a Working Group on Macroeconomics and Health (WGMH), comprising of high level health administrators, health planners, health economists, representatives from the National Economic and Social Development Board and the Ministry of Finance and WHO Thailand, with the Bureau of Policy and Strategy of MoPH as its secretariat. This Working Group assists in the preparation of a strategic framework and inventions to achieve a dramatic reduction in poverty and marked improvements in health of the poor. However, there is still a need to develop the projections of investment plans for the next 10 years.

The objectives are as follows:

1. To carry out further studies and activities to ensure a well-developed SFIP for Thailand;
2. To conduct an analysis of costing of cost-effective interventions taken so far in regard to burden of diseases and health risks;
3. To develop projections for the plans for universal health care coverage and human resources for health;
4. To disseminate information on Thailand's efforts in investing in health for economic development and poverty reduction.

In this report, the working group has proposed a "Framework of Investment Plan" in which presents the vision, mission, goals and strategies including investment plan as follows:

Vision

Thailand's health development will contribute to the achievement of the highest attainable quality of life "Healthy Thailand". Every person in the Thai society has an equal access to quality health services and lives in healthy environment. Thailand will be one of the world class "Medical Hub."

Mission

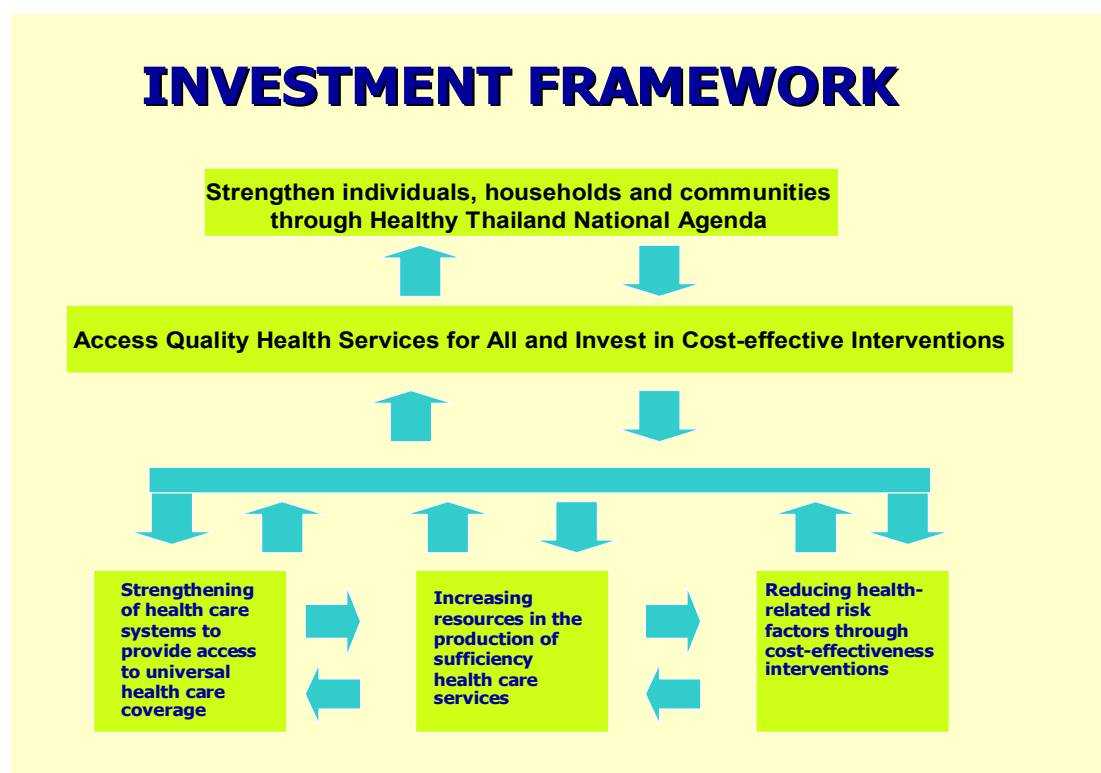
To achieve the highest attainable quality of life by responding to people's needs to ensure equity in health and access to quality, comprehensive universal health care services through "Healthy Thailand National Agenda" and "Thailand as a World Class Medical Hub."

Goals

1. Strengthening the health care system means ensuring equal and available access to high-quality health care services for all.

2. Increasing resources in health care includes human, physical, and technological resources, and requires changes not only in the number of each but also their distribution across different regions in the country.

3. Health risk factors are important determinants in mortality and disease burden. Each of the risk reduction interventions can potentially be incorporated into long-term plans for the future of health care provision and the delivery of medical services.



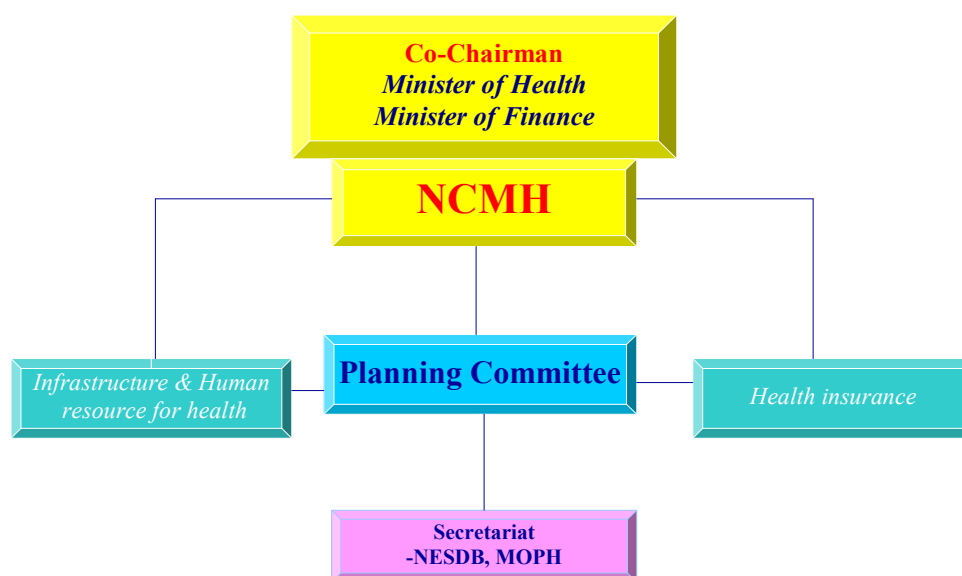
Health Investment Plan for 2006-2015

Given the proposed vision, mission, and goals of the framework for investment plan, the development of health investment plan is divided into three parts as follows:

1. Infrastructure and human resources for health
2. Health insurance coverage
3. Health risk reduction

Total Investment Plan 2006-2015 (Million Baht)

Year	Infra-Structure	Health insurance	Risk Reduction	Total
2006	22,236	130,488	2,618	155,342
2007	22,224	140,329	2,618	165,171
2008	24,643	149,884	2,618	177,145
2009	24,793	160,075	2,618	187,486
2010	25,344	174,311	2,618	202,273
2011	25,444	149,069	2,618	177,131
2012	25,769	157,543	2,618	185,930
2013	23,350	166,314	2,618	192,282
2014	23,575	175,143	2,618	201,336
2015	23,575	184,116	2,618	210,309
Total	240,953	1,587,272	26,180	1,854,405



Summary

The CMH, on the evidence, found that a few diseases and health conditions are responsible for the preponderance of global health deficit. It recommended that scaling up interventions to cope with these diseases and health conditions would greatly improve the health status of the population, particularly the poor who bear a vastly disproportionate burden of ill health and diseases. The CMH demonstrated that this process would contribute to accelerating economic growth and reducing poverty.

The CMH recommended that middle and low income countries should establish temporary national commission on macroeconomics and health, or equivalent, to identify the main diseases and health conditions in their countries that account for the health deficit and development investment plan for scaling up the related interventions

Thailand responded to the CMH report by setting up a working group on Macroeconomics and Health (WGMH) which comprised of experts and high level administrators, health planners, economists and representatives from the National Economic and Social Development Board, the Ministry of Finance, and the WHO Thailand Office, with the Bureau of Policy and Strategy as the secretariat.

The WGMH has since carried out:

1. Analysis of the current situation and trends, with emphasis on the poor and marginalized
2. Diagnosis of the main health problems and prioritization
3. Examination and evaluation of selected health interventions for cost-effectiveness and feasibility
4. Development of a Strategic Framework and Investment Plan (SFIP)

The WGMH has proposed that a National Commission on Macroeconomics and Health be established for ensuring requisite political commitment on a sustained basis to accord health its rightful place in national socioeconomic development agenda, policies, plans and strategies.

Objectives for the NCMH:

1. Review and endorse, with such adjustments, amendments and improvements as considered appropriate, the SFIP developed by WGMH.
2. Provide necessary political support to the approved SFIP.
3. Support due dissemination and spread of the key findings and main recommendations of the CMH and WGMH.
4. Support plans and coordinate actions on the main causes of the identified priority diseases and health conditions that warrant scaling up.
5. Support mobilization of resources, both internal and external, required for implementing the approved SFIP.
6. Support development of partnerships with all stakeholders such as ministries of education, social development, interior, NGOs, private sector, academia, media and external donors for health development.

NCMH meetings:

While NCMH may decide on the modalities of it working, it may consider meeting twice a year. One meeting may be in advance of the annual plan and budget. The second meeting may be after six months to review the utilization of fund provided.

Chapter 1

Overview

A. Introduction

In 2001, the Commission on Macroeconomics and Health (CMH) issued its first Report, entitled *Investing in Health for Economic Development*. This report was one of the first in a series of internationally reviewed publications to renew the world-wide efforts to provide health care to all people, especially the poor. This goal probably found its roots as far back as 1977 at a WHO conference in Alma Ata, where delegates committed to the goal of “Health for All by the Year 2000.” The year 2000 has come and gone, and health issues remain problematic to poor and underdeveloped countries; and in fact a problem for poor people throughout the world.

Prior to the release of the CMH report, a meeting of the United Nations in September 2000 declared Millennium Development Goals (MDGs), which set targets for development in poverty, gender equality, education, health, and environment for all countries. It was clear that the more developed countries are in part responsible for the development of poorer and less developed countries or regions. Health is not the single focus of these goals, but it is clear that all the targets work in 18 targets to improve the overall standard of living for all the world’s poor. In 2002, the World Health Organization (WHO) published its World Health Report, entitled *Reducing Risks, Promoting Healthy Life* and provided another tool in identifying the main health risks and potential areas for cost-effective preventive interventions in a country.

In July 2002, the Ministry of Public Health (MoPH) in Thailand responded to the CMH report by setting up a Working Group on Macroeconomics and Health (WGMH), which comprises various experts and high level health administrators, health planners, economists, and representatives from the National Economic and Social Development Board, the Ministry of Finance, and the WHO Thailand office, together with the Bureau of Policy and Strategy as the secretariat. This Working Group has reviewed the CMH report and prepared a WHO proposal to support the activities in facilitating the formation of a National Commission on Macroeconomics and Health.

The project is outlined as follows:

1. Analysis of the current situation and trends, with emphasis on the poor and marginalized
2. Diagnosis of the main health problems and prioritization
3. Examination and evaluation of selected health interventions for cost-effectiveness and feasibility
4. Development of a Strategic Framework and Investment Plan (SFIP)
5. Advocacy for disseminating the findings and recommendations of the working group, including mobilizing political support for investing in health and integrating health into poverty reduction strategies

The Working Group was responsible for providing both qualitative and quantitative data, situation analysis, and a clear diagnosis of the main problems. By December 2004, the final result on a broad strategic framework for investment plan was submitted reviewing both qualitative and quantitative data, situation analysis, and diagnosis of the main problems. However, the investment plan has not been included in this report. Therefore, in order to complete the report there is a need to formulate the investment plan based on the earlier analysis. The Bureau of Policy and Strategy, Ministry of Public Health has propose another project and has been approved and supported by the SEARO to formulate the investment plan according to the strategic framework in the earlier project.

B. Development of Investment Plan

Based on the “Thailand Investing in Health for Economic Development” Report, the objectives of this project are as follows:

1. To carry out further studies and activities to ensure a well-developed Strategic Framework and Investment plan (SFIP) for Thailand;
2. To conduct an analysis of costing of cost-effective interventions taken so far in regard to burden of diseases and health risks;
3. To develop projections for the plans for universal health care coverage and human resources for health;
4. To disseminate information on Thailand’s efforts in investing in health for economic development and poverty reduction.

C. Methodology

1. Three research teams were commissioned to study on the appropriate interventions and making projections on costing of those interventions as follows:
 - Projection of universal health care coverage
 - Projection of health infrastructure and human resources for health.
 - Projection of cost-effective interventions for health risk reduction
2. Appropriate studies were commissioned for identifying appropriate interventions and costing in 10 prioritized diseases and health risks as follows:
 1. Alcohol and tobacco
 2. Illicit drugs
 3. Road accidents
 4. Maternal and child mortality
 5. Exercise
 6. HIV/AIDS
 7. Food safety
 8. Maternal and child mortality
 9. Water and sanitation
 10. Iron and Iodine deficiency
3. Appropriate consultative meetings were carried out to assist in the development of the strategic framework and investment plan. A joint secretariat was set up comprising of representatives from NESDB and Bureau of Policy and Strategy to focus on targets in the investment plan as per the Millennium Development Goals.
4. Advocacy seminars were set up for the high level policy makers and politicians.
5. A full time coordinator and an assistant were recruited to be responsible for this project.
6. Report on the strategic framework and investment plan (projections of costing of cost-effectiveness interventions of 10 prioritized diseases/health risks, costing of universal health care coverage and costing of health infrastructure and human resources for health) was disseminated to the policy-makers and will be ready for the future National Commission on Macroeconomics and Health (NCMH).

Chapter 2

Summary of current situations and trends

A. Population

Thailand covers the area of approximately half a million squared kilometers, assize comparable to that of France. In 2003, Thailand's numbered approximately 62.8 million, almost 10 million of whom work and reside in the country's capital, Bangkok. Initially a primarily agrarian economy, manufacturing industries have taken root and are rapidly overtaking agriculture as the main source of economic output in Thailand. Development of the health care system led to demographic changes and subsequent economic growth during the 1990s.

Despite the fact that Thailand's population is predominantly one general group and culture, most Thais are tolerant of other ethnic, religious or cultural group. Of the almost 63 million people living in Thailand, an overwhelming 95% are of Thai ethnicity. The remaining 5% include Chinese, Indians, and several other minorities. While many ethnic minorities tend to reside in small communities at or near national borders, most Chinese have assimilated almost seamlessly into Thai culture. Buddhism, which also serves as the national religion, is practiced by approximately 94.6% of the population. Another 4.6% of the population is Muslim, and the remaining 1% consists of Christians, Brahmins, Hindus, and Sikhs, and other religions.

Table 1 offers an overview of the demographics of the Thai population. Over the past several decades, Thailand has been subject to substantial population change and will continue to adjust over the next several decades to a significantly different population. Marriage and divorce rates have fluctuate significantly over the past decade, but the general trend depicts a society with less pressure to marry. The divorce rate reached a staggering 20.8% of marriages in 1998, at the height of the economic crisis, but has risen only slightly since then, to 23.4%. Marriage, on the other hand, has fallen progressively since 1994, when it peaked at almost half a million marriages. In 2001, this figure has fallen dramatically, with just over 324,000 couples applying for marriage licenses. This trend may reflect that society is more tolerant of couples delaying a decision to marry. It may also result from the increasing number of women in the workforce, who might choose to delay marriage and a family to advance her career.

Table 1: Characteristics of the Thai population, 1947-2000. (P=projection)

Characteristics	1960	1970	1980	1990	2000	2020 ^P
Total population ('000)	26,260	34,397	44,825	54,548	62,056	70,821
-male	13,154	17,124	22,329	27,062	30,885	36,631
-female	13,104	17,274	22,496	27,487	31,171	34,631
Dependency ratio	92	85	75	57.7	53.3	54.0
Population under 5 (%)	10.2	16.4	12.1	8.2	8.3	6.1
Population aged 15-60 (%)	52.2	49.8	56.4	63.4	60.0	64.9
Population over 60 (%)	4.5	5.1	5.3	7.4	9.2	15.9
Population in urban areas (%)	12.5	13.2	17.0	18.7	35	40
Population per km ²	51	70	87	106	121	134
Life expectancy at birth (years)						
-male	53.64	57.73	60.25	63.50	70	72.2
-female	58.74	61.57	66.25	68.75	75	76.5
Infant mortality rate	84.3	56.3	48.0	35	25	7

The societal trends and perspective that are suggested by marriage statistics are further verified by observed trends in fertility and family size. Fertility has dropped considerably in recent years, from 33.1 births per 1,000 women in 1993, to 24.8 in 2000. The drop in fertility can be attributed to two factors. First is the reduction in infant mortality. When infant mortality is high, parents tend to choose to have more children, to compensate for the probability that one or more may die within their first year. Conversely, lower infant mortality means that parents do not have to factor this concern into their family planning. In addition, data on age-specific fertility rates demonstrate that women are, in fact, delaying their decision to have their first child, which means fewer child-bearing years and probably fewer children.

Like fertility, family size is also falling in Thailand. Like many Asian cultures, children tend to live with their parents long into adulthood, accepting the responsibility of caring for their parents in their old age. In recent years, however, family size has been falling, from 5.6 members per household in 1960, to 4.4 in 1990, and 3.9 in 2000. Presently, young adults tend to leave the home for work in the formal sector in Bangkok or other surrounding urban areas. This often leaves elderly parents at home, in more rural communities with poorer access to care. Projections estimate that as much as 15% of the population will be over the age of 60. If children

are not physically available to care for their parents, the system must create some method for monitoring and offering care to the elderly, in particular those who may suffer from chronic pain and terminal illness.

Population projections conducted by groups at Mahidol and Chulalongkorn Universities show that Thailand is quickly becoming an aging population, in which the over-60 population will become an increasingly large proportion of the population. This follows the demographic trend observed in many developed countries in Europe and North America. The health problems that plague these societies are likely to follow in Thailand, as medical advances improve and the more people will live longer. If the health care system is to adequately prepare for these demographic and health changes, there must be accurate and reasonable projections of the number and ages of the population.

Geographically, Thailand can be separated into four regions in addition to the Bangkok metropolis area. As the capital and business center of the country, Bangkok is overall the most economically and socially developed. Bangkok is home to the richest of the rich, but also houses some of the devastated poor, who migrate to the metropolis in the hopes of making money to send to their families at home. This makes the issue of supplying appropriate and equal health services to all very difficult. Bangkok probably provides the most technologically advanced and expert hospitals in the country, which provide superior service. It is only the very wealthy, however, who have the ability and willingness to pay, who can fully utilize these services. For the lower and lower-middle classes, access to medical care is often burdened with long lines and waiting periods, with no guarantee of high quality service.

Similar to Bangkok, the central region also serves as an industrial and manufacturing center, in part because of its close proximity to Bangkok, as well as a large shipping port that facilitates transportation of goods out of the region. Similar to Bangkok, then, many of the same advantages and disadvantages exist. The central region has the highest number of private hospitals, but only the rich can maximize use of the exceptional facilities offered in return for the higher prices charged by private hospitals. It is the duty of the government to ensure that both the poor and rich have sufficient access to health care services. The repercussions of such inequalities within the Bangkok metropolis and the central region are revealed in later sections of this review.

Unlike the central region, the northeastern region does not attract large lucrative businesses or industries. In fact, the northeast is the poorest of the five regions described here. Most people catch fish or grow rice for a living, but because the land is not very well acclimated to agriculture, farmers here are able to produce significantly less than other rice farmers across the country. Since most of the land is used for farming, this area is not very densely populated and roads from one home to the next are not paved or maintained. This is an important barrier in improving accessibility to medical services that must not be overlooked. The government may be capable of investing in the construction of a new, well-equipped health center for a community in the northeast region, but the health center is of little use if the people living in this region find it a long and difficult journey to visit a physician there. On the other hand, it is vitally important that the accessibility to medical services is improved in this region, as it harbors many for the dangerous but treatable diseases, such as malaria.

The northern region shows significant social and economic development, in part because it also includes Thailand's second largest city, Chiang Mai. This means better education as well as access to appropriate medical programs and services. Several health problems continue to plague the north, however. The north is notoriously known to be the home for many commercial sex workers. Once they contract HIV, most workers are viewed as unfit for work, despite the fact that proper protection is now common practice in the industry. Without work, most commercial sex workers will return home, which increases the prevalence of HIV in the northern regions. In addition, the mountainous regions in the north create physical barriers, which isolate many groups and make it difficult for health services to reach these people. This endangers not only those isolated communities, but may have public health effects if a new infectious disease is first introduced in these areas.

The southern region of Thailand faces very unique problems, which may reflect on the health status there. The root of these problems is primarily the poverty and conflict between the government officials and local Muslim population there. Like in the northeast region, most people are farmers or fishermen. Unlike the northeast region, however, weather in the south is more acclimated to crops like sugarcane, pineapple, and rubber trees. The poverty in this region produces similar problems to those faced in the northeast region. The conflict in the Deep South raises

separate problems of the importance of emergency care and eliminating any potential for discrimination.

The regional differences are summarized in Table 2. It is clear that the central region benefits from being in close vicinity with Bangkok, as this is the motivation for moving much of the manufacturing factories to the Central region. On the other hand, the Northern and Southern regions tend to face slightly more difficult health and economic conditions; it is the northeastern region, however, which faces the toughest time, with the lowest per capita income and the poorest health conditions.

Table 2: Regional health statistics, 2000.

	Bangkok	Central*	North	Northeast	South	Whole
Area (km ²)			168,854	169,644	70,715	511,770
Population	5,754.2	14,746.6	12,138.5	21,551.4	8,363.7	62,554.4
Population density (people per km ²)			72	127	118	122
Income per capita (฿)	208,856	152,541	43,987	38,197	60,299	
Birth rate (per 1,000 population)	12.7	19.7	12.6	9.8	11.4	15.8
Infant mortality rate* (per 1,000 livebirths)	7.30	5.87	7.09	6.16	6.55	6.46
Crude death rate (per 1,000 population)		6.50	7.00	5.10	5.00	6.08

* Underreported by registration

B. Health-related Indicators in the Millennium Development Goals

In September 2000, 189 members of the United Nations signed the Millennium Declaration, which set out eight Millennium Development Goals (MDGs) in advancing human development and reducing the gaps in global income and social equality. These eight goals include specific health targets, such as reducing infant and maternal mortality. Other goals are not directly related to health, but do have an impact on the health of the poor and disadvantaged. Improving access to safe drinking water and proper sanitation, for example, will help reduce the incidence of diarrhea, hookworm, and other water-borne diseases. Empowering women will

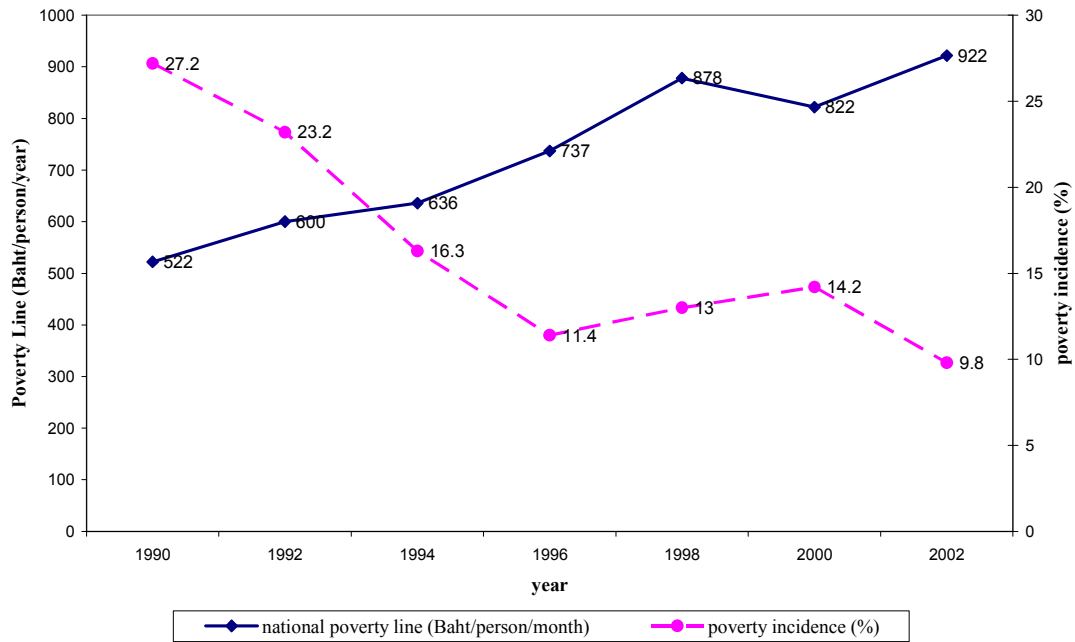
increase the likelihood that they will seek medical care for themselves and their children.

Over the past 30 years, Thailand has achieved remarkable progress in basic healthcare, with significant declines in infant and maternal mortality, and is projected to meet many of the Millennium Development Goals (MDGs). To promote further progress and development, the Thai government and National Economic and Social Development Board has set a higher standard for target, called the MDG+ targets. A complete list of the Millennium Development Goals, the corresponding targets, and the more stringent MDG+ targets, is given in the appendix. Thailand's current government is determined to improve the situation of the poor, and many programs reflect their commitment and have shown significant success. Despite the impressive progress made to this point, some groups are still unaffected by the government programs, and it is these groups that will require attention in the coming years.

Goal 1: Eradicate Extreme Poverty and Hunger

Poverty and hunger have serious impacts on health. It is often the poor who most desperately need medical attention. Thailand has already achieved the MDG target of halving the proportion of people living in extreme poverty between 1990 and 2015. Figure 1 shows that while the poverty line has continued to rise far above the \$2/day international standard, poverty incidence has been declining, particularly under the current government. In 1988, as much as 32.6% of the population was identified as poor. This figure dropped to 16.3% in 1994 and continued to fall until 1997, when the economic crisis increased the number of poor people rose by 1.2 million and poverty incidence rose an additional one and a half percentage points from its 1996 level. The election of a new government, which campaigned on a platform of helping the poor, has initiated new interventions to improve the situation of the poor, and in 2002, poverty incidence indeed fell to an all-time low of 9.8%.

Figure 1: Poverty line and incidence of poverty, 1990-2002



Analysis of the characteristics of the poor will offer insights on the needs of the poor and how to best fulfill these needs. Most households that fall below the poverty line are poorly educated, which limits their job opportunities and earning ability. Most poor households also shoulder the burden of larger families, which exacerbates the problem of insufficient funds for essential needs like food and water. Almost 86% of the poor live in rural areas, and over half of them are farmers. Three-fifths of the poor live in the northeast region of the country, which reflects a trend of regional disparity that is common to almost all areas of economic and social development.

Poverty reduction strategies during the Ninth National Development Plan focus on macroeconomic management and strengthening grass-roots economic growth. The interventions outlined in Table 3, emphasize pro-poor growth policy; building capacity and enhancing employment of the poor; prudent natural resource management; social protection and safety nets for vulnerable groups; and constructively engaging community organizations and local authorities in poverty reduction. In terms of management, gradual decentralization has transferred the power and responsibilities to the community level and local leaders.

Table 3. Selected interventions and strategies in poverty reduction, 2002-2006.

Strategy	Interventions	Remarks
1. Macro and Microeconomic Management	1. Village and community fund 2. People's bank 3. Debt moratorium for small farmers 4. One Tambon-One Product campaign 5. Soft loans with interest subsidies for housing 6. Asset Capitalization 7. Long-term credit facilities to refinance informal loans	#6 and #7 are still in preparation; not yet in practice
2. Capacity Building and Enhancing Employment Opportunities	8. School bicycle program 9. Ensuring completion of 9 ears of compulsory education and 12 years of basic education for school-aged children in poor households	#9 is in the process of being implemented
3. Social Protection and Social Safety Nets	10. Universal Health insurance coverage 11. Cash transfers for indigent elderly 12. Benchmarking living standards (BMN)	#12 is in process
4. Natural Resource Management	13. water resource management 14. Land settlement 15. Land reform scheme	
5. Streamlining Public Administration	16. Devolutinon of public resource management and responsibilities 17. Community Action Plan for Poverty Reduction	

The implementation of these programs reflects the increasingly decentralized nature of the Thai government. For example, the village and community fund is a plan in which the central government grants one million Baht to each village and urban community, to be used as microfinance. It requires that each village create its own committee to manage and distribute funds in a way that best serves the interest and needs of the community. The 2002 Household Socio-economic survey shows that a very limited number of poor have access to the funds, which will slow progress in improving the situation of the poor.

Goal 2: Achieve Universal Primary Education

Education and health are interdependent in a very unique way, unlike any other economic sectors. Progress in either of these sectors makes work in the other sector more productive, and the combined effect on the economy is quite substantial. Healthy children will have better attendance and be more effective at school. Conversely, weak or chronically ill children will have poor attendance, fall behind in their work, and may feel discouraged about attending school at all. On the other hand, education has strong health implications as well. Good health education programs in schools can help promote healthy lifestyle habits, as well as practices in prevention of infectious diseases, like HIV/AIDS. In addition, a generally well-educated public will probably better understand and are more likely to adhere to practices that promote good health. These practices might include condom use to prevent the spread of HIV/AIDS; the use of mosquito nets in malaria-affected areas; or just a weekly regiment of exercise to keep one's self healthy. It is certainly important that the government stay dedicated to its commitment to achieving wide-spread education.

Thailand appears to be on track in achieving the MDG target of 100% primary school enrollment by the 2015 deadline. Currently, enrollment rates are over 98% and the literacy rate among the over 15 population is an impressive 95%. The Thai government is taking important measures to ensure that all children are given an appropriate education, as demonstrated by the passage of the National Education Act has extended compulsory education from six to nine years and increased scholarship money to students.

Goal 3: Promote Gender Equality and Empower Women

Empowering women has important ramifications for health in that women are often looked upon as the caregiver for the family. Health and medical decisions often lie in the hands of the women or mothers of the households. In some countries, women are considered second class citizens, and may not leave their homes unaccompanied by a man. If these women are hesitant in their actions, however, family members may suffer extreme pain or even die. It is important that the community support and encourage women to seek medical service when it is needed, without risking being social ostracized by society.

In Thailand, gender equality is not a problem. The success of this goal is in part manifested through the high labor force participation in women, and the

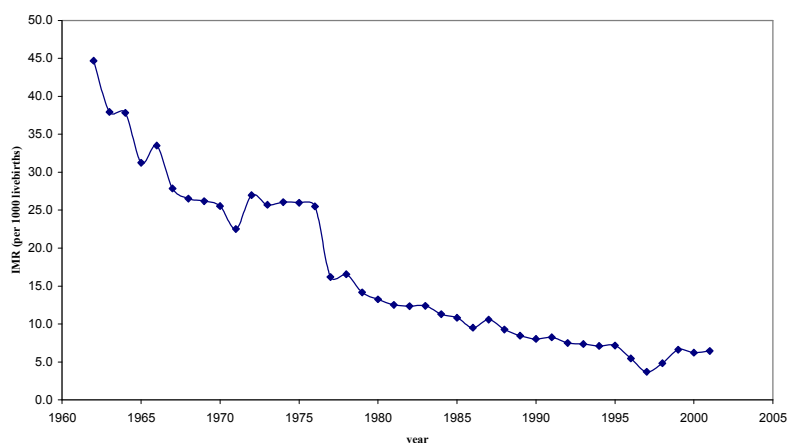
increasing proportion of women studying in higher education institutions. Women actually outnumber men at the tertiary level as a whole, with approximately 1.15 female for every male enrolled in tertiary level education.

Goal 4: Reduce Child Mortality

Child mortality has important repercussions in aspects of population growth and economic progress as well as health status. A high infant mortality will diminish life expectancy, and a lowered life expectancy will affect spending and saving decisions as well as the costs and consumption of health care. In addition, a high infant mortality can severely raise the fertility rate, which has implications on the size and burden of the working population.

As shown in Figure 2, infant mortality has fallen steadily since 1970, when mother and child health first became a priority of the health care system in Thailand. The only significant change was a small spike in the infant mortality rate in 1998, shortly after the economic crisis. It is unclear if this rise is a result of poorer access to health care services due to the economic downfall, or a consequence of the data collection method practiced by the Ministry of Public Health, which changed significantly in 1996.

Figure 2: Infant Mortality Rate, 1962-2001



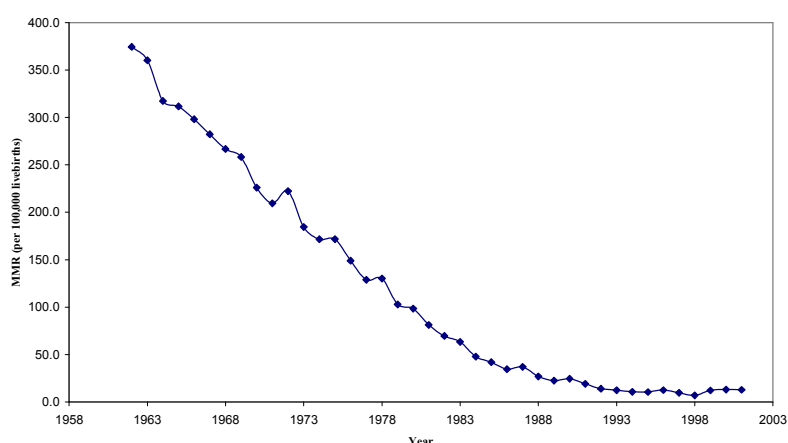
Like infant mortality, child mortality also showed a falling trend throughout the past two decades. Also like the trend observed in infant mortality, child mortality also rose suddenly, which is most likely the result of a change in the data collection method. It is impossible to tell whether the previous figures were accurate, which makes the target of reducing the 1990 level by two-thirds rather obsolete. Instead, the

National Economic and Social Development Board set its own MDG+ targets, which are much more focused on isolated rural areas, particularly in the Northern Highlands.

Goal 5: Improve Maternal Health

Like infant and child health, maternal mortality is probably one of the least expensive and most important areas of health care intervention. Maternal mortality is usually minimized when women take proper measures in antenatal and delivery care. In particular, the presence of a medical professional during delivery will help decrease the chances of maternal or infant mortality or disability. Figure 3 shows the trend of maternal mortality, which follows the same trend as infant mortality, falling steadily after the implementation of maternal and child health programs in the 1970s. The trend of births attended by health personnel reinforces the idea that Thai people respect health care professionals and consider the receipt of proper health care services a high priority in ensuring a healthy delivery with minimal complications.

Figure 3: Maternal Mortality Rate, 1962-2002



Goal 6: Combat HIV/AIDS, Malaria, and other diseases

The MDG target regarding HIV/AIDS is rather ambiguous, stating a goal of halting and beginning to reverse the spread of HIV/AIDS. It is difficult to assess this through any one indicator because testing for HIV/AIDS is not mandatory and social and cultural misunderstandings about the disease cause people to shy away from testing. Many Thais understand HIV to be a disease that is contracted only in homosexuals and people involved in the commercial sex industry, which is not unpopular in Thailand. In fact, HIV prevalence in these specialized surveillance groups is falling, while more and more adolescents, married women, and young infants are acquiring the disease. Overall prevalence may fall because many people

with HIV may die, but there is no proof that incidence of the disease has not been completely halted.

Other infectious diseases, such as malaria and tuberculosis, are diminishing problems in Thailand. Deaths from malaria were less than one per 100,000 populations in 2001. The corresponding figure for tuberculosis is slightly higher, at 5.6 per 100,000 populations in 1999. Government officials are optimistic that goals regarding these three diseases will all be reached before the 2015 deadline. Tuberculosis is not a significant problem in the general population, but is of particular concern in HIV+ population, because it is a commonly found opportunistic infection. New pharmaceuticals and hygiene techniques will help minimize the chance of infection in these patients and hopefully move Thailand toward the eradication of these diseases.

Goal 7: Ensure Environmental Sustainability

Protecting the natural environment is not only important to the retention of natural resources, but it also has significant health effects. Reducing carbon dioxide emissions through the reduction of cars and high emission standards will clear the air and prevent risks of cancers and emphysema. Safe drinking water and proper sanitation practices will decrease the incidence of diarrhea in most regions. Although the improvements are not direct health targets, they have a significant effect on the health and welfare of the Thai population as a whole.

Thailand has achieved or is close to achieving all goals related to environmental sustainability. The proportion of the population with access to safe drinking water and proper sanitation is over 90%, far above the MDG targets. The final step in clean water provision is to extend and improve access to tap water. More stringent laws on emission standards have helped to reduce pollution and disposal of hazardous or illegal waste. In addition, a heavy tax on the sale of motor vehicles, in addition to more attractive public transportation alternatives, has also helped to reduce the number of cars on the road and air pollution in Bangkok.

C. Health care financing and health insurance systems

Health and health care have become increasingly important focus for development in Thailand. Throughout the past three decades, the government expanded its spending on health care, from general public health programs like

immunizations, to provision of care for the poor and working populations. Despite extensive efforts in the provision of care, almost half of health care expenditure is a result of household spending, with private insurance also paying a very small contribution. During periods of economic prosperity, personal spending represented an increasing share of total health expenditure. This may be a reflection of the people's dissatisfaction with public provision or coverage of health care. However, the increased in private spending on health care is more likely to represent an increased emphasis on health and health care. With the implementation of the Social Security Scheme, an additional 10% of the population was covered by Social Health Insurance, and the burden of health expenditure continued to shift away from the income of private consumers and toward that the budget of the government.

To better understand the need for universal coverage, an analysis of the previous insurance schemes and their shortcomings is required. Over the past 30 years, the Thai government has implemented and extended its insurance programs to provide low and middle-income households of their inherent rights to a healthy life. The motivation, execution and reform of each scheme differs; in its most recent development, the government has guaranteed health care coverage to all Thai citizens, in a program funded by general tax revenues. To offer some insight as to how and why the universal coverage scheme is administered and financed, it is important to examine past insurance schemes and their effects on the recipient population, the costs of and payments to providers of care, and the surplus or depletion of government budgets that result from these programs.

The first form of government provided health care coverage came in the form of the Workers' Compensation Fund in 1974. The fund comprised of taxes paid by employers, and it covered only work-related diseases or injuries. At the time of this program's inception, there was little knowledge about the response of consumers and providers to insurance. This form of insurance was in set in order to provide some protection for people working in high risk environments. The program served as a safety net for people who suffered from long-term or debilitating injury in the workplace. Physician and hospital fees were paid on a fee-for-service basis. Each time a person visited a hospital or clinic to seek care for a work-related illness or injury, the hospital would file a report, and the funds would be reimbursed by the government.

Following the WCF was the implementation of Social Welfare, which provided health care coverage for low-income households. This program went through several phases, which reformed financing mechanisms, methods of reimbursement, and the population covered. In 1994, the government expanded the program to include the elderly and children less than 12 years of age. In its most recent form, beneficiaries receive a card that entitles them to free health care at any hospital under the purview of the Ministry of Public Health. The potential for subjectivity remains the primary problem with this program. Local community leaders are given the authority to determine those people who qualify for the low-income care, and without monitoring these decisions, the government may leave room for discrimination or preferential treatment.

The Civil Servant Medical Benefits Scheme was established by Royal Decree in 1980. This program guaranteed medical care coverage for all permanent government officials and their families. In its long history, this scheme experienced rapid and substantial cost escalation, primarily due to its comprehensive coverage and fee-for-service payment scheme. In 1997, the program was restructured, with cost containment as the primary goal. This experience with fee for service payment structures was important to the formation of future payment structures in other coverage schemes that followed.

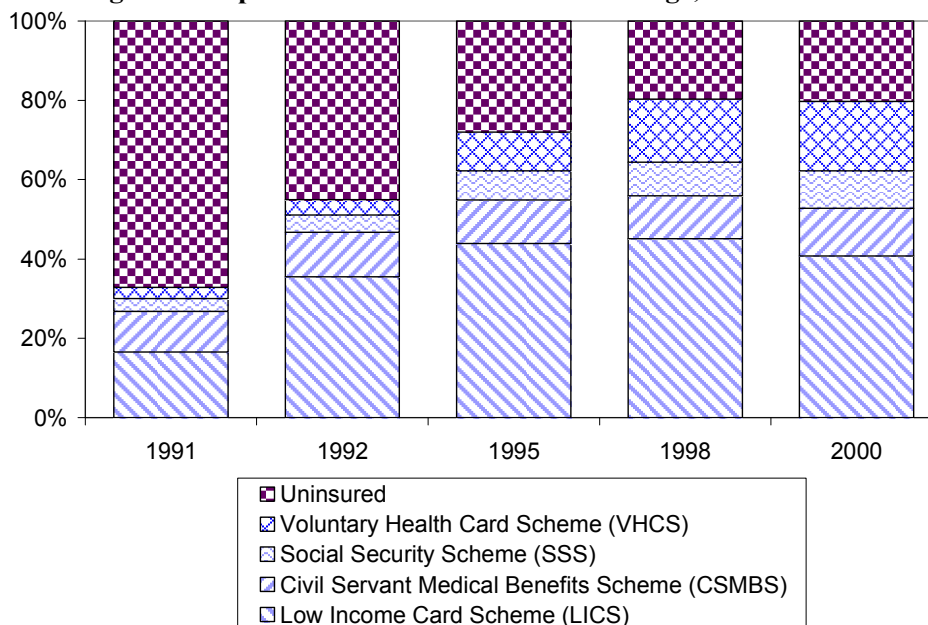
In 1983, the Thai government expanded its health care coverage with the introduction of the voluntary health card (VHC) scheme. The target population was the near poor, who needed protection from the potentially devastating economic losses that result from disease or other poor health conditions. This plan gave people the option of purchasing health care insurance for a premium of ฿500 per family per year (approximately US\$11). This scheme, too, underwent several changes in payment structure and financing. Each change provided several lessons how the structure of a health coverage scheme can affect consumer and provider behavior.

The Social Security Scheme, a compulsory health insurance scheme, was instituted for all workers in the formal sector in 1990. The scheme is contribution based: workers and employers each pay 1.5% of workers' monthly wage, and the government contributes another 1.5% to the fund. Beneficiaries will then choose to register at a hospital or hospital network, which becomes the beneficiary's primary care provider. This hospital receives an annual capitation payment rate of 1,500 baht

(2004) from the Social Security Office for every person under the scheme who registers there. The Social Security Scheme covers any health services or health needs that are not directly related to a work-inflicted injury or disease.

Despite the government’s extreme efforts to ensure some level of health insurance to all Thai citizens, the several schemes offered did not cover everyone. Figure 4 shows that in 2000, some 20% of Thai citizens remained without health insurance, putting them in danger of falling victim to dangerous diseases and without protection from the potentially high costs of medical care. To offer medical and financial protection to the uninsured population, the universal coverage scheme was introduced.

Figure 4: Population with Health Care Coverage, 1991-2000



The Universal Coverage scheme is the most recent and, perhaps most ambitious, undertaking by the Thai government. In 2001, the Thai government, led by Prime Minister Thaksin Shinawatra, set in place Thailand’s first Universal Coverage health care policy. The government was the first elected under the provisions of the new Constitution (1997), known by Thais as the “People’s Constitution.” It is also the first time since the establishment of a Constitutional Government in 1932 that a single party has won a majority in the House of Representatives, capturing firm popular support across the nation. The government has embarked upon a course to improve quality of life for all segments of society, as demonstrated by the significant progress made towards achieving Millennium

Development Goals (MDGs), which are already discussed in more detail earlier session (B) in this chapter. The Ministry of Public Health plays a vital role in this work, through the implementation of the “30-Baht Universal Health Care Policy.” The policy proposal presents three main objectives:

- a) **universal coverage:** every Thai citizen should be entitled and should have equal access to quality care according to their needs and regardless of their socio-economic status, religion, etc.
- b) **single standard:** the benefit package and quality of care provided for all Thai citizens should meet set standards
- c) **sustainable system:** the universal care policy should maintain political, financial, and institutional sustainability. The health care system should preserve allocative and technical efficiency, as well as an adequate and stable budget. To ensure political stability and support of the Universal Coverage scheme, the government drafted the National Health Insurance Act into law in November 2002.

In the initial phase of the UC scheme, which was started in April 2001, the program was tested in 6 provinces. It expanded to 21 provinces in June, and by October 2001, all provinces except Bangkok participated in the UC scheme. In April 2002, one year after the implementation of the scheme, the UC scheme covered approximately 45 million people in the country. The remaining 18 million receive medical care through the Civil Servant Medical Benefits Scheme (CSMBS) or the Social Security Scheme (SSS). Under UC, beneficiaries receive coverage for inpatient and outpatient care at the registered primary care facility and referral secondary and tertiary care facilities (except in emergency cases); dental care; health promotion and prevention services; and drug prescriptions. The only out-of-pocket payment is the 30-Baht (less than US\$1) co-payment per visit, and the very poor are exempted from this payment.

Public and private health care providers are affected by the provider payment mechanism adopted in the UC scheme. The specific changes of provider payment methods and their effects on provider are:

- a) **moving resource allocation criteria from supply to demand side:** Previously, providers were paid based on the services they offered; under the current payment system, providers are paid a capitation rate, based on

the number of people who register at their facilities. Under this payment system, only facilities that receive registrants will be paid; those that do not register any patients, will face serious budget constraints and may even be forced to close. This may help reduce the disproportionate distribution of medical facilities throughout the country.

- b) changing main contractor from hospitals to primary care unit:** Under the UC scheme, resources will be paid to the primary care unit based on the registered population. Secondary and tertiary hospitals will be paid by the primary care unit upon referral or by the provincial fund for inpatient care, according to their performance. Hospitals will be forced to offer primary care out of financial necessity, but also because there are severe shortages of primary care providers in urban areas.

With the new payment system, there were at least 29 provinces where the Ministry of Public Health facilities faced financial problems during the initial phase. In anticipation of these problems, the Ministry has requested a contingency fund for solving for 29 provinces from the contingency fund in the amount of 3.2 billion Baht. To prevent habitual or repeated requests for financial assistance, public health facilities that request money from the contingency fund also must submit plans for reform that show promise of long term survival and sustainability.

During the transitional period, the Provincial Health Office (PHO) is designated as the provincial purchaser. Because it is a new role for the PHO, problems with the fluidity, efficiency, and clarity of the system still exist. The rushed implementation of the UC scheme has only exacerbated this problem, so that it is difficult to modify the system and accurately project the future budget for this program.

D. Current Health Care Coverage System

The current health care coverage system covers the whole Thai population through one of three schemes: the Civil Servant Medical Benefits scheme (CSMBS); the Social Security Scheme & Workers Compensation Fund (SSS/WCF); and the Universal Coverage (UC) scheme. Each program is different in its financing and payment system, the eligible population, and the services provided. Table 4 gives a side-by-side comparison of the three plans. These differences and the rapid

implementation of the UC scheme may lead to obstacles in access and provision of services. The health care system, from coverage to provision, must be closely monitored to properly predict the effects and properly provide the best quality health care to the Thai people.

Table 4. Comparison of characteristics of insurance schemes in Thailand in 2005.

Characteristics	CSMBS	SSS	UCS
<i>I. Scheme nature</i>			
<i>Beneficiaries</i>	fringe benefit	Compulsory	social welfare
<i>Model</i>	public reimbursement model	Public contracted model	public contracted model
<i>Covered population</i>	Government employees and their dependants ~6.8 million	private formal sector employees with >1 worker ~8.2 million	people not covered by SSS or CSMBS 47 million
<i>II. Benefit package</i>			
<i>Ambulatory services</i>	Public only	Registered public and private	registered public and private
<i>Inpatient services</i>	Public	Registered public and private	registered public and private
<i>Choice of provider</i>	free choice	Registration required	registration required
<i>Cash benefit</i>	No	yes	no
<i>Conditions included</i>	Comprehensive package	Work related illnesses are covered by WCF	comprehensive package
<i>Conditions excluded</i>	No	15 conditions	12 conditions
<i>Maternity benefits</i>	Yes	yes	yes
<i>Annual physical check-ups</i>	Yes	no	yes
<i>Prevention and health promotion</i>	Yes	Health education, immunization	yes
<i>Services not covered</i>	Special nurse	Private bed, special nurse	private bed, special nurse
<i>III. Financing</i>			
<i>Source of funds</i>	General tax	Tripartite, 1.5% of payroll each	general tax
<i>Financing body</i>	Ministry of Finance	Social Security Office	National Health Security Office
<i>Payment mechanism</i>	fee-for-service	Captitation	captitation for OP; DRG for IP
<i>co-payment</i>	yes: IP at public/private hospital, IP private limits only for life-threatening care	Maternity, emergency services, if beyond ceiling	yes, 30-baht per visit
<i>Capitation rate (2004)</i>	~3,980 baht	1,500 baht	1,308 baht

E. Resources for Health

Inputs in health care provision fall into three broad categories: capital, labor, and technology. Despite adamant efforts to establish a comprehensive health care system, the country lacks adequate resources in all three areas. Capital includes physical capital, such as land, buildings, patient beds, and medical equipment; and human capital, which includes physicians, dentists, nurses, and pharmacists. Labor refers to all people necessary to run health care facilities, from receptionists and accountants, to physicians, to high-level administrators. Unlike capital and labor, technology is a very ambiguous input. Advances in medical and non-medical technology can increase both efficiency and efficacy of health care services. On the other hand, these advances depend on innovations or discoveries that cannot be predicted. There is no guarantee that a given investment will definitely lead to progress in a specific area. This unknown factor makes technology a risky investment. A balanced allocation to all these areas is needed to build a strong and stable health care system, but the trend is one that lacks resources in almost all areas and across all regions in Thailand.

Thailand's health care system consists of many levels of service, from private clinics, to university hospitals, which conduct research and offer tertiary care. Early expansion efforts helped to establish provincial hospitals nationwide by 1950. Despite these efforts, however, a significant shortage of health care facilities and technology remains. As illustrated in Table 5, a significant disparity still exists across the different regions in Thailand.

Table 5. Regional distribution of health facilities, population per facility, 2000.

Region	Population per Facility		
	<i>Health Centers</i>	<i>Patient Beds</i>	<i>Pharmacies</i>
<i>Bangkok</i>		202	1,872
<i>Central</i>	3,631	369	8,365
<i>North</i>	4,132	493	19,136
<i>South</i>	5,194	494	11,309
<i>Northeast</i>	8,311	766	39,356
<i>Nationwide</i>	3,427	454	9,546

The best description of the situation is shown in the population-to-patient bed ratios. In Bangkok, one bed was available for every 200 people. This figure is more than two times better than the average 454 people per patient bed in the country, and over 3½ times higher than the 766 people per bed in the poor Northeastern region in Thailand. There may be an argument for having a higher concentration of patient beds in Bangkok, because of the higher concentration of tertiary hospitals and specialized care. This explanation does not sufficiently justify the disparity observed at the current levels described. In fact, the real reason for such inequality is the large number of private providers in Bangkok. With almost 40% of its patient beds in private facilities, Table 6 shows that Bangkok has more privately provided patient beds than any other region in the country. Bangkok is disproportionately advantaged compared to other regions in Thailand, and this trend is sustained throughout all inputs in the provision of health care services.

Table 6. Public and Private hospitals and hospital beds across regions, 2000.

Region	Hospitals		Patient Beds	
	Public	Private	Public	Private
Bangkok	43	98	16,260	11,834
Central	248	111	30,891	8,154
North	203	51	19,857	4,722
South	166	34	14,329	2,224
Northeast	302	37	25,503	2,427
Total	962	331	106,840	29,361

The availability and distribution of technologically advanced medical equipment is a rather unknown factor in Thailand. Most medical facilities need emergency care equipment, as well as x-ray instruments and other rather expensive but necessary machines. Complete inventories of hospital equipment have not been compiled, but the regional distribution of several important and expensive medical instruments, which is shown in Table 7, reimburses the same disparity demonstrated in the distribution of facilities and patient beds. Magnetic resonance imaging equipment is almost ten times more common in Bangkok than in any other region in

Thailand. CT and mammography instruments show similar trends in distribution: Bangkok has a disproportionately higher number of technologically advanced equipment than any area in Thailand. These figures do not distinguish between the public and private sectors, but it is most likely that a considerable proportion of the surplus is a result of the private hospitals that opened during the economic boom.

Table 7: Regional distribution of technical equipment in Thailand, 2000.

Region	<i>Instruments per 1,000,000 population</i>		
	<i>CT scanners</i>	<i>MRI</i>	<i>Mammography</i>
Bangkok	15.9	3.2	10.9
Central	5.2	0.1	1.5
North	3.4	0.2	0.6
South	2.2	0.1	0.7
Northeast	2.8	0.3	1.1
Nationwide	4.5	0.4	1.8

The general trend of human resources for health in Thailand confirms those trends observed in physical capital across the country. The number of health professionals working throughout the country falls far short of standards set by the Thai Ministry of Public Health, and without active recruitment and action to change this trend, the gap will continue to widen. The deficiency of personnel and the disproportionate distribution continue to exist despite government efforts to reverse both trends over the past four decades.

The first wave of physicians to leave public health care system came in the 1960s, when physicians from Thailand were recruited to work in the United States, to fulfill the shortage of physicians there. This phenomenon, termed “external brain drain,” resulted in the loss of 1500 doctors. Many new graduates were excited and attracted to this prospect, left to work in the Western World, while in Thailand the lost almost 25% of their physicians, rapidly depleting human resources from the health care system. In an effort to keep health manpower in Thailand, the government implemented a compulsory rural health service program, where students’ tuition fees were subsidized, in return for 3 years’ service at a rural hospital. Medical personnel who chose not to serve in rural areas faced severe penalty fees. Between 1976 and

1985, the number of rural doctors increased by fourfold. In addition, the concentration of doctors, measured by the doctor-population ratio, increased rapidly, to fall within 8.6 times the doctor-population ratio in Bangkok.

The rapid uncontrolled growth of private hospitals during the 1990s led to an internal brain drain, which pulled many health professionals out of the public sector. Many public health workers in rural areas found the incentives at private hospitals attractive enough to even break the rural service contract and pay the fines using the substantial salaries offered at private facilities. Table 8 shows the changes in physicians in hospitals in the Ministry of Public Health (MoPH). While the number of new graduates generally increases each year, the number of doctors who resigned from their service also rose every year up to the economic crisis in 1997.

Table 8. Change in number of doctors in MoPH, 1994-2005.

Year	Number of doctors		
	<i>new</i>	<i>reapplied</i>	<i>resigned</i>
1994	526	--	42
1995	576	--	71
1996	568	--	98
1997	579	30	205
1998	618	93	117
1999	830	168	63
2000	893	92	133
2001	883	67	135
2002	913	22	316
2003	1028	Na	795
2004	995	Na	468
2005	1100	Na	582

After the financial crisis in 1997, many of these private hospitals were forced to reduce their costs. The number of patient beds in the private sector fell by almost 40% during this period, and the personnel in the public sector and specifically rural areas began to increase as private hospitals in Bangkok were forced to close. In 2000, however, Table 9 shows that the distribution of personnel-population ratios across

regions was still quite biased towards Bangkok, where most of the private facilities are located. These figures are from 2000, prior to the implementation of the UC scheme. Some suggest that the capitation payment mechanism of the UC scheme may benefit the rural area health centers, providing them with capitation payments, when previously, little or no funds available.

Table 9. Regional distribution of medical personnel, 2000.

Region	<i>Physicians</i>		<i>Dentists</i>		<i>Nurses</i>		<i>Pharmacists</i>	
	<i>number</i>	<i>ratio</i>	<i>Number</i>	<i>ratio</i>	<i>Number</i>	<i>ratio</i>	<i>number</i>	<i>ratio</i>
<i>Bangkok</i>	7,155	793	1,607	3,529	18,338	309	2,223	2,551
<i>Central</i>	4,029	3,576	857	16,813	17,469	825	1,303	11,058
<i>North</i>	2,691	4,501	711	17,037	13,341	908	1,100	11,012
<i>South</i>	1,576	8,311	363	22,549	9,264	884	774	10,575
<i>Northeast</i>	2,574	8,311	603	35,476	12,566	1,702	984	21,740
<i>Whole Kingdom</i>	18,025	3,427	4,141	14,917	70,978	870	6,384	9,676

Pharmaceutical Supplies

Because of the disproportionate distribution of health care facilities and medical personnel, many people will opt to self-treat their illnesses as a cheap alternative to seeking a professional opinion. This often requires the purchase of pharmaceuticals, many of which are available at any pharmacy without prescription. Medicines, whether prescribed or simply purchased, often represent a significant financial burden on the sick individual. The market for pharmaceutical products in Thailand consists of two types of producers: multinational corporations, which usually discover and patent the drugs that they produce; and generic producers, most of which produce the biochemical equivalent of drugs already on the market. The drugs produced by most generic producers have the same effectiveness but are able to sell at a lower price because they do not incur the considerable costs required to create or discover and test drugs. Without a popular brand name, generic producers must sell at a price lower than that of its competitors.

The question of brand name is an important issue, particularly in Thailand, which has over 170 producers of generic drugs. Most pharmacies provide both brand name and generic drugs, but some people are under the impression that the lack of a

popular brand name compromises the quality or efficacy of the drug. The changes in market share during positive economic times illustrate this point. Between 1992 and 1997 the market share held by these multinational corporations rose by 1-6% per year, peaking in 1997 when they owned 67% of the market in Thailand. Correspondingly, drug expenditure rose steadily from 1980 to 1997, when the economic crisis caused people to cut back on their spending. When given the option, people with money will choose to purchase brand name drugs over the generic alternative. Increasing the number of generic producers or the efficiency of those producers in the market at present will not affect the health care system or health outcomes if the public attitudes towards pharmaceuticals are not shifted toward the use of generic drugs.

To stay profitable and competitive, each of the 170 domestic drug producers in Thailand must invest in research and development into new drugs. In brand-name producing companies, research and development often refers to the discovery or innovation and testing of new drugs. Although each company may strive to discover the HIV vaccine or a cure to cancer, most companies in Thailand invest less than 20% of their revenues on research and development (R&D). In addition, a significant amount of the R&D reported in these surveys may represent research into the formation of an efficient process of creating some drug that is already readily available on the market. It is clear that small companies in Thailand do not have the financial means or the experienced personnel to effectively perform innovative and effective treatments. R&D presents a particularly large burden on those smaller companies, which may lack the facilities, as well as the financial stability to risk years and years of study to create, test and market any drug.

F. Risk assessment and Burden of Disease

The first formal study on the burden of disease in Thailand was conducted by the Thai Working Group on Burden of Disease and published by the Thai Ministry of Public Health in November 2002. Much of this work drew out of the Global Burden of Disease report in 2000 and the 2002 World Health Report on Reducing Risks. The study identified and examined the burden of disease of 60 health conditions, from ischemic heart disease to cancer to low birth weight, using two measures of burden of disease. The first measure is the number of years of life lost (YLLs), which pertains only to those conditions which resulted in death. The number of YLLs lost is a safe measure of the impact of various health conditions. In recent years, however, many

experts began using a measure of disability-adjust life years (DALYs), which include not only years lost to death, but also time lost due to a period when a person is disabled. The leading causes of disease burden are summarized in Table 10.

Table 10: Top 10 causes of burden of disease (DALYs lost) by gender, 1999.

Males				Females			
	Disease category	DALYs	%	Disease category	DALYs	%	
1	HIV/AIDS	960,087	17%	HIV/AIDS	372,947	9%	1
2	Traffic accidents	510,907	9%	Stroke	280,673	7%	2
3	Stroke	267,567	5%	Diabetes	267,158	7%	3
4	Liver cancer	248,083	4%	Depression	145,336	4%	4
5	Diabetes	168,372	3%	Liver cancer	118,384	3%	5
6	Ischemic heart disease	164,094	3%	Osteoarthritis	117,994	3%	6
7	COPD (emphysema)	156,861	3%	Traffic accidents	114,963	3%	7
8	Homicide and violence	156,371	3%	Anemia	112,990	3%	8
9	Suicides	147,988	3%	Ischemic heart disease	109,592	3%	9
10	Drug dependence/harmful use	137,703	2%	Cataracts	96,091	2%	10

HIV/AIDS is the leading cause of disease burden, using either measure. Ischemic heart disease, stroke, cancers, and traffic accidents also inflict a serious burden of disease on the population. Other leading causes of death include alcohol and drug abuse, emphysema, and homicides in men; and depression, osteoarthritis, and anemia in women. The stratification across gender may be in part a result of social and cultural norms. The release of the 2002 World Health Report, entitled *Reducing Risks, Promoting Healthy Life*, identified pertinent global health risks, and determined the potential gains that could be made from various interventions that reduce health risk. In an extension of its prior work, the working group and the Thai MoPH group incorporated health risk factors and their effects on disease. The impact of these risk factors on the leading causes of death in Thailand is shown in Figure 5.

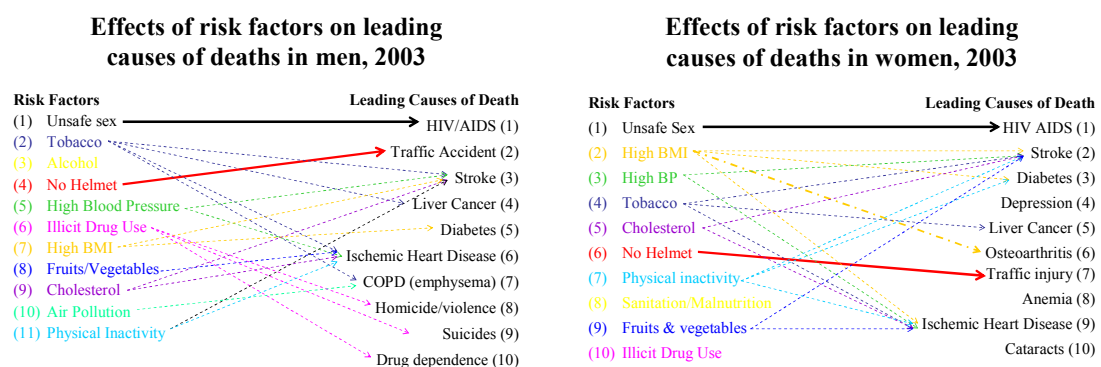


Figure 5: Impact of health risk factors on disease burden in men and women, 2003.

The results of this study are particularly important in determining which diseases or other health problems should be the focus of Thailand's public health programs. For example, HIV/AIDS is now the most devastating disease in Thailand, accounting for almost 15% of the disease burden. In 1999, over one million DALYs were lost due to the effects of HIV/AIDS alone. If an anti-retroviral vaccine was available, the government should invest in distributing and financing these vaccines to people with HIV. In addition, the government should promote the right practices to prevent the spread of HIV, which can save costs in terms of purchasing or providing the HIV vaccine, or in terms of paying for treatment of an individual who has contracted AIDS.

G. Mega Project in Health Sector

In June 2005, the government has initiated a program called "Mega Project Investment Plan" and health sector is one of the target sectors in this program. Investing in health in this Mega Project is a four-year plan. The three areas are identified in Table 11.

Table 11: Mega Project Investment Plan, 2005.

Project (million baht)	2006	2007	2008	2009	Total
Infrastructure	11,819	26,783	24,635	21,986	85,223
Surveillance system	20	1,899	3,039	1,911	6,869
Human resources for health	50	780	1,169	1,586	3,585
Total	11,889	29,462	28,843	25,483	95,677

Chapter 3

Strategic Framework and Investment Plan

A. Introduction

Analysis of Thailand's current situation offers several important insights on which areas the health care system lags behind, on both supply and demand sides of the industry. Reforms can be designated into three categories: strengthening of health care systems, increasing resources in the production of health care, and reducing health-related risk factors. Strengthening the health care system means ensuring equal and available access to high-quality health care services for all. Increasing resources in health care includes human, physical, and technological resources, and requires changes not only in the number of each but also their distribution across different regions in the country. Health risk factors are an important determinant in mortality and disease burden. Each of the reforms discussed here can potentially be incorporated into long-term plans for the future of health care provision and the delivery of medical services.

B. Strengthening of the health care infrastructure and health care coverage

Strengthening health care system requires reforms in all aspects of the system, from the consumers who demand the appropriate and adequate amount and level of care, to the providers of care, and even the payers in between. Changes to the system will educate consumers to be aware of situations when medical care is necessary. They will change the payment system so as to ensure stability and sustainability for public providers, and offer a high standard of care to patients. Reforms that will improve the system require responsible personnel and administrators, and periodical supervision to ensure that hospitals and medical personnel accountable for their actions.

1. Improving demand for and utilization of services

One of the most important issues concerning the universal coverage scheme is the accessibility and utilization by the poor. The main goal of this program was to provide coverage to three groups in the previous health care coverage structure: the Low Income Card (Social Welfare) recipients, Voluntary Health Insurance beneficiaries, and the uninsured. Shortly after its implementation, the universal

coverage program demonstrated utilization rates that were slightly lower than expected. However, the utilization rate is higher in the following second and third year.

2. Eliminating non-financial barriers to accessing care

Prior to the UC scheme, people would face financial concerns in accessing medical care. Despite the provision free medical care, some people still face significant obstacles in accessing care. Besides physical and financial difficulties, however, social differences also hinder people from receiving easy access to health care services.

In general, Thais are accepting of other ethnic and religious groups. A number of religions and Asian ethnicities reside in Thailand, from the Karen hill tribes and Chinese immigrants to the North, to the predominantly Malaysian Muslim communities in the South. Having said this, ethnic conflict still exists, especially in the Deep South, where heavy violence has erupted between the police and dissent groups there. Although the conflict seems to be limited to these two groups, it is possible that a general sentiment may evolve on one side or another, which may lead to discrimination. In the North, hill tribes and other small communities are often isolated from cities or towns, making health centers or even outreach services difficult to reach. In addition, large immigrant populations will reside in many border areas, which can present potential language barriers. Social problems regarding social attitudes or discrimination are beyond the scope and purview of the government, but can be addressed by smaller special interest groups or non-governmental organizations, which often aim to serve particular isolated or mistreated groups. The government can promote this work by offering financial and capital support. Training or incentives should be offered or provided for medical professionals who choose to study a new language or provide outreach services, to promote or offer some motivation for medical care professions to reach out to these severely disadvantaged groups.

3. Health care systems at or across national borders

National borders in Thailand are significant weakness for the Thai health care system. Thailand's economy is reliant on its trade and tourism industries, and impending globalization implications suggest that keeping an open economic policy is important to economic development and progress. There are risks to opening country borders, and these dangers were realized on a worldwide scale with the onset of Severe

Acute Respiratory Syndrome (SARS) and the avian flu virus. These diseases illustrate the importance of strong and reliable health care systems at borders, despite the many difficulties/obstacles to doing so.

Thailand is bordered on the South by Malaysia and to the North by Myanmar and the People's Democratic Republic of Laos. On its eastern borders lie PDR Laos and Cambodia, and Myanmar borders Thailand to the West. Most communities residing at the borders are often legal and illegal immigrants, or migrant workers from these bordering countries. They bring to Thailand their own language, culture, and diseases. Some diseases are prevalent in the general Thai population and do not present new threat to the Thai population. In other cases, some immigrants may carry a new resistant strain of a disease that is no longer a major health danger in Thailand, like malaria or polio. Another danger is that the newcomer will spread a new, previously unknown disease, such as SARS or the avian flu, which were the most recent new outbreaks in Thailand. This is particularly dangerous in migrant workers, who routinely travel back and forth across the border.

To effectively prevent the introduction of new diseases, it is important that health care systems can quickly and accurately identify a new disease. To do so requires extensive training of medical personnel at border health care facilities, particularly in the recognition, diagnosis, and treatment or control of a new or re-emerging disease. An information and consultation system should also be established, so that physicians can consult experts in the field of infectious diseases, or a scientist specializing in the study of new bacteria or viruses. This information can also be utilized to warn surrounding areas and larger municipalities of the symptoms and dangers of any new diseases, so that both physicians and private households are wary of suspicious symptoms, and thus prevent or control an epidemic or outbreak before it begins.

4. Maintaining financial stability & sustainability for providers

The introduction of universal health care coverage dissolved many coverage schemes into the UC scheme, leaving three public health insurance schemes: the UC scheme, the Social Security Scheme (SSS), and the Civil Servant Medical Benefits Scheme (CSMBS). One of the main concerns regarding the Universal Coverage scheme is the sustainability of the program and consequently, the financial stability of

hospitals and other health care providers. The funds annually allocated to each program limit the financial reimbursement available to providers throughout the system. If a hospital or other provider is not confident that they will receive compensation for their work and to cover its operating costs.

Both Social Security and Universal Coverage pay a capitation rate, but under Social Security, most hospitals are reimbursed for more complex procedures and in-patient stays through a diagnosis related group system. Wealthy individuals, regardless of their health insurance, can afford to purchase care out-of-pocket, thus providing revenue to some premium private providers. In its first year, the Universal Coverage Scheme set aside a contingency fund for expensive procedures and tertiary care. Low use and an expectation of financial independence and sound planning, the contingency fund has been phased out of the UC scheme. Without a contingency fund, hospitals and physicians have little or no assurance that their costs will be covered.

It is extremely important that health care providers are financially viable, particularly in rural areas, where medical facilities are already inadequate and closing one health care facility will likely have significant negative effects on health status. The Thai government must provide a capitation payment that is high enough to cover most primary care costs, but it must also instill safeguards to prevent any public provider from incurring losses and carrying a large debt burden. With such protections in place, hospitals can be certain that, regardless of their costs, there will be some conditions under which the government will reimburse the costs of providing its services.

5. Maintaining a standard for quality of care

Under the new health care schemes, the whole Thai population is covered by some form of government-provided health insurance. This does not make all patients alike, however. Many differences distinguish the people covered under each coverage scheme, and these differences may affect the quality of care provided. One issue regarding quality of care may be related to the financial viability of hospitals. It is unethical for a physician deny service based on a person's ability to pay; indeed, the UC scheme was created to avoid this situation. On the other hand, capitation payment schemes will not necessarily guarantee that all costs are covered. If losses are large, and no one is paying for additional precautionary tests, a physician opts not to

administer the test to reduce hospital costs. It is then important that both the financial viability of the hospital and the quality of clinical care are protected.

To ensure that the quality of health care services is as equal and fair as possible, the government should instill practices that assure hospitals that they will be paid for services, and that the sustainability of the UC program is solid. This first step will build confidence in physicians that they will retain their job and hospital for at least another year. To support consumers, the government should establish an independent body to evaluate any serious complaints regarding various public hospital or health facilities. This independent body should have offices or contacts in all areas, to encourage consumers to report their grievances.

Strategies toward financial insurance and stability have already been discussed. To further ensure that the quality of clinical care maintains a certain minimum standard, the government has initiated a program for hospital accreditation, in which hospitals that pass an inspection with minimum standard to receive accreditation. Most hospitals under the Ministry of Public Health are accredited, and many hospitals that have been approved use their accreditation as a selling point. As accreditation less of an amenity and more a requirement in provider choice, quality of care will have to achieve a minimum standard set by the hospital accreditation standards.

6. Operating at maximum technical and allocative efficiency

Maximizing technical and allocative efficiency must occur at two levels: that of the health facility and of the country as a whole. At a health facility, technical efficiency ensures that labor, capital, and technology are used in the best possible ways, without financial or physical waste. Inefficiencies are often manifested in the form of long waiting times and delayed diagnoses for patients. Improving technical efficiency will not only increase output of the facility, but should lower overall average cost and better customer satisfaction. Allocative efficiency is slightly obvious and superfluous at the health facility level. It simply means that the right people and machines are performing the activities for which they were employed. An inefficient allocation might be to make a doctor perform receptionist duties, because although the doctor may be highly capable of typing and filing patient reports, his or her expertise is more likely to be needed in an examination room. Efficiency at the health facility level should be easier in small clinics or health centers, while to achieve the same kind of efficiency at

a large hospital will require a considerable management team that is knowledgeable of the system and the people within.

A study of the country alone reveals that Thailand is not as subject to both technical and allocative efficiency. A prime example of technical inefficiency is the huge influx of CAT scan, MRI, and radiation equipment during the economic boom. Some figures put the number of CAT scans in Bangkok alone, comparable with the number in currently in use in Western Europe. After the economic crisis, however, both public and private hospitals were so constrained for funds that the system was forced to improve its efficiency. Many hospitals in Bangkok were forced to close after the onset of the crisis. Others were forced to reduce the staff and services in order to operate at maximum technical efficiency.

Allocative efficiency is probably one of the most difficult problems that concern the health care system in Thailand. The current systems distribute funds according to consumer preference, to some extent. For each beneficiary who applies at a given hospital or primary care facility, the facility receives a capitation payment. If a patient is satisfied with the service, he or she will register with the same hospital again. If he or she is unhappy with the facility, he or she can register at a new facility the following year. The inefficiencies occur due to the differences between the beneficiaries. Recipients of the Social Security Scheme are workers, and in general good health; most people seeking assistance under the UC program, on the other hand, are poor and make more frequent visits to the doctor. Then, funds are not allocated efficiently, because the cities and municipalities where most formal sector workers are located will not seek medical help as often as the poor rural workers, who are also at higher risk of becoming ill or injured. Improving country-wide allocations, however, is not simple. It requires a complete examination of the density of facilities and personnel, and redistributing funds, facilities, and other inputs to be as equal and fair as possible.

7. Regulation of private hospitals

The rapid economic expansion in the early 1990s coincided with the implication of the Social Security Scheme, which offered considerable profit-making opportunities. This led to rapid expansion in the hospital industry. Specifically, private hospitals emerged all over Bangkok, in the hopes of registering some Social Security recipients and receiving the capitation payment from a group of people who rarely utilized the

medical services made available to them. Under the Social Security Scheme, beneficiaries had to register at 100-bed hospitals, to ensure a wide range of services. This led to the oversupply of health care facilities in general, and an overwhelmingly large oversupply of hospital beds in Bangkok, prior to 1997.

Shortly after the onset of the economic crisis in 1997, many of these new hospitals were forced to reduce their in-patient beds or close altogether. This inconvenienced many people, as well as left some Social Security beneficiaries without a hospital at which to claim their benefits. The economic crisis served as a natural mechanism for regulating the number of private providers in the market, but to avoid future problems, it is necessary for the government or some independent body to examine each private hospital and proposals of new private hospitals that want to open. By regulating the market, the government can keep costs at or below minimum, and promote provision in rural areas.

C. Increasing Resources for Health

Analysis shows that Thailand's health care system is currently insufficient to provide for the current population. The deficiency applies to almost all areas of Thailand, but in particular rural areas are in need of more health services. The need for more inputs in the production of health care includes not only human resources, but also those resources in capital and technology as well.

1. Provision of pharmaceuticals

One important aspect of health care spending is the provision of pharmaceutical products. In 2000, almost 35% of health care expenditures were spent on the purchase of drugs. The UC scheme provides medicines for its recipients subject to the same 30-baht co-payment. The pharmaceutical industry includes small domestic producers of generic drugs, and their large foreign competitors, which usually own patents and thus the well-known brand names of many drugs. Health care reforms must address two important issues in the field of pharmaceuticals: the attitudes of consumers, and the capabilities of domestic producers.

Public opinion distinguishes between the use of a brand name drug and its generic name copy. Some people believe that the lower cost of a generic name drug somehow compromises its efficacy, and many times physicians will have personal

incentives for prescribing a brand name instead of the cheaper generic version. If both generic and brand name drugs are covered under the UC scheme, it is not unlikely that most patients and physicians will choose the more expensive of the two types of drugs. It is important that the government support the use of generic drugs, by requiring physicians to prescribe the generic version when available, or by only providing coverage for the purchase of a generic substitute when it is produced and available.

If the government requires the 47 million people under universal coverage to purchase domestically produced generic drugs, the increase in demand for generic drugs will be quite rapid. It may be difficult for production lines to keep up with the increase in demand in the short-run, and impossible to do so for a sustained period of time. The government should offer support to local pharmaceutical companies, to increase production of generic drugs. If there is excess production, the government can export these drugs to other countries that may in more need of low-priced generic medicines. In any case, the increases in pharmaceutical production will be necessary to meet the rise in demand resulting from universal coverage of health care provision.

2. Research & development in the pharmaceutical industry

Provision of pre-existing drugs is not the only problem in the Thai health care system. The drugs available on the market today are constrained to those treatments for diseases that affect the developed countries, countries that will pay large sums of money to purchase such drugs. As a result, those diseases which affect less developed countries remain without treatment. For example, malaria is prevalent in Thailand as well as other less developed tropical regions. Each year, approximately one million people die from malaria worldwide, but no company has made very significant investments in find a cure for malaria. These pursuits are not profitable because those countries that would benefit from such a discovery are too poor to pay a price high enough to cover the research and testing costs.

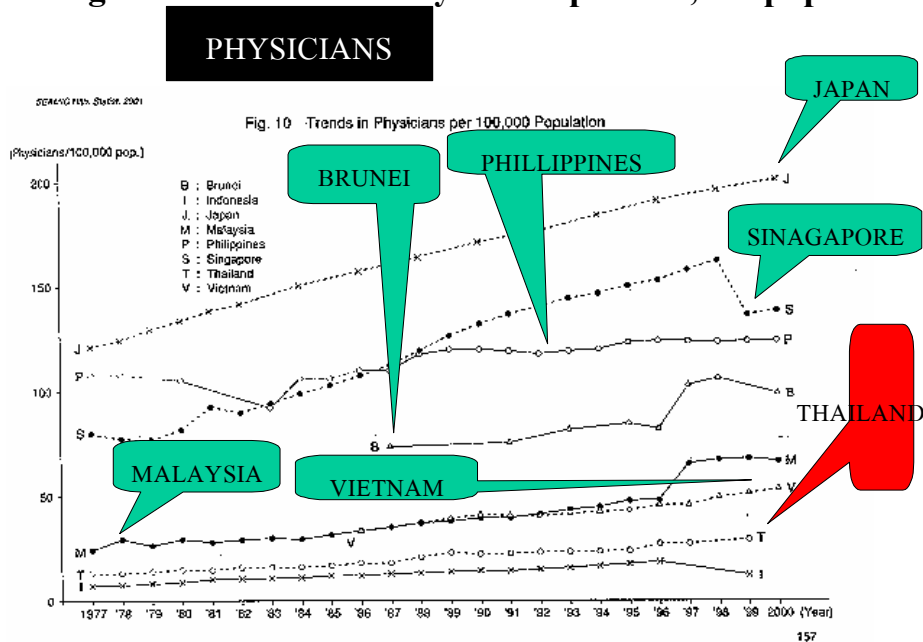
In Thailand, the country and its government have its own interests in discovering the cure for malaria. A considerable number of people will contract malaria every year in Thailand, and with a treatment the dangers of the disease will be significantly reduced. It would be beneficial, then, for the government to invest in the research of new drugs and vaccines, such as treatments for malaria, dengue fever, and other infectious diseases. The discovery of new drugs will benefit not only the health

care system but also the economy in Thailand, and can potentially help the health status in other countries as well.

3. Increase the capacity for programs for medical professionals

Currently Thailand has one of the worst doctor-population ratios in the ASEAN region. A country comparison in Figure 6 shows that Thailand falls far behind other countries in this geographic region. Even countries with much poorer populations and lower incomes show a higher concentration of physicians in their countries. According to Thailand's Ministry of Public Health, a desirable doctor-population ratio is around one doctor for every 1,800 residents in an area. There should be approximately one nurse for every 500 people, and one dentist for every 2,000 people. In rural, more

Figure 6 Number of Physicians per 100,000 population , 2001



sparsely spaced areas, it may be necessary or desirable to have a higher ratio of medical professionals-to-people, to make services more accessible. Current graduating classes matriculate just over 1000 doctors and 1500 nurses per year, while medical professionals are retiring and resigning at ever higher rates. At these rates, the shortage of medical professionals will only continue to rise.

In the implementation of the UC scheme, the Thai government has made a commitment to improve the health status and health outcomes of the Thai people. To follow through with this commitment requires that sufficient personnel and capital are

made available to the provision of health services. This means that the government must commit to increasing the graduating classes of each school of medicine dentistry, and nursing, throughout the country. The government plans to increase the acceptances for each class in two ways. First is to subsidize the schools that accept extra students, so that they can handle the extra capacity. In addition, the government has extended its rural health program, in which a quota of students from less industrialized provinces are chosen to enter medical school, in the hopes that they will return to work in their hometowns. Previous studies have shown that students from rural areas are more likely to complete their compulsory service at a rural health facility. In addition, these students will have the best background knowledge and understanding of the community, which will best serve its residents as a result.

4. Increase the proportion of primary care physicians

The UC scheme attempts to follow the CMH report's recommendation to make close-to-client (CTC) services available, particularly to the poor. An emphasis on CTC requires an abundance of nurses and primary care physicians. Primary care physicians, however, make up only 10% of the physician population. Practicing or training in specialties is popular because specialists lead a more comfortable lifestyle than most general practitioners. Most specialists will see fewer patients, but earn more per visit than a primary care physician.

The government has frozen quotas in specialization programs since 1997, but the annual quota of potential specialists accepted each year is still rather close to the number of physicians in a graduating class, so that virtually all newly graduated physicians could move into a specialty if they chose to do so. Since most people enter specialty fields because of its advantages in terms of finance and standard of living, it is important that a comparable package of incentives is offered to physicians, to lure them to choose or convert to primary health care. These incentives can include better working hours and opportunities for advancement. In addition, the government can subsidize opportunities for further education or research.

5. Increasing the number of medical professionals in rural areas

Choosing to become a primary health care physician is only half the battle for the Thai government. Primary care physicians are most needed in rural areas. Most

people who enter the medical health care service system are attracted to the prospect of working in a big hospital in a city atmosphere. They are not interested in helping the isolated rural health centers. Besides offering the amenities and luxuries of any city, most hospitals in Bangkok are appealing to new physicians because there are more opportunities for advancement and further study in various areas. In addition, most medical students study in Bangkok for some time, as 7 of the 11 public medical schools are located in Bangkok. After living in the city for several years, it is not unusual for a recent graduate to choose to stay and work in the Bangkok area. In the past, the government subsidized the education of students who studied at medical, nursing, dentistry, or pharmaceutical schools. In return for the reduced education fees, students were required to serve at a rural government facility for 3 their first three years. With the partial privatization of public universities in Thailand, this program has been suspended, which will likely result in even more professionals to moving away from work in rural areas.

The government must offer sufficient incentives, including better working hours, better pay scale, and opportunities for advancement. The government already offers opportunities for further education and some research to most government officials in the medical field. These efforts are not sufficient, as evidenced by the consistent deficiency of medical personnel in rural areas. Although the cost of living is much lower in these cities, it may be necessary to pay physicians a higher wage than they would receive if they were to work in the expensive Bangkok. In addition, those areas that lack medical personnel may choose to collaborate with foreign non-governmental organizations, such as Doctors without Borders, to bring more physicians and personnel into rural areas of Thailand.

Just as physicians are often lured to a specialty or to work in urban areas, they are also attracted to the private sector, which can often claim better pay, facilities, and other benefits, over government work. The government provides some compensation for physicians who choose to live and work in rural and remote areas. This hardship allowance can be as much as three times the physician's salary. However, even with this and other forms of supplemental earnings shown in Table 12, the total incomes of government physicians still fall short of the salaries in the private sector, which amount about US\$1500 for recent graduates. Again, similar incentive structures must exist for

physicians and other medical professionals to be drawn away from working in the private sector.

Table 12: Income make-up of MoPH doctors, 2002.

Remuneration	Rate (US\$/mo.)	Remarks
Salary (new graduate)	203	position classification level 4
Non-private practice allowance	250	paid to anyone without a private practice
On-call payments	250-300	US\$ per shift (over 8 hours)
Special procedures during non-official hours	72-126	depends on number and kind of procedures; at provincial hospitals, the rate is much higher
Rare specialty allowance	100	e.g., pathologist; not applicable to new graduates
Professional allowance	90-250	for position classification over 6; not applicable to new graduates
Hardship allowance	50-500	US\$50 for regular districts (532), US\$250 for remote districts (127), and US\$500 for very remote districts (69)

D. Reducing exposure to and vulnerability to health risk factors

The study of risk factors and healthy living entered the health care scene as early as the notions of “primary health care,” introduced in the 1977 Alma Ata conference of the WHO. Health risk factors were given particular attention in the release of the 2002 World Health Report, which was entitled *Reducing Risks, Promoting Healthy Life*. Reducing global health risks will improve not only the directly affected countries, but will also affect countries worldwide.

Health, as defined by Thailand’s Ministry of Public Health, includes many factors at several levels of the health care system, as described in Figure 7. The health care system should not only reduce mortality by curing disease, but should also promote good health, as defined by the government. Promotion of good health means the programs that actively reduce the risks of the public, particularly the poor. In the 2002 World Health Report, the WHO emphasized the importance of reducing the health risks in the poor, who are more vulnerable to risks and more designed a method for quantifying risks and the morbidity and mortality attributable to various risk factors. The report introduces a new method for quantifying the morbidity and mortality

attributable to certain risk factors. The most dangerous global risks at present include malnutrition, unsafe sex, substance abuse, and high blood pressure and cholesterol.

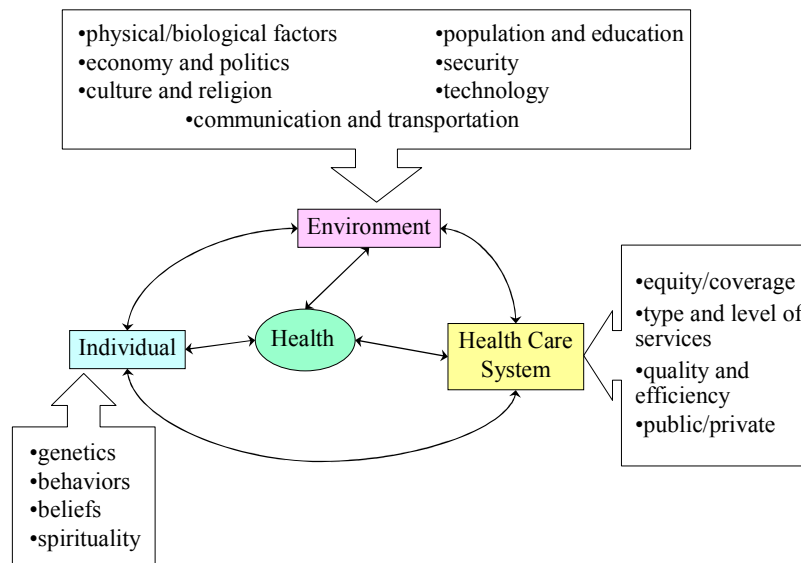
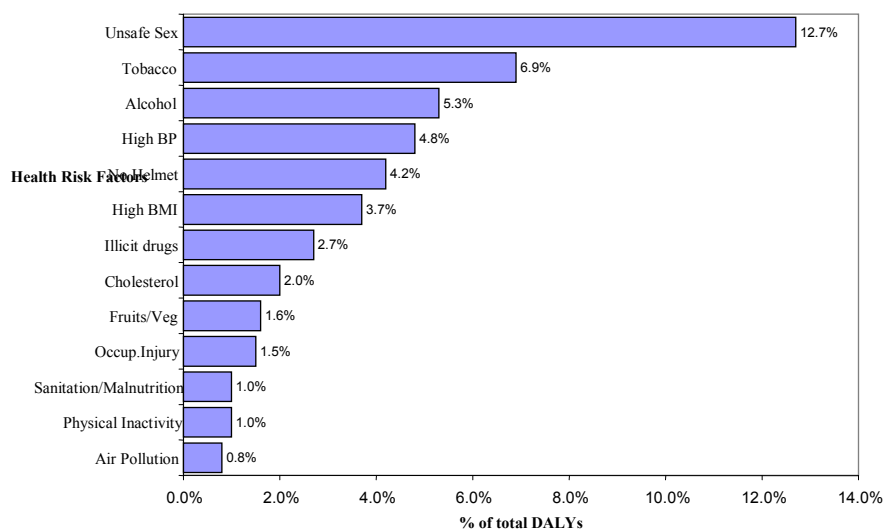


Figure 7. Primary Determinants of Health.

Using the methodology described in the 2002 World Health Report, the Thai Ministry of Public Health studied several risk factors in Thailand. The results of this study are shown in Figure 8. Unsafe sex is by far the most significant health risk, responsible with over 12% of the disease burden in Thailand. This is followed by tobacco use, which leads to a considerably lower number of deaths and DALYs lost. Alcohol, high blood pressure, and riding without a helmet follow closely behind tobacco. These five risk factors account for over one-third of the disease burden in Thailand. This fact certainly demonstrates the importance of addressing these issues, but several additional factors should be considered before the government determines what steps to take toward reducing health risks. The following discussion reviews the principal risk factors and their consequences, as well as possible preventive interventions for each factor. Additional issues to be considered in prioritization process are discussed at the end of the section.

Figure 8: Impact of Health Risk Factors on Disease Burden



1. Unsafe sex

According to the MoPH report, approximately 50,000 deaths and 1.3 million DALYs are attributable to the practice of unsafe sex. According to the 2002 World Health Report on reducing risks, unsafe sex can lead to HIV/AIDS, other sexually transmitted infections (STIs), and cervical cancer. Of these consequences, HIV is undoubtedly the most prominent and devastating outcome. HIV/AIDS was the leading cause of disease burden in Thailand in 1999.

Most HIV prevalence worldwide resulted from heterosexual sex. In Thailand, the spread of HIV in most surveillance groups has fallen or slowed significantly. Most of the new cases of HIV are emerging in non-traditional groups, primarily adolescents, married women, and injecting drug users.

The Thai government, with financial and public support of the Royal Family, has proven capable of slowing the spread of HIV, through its focused education efforts. Rates of HIV infection in Thailand began close to those in many African countries, but the Thai government's programs have successfully contained the spread of this dangerous and deadly disease. To address the current rising threats of HIV and other STIs arising from unsafe sex, the government should expand its educational efforts to a more general audience. Education is one of the most inexpensive and effective forms of prevention.

In addition to educating the public, the health care system should make confidential counseling and testing services available to anyone who wishes to be tested. In Bangkok, many public hospitals already offer free testing services, and some

hospitals or clinics offer counseling services as well. In rural areas, however, the accessibility is not as evident. Counseling services will require training, but some of these training costs can be absorbed into training programs for nurses or other health professionals. Testing technology is also becoming more inexpensive and efficient. The government should provide financial and informational support to any local facilities.

Mother-to-child transmission of HIV is not a direct result of unsafe sex. It is not uncommon for a woman to unknowingly contract the disease from her husband. If a pregnant woman is unaware of her condition, her unborn child faces a heightened risk of contracting HIV. Risk of mother-to-child transmission is lowered if the mother is treated with nevirapine at the onset of labor. Nevirapine is also administered to the child within 72 hours of delivery. Breast feeding increases the risk of transmission, so women should also be counseled on finding alternatives to feed their infants. In Bangkok, pregnant women are tested for HIV as an aspect of antenatal care. Expanding testing services, as well as establishing counseling services are the next steps for the government. According to the burden of disease report, published by the Ministry of Public Health, HIV/AIDS is responsible for the loss of almost 85,000 DALYs in children under the age of 14 alone. (It is probably a safe to say that a majority of HIV+ children acquired the disease from mother-to-child transmission.)

People who are victims of HIV/AIDS should be offered any available and affordable treatment. Many pharmaceutical companies offer antiretroviral treatment at lower prices, and domestic companies are investigating local generic production. The triple drug therapy is available for as little as US\$1 per day. In addition, scientists are making progress on the vaccine front, and some estimates say that in another 10 years, an HIV vaccine may be on the market. These prospects are hopeful, but prevention programs are still the most important way to reduce risks and eliminate HIV/AIDS as a major health problem in Thailand.

One important factor regarding these interventions has not been addressed. Testing and counseling have shown to be effective only for those who seek out the services. Vaccines only work on people who receive them. Besides availability and financial accessibility of the services, several barriers remain. In rural areas, testing and counseling centers should be widely dispersed; if people have to travel an hour or more simply to be tested, some will not bother to make the trip. Another important

issue is the social stigma associated with HIV/AIDS. In its inception into Thai society, HIV was generally known as a disease almost exclusive to homosexuals, commercial sex workers, and injecting drug users. At present, HIV prevalence is steady or falling within these groups, and HIV is now more commonly transmitted from mother-to-child, or husband-to-wife. Still, in rural areas, little is known about the disease. Children who are diagnosed are turned away from schools. A woman may fear that being tested represents recognition or acceptance of her husband's indiscretions. In these cases, ignorance seems the best way to avoid any problems. Without social acceptance and understanding of the disease and its victims, HIV/AIDS interventions will not reach the people who are really in danger.

2. Addiction and abuse: tobacco, alcohol, and illicit drugs

Addictions to tobacco, alcohol, and other drugs are also related to social pressures and attitudes. Consumption of these drugs is usually a result of habits that often begin during youth, resulting in rapid and strong addiction. The dangers of these practices are some of the most serious long-term chronic and painful diseases that people can suffer, so reducing these risks is imperative. Habitual smoking or tobacco consumption can lead to lung cancer, chronic obstructive pulmonary disease (emphysema), and other respiratory and vascular diseases. Excess alcohol consumption can lead to ischemic heart disease and other cardiac diseases, hypertensive diseases, diabetes, liver cirrhosis, epilepsy, and any number of cancers, including liver cancer, breast cancer, and cancer of the mouth and/or pharynx. In addition, alcohol use or abuse is directly related to any number of motor accidents, falls, homicides, injuries, and poisonings. The use of illicit drugs can lead to HIV/AIDS, as well as trauma, suicides, and overdose. Once a person reaches the point of addiction, it is often difficult for the person to quit. It is important that programs aim to stop the problem before it begins.

The Thai government has taken several pro-active steps to discourage and reduce alcohol, tobacco, and drug consumption. Strong media-wide campaigns encourage people to promote observation of illegal drug activity. In addition, the government uses TV and other media to promote other activities, like playing on a sports team, which serve as alternatives to drug use. Cigarette commercials and use are censored out of any TV media, and alcohol commercials are permitted to run only

during late hours, after most young children are asleep. Indoor smoking laws permit people to smoke inside designated businesses like bars or pubs. Both cigarettes and alcohol products are required by law to have sufficient labels on their packaging, warning the buyer of the dangers of using the product.

In addition to social measures to discourage the use of alcohol and cigarettes, these products are subject to an excise tax. The profits are earmarked for health programs. It is possible that the tax prevented some people from purchasing cigarettes or alcohol for a first time, but it is impossible to distinguish people who chose not to purchase cigarettes because of their price from those who did not buy them because they were aware the health dangers or some other external factor. Because of the nicotine in cigarettes, many habitual users want to quit smoking but are unable to overcome the physical addiction. Cessation or nicotine replacement therapy programs can help smokers safely and definitively quit smoking.

3. High blood pressure & cholesterol

High stress working environments and poorer eating habits may be the cause of high blood pressure and high cholesterol, both of which are risk factors for ischemic heart disease as well as a number of other fatal and debilitating diseases. As the demographic and epidemiological trends in Thailand transition to more closely resemble trends observed in more developed countries, there is a growing concern for diseases related to these risk factors.

There is no one reason that a person may have high blood pressure or high cholesterol. Several factors affect these levels, and many different approaches may also be taken to reduce them. The best and perhaps least expensive way is to avoid the problem through promotion of a healthy eating and living habits which include diet, regular exercise or activity, and stress reduction techniques. In people who are already diagnosed with this condition, treatment in through medication is possible, although much more expensive. In cases of very high cholesterol, surgery may be required to relieve the blockage in the arteries. The keys to reducing the risks and costs of treating these health conditions are two-fold. First, health educators must encourage people to practice preventive measures against the conditions. Second, there must be some way to monitor or warn people of the symptoms of these conditions; early detection can significantly reduce the costs of treatment and the risks of injury or death.

4. Helmet Use

Motorcycles are ubiquitous in Thailand. In the busy city of Bangkok, they serve as a rapid mode of transportation, since its small size allows its riders to maneuver through traffic quite easily. In rural areas, motorcycles serve as the quickest and most inexpensive mode of long distance travel. Despite the wide-spread use of motorcycles and frequent accidents which are reported, many Thais continue to neglect the habitual use of a helmet for protection. In rural areas, some people may see it as unnecessary if they are traveling a short-to-medium distance. Others find it inconvenient or uncomfortable, and thus choose not to wear this life-saving device.

The dangers of not wearing a helmet when riding a motorcycle are demonstrated by the high rate fatalities in traffic accidents. The burden of disease study shows that almost 600,000 years of life were lost from deaths in traffic accidents. Traffic accidents were the second leading cause of years of life lost in men and the fifth highest among women. The 2002 World Health Report on reducing risks suggest three groups of solutions in reducing the risk of being involved in a traffic accident. The first is to make engineering changes, in road design or management of traffic flow. The second solution would be to build in stricter road use measures, such as speed limits, road restrictions, and laws on driving under the influence of alcohol. The third type of solution is the use of safety equipment, such as helmets for motorcycles and seat belts in cars.

The Thai government has already instituted a law requiring all motorcycle riders to wear a helmet for their own protection. In addition, there are laws prohibiting motorcycles on many high-speed dangerous roads, but these laws are not always followed. Law enforcement officials must strictly enforce these safety laws to build their own credibility, and to make the adherence to these rules habitual for all motorists.

5. Safe drinking water and sanitation

Safe drinking water and sanitation are two of the root causes of diarrhea, which caused the loss of over 70,000 years of life lost in 1999 alone. In addition, these issues also address the Millennium Development Goals (MDGs), which work to help the poor in particular. Safe drinking water is not available in most of the country, although for many people in rural areas, safe drinking water refers to collected rain water. Although they are taught how to collect, keep, and treat this water to make it safe for drinking,

the safest and most certain way to prevent the problems of safe drinking water is to lay down the pipeline infrastructure to provide tap water to all households. Such infrastructure can also serve to provide sanitation services to rural areas. It is important to note that, although the financial funds for such infrastructure should be supported by the central government, the construction and implementation should be carried out by local community government. Local leaders will probably know where and how these types of programs can best be carried out, so as to expand services to the most people effectively and efficiently. The central government should serve as a place of technical and financial support, as well as a monitor to ensure that adequate progress is achieved.

6. Malnutrition

Malnutrition is not only a major problem among children, it is important in work towards achieving Millennium Development Goals (MDGs). Campaigns in providing iodized salt and iron supplement and other programs to provide proper nutrition to all children has helped reduce malnutrition in children to a minimum. Malnutrition remains an important issue in pregnant women especially iron and iodine deficiencies. Low birth weight is one of the most common problems among children under 14 years, accounting for some 150,000 DALYs lost in 1999 alone. Low birth weight can lead to other health problems in terms of the child's growth and strength in the months following delivery. If a child contracts HIV from his or her mother, and is also born underweight, the child's chances for survival grow slim. The best solution to this problem is prevention, through proper antenatal care and delivering the child in the presence of an experience health care worker, whether it is a physician, a nurse, or a midwife. According to the 2002 World Health Report, the mother should also feed her child breast milk exclusively for at least the first two months after birth. The issue of breast feeding is a serious one, because in HIV-positive mothers, breast feeding is discouraged because of the increased probability of transmitting HIV to the child; however, the mother's milk does contain important nutrients and is nutritionally better than any formula. This emphasizes the importance of women being tested for HIV, especially if she is pregnant.

E. Summary of Strategic Framework for Investing in Health: Choosing the Right Reforms

One of the most obvious considerations for the government is that of cost. The government budget is limited, and each division of government has limitless requests. The health sector, of course, is no exception. With the initiation of the UC program, the need for resources in the health care sector clearly indicates rising costs long into the future. Prioritization of the programs or interventions the government will undertake requires accurate and current information on the potential cost-effectiveness of each potential program or combination of programs. It is important that programs be considered in combination because it is not uncommon for some programs to share costs. For example, introducing sexual health education into schools may be determined a cost-effective program to limit the spread of HIV, while education on tobacco and alcohol addition and abuse may be found to be too costly. If all three of these areas are taught in the *same* health class, however, the total cost will be much lower than each program separately. It is vital, then, that these synergistic gains are not ignored in evaluation of costs.

In addition to costs, it is important to consider the potential situation if no intervention is applied. In some cases, the government may incur unnecessary costs by purchasing goods or services that people may be willing to purchase out-of-pocket otherwise. An interesting example of this is the persistent condom use by commercial sex workers (CSWs). Initially, the government provided free condoms to CSWs as part of its 100% condom use program to prevent the spread of HIV, which was introduced in 1990. In cooperation with education programs on how HIV is spread and the dangers of the disease, the government was able to increase condom use among this cohort to 90+%. After the economic crisis in 1997, the buying power of the health budget fell considerably, primarily because changes in the exchange rate caused the cost of imported pharmaceuticals and medical supplies to rise dramatically. As a result, the government suspended the free provision of condoms, while continuing its education programs on HIV/AIDS. Studies on the changes in health factors and outcomes after the economic crisis showed that condom use in this group remained essentially unchanged. It may have been important that the government offer condoms free initially to promote the practice, but once CSWs recognized the dangers of unsafe sex, they were willing to pay privately to protect themselves, at a significant savings to the

government. This savings meant that funds could be used toward other programs or interventions that will further improve the health of the Thai people.

Identifying those goods and services that consumers will purchase privately is obviously valuable to improving the health care system. Conversely, it is just as important that the government also identify those groups who are too poor to purchase health goods and services. In its report, the WHO identifies the poor as being significantly more vulnerable to risk. In fact, according to the report, if the poor population faced the same risk factor prevalence as the non-poor, indoor air pollution and unsafe water sanitation would be reduced approximately 50% each.

The risks faced by the poor are exacerbated by their inability to overcome their economic situation. It is, in part, the responsibility of the government to provide appropriate support and social safety nets, to prevent poverty incidence and improve overall standard of living. During the height of the economic boom in the early 1990s, income inequality in Thailand rose to staggering heights. The crisis that followed showed statistical improvements in income inequality, but the improvement is derived primarily from the fact that the rich lost more money, proportionately, than the poor. The income loss to the poor, however, is more devastating to their standard of living than the loss to the rich. In Thailand, the government has implemented important measures to improve the situation of the poor; it is important that the situation of the poor is closely monitored to prevent further rises in income inequality.

Table 13 Summary of Strategic Framework for Investing in Health

Problem	Interventions/Solutions	Target/Goal
<i>A. Strengthening of the health care infrastructure and health care coverage</i>		
1. Demand for Universal Coverage by the poor: although widely publicized, the poor may not be utilizing the 30-Baht scheme to its fullest, due to their ignorance of the programs offered, the registration required, and other administrative procedures	Offer information sessions, administered by village health communicators, to make residents aware of the procedures and allow them to fully utilize the coverage. During these sessions, it may be helpful to stress the importance of particular public health services, such as immunizations.	Empowering the poor by educating them of their rights will allow them to better utilize the services available to them.
2. Eliminating physical and social barriers to access for the poor: in some areas, health care facilities are few and far between; in others, cultural or social differences may hinder efficient and easy access to care	Cooperate/incorporate NGOs or special interest groups to help those who are susceptible to social exclusion from receiving care; transportation services should also be made available for people who face a physical barrier receiving service	Poor and marginalized groups, particularly in the border regions of the North and Northeast, and in the Deep South, should benefit most
3. Health care at country borders: these areas are extremely vulnerable to the introduction/entry of new, unknown disease like SARs and avian flu, or the re-entry of eradicated diseases, such as tuberculosis or malaria	Training for personnel in border communities on how to detect, prevent, and control the introduction of new disease from neighboring countries	Improved disease detection and control at the country borders will help prevent unexpected outbreaks.
4. Ensuring that providers will remain financially sound, despite increased demand and the potential for lower revenues under the UC scheme and its capitation payment system	Maintain a contingency or emergency fund, especially for rural hospitals that may face financial hardship; funds need to be supported by some revenue source in addition to general tax.	Ensuring financial stability will give providers more confidence and assurance in supplying service to its patients.
5. Ensure quality of care under Social Security & Universal Coverage versus under CSMBS: differences in insurance schemes allow for differentiation of patients, which can potentially lead to different levels or quality of care	The government has a hospital accreditation program that offers consumers some guarantee of a standard of service; consumer protection should also be guaranteed by an independent organization that will accept complaints	Ensuring high quality service and care in hospitals will increase the credibility of particular hospitals, as well as the health status of the kingdom as a whole.
6. Need for technical and allocative efficiency on the part of providers: the problem is exemplified by the over-supply of health services in urban Bangkok and its surrounding areas, versus the inadequate level and amount of services in rural areas	Capitation payments promote technical efficiency; those providers that are not efficient will be forced to close. If people register to the hospital most convenient to them, allocative efficiency should also be achieved.	Technical and allocative efficiency will lower costs of providers. In addition, a more efficient system should improve consumer satisfaction as well.

Problem	Interventions/Solutions	Target/Goal
7. Regulation private sector provision: During the initiation of the Social Security Scheme and with the onset of the economic boom, the number of private providers in Bangkok grew rapidly.	Regulation requires a government or independent body to monitor or approve the construction of new private health care facilities throughout the country.	Regulation will ensure quality of care, as well as efficiency of providers in the industry, minimizing problems of over- or under-supply.
B. Resources for Health		
1. Pharmaceuticals and essential drugs: increasing demand or preference for brand-name drugs will cause costs of health care to escalate rapidly; medicines are a necessary input in the production of health care; but like any other input, drug costs must also be contained as much as possible	If the UC scheme covers only the purchase of generic drugs when a generic alternative is available, drug costs will fall, leaving funds available for other health or social improvements.	Promoting a mentality in which people understand that generic drugs are as good as brand-name drugs will save significant costs for the government and other purchasers of health services.
2. Research and Development in medical technology: most companies in Thailand do not have the financial means to invest tens of millions of Baht into the research of a new innovation that may not be released on the market for years to come. Most companies do some research, but usually into short-term projects that will show quick turnaround and profit	The government should provide financial support in the form of grants or loans, to these companies. To promote research and development in pharmaceuticals specifically, the Ministry of Public Health could begin its own research team or department to promote scientific research into the drug synthesis and testing	Research within Thailand can focus on those diseases and health problems that plague Thai citizens most.
3. Inadequate number of trained medical professionals (i.e., physicians, dentists, nurses, & pharmacists): Thailand has one of the worst physician-population ratio in the ASEAN region	The Ministry of Public Health has proposed several programs for increasing the number of students accepted at medical schools and other programs for medical professionals.	The number of medical professionals is inadequate to serve the needs of the growing population and its problems.
4. Number of primary care doctors versus specialists: UC is centered on primary health care, in terms of promotion and prevention, as well as curative care. Rural areas in particular need the presence/advice of primary care physicians more so than any other sources	Physicians who study specialties are still qualified to provide primary health care services. Providing incentives for some physicians in specialized fields to move to a primary health care position, as well as incentives for graduating students to become primary care physicians, will help shift the emphasis of health care and lower the need for physicians.	Emphasizing primary health care will allow people to benefit from promotive and preventive care (which are less expensive than curative care and has better public health effects)

Problem	Interventions/Solutions	Target/Goal
5. Regional distribution of trained medical professionals: rural areas, particularly the northeast, have insufficient numbers of medical professions. The sparse nature of population distribution only increases the need for medical personnel	These areas may have diseases and other challenges specific to the area. The government must provide incentives to those physicians who are willing to work in rural areas. In addition, one education program specifically chooses students from rural areas to study at medical school and return to serve in their hometowns.	Health professionals who understand and are committed to the community where they work are likely to stay there longer and offer higher quality service
6. Medical professionals moving into the private sector: with the unregulated and inflated growth of private 100-bed hospitals in Bangkok, many early graduates, and even some more experienced medical professionals are drawn to work in the private sector	Offer incentives that are at least comparable to, if not better than, those offered in the private sector. Opportunities for further study or research fellowships may also attract professionals who might leave the public sector.	Provision in the private sector is also more expensive due to superfluous or extravagant amenities, which is why the government's UC plan does not cover provision at private hospitals
C. Health Risk Factors		
1. Unprotected sex: the prevalence/incidence? of STDs, including HIV/AIDS, is rising in those groups that were previously considered low-risk (married women and adolescents)	Institute health and sexual education in schools, to make adolescents aware of the dangers of STDs; offer free and anonymous testing and counselling at smaller clinics. Provide MCT prevention care for pregnant women with HIV	Education is one of the most effective forms of prevention. Better education can culture a social acceptance of the HIV. Anonymous testing will encourage people to be tested, despite social intolerance
2. Cigarette and/or tobacco use: trends in the older (over-40?) population show that emphysema and cancers of the throat, lungs, and mouth are increasingly likely, in part due to the increase in smokers (due to economic boom?)	Tobacco education in schools can prevent children from initiating the habit of smoking. Smoking is already censored out of TV-media. Provide cessation programs for people trying to quit.	Reducing the overall number of smokers improves the health of smokers and people who are exposed to smokers, because of the effects of second-hand smoke.
3. Habitual alcohol use/abuse: the increasing trends in liver cancer and cirrhosis demonstrate the heightened habitual alcohol use in Thailand. Alcohol-related accidents are another danger	Same type of programs as tobacco. (alcohol use is not censored like cigarettes, but it is restricted by a curfew for bars, pubs, and other institutions whose primary business is the sale of alcohol.	Positive externalities in that lower prevalence of DUI will lead to safer road conditions and fewer traffic accidents.
4. High Blood Pressure & Cholesterol: this is an increasing problem, resulting from unhealthy lifestyles, which include poor diet and exercise habits	The Thai government promotes exercise through all media; older adults should also be monitored through primary care providers, so that these risks are caught and controlled during its early stages	High Blood Pressure and Cholesterol have been known to lead to stroke, ischemic heart disease, and hypertensive disease, all of which are leading causes of mortality in Thailand.

Problem	Interventions/Solutions	Target/Goal
5. Riding a motorcycle without a helmet: traffic accidents are one of the leading causes of death or disability in Thailand. The neglect of using proper head gear definitively increases the chance of death, instead of temporary or permanent disability	Thai government has already implemented a law for motorcyclists to wear helmets at all times; also motorcycles are prohibited in many areas where the potential for dangerously fatal accidents are likely to occur.	Observing safety precautions, like the helmet law, will make the road safer for all drivers, not only those who wear helmets.
6. Sanitation and clean water supply: due to the socio-economic disparity between urban and rural areas, many rural areas do not have access to clean water and/or sanitation services.	Increase the coverage of safe drinking water through tap water. Significant investments in laying pipes setting up clean water systems will improve accessibility and availability of water, and reduce funds needed for educating those who live on collected rainwater.	The widespread availability of safe drinking water available from the tap eliminates the need for education programs in this area and will help prevent disease in terms of cleaning one's self and one's belongings
7. Malnutrition: Low birth weight is one of the main causes of death in newborns and infants under 1. Micro-nutrition in women and children is also an increasing problem, raising the risk of acquiring anaemia.	Low birth weight can be addressed with proper antenatal care, and the presence of a professional during delivery; malnutrition in children should be addressed through government programs (food stamps, school lunch programs)	Reduction in infant and child mortality will improve life expectancy and have significant demographic effects, which will improve social and economic development.

Chapter 4

Goals, Vision, Missions and Investment Plan (2006-2015)

Analysis of Thailand' current situation and trend has been utilized as an important input in the formulation of long-term vision, missions, goals and investment plan for health sector. Strategies can be designed into three categories: strengthening of health care systems, increasing resources in the production of health care, and reducing health-related risk factors.

A. Proposed Framework of Investment Plan

Vision

Thailand's health development will contribute to the achievement of the highest attainable quality of life "Healthy Thailand". Every person in the Thai society has an equal access to quality health services and lives in healthy environment. Thailand will be one of the world class "Medical Hub."

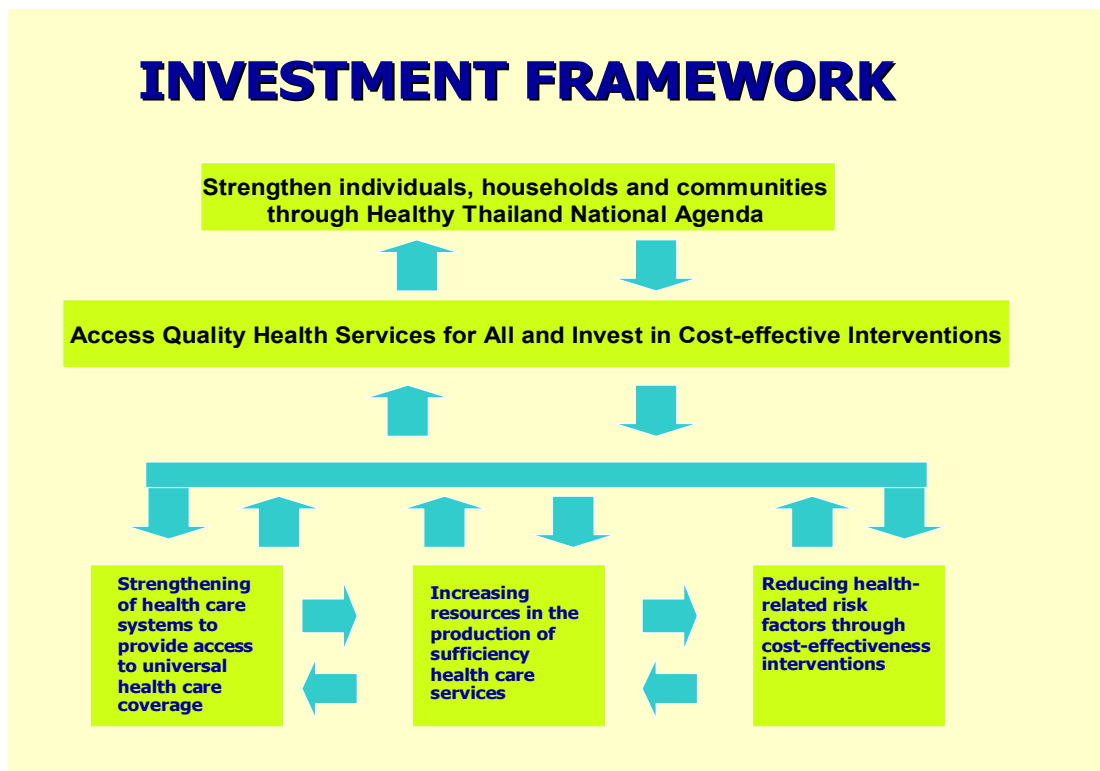
Mission

To achieve the highest attainable quality of life by responding to people's needs to ensure equity in health and access to quality, comprehensive universal health care services through "Healthy Thailand National Agenda" and "Thailand as a World Class Medical Hub."

Goals

1. Strengthening the health care system means ensuring equal and available access to high-quality health care services for all.
2. Increasing resources in health care includes human, physical, and technological resources, and requires changes not only in the number of each but also their distribution across different regions in the country.
3. Health risk factors are important determinants in mortality and disease burden. Each of the risk reduction interventions can potentially be incorporated into long-term plans for the future of health care provision and the delivery of medical services.

Figure 9 Investment Framework



B. Health Investment Plan for 2006-2015

Given the proposed vision, mission, and goals of the framework for investment plan, the development of health investment plan is divided into three parts as follows:

4. Infrastructure and human resources for health
5. Health insurance coverage
6. Health risk reduction

I. Infrastructure and human resources for health Investment Plan (2006-2015)

1. Objective of Health Service System

The health service delivery objectives in every country should include 3 dimensions - access, quality and cost containment. Unfortunately, there are conflicts between each objective. To increase access objective, distribution of health service units and health care resources could induce low quality in each health service unit due to inadequate health care resources in each unit and could increase cost of the whole system. To achieve quality objective, aggregated health care resources to meet with the standard inputs in each health service unit could increase cost of the whole system. To

achieve cost containment objective, limitations of health care resources and the system could reduce access and quality as shown in Figure 10.

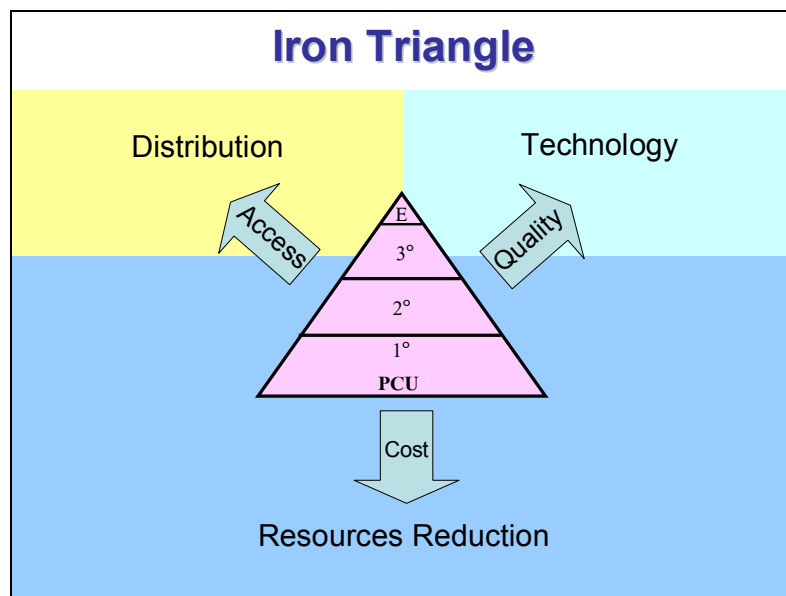


Figure 10 Objectives of Health Service Delivery System

2. Level of Health Service System

To improve efficacy of the health service delivery system, the goal should aim at balancing access, quality, and cost containment by categorizing health service into general service that focuses on access, and specific service that focuses on quality (Figure 11). The level of service delivery is determined by quality improvement, health resources, and financial mechanism adjusted by major burden of diseases.

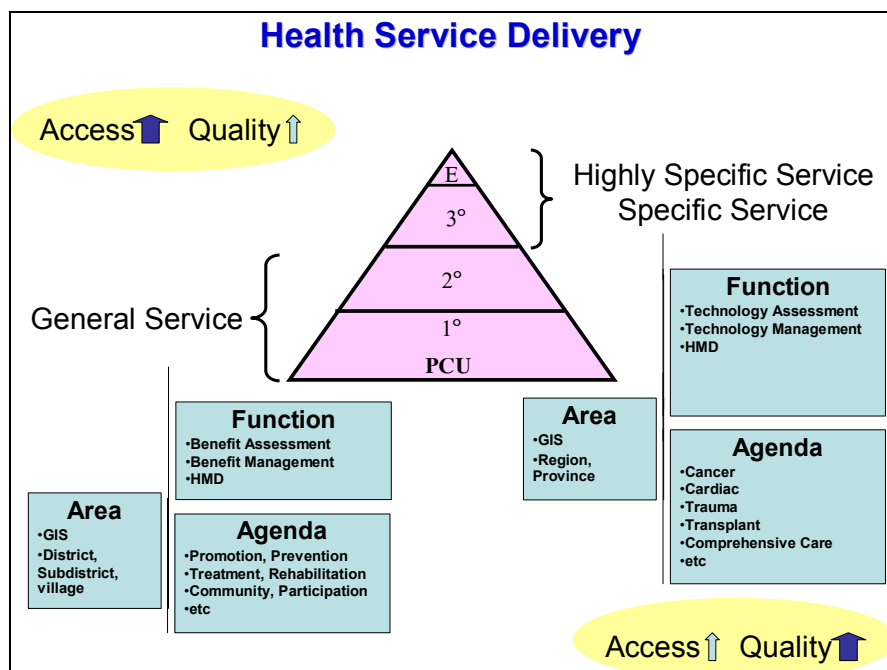


Figure 11 The Level and Objective of Health Service Delivery

The referral system should link between levels of service and should not be burdened on an individual or family. The imbalance of access or quality would increase cost and burden of referral system (Figure 12).

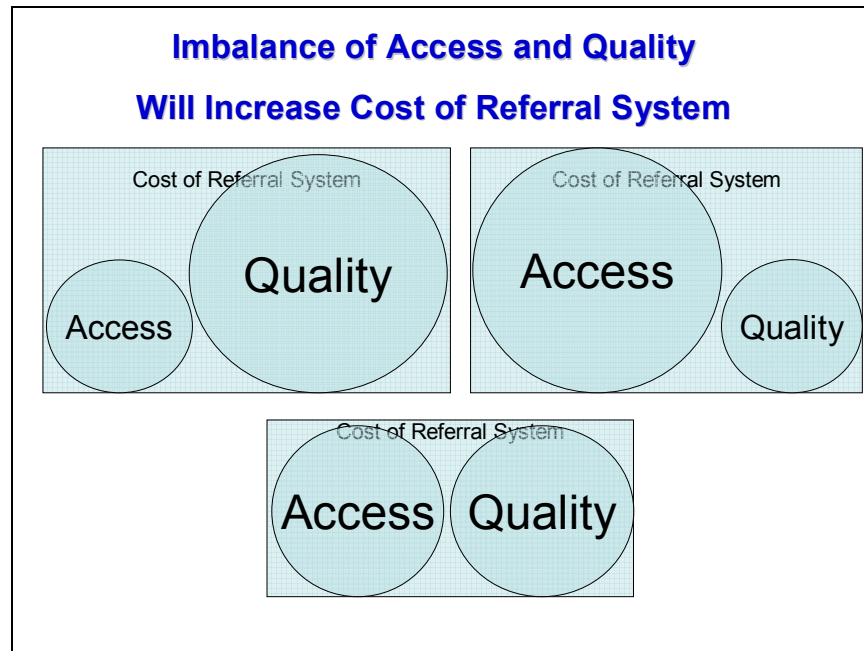


Figure 12 Imbalance of Access and Quality, Increase Cost of Referral System

3. Burden of Disease and Balance of Access and Quality

The evidence based cost effectiveness classification of service would be the key success factor for cost containment. The linkage between burden of disease (Figure 13) and levels of health service delivery should be taken into the analysis in order to increase the efficiency of the investment.

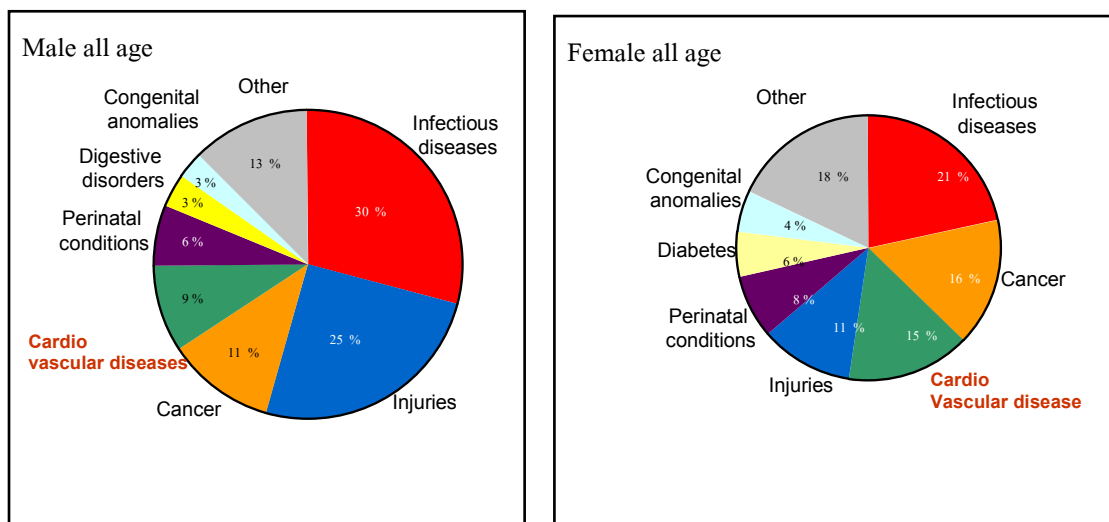


Figure 13 Burden of Disease in Thailand 1999

The inpatient services from diagnostic related group information since 2003 to 2005 suggested that the competency of the MOPH hospitals showed minimal or no improvement (Table 14) due to lack of capital investment while other hospitals both private and public hospitals showed improved competency of hospital performance (Table 15).

Table 14 DRG Average Relative Weight per admission in each level of MOPH hospitals

	Community Hospital <60 Beds	Community Hospital >60 Beds	General Hospital <300 Beds	General Hospital >300 Beds	Regional Hospital
2003	0.518	0.544	0.692	0.809	1.031
2004	0.593	0.624	0.783	0.915	1.138
2005	0.600	0.631	0.819	0.912	1.102

Table 15 DRG Average Relative Weight per admission in each level of Non-MOPH hospitals

	Other Provincial Private Hospital	Other Provincial Public Hospital	Bangkok Private Hospital	Other Bangkok Public Hospital	Medical Schools and Tertiary
2003	0.566	0.591	0.570	0.609	1.342
2004	0.849	0.987	0.865	1.525	1.960
2005	0.968	1.094	1.091	1.571	2.102

4. Principle of Capital Investment

Infrastructure, human resources of health, medical equipment, and health information system are the main capital investment plan justified by burden of disease, level of health delivery, and DRG information.

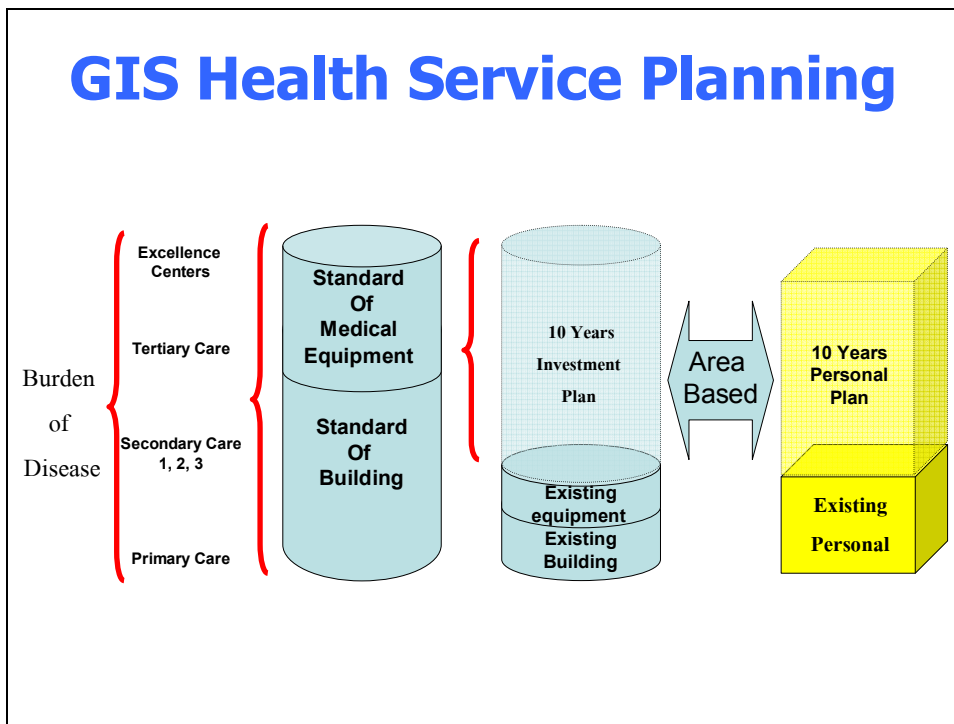


Figure 14 Capital investment Plan for Health Service System according to GIS Health Service Planning

5. Human Resources for health

After the implementation of 30 baht policy, the problems of human resources for health in the public sector seem to be more severe in terms of quantity and quality. The number of health professionals working throughout the country falls far short of standards set by the Thai Ministry of Public Health, and without active recruitment and action to change this trend, the gap will continue to widen. The deficiency of personnel and the disproportionate distribution continue to exist despite government efforts to reverse both trends over the past four decades.

Table 16, 17, 18 and 19 show the expected number of medical doctor and nurse requirement and investment needed for the next 10 years. Table 20 shows the unit cost of each level of infrastructure in adjusted for access and quality of service.

Table 16 Expected Number of Medical Doctor Requirement and Investment

Year	New MD (number)	Public Sector Requirement (number)	Investment (million baht)
2006	1499	39,258	674.55
2007	1499	39,538	674.55
2008	1499	39,818	674.55
2009	1499	40,098	674.55
2010	2500	40,378	1,125.00
2011	2500	40,620	1,125.00
2012	3000	40,879	1,350.00
2013	3000	41,151	1,350.00
2014	3500	41,437	1,575.00
2015	3500	41,734	1,575.00

Table 17 Expected Number of Nurses Requirement and Investment

	New Nurse (Number)	Old Plan MOPH Nurse (number)	MOPH Requirement (number)	Public Sector Requirement (number)	Investment (million baht)
2006	1,619	71,717	93,584	123,993	161.90
2007	1,500	71,799	93,950	125,132	150.00
2008	1,500	72,269	94,335	126,108	150.00
2009	3,000	72,443	94,740	127,083	300.00
2010	4,000	72,494	95,163	128,056	400.00
2011	5,000	72,544	95,276	129,032	500.00
2012	6,000	72,593	95,445	130,011	600.00
2013	6,000	72,641	95,639	130,085	600.00
2014	6,000	72,688	95,983	131,748	600.00
2015	6,000	72,735	96,321	132,697	600.00

6. Capital investment for infrastructure

Table 18 Capital Investment for Quality Focus

Level	Equipment/hospital Per unit (baht)	Hospital/HC (number)	Total Investment (million baht)
1	231,702.06	10,573	2,449.79
2.1	8,849,895.95	818	7,239.22
2.2	33,489,709.88	279	9,343.63
2.3	158,843,152.00	110	17,472.75
3.1	358,224,498.00	32	11,463.18
3.2	101,795,732.55	20	2,035.91
Total			50,004.48

Table 19 Unit cost for dormitory staff for each level of infrastructure

	Dormitory for staff	Service Building	Building Investment
1	4,023,000,000	4,250,480,000	8,273,480,000
2.1	4,253,017,600	11,530,520,000	15,783,537,600
2.2	3,508,752,000	7,986,840,000	11,495,592,000
2.3	4,062,115,200	13,021,668,000	17,083,783,200
3.1	2,103,332,000	3,908,670,000	6,012,002,000
3.2	2,801,632,800	9,439,794,000	12,241,426,800
	20,751,849,600	45,887,492,000	66,639,341,600

Table 20 Capital Investment for Balance of Access and Quality for each level of infrastructure

Level Of Service	Medical Equipment	Hospital/Health Center	Investment
1	356,720.00	10,573	3,771,600,560.00
2.1	15,213,341.10	818	12,444,513,019.80
2.2	28,665,216.87	279	7,997,595,506.73
2.3	85,034,378.87	110	9,353,781,675.70
3.1	97,898,732.30	32	3,132,759,433.60
3.2	101,795,732.55	20	2,035,914,651.00
			38,736,164,846.83

7. Capital Investment for Referral System

People could access to health center or primary care unit within 15 minutes, and to community hospital within 30 minutes from where they live. The referral from a community hospital to a general hospital, and regional hospital in an emergency and accidental condition was the hospital responsibility, but in other conditions the referral was determined by patients and their families on and self support scheme. Health resources such as ambulance, equipment and referral nurse for referral system in the community hospital, general hospital and regional hospital was inadequate and burden was placed on the patients and family. The referral system should be planned to achieve certain standard and to reduce referral cases by patients themselves, if possible, the referral system should be removed from a hospital and the resources should be pooled together at the regional level to be more efficient.

Total referral Case=10.4% of total cases(130 million OPD Visits)= 13,520,000 Referral

Cases Average Distance 65.5 km total Distance = 888,264,000 km

Cost of Refer/years= 4,441.32 million Baht

8. Hospital information System

The total estimation of 8,320.00 million Baht for 5 years is used as the based cost for hospital information system for 10 years (16,640.00 million baht).

Table 21 Total Investment cost for infrastructure and human resources for health (Baht)

Year	Building	Medical Equipment	Doctor	Nurse	Referral System	HIS	Total
2006	7,547,141,040	7,747,232,969	674,550,000	161,900,000	4,441,320,000.00	1,664,000,000.00	22,236,146,015
2007	7,547,141,040	7,747,232,969	674,550,000	150,000,000	4,441,320,000.00	1,664,000,000.00	22,224,244,009
2008	7,547,141,040	10,166,437,037	674,550,000	150,000,000	4,441,320,000.00	1,664,000,000.00	24,643,448,077
2009	7,547,141,040	10,166,437,037	674,550,000	300,000,000	4,441,320,000.00	1,664,000,000.00	24,793,448,077
2010	7,547,141,040	10,166,437,037	1,125,000,000	400,000,000	4,441,320,000.00	1,664,000,000.00	25,343,898,077
2011	7,547,141,040	10,166,437,037	1,125,000,000	500,000,000	4,441,320,000.00	1,664,000,000.00	25,343,898,077
2012	7,547,141,040	10,166,437,037	1,350,000,000	600,000,000	4,441,320,000.00	1,664,000,000.00	25,343,898,077
2013	7,547,141,040	7,747,232,969	1,350,000,000	600,000,000	4,441,320,000.00	1,664,000,000.00	23,349,694,009
2014	7,547,141,040	7,747,232,969	1,575,000,000	600,000,000	4,441,320,000.00	1,664,000,000.00	23,574,694,009
2015	7,547,141,040	7,747,232,969	1,575,000,000	600,000,000	4,441,320,000.00	1,664,000,000.00	23,574,694,009
Total	75,471,410,400	89,568,350,030	10,798,200,000	4,061,900,000	44,413,200,000.00	16,640,000,000.00	240,953,060,430

II. Health insurance coverage

The efforts to introduce a social security system in Thailand went back in the early 1970s. However, it was not until 1990 that the Social Security Act was enacted and Social Security Health Insurance started providing medical benefit to workers in companies with more than 20 workers in 1991. Later in 1996, the law extended to cover workers in companies with more than 10 workers and at present it covers even 1 workers or self-employed. Moreover, there were various schemes of providing medical benefits; one scheme was free medical care for the low-income scheme subsidized by the government from 1970s until 2001, another scheme was voluntary health card scheme which was a prepaid with partially subsidized by the Ministry of Public Health from 1987 until 2001.

After the fourth year of implementation of the Universal Health Care Policy (UC or 30-baht policy), the capitation rate was increased to 1,396.30 baht for the 2005 fiscal year although the study showed the appropriate capitation rate of 1,510 baht. The target population under UC at present is 47 million and the total budget for UC is 65,626,768,000 baht. From the 2004 National Health Security Office report, it shows

the coverage of different schemes as of September 2004. There are 42.75 million people registered under 809 contractors of primary care units of the Ministry of Public Health, this accounts for 90.78% of the total eligible UC population. There are 80 contractors of primary care units under other ministries with 2.08 million registered (4.42%) and the rest 2.26 million UC population are registered with the private health facilities (4.8 %) showed in Table 22. Table 23 show the utilization rate of the UC beneficiaries.

Table 22 Coverage of insurance schemes in Thailand in 2004.

Scheme	Population Coverage (Million)	%	Payment (baht/capita)
UC	47	75.2	Capitation (1,308)
-Ministry of Public Health's facilities	42.75	68.3	
-Other ministries' facilities	2.08	3.3	
-Private hospitals	2.26	3.6	
Social Security	8.2	13.2	Capitation (1,700)
Civil Servant Medical Benefit	6.8	10.8	Fee for service (>2,000)
Wait for eligibility	2.8	4.5	-
Total	62.6	100	

Source: Jongudomsuk.

Table 23 Utilization of UC Beneficiaries

Item		2002	2003	2004	% increase
Utilization rate	Outpatient (visit/person/year)	2.27	2.52	2.54	1.08
	Inpatient (episode/person/year)	0.09	0.087	0.092	5.46
Number of utilization	Outpatient (million patients)	41.396	32.538	39.66	21.89
	(million visits)	102.95	115.01	119.64	4.02
	Inpatient (million patients)	3.39	3.99	4.329	8.54
	(million days)	14.93	14.46	16.63	15.55

Source: Jongudomsuk 2004.

The introduction of universal health care coverage dissolved many coverage schemes into the UC scheme, leaving three public health insurance schemes: the UC scheme, the Social Security Scheme (SSS), and the Civil Servant Medical Benefits Scheme (CSMBS). One of the main concerns regarding the Universal Coverage scheme is the sustainability of the program and consequently, the financial stability of hospitals and other health care providers. Both Social Security and Universal Coverage pay a capitation rate, but under Social Security, most hospitals are reimbursed for more complex procedures and in-patient stays through a diagnosis related group system.

Maintaining a standard for quality of care is another important issue. Under the new health care schemes, the whole Thai population is covered by some form of government-provided health insurance.

The UC scheme attempts to follow the CMH report's recommendation to make close-to-client (CTC) services available, particularly to the poor. An emphasis on CTC requires an abundance of nurses and primary care physicians. There is an urgent need to produce more nurses and primary care physicians to attain the quality care at the primary care units.

The first scenario is the projection of investment in health insurance in Thailand through the three schemes (CSMBS-Civil Servant Medical Benefit Scheme, SSS-Social Security Scheme, UC-30 Baht Scheme) based on the assumption of increase of the total health expenditure as a % of GDP shown in Table 24.

Table 24 Scenario 1: Summary Investment in Health Insurance in Thailand (2006-2015) unit:in million Baht

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
CSMBS	31,812	34,070	36,390	38,864	41,855	44,625	47,079	50,209	53,537	62,531
SSS	18,639	20,613	22,016	23,513	27,501	32,176	36,037	40,002	44,402	48,491
UC	80,037	85,646	91,478	97,698	104,955	110,202	117,530	125,345	133,655	151,360
Total health expenditure as a% of GDP	3.57	3.58	3.59	3.62	3.64	3.67	3.69	3.7	3.71	3.72
Total health expenditure growth rate %	8.14	6.86	6.84	6.80	7.6	6.62	6.65	6.65	6.63	6.62

Source: Adapted from Patcharanarumol et al, 2005.

The second scenario is based of the integration of the three schemes into one scheme after 2010 applying a single capitation rate from 2011-2015.

Table 25 Scenario 2: Summary Investment in Health Insurance in Thailand (2006-2015) unit:in million Baht

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
CSMBS	31,812	34,070	36,390	38,864	41,855					
SSS	18,639	20,613	22,016	23,513	27,501					
UC	80,037	85,646	91,478	97,698	104,955					
Single capitation rate (Baht)						2,212	2,326	2,439	2,553	2,667
Population (million)						67.385	67.737	68.178	68.603	69.045
Total (million Baht)	130,488	140,329	149,884	160,075	174,311	149,069	157,543	166,314	175,143	184,116

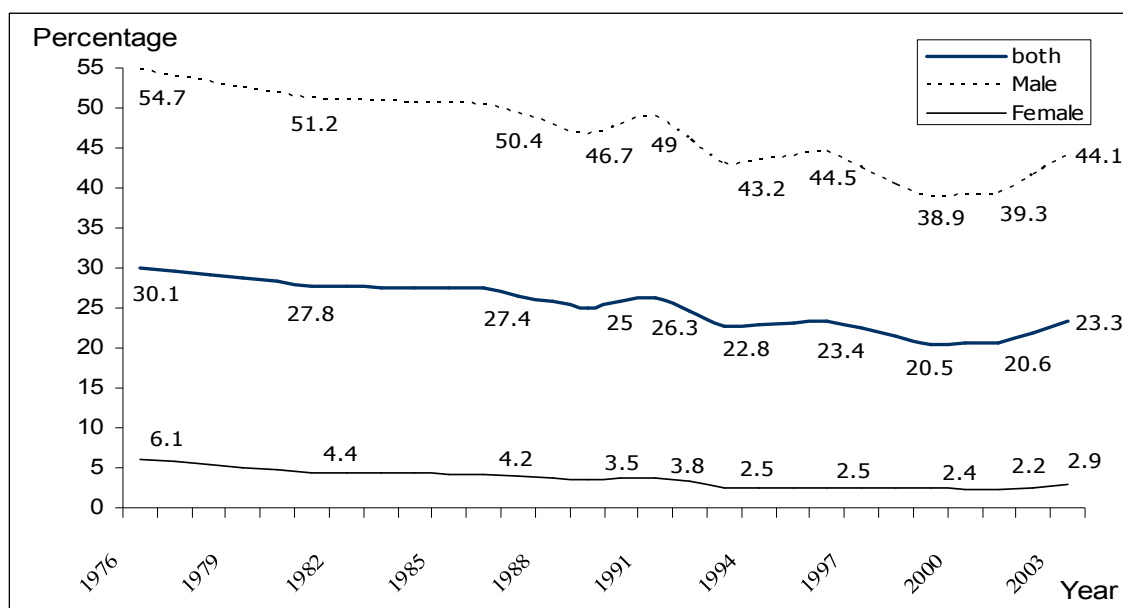
III. Health risk reduction

1. Tobacco

Situation and trend

Tobacco use was the leading cause of disease burden worldwide. Overall smoking prevalence in Thailand has declined slowly but steadily since 1976 when 54% of males and 6% of females smoked, although there has been a slight increase among males in 1991. By 1995, just under half (49%) of adult males smoke, but less than 4% of females do so. (<http://www.tobaccofreeasia.net/Menu/Index.htm>) It is accepted that the most comprehensive data on tobacco consumption in Thailand is the National Statistics Office's study (NSO) on the state of health and welfare in the kingdom, which is completed every two to three years. The recent health and welfare survey was studied and data was collected from 68,433 samples in April 2003. The result showed that 23.3 percent of population with 11+ years was 'smokers'. Male smokers were larger than female smokers (44.1 and 2.9 percent).

Figure 15 Estimated number / percentage of smokers by gender (1976 to 2003)



Source: Nation statistic office and <http://www.tobaccofreeasia.net/Menu/Index.htm>

Over the last decade, smoking prevalence in Thailand has declined, particularly among the older generation, however smoking rates among the youths have fluctuated. According to a 2003 survey, the highest prevalence for males occurs at age 35-39 years (53.8%) while for women, it peaks at age 50-59 (5.3%). Overall, while smoking rate had dropped, female smokers at age of 15-19 seriously increased to 0.7 percent and those aged 40-49 increased to 4.5 percent as well. There are presently an estimated 10 million smokers in Thailand, which is expected to increase to 13 million smokers by 2025, mostly due to growing population numbers. (Table 26)

Table 26 Projected estimation of tobacco consumption in 2025

	2000	2025
Total population	64 million	80 million
Population > 15 years	47 million	63 million
Prevalence male smokers	42.6%	25%
Prevalence female smokers	2.6%	15%
Overall adult prevalence	22.6%	20%
Numbers smokers aged 15+	10.5 million	13 million

Source: <http://www.tobaccofreeasia.net/Menu/Index.htm>

Based on data in 1999, number of death from smoking was 11.2 percent of all cause death. Male death was over ten times as common as female. Thai's burden of

diseases was estimated 9.5 million DALYs. Smoking attributable to was estimated about 5.1 percent of burden from all causes. This percentage in male was nearly ten times as common as female (Table 27).

Table 27 Burden of disease from smoking compared to all causes

	Person		Male		Female		Ratio M : F
	Number	%*	Number	%*	Number	%*	
Deaths	35,029	9.0	31,896	14.0	3,133	2.0	10.2
YLL	455,267	6.8	412,011	9.9	43,256	1.7	9.5
YLD	32,862	1.2	29,796	2.1	3,067	0.2	9.7
DALYs	488,130	5.1	441,807	7.9	46,323	1.2	9.5

Source: Burden of disease and injuries in Thailand, Ministry of Public Health

*percentage of total burden from all causes

Cost and Effectiveness of Interventions in Thailand

The study of the cost-effectiveness of tobacco interventions in Thailand has mainly focused on health information such as education and campaign, which are experimental studies with rather small sample sizes (lower than 200). Most of these interventions are associated with various types of health education and counseling, mostly in school. In view of this limitation of robust local evidence on the effectiveness of the intervention, we decided to use international results with consultation with local experts. Where local information is better, such as price elasticity of tobacco derived from a Thai study, it was used to replace the regional estimates.

Four interventions on tobacco were selected for this assessment, i.e. taxation, comprehensive advertising bans, clean indoor air law, and nicotine replacement therapy. The present scenario is the current rate of taxation. Every selected intervention was assessed according to its cost-effectiveness against null scenario, the situation in which the intervention did not exist.

Costs and effectiveness of each intervention are summarized in Table 28. NRT shows the highest cost of implementation, more than 350 times the cost of increasing taxation. The lowest cost is taxation, followed by clean indoor air law and comprehensive advertisement ban. For effectiveness, it can be seen that increasing tax at 25% from the current tax is the highest effective interventions, followed by tax at current rate, comprehensive ban, clean indoor air law, and NRT.

Table 28 CEA of different interventions

Interventions	Cost (Baht per year, millions)	Effectiveness (DALYs averted per year)	ACER (Baht per DALY saved)	ICER (Baht per DALY saved)
Current Scenario (tax at current rates)	441	658,343	669	Dominated
Increased taxation (Current + 25%)	441	698,096	631	631
Advertising ban	509	461,750	1,101	Dominated
Clean indoor air laws	443	424,954	1,042	Dominated
Nicotine Replacement therapy	7,363	417,960	17,617	Dominated
Increased taxation (Current + 25%) + Ad ban	949	1,159,845	818	Dominated
Increased taxation + Clean indoor air laws	883	1,123,050	787	1,042
Increased taxation + NRT	78,04	1,116,056	6,992	Dominated
increased taxation + ad ban + Clean indoor air laws	1,392	1,584,800	878	1,101
increased taxation + ad ban + NRT	8,753	2,275,902	3,846	10,651

When cost and effectiveness of each intervention were compared, their cost-effective ratios (baht per DALY) show that taxation is the best choice based on this cost-effectiveness ratio. Second best intervention is clean indoor air law, followed by comprehensive advertisement ban and NRT as the most expensive option compared with its effectiveness.

Projection on financing required to reduce tobacco burden

From 2000 to 2025, smokers will be increased by 23.8%. If we want to keep the burden at the same number as in 1999, we will need to invest in interventions to reduce smokers by 23.8%. And for 50% reduction means we need to reduce another 26.2% from current situation. In terms of economic cost, that would be estimated at 154,005,015 baht. This is about 35% of current spending. By spreading the cost until 2025, i.e. 20 years, we would therefore need about 7.7 million baht to invest per year. For financial cost, we add 441 million baht to maintain current interventions. Therefore, in terms of money we would need 448.7 million baht per year for expansion of the interventions.

2. ALCOHOL

Situation and Trend in alcohol consumption

Thailand is one of the highest increasing rates in consumption. Between 1970 and 1996, our registered volume per capita had increased by 333.68%, from 1.93 to 8.37 liters of pure alcohol per adult over 15 years, which rank in the 3rd sharp shooting consumption world wide. Incredibly, by the year 1999 and 2000, Thailand was one in the top ten countries in alcohol consumption volume per capita at 13.59 liters (WHO global data). Particularly, beer consumption in Thailand had a 6 times increase between 1987 and 1997. In terms of disease burden it was estimated that alcohol consumption in 1999 leads to 5.3% of DALYs loss, second only to unsafe sexual behavior.

In 2001 the National Statistic Organization conducted the health and welfare survey in national scale. This survey expresses that 32.6 % of the over 15 years old are reported to be the drinker, with significantly gender difference in drinker proportion, 55.9% in male adult and 9.8% in female (the rest proportion is abstainer for over 1year). By using consumption volume in 2000 and drinker proportion in 2001, and another assumption that no beverage consumed by below 15 years youth, we can crudely estimate that one Thai drinker consume as much as 41.69 liters annually. Comparing data between 1996 and 2001, we have averagely about 260,000 new drinkers per annum. This is about 2.3% increasing rate. However, for female teenage group (age of 15-19), the drinker proportion almost double itself in five year, from 1% to 1.9% .

Cost and Effectiveness of Interventions in Thailand

Five interventions on alcohol were selected for this assessment, i.e. taxation, random breath testing, reduced hours of sale, advertising bans and brief interventions in primary care. Present scenario is current rate of taxation and random breath testing at 10 percent coverage. Although other interventions except brief intervention which is still at an early stage are currently implemented in Thailand, the level of enforcement is not apparent enough to consider their effect. Every selected intervention was assessed its cost-effectiveness against null scenario, the situation in which the intervention did not exist.

The analysis of cost-effectiveness of 7 single and mixed interventions are presented in Table 29. Among single intervention, increasing tax up to 50% shows the most cost-effective. This is followed by taxation at 25%, taxation at current rate, RBT, comprehensive advertising ban, reduce access to retail outlets, and brief advice in primary care.

Table 29: CEA of different interventions

Interventions	Cost (Baht per year, millions)	Effectiveness (DALYs averted per year)	ACER (Baht per DALY saved)	ICER (Baht per DALY saved)
Current Scenario (Tax and partial RBT)	451.4	244,837	1,844	Dominated
Tax at current rates	373.6	232,947	1,604	Dominated
Increased taxation (Current + 25%)	373.6	260,809	1,432	Dominated
Increased taxation (Current + 50%)	373.6	296,573	1,260	1,260
Reduced access to retail outlets	375.9	29,522	12,732	Dominated
Comprehensive advertising ban	375.9	31,239	12,032	Dominated
Brief advice in primary care	1,051.5	33,512	31,376	Dominated
Roadside breath-testing	233.4	35,624	6,552	Dominated
Combination 1: Increased tax and scaled-up RBT	576.6	325,554	1,771	7,007
Combination 2: Increased tax and Advertising Ban	712.0	321,256	2,216	Dominated
Combination 3: Increased tax and Brief advice	1,396.6	323,484	4,317	Dominated
Combination 4: Increased tax + scaled-up RBT + Ad ban	1,620.8	350,485	4,625	Dominated
Combination 5: Increased tax + scaled-up RBT + Ad ban + Reduced access	1,222.9	373,310	3,276	13,532

Different sets of mixed interventions were also evaluated. The findings indicate that the most cost effective combination of two interventions is increased tax and scaled-up RBT, and that of four interventions is increased tax with scaled-up RBT, comprehensive advertising ban and reduced access.

Projection on financing required to reduce tobacco burden

From the CEA information above, the best choice for a combination of two intervention is to increase tax and scale-up RBT which would cost at 7,007 baht per DALY averted. We assumed that the investment required is to reduce DALY loss from alcohol at 5% per year. Therefore, it would need about 176.4 million baht per year. Taking into

account the current investment, that would be an additional finance of 130 million baht per year.

3. OTHER RISK FACTORS

There are other risks that are disease burden. The costing of interventions that reduces risk factors is by projecting the existing health expenditures under the public sector programs shown in Table 30.

Table 30 Investment Plan on risk reduction interventions (million baht)

Year	Alcohol	Tobacco	Traffic accidents	Iron & Iodine	Exercise	MCH	Food safety	Illicit drug	Total (million baht)
2006	448	315	270	40	200	500	200	645	2,618
2007	448	315	270	40	200	500	200	645	2,618
2008	448	315	270	40	200	500	200	645	2,618
2009	448	315	270	40	200	500	200	645	2,618
2010	448	315	270	40	200	500	200	645	2,618
2011	448	315	270	40	200	500	200	645	2,618
2012	448	315	270	40	200	500	200	645	2,618
2013	448	315	270	40	200	500	200	645	2,618
2014	448	315	270	40	200	500	200	645	2,618
2015	448	315	270	40	200	500	200	645	2,618
Total	4,480	3,150	2,700	400	2000	5000	2000	6450	26,180

C. Summary of investment plan

Table 31 Summary of the investment plan 2006-2015 (Million Baht)

Year	Infra- Structure	Health insurance	Risk Reduction	Total
2006	22,236	130,488	2,618	155,342
2007	22,224	140,329	2,618	165,171
2008	24,643	149,884	2,618	177,145
2009	24,793	160,075	2,618	187,486
2010	25,344	174,311	2,618	202,273
2011	25,444	149,069	2,618	177,131
2012	25,769	157,543	2,618	185,930
2013	23,350	166,314	2,618	192,282
2014	23,575	175,143	2,618	201,331
2015	23,575	184,116	2,618	210,309
Total	240,953	1,587,272	26,180	1,854,405

Chapter 5

Proposed National Commission on Macroeconomics and Health

A. Introduction

The CMH, on the evidence, found that a few diseases and health conditions are responsible for the preponderance of global health deficit. It recommended that scaling up interventions to cope with these diseases and health conditions would greatly improve the health status of the population, particularly the poor who bear a vastly disproportionated burden of ill health and diseases. The CMH demonstrated that this process would contribute to accelerating economic growth and reducing poverty.

The CMH recommended that middle and low income countries should establish temporary national commission on macroeconomics and health, or equivalent, to identify the main diseases and health conditions in their countries that account for the health deficit and development investment plan for scaling up the related interventions. Thailand responded to the CMH report by setting up a working group on Macroeconomics and Health (WGMH) which comprised of experts and high level administrators, health planners, economists and representatives from the National Economic and Social Development Board, the Ministry of Finance, and the WHO Thailand Office, with the Bureau of Policy and Strategy as the secretariat.

The WGMH has since carried out:

2. Analysis of the current situation and trends, with emphasis on the poor and marginalized
2. Diagnosis of the main health problems and prioritization
3. Examination and evaluation of selected health interventions for cost-effectiveness and feasibility
4. Development of a Strategic Framework and Investment Plan (SFIP)

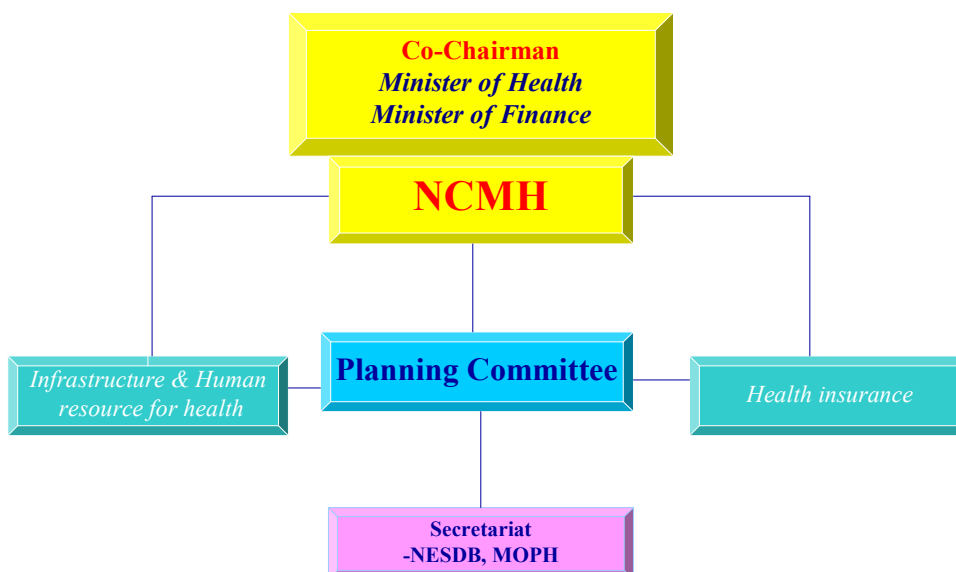
B. Proposed National Commission on Macroeconomics and Health

The WGMH has proposed that a National Commission on Macroeconomics and Health be established for ensuring requisite political commitment on a sustained basis to accord health its rightful place in national socioeconomic development agenda, policies, plans and strategies.

Objectives for the NCMH:

1. Review and endorse, with such adjustments, amendments and improvements as considered appropriate, the SFIP developed by WGMH.
2. Provide necessary political support to the approved SFIP.
3. Support due dissemination and spread of the key findings and main recommendations of the CMH and WGMH.
4. Support plans and coordinate actions on the main causes of the identified priority diseases and health conditions that warrant scaling up.
5. Support mobilization of resources, both internal and external, required for implementing the approved SFIP.
6. Support development of partnerships with all stakeholders such as ministries of education, social development, interior, NGOs, private sector, academia, media and external donors for health development.

Composition of the NCMH:



NCMH meetings:

While NCMH may decide on the modalities of it working, it may consider meeting twice a year. One meeting may be in advance of the annual plan and budget. The second meeting may be after six months to review the utilization of fund provided.

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