

ผลกระทบของการเปลี่ยนถ่ายโครงการเข้าถึงบริการยาต้านไวรัสระดับชาติ
สำหรับผู้ติดเชื้อ เอชไอวีและผู้ป่วยโรคเอดส์ รวมเข้ากับชุดสิทธิประโยชน์ของ
ระบบหลักประกันสุขภาพถ้วนหน้า โรงพยาบาลจังหวัดน่านในประเทศไทย



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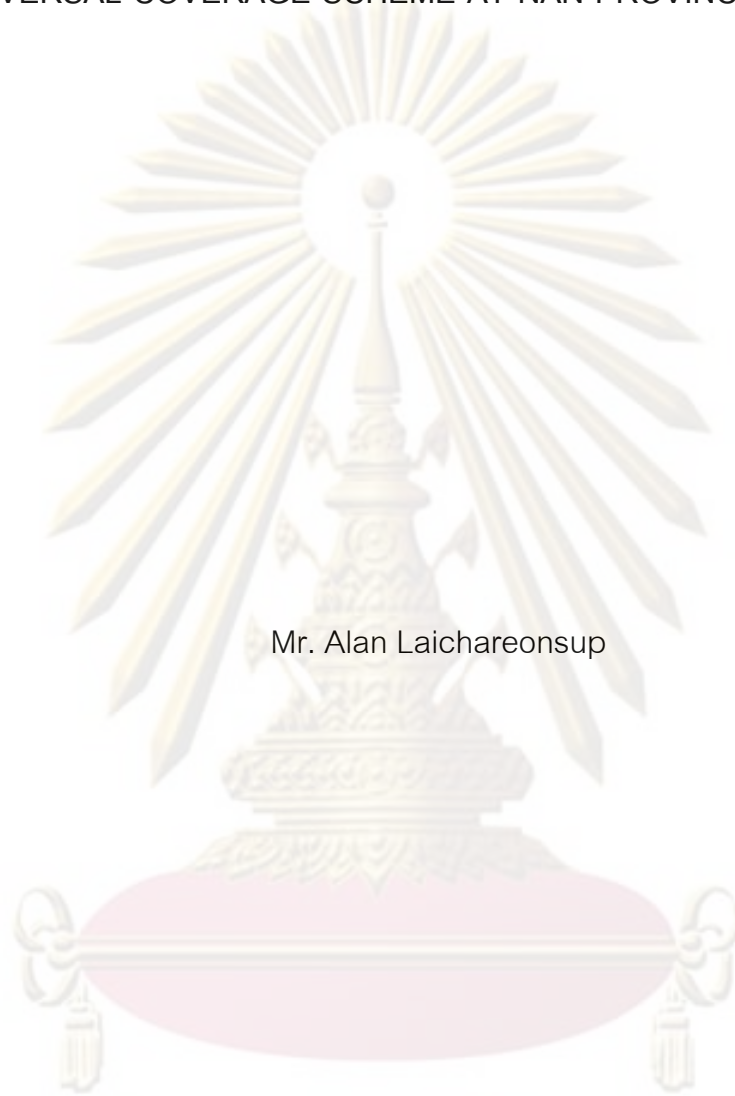
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THE IMPACT OF THE INTEGRATION OF THE NATIONAL ACCESS TO
ANTIRETROVIRAL PROGRAM FOR PEOPLE LIVING WITH HIV/AIDS INTO
THE UNIVERSAL COVERAGE SCHEME AT NAN PROVINCE IN THAILAND



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ศูนย์วิทยทรัพยากร
A Thesis Submitted in Partial Fulfillment of the Requirements

for the Degree of Master of Science Program in Health Economics

Faculty of Economics

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Thesis Title THE IMPACT OF THE INTEGRATION OF THE NATIONAL ACCESS TO ANTIRETROVIRAL PROGRAM FOR PEOPLE LIVING WITH HIV/AIDS INTO THE UNIVERSAL COVERAGE SCHEME AT NAN PROVINCE IN THAILAND

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อลัน หลายเจริญทรัพย์: ผลกระทบของการเปลี่ยนถ่ายโครงการเข้าถึงบริการยาต้านไวรัสระดับชาติ สำหรับผู้ติดเชื้อเอชไอวีและผู้ป่วยโรคเอดส์ รวมเข้ากับชุดสิทธิประโยชน์ของ ระบบหลักประกันสุขภาพถ้วนหน้า ที่โรงพยาบาลในจังหวัดน่าน ประเทศไทย (THE IMPACT OF THE INTEGRATION OF THE NATIONAL ACCESS TO ANTIRETROVIRAL PROGRAM FOR PEOPLE LIVING WITH HIV/ AIDS INTO THE UNIVERSAL COVERAGE SCHEME AT NAN PROVINCE IN THAILAND) อ.ที่ปรึกษา:รศ.ดร.ศิริเพ็ญ ศุภกาญจนกันติ,อ.ที่ปรึกษาร่วม : รศ.ดร.นพ จิรุตม์ ศรีรัตนบรรณ,120 หน้า

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In 2006, the Thai government established antiretroviral therapy as part of health benefits under the Universal Coverage Scheme. This descriptive study purposed to examine HIV/AIDS treatment and the changes during the transition from NAPHA to the UCS. Data were collected from Nan province. Analysis involved the assessment of factors influencing ART under the UCS policy. The findings: obstacles during the transitions were lack of infrastructure development. It also affected drug management and laboratory supply chain and logistics, but not to a severe degree. ARV drug regimen types are not vastly different under either NAPHA or the UCS, therefore; under both programs treatment procedures can be integrated efficiently. The Thai Government should consider excess demand which will likely lead to increase costs, and the social implications. The Ministry of Public Health should take greater responsibility for policy making, instead of the National Health Security Office, and the provincial public health offices also should be given greater responsibilities too.

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ศูนย์วิทยุทรัพยากร
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ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
ART	Antiretroviral Treatment
CSMBS	Civil servant medical benefit scheme
DDC	Department of Diseases Control
GFATM	Global Fund to fight AIDS, TB, and Malaria
GPO	Government Pharmaceutical Organization
HAART	Highly active antiretroviral therapy
HIV	Human Immunodeficiency Virus
IDU	Injecting Drug User
MOPH	Ministry of Public Health
NAPHA	National Access to ARV for People Living with HIV
NHSO	National Health Security Organization
NNRTI	Non - Nucleoside Reverse Transcriptase Inhibitor
NRTI	Nucleoside Reverse Transcriptase Inhibitor
OIs	Opportunistic Infections
PI	Protease Inhibitor
PHA	People Living With HIV AIDS (PLWHA)
PMTCT	Prevention of Mother-to-Child Transmission
SSS	Social Security Scheme
STD	Sexually Transmitted Diseases
STI	Sexually Transmitted Infection
TNP+	Thai Network of People Living with HIV/AIDS
UN	United Nations
UNAIDS	United Nations AIDS Program
UNGASS	United Nations General Assembly
UCS	Universal Coverage Scheme
VCT	Voluntary Counseling and Testing
WHO SEARO	World Health Organization, South East Asia Regional Office of Public Health

CHAPTER I

INTRODUCTION

1.1 Socio-economic Demographics of Thailand

Thailand is situated on the Southeast Asian peninsula and has a total surface area of 513,115 square kilometers. The nation comprises five main regions: northern, central, northeastern, eastern and southern. Thailand has a warm and rather humid tropical climate with three distinct seasons including rain from June to October, cool weather from November to February; and hot weather from March to May. Thailand's estimated 2006 population was approximately 65 million. In 2006 average life expectancy for Thai males was estimated at 66.9 years, whereas Thai females averaged 73 years. 93.6% of the total population are Buddhists, 4.1% are Muslims, 0.8% are Christians, 0.8% are Hindi, and 0.05% belong to other religions (Thailand Health Policy, 2006).

Bangkok is the capital of Thailand and is situated in the central region. The city serves as a major business, industrial, and social center and provides superior health care services with well-equipped hospitals and certified medical personnel. More than half of Bangkok residents are under 30 years of age. The Bangkok Metropolitan area and many central region provinces experienced rapid economic growth over the last several years. Nearby eastern region provinces also achieved strong economic growth through their strategic proximity to the nation's capital as well as public and private investment in the Eastern Seaboard Development Project.

In stark contrast the northeastern region of Thailand, where the majority of local residents are farmers or fishermen, does not attract lucrative businesses or industries and is among the poorest of the five regions due to low agricultural acclimatization of local farmlands. Agricultural production, especially rice, in the northeastern region is significantly less than in other regions. Meanwhile the northern region of Thailand demonstrated significant social and economic development due in part to the continual

growth of Chiang Mai province, resulting in improved access to education and medical care for northern residents. Health problems, including HIV/AIDS, continue to plague the region, however, due to mountainous terrain which imposes physical barriers that constrain community access to health services.

The southern region of Thailand faces very unique problems, which are reflected by the health status of local residents. The root of these problems is primarily poverty and conflict between local government and Muslim insurrectionist groups. Similar to the northeastern region, most southern residents are farmers or fishermen. Unlike the northeastern region, weather in the south is more suited for agricultural activities, including the cultivation of sugarcane, pineapple, and rubber trees.

Thailand's economic pattern is gradually shifting towards greater industrialization as is reflected by the nation's increasing gross domestic product (GDP). Tourism and transportation are among the nation's fastest growing sectors. The Thai economy expanded by 5.4 % from 2002-2004, although SARS and Avian Flu outbreaks in neighboring countries and the Asian tsunami hampered the nation's economic growth (Thai Health Policy, 2006).

The Thai government is committed to economic development and thus introduced a series of five-year plans known as the National Economic and Social Development Plans (NESDP). The 1st National Economic and Social Development Plan was implemented from 1961-1966. The 10th National Economic and Social Development Plan (2007-2011) is currently in effect. Thailand's Health Care Development Plans are operated under the NESDP. Thailand is a member of the Association of Southeast Asian nations (ASEAN) and a member of the World Health Organization.

1.2 National Health Development Plans (1987-2006)

Thailand's 1997 constitution stated that citizens can enjoy equal rights in receiving standard public health services, and the indigent shall have the right to receive

free medical treatment from public health facilities. Before the introduction of the Universal Coverage Scheme (UCS) in 2002, most patients were insured through the Health Welfare Scheme, the Social Security Scheme, the Civil Servant Medical Benefit Scheme, or various forms of private health insurance. These insurance coverage schemes varied greatly in terms of benefit packages, payment mechanisms, and government subsidies. Hence, they caused differences in quality of care. Before implementation of the UCS, more than 20% of the population was not covered by any insurance scheme (MOPH, 2006).

Managerial processes for National Health Development (MPNHD) were utilized under the Sixth National Economic and Social Development Plan (1987-1991) due to rapid changes in the nation's population, environment, economy, society, and politics. Health planners at the provincial level were also provided with Managerial Processes for Provincial Health Development. Thailand realized the importance of health information, health economics, and health care financing during this period and therefore coordinated closely with USAIDS and the WHO in conducting training in health economics from 1987-1991 and workshops in health care financing from 1992-1997. Moreover greater emphasis was placed on human resources for health planning, management of health information systems, and monitoring and evaluation in the Seventh National Economic and Social Development Plan. Financial resources from the WHO supported the planning of activities including provincial health surveys, improvement of health information managements systems, and network infrastructure for communicable disease control purposes.

At the beginning of the Eight National Economics and Social Development Plan the WHO introduce Health Future Studies to the Thai Ministry of Public Health as a tool to support health policy and planning. During the Ninth National Health Development Plan from 2001-2006, the Thai government placed greater emphasis on strengthening, stabilizing, and restructuring the nation's economy in response to the 1997 Asian

financial crisis. Thailand's health system development focused on health security and universal health coverage for Thai citizens during this time.

The Ninth National Health Development Plan emphasized a people-centric approach in addition to a sufficiency economy principle. The Tenth National Health Development Plan (2007-2011) is currently in effect and aims to improve health care for new-born babies, to reform health services by improving service standards and engaging in disease surveillance and prevention, to build up a completely new national health care system, and to strengthen community and individual health (Thailand Health Policy 2006).

1.3 Thai Population Demographics

Thailand is transforming into an aging society, with a reproduction rate reduction of 6.3 % from 1964-1965 and 1.82 % from 2000-2005. The average life expectancy for Thai females and males is 74.9 years, and 69.9 years, respectively. Improvements in the nation's public health infrastructure and management have contributed to an increase in life expectancy among Thai people.

Table 1.1: Characteristics of the Thai Population from 1960-2020

Characteristics	1960	1970	1980	1990	2000	2020 ^f
Total population ('000)	26,260	34,397	44,826	54,548	62,056	72.5
- male	13,154	17,124	22,320	27,062	30,885	
- female	13,104	17,274	22,496	27,487	31,171	
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 years (%)	52.2	49.5	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 (per 1,000 live births)	84.3	56.3	48.0	35	22	7.5

Source: Ministry of Public Health, 2004

In the past 30 years, the health status of the Thai population has improved remarkably with overall declines in infant and maternal mortality rates and an increase in access to basic health care. The five major cause of death among Thai people of all ages in 2004 are benign and malignant cancer, infectious parasitic disease, accidents, circulatory system disorders, and respiratory system disorders. Table 1.2 shows the burden of disease in 1999.

Table 1.2: Top 10 Disease Burdens (DALY lost) by Gender in 1999

	Males			Females			
	Disease category	DALYs	%	Disease category	DALYs	%	
1	HIV/AIDS	960,087	17%	HIV/AIDS	372,947	11%	1
2	Traffic accidents	510,907	9%	Stroke	280,673	6%	2
3	Stroke	267,567	5%	Diabetes	267,158	6%	3
4	Liver cancer	248,083	4%	Depression	145,336	3%	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

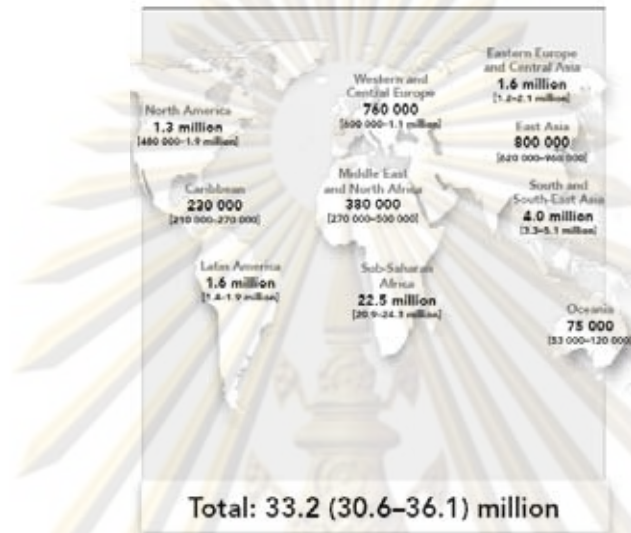
Source: Ministry of Public Health, 2004

The Human Immunodeficiency Virus (HIV) has spread throughout the country in an epidemic fashion since the late 1980s to early 1990s. Policy makers began to recognize that HIV/AIDS was a major social issue and decided to utilize the National Economic and Social Development processes to rectify basic disease burdens and to overcome political and social restrictions in order to prevent and alleviate the effects of the epidemic (Suntarajarn, T. 2005).

Despite the incurability of HIV, the use of antiretroviral drugs is a common measure to reduce the disease's morbidity and mortality rates. Triple-drug combination antiretroviral therapy was introduced in 1992. The benefits of antiretroviral therapy were once reserved almost exclusively for industrialized nations although these nations account for along 5% of the total global HIV/AIDS burden. Of the estimated 33 million

people now living with HIV/AIDS, between 5-6 million are in advanced stages of the disease and urgently require ARV drugs (UNAIDS, 2006).

Figure 1.1: Estimated Number of Adults and Children living with HIV/AIDS in 2007



Source: Joint United Nations Program on HIV/AIDS (UNAIDS) 2007

The epidemic condensed apparently among high-risk groups such as male homosexuals, intravenous injecting drug users and female commercial sex workers, extends to the general population in a different more complex way. HIV/AIDS has a serious economic effect, either directly or indirectly on PHA and their families, owing to medical expenses, loss of opportunity among caregivers and forgone earnings. The burden of each family for medical care for PHA was and the loss of forgone earning (International Labor Organization, 2005).

The psychological and social impacts of HIV/AIDS are quite diverse. Living arrangements, job limitations or unemployment, parental burden of care-giving and health care burdens, as well as community rejection are common among PHA and their families. The loss of spouses or family members to AIDS always reduces the number of persons who could potentially care for their children. Elderly members of the family also suffer from these losses (Knodel et al. 2002). Reverse migration often occurs when HIV/AIDS patients learn that they have been infected and return to their hometown. This

creates further burdens for their families. Nevertheless, social support mechanisms for HIV patients remain strong in the northern and northeastern regions due to traditional family structures that are conducive to strong family ties.

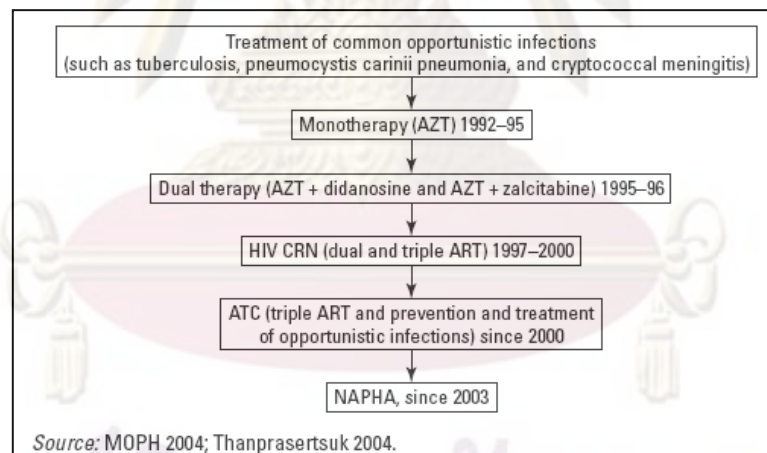
1.4 NAPHA Policy

The Ministry of Public Health commenced a trial with antiretroviral mono therapy (AZT) on small scale from 1992-1995 and dual therapy (AZT+ didanosine and AZT+ zalcitabine) from 1995-1996. As a study, dual therapy delayed death for an average of three years (Rumakom 2002). Only a few referral and university hospitals participated in the program, due to the high costs of antiretroviral drugs. The initial budget of 35 million Baht increased to 300 million by 1997, yet the number of PHA enrolled remain low. An economic review of the program, carried out by the World Bank, World Health Organization, and Thai Ministry of Public Health in 1995, concluded that it demonstrated high costs and low benefit to targeted HIV/AIDS patients (Kunanusont et al. 1995). This conclusion was based on poor treatment adherence and lack of follow up counseling (Prescott 1997).

Medical treatment for each HIV/AIDS patient costs US \$1,347 annually (Im-em and Puangsajjai, 1999). Even though this treatment burden has not yet affected Thailand's economic growth and Gross National Product, the country is still devoting further public funding to cover the rising demand for HIV/AIDS patient care. The Government Pharmaceutical Organization (GPO) produced cheaper generic fixed-dose combination GPO-vir drugs at a cost of only 1,200 Baht per month. The drug has paved the way for the Ministry of Public Health to introduce Highly Active Antiretroviral Therapy (HAART) as a national program (MOPH, 2004). Influenced by the relative success of Highly Active Antiretroviral Therapy (HAART) and lobbying from AIDS activist groups, policy-makers enacted legislature in 1997 to guarantee access to health care for all Thais.

From 2000-2001 the Access to Care-1 program was implemented in order to provide HAART regimens for adults and children infected with HIV/AIDS. The program was upgraded and renamed the Access to Care-2 in 2002 when greater emphasis was placed on shifting antiretroviral drug manufacturing to a local production base. The shift was made possible through the relatively inexpensive manufacturing cost of the generic GPO-vir drug. In 2003 the Access to Care-2 program was transformed into the National Access to Antiretroviral Program for people living with HIV/AIDS (NAPHA), under the aim of expanding antiretroviral services on a national level with a focus on universal coverage. With the collaboration of the Global Fund, the provision of antiretroviral therapy to PHA (People Living with HIV/AIDS) was conducted nationwide in 2004 with HAART triple therapy provided to approximately 3000 patients. This number was quickly scaled up to a target 70,000 patients in 2005 with treatment performed at over 900 locations, including medical schools and all public hospitals.

Figure 1.2: Access to HIV/AIDS Medical Care



1.5 Universal Coverage Policy

The government reiterated its commitment to universal access to HIV prevention, treatment and support in 2006, entailing the integration of antiretroviral therapy into the National Health Security Scheme, also known as the Universal Coverage (UC) Scheme. This Universal Coverage Scheme was introduced in 2002, under the Thaksin administration, and aims to guarantee health care for all Thai citizens, regardless of

income, health status, or prior health insurance policy. By the end of 2006, more than 100,000 PHA were estimated to have received antiretroviral therapy (Department of Disease Control, Ministry of Public Health, Thailand, 2007). On October 1, 2006, HIV treatment as a vertical program (NAPHA) was officially included in Universal Coverage benefit packages. This transition requires additional training for health workers, reorganization of the national health-care system, added management for patient networks, as well as the improvement of communication within and between networks.

The UC scheme promotes the use of primary care at health service delivery contractors at the local district level (Jongudomsuk P., Health Care Reform Office, 2002). The UC benefit package covers HIV/AIDS preventive and curative care, ambulatory care, in-patient care, emergency care and catastrophic illness treatment, as well as a wide range of other high cost care associated with HIV/AIDS. It is important to ensure a properly equipped health care provider setting with strengthened local capacity for training and patient support, a regional surveillance and oversight network, epidemiological and operational research, and close linkages between health programs, national health policies, and research.

1.6 Nan Province: Rationale

Nan province is located in the upper northern region of Thailand, bordering the provinces of Phrae, Phayao, and Uttaradit and the Laotian province of Xaignabouli. More than four-fifths of the province is comprised of mountainous terrain. A 2006 population survey conducted by the Nan Provincial Public Health Office reports that Nan has a population of 477,747 residents, 240,956 of whom are male, and 236,791 of whom are female. There is a little over 300,000 people living in the Nan municipal area and over 110,000 households located throughout the province. The majority of Nan residents speak in the northern dialect, while 16.79 % speak in various hill-tribe dialects. No major obstacles have been reported in communication between hill-tribes and government officials, as most hill tribe members can also speak Thai. Government officials also provide mobile services for hill tribes living in isolated areas.

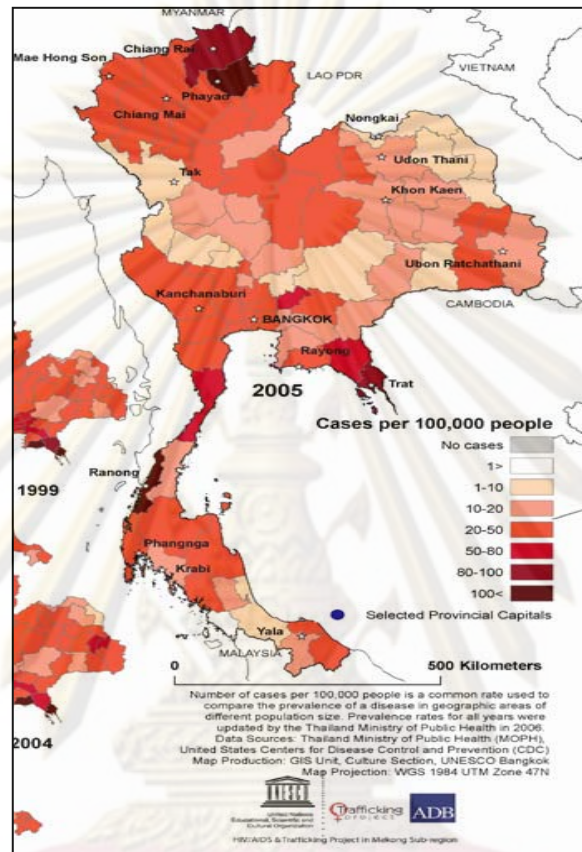
The majority of Nan residents work in the agricultural sector, planting field crops such as tobacco, corn, green beans, soy beans, and various types of fruits. The province's industrial sector revolves around community textiles and silver. Nan has a gross domestic product of 13.141 billion Baht with a per capita Gross Provincial Product (GPP) of 29,644 Baht (National Economic and Social Development Board, 2006), ranking 16 among 17 northern region provinces. The province has several primary and secondary schools, and 1 agricultural college.

Nan province is experiencing high numbers of HIV/AIDS cases, with 19.27 per one hundred thousand population (Thailand Population and Housing Census, 2000), resulting in the province being ranked 30th nationally and 7th among northern region provinces. Nan province has 8.64 births per thousand populations, and 6.74 deaths per thousand populations.

This study attempts to examine how antiretroviral therapy provision in Nan province was affected following the integration of NAPHA into the Universal Coverage Scheme. Due to limited research time and funding, Nan province was chosen due to its inclusion in ongoing research which seeks to illustrate the effect of the integration of NAPHA into the Universal Coverage Scheme on a national level; this study hopes to further this goal at a more localized level. Nan was one of the early participants in NAPHA until the program's integration into the UCS; therefore it is likely to illustrate the changes in transitions more clearly than other provinces. Nan province is also located in the northern region of Thailand, which exhibits the highest number of HIV/AIDS cases and hospital load in Thailand, in addition to facing the greatest nursing staff shortage, thus any changes during NAPHA's transition will likely be magnified through the large patient base and staff shortage. The province's remote, traditional agrarian type society is a distinct point of comparison for HIV/AIDS situations in more westernized and industrialized provinces. Future research on the HIV/AIDS epidemic in Thailand will be

able to utilize the results of this study in the area of antiretroviral program management in the northern region.

Figure 1.3: AIDS Epidemic in Thailand



Source: UNESCO 2006

1.7 Research Questions

1. What are key NAPHA policy and treatment features which have experienced changes during the program's transition into the Universal Coverage Scheme?
2. How have these changes affected antiretroviral treatment at sampled hospitals in Nan province?

1.8 Research Objectives

General Objective

To identify changes which occurred during the transition from NAPHA to the Universal Coverage Scheme at hospitals in Nan province, Thailand.

Specific Objectives

1. To describe policy and treatment elements present in both NAPHA and the Universal Coverage Scheme.
2. To identify the gap in policy and treatment arising during the transition from NAPHA to the Universal Coverage Scheme.
3. To determine both positive and negative effects of these gaps on antiretroviral treatment at hospitals in Nan province, Thailand.

1.9 Scope of Research

This study is conducted at Nan Provincial Hospital, Somdej Phrayuparaj Pua Hospital, Wiang Sa Hospital, and Chiang Klang Hospital in Nan province, in the upper northern region of Thailand. Research data was obtained through several open-end interviews with hospital personnel as well as literature review of hospital documents and other relevant publications. The study is conducted from the health care provider's perspective.

1.10 Hypotheses

General qualitative improvements will be seen in the area of antiretroviral therapy, laboratory testing, patient counseling, human resource development, and service management, as the function and structure of policymakers and providers are well suited to accommodate the integration of NAPHA into the Universal Coverage Scheme.

1.11 Benefits of Study

1. This study can be utilized in future research to determine the benefits and draw backs faced by the Universal Coverage Scheme's antiretroviral treatment program.
2. The results of this study can be used to review antiretroviral treatment at sample hospitals and to initiate necessary changes for a more positive treatment outcome.

CHAPTER II

LITERATURE REVIEW

2.1 HIV/AIDS Epidemic in Thailand

The Thailand National AIDS Control Program was initiated in 1987, and has achieved great strides, accumulated experience, and served as a learning source and inspiration to a large growing number of countries around the world. The first HIV case in Thailand was reported in September 1984. During the early stages of development of the HIV/AIDS Prevention and Alleviation Plan in Thailand (1984 – 1990), the public did not have much interest. However, when a patient acquired the virus through the use of donated blood in 1986, the public became more attentive to the situation, resulting in momentum for the generation of HIV/AIDS policies (1989 – 1991) which focused on measures to address the issue, enhance health education, and monitor the situation. In 1989, the government announced a policy of HIV screening for all donated blood.

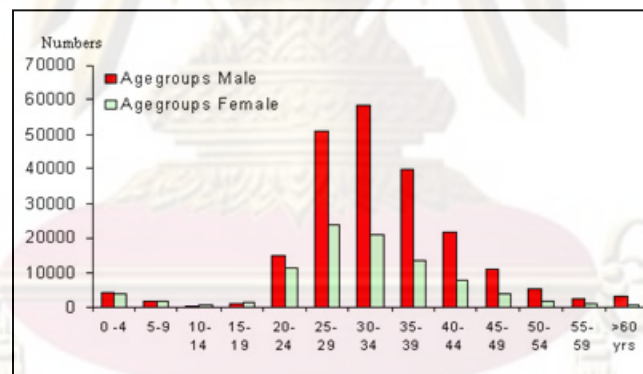
During this period HIV/AIDS developed into an epidemic with a dramatic impact on Thai society, resulting in the decision to use the National Economic and Social Development process to promote HIV/AIDS prevention and treatment. Greater emphasis was placed on National Economic and Social Development concepts, which stressed the adoption of a holistic, human-centric approach together with increased community rights, a decentralized government, increased public participation in the decision making process, and good governance. The NESD plans also recognized the importance of quality improvement of educational, public health, and social welfare services.

From 2001-2004, the overall HIV/AIDS prevalence rate and PHA had noticeably declined. But close monitoring at local levels revealed that contraction rates in high risk groups were still elevated, especially among intravenous drug users (42.2%) and female sex workers (7.64%). The HIV/AIDS prevalence rate among female sex workers was

correlated to an increased number of males who sought venereal disease check-up. The decline in overall HIV/AIDS prevalence rate was due to the reduction of HIV/AIDS transmission from donated blood. If we examine the prevalence of HIV/AIDS by region, the North ranked at the top, followed by Central, South, Northeast regions, respectively (Bureau of Epidemiology, MOPH, 2005).

From figure 2.1, the 30-34 year age group had the highest proportion of HIV/AIDS infection at 25.84%, while the 25-29 year age group had the second highest infection rate at 24.26%. The major cause of infection was sexual intercourse at 83.87%, followed by unknown causes at 7.43%, intravenous drug use (IDU) at 4.67%, vertical transmission from mother to newborn at 4%, and contamination of donated blood at 0.03% (Bureau of Epidemiology, MOPH, 2006).

Figure 2.1: Distribution of Reported AIDS Cases by Age Group in Thailand, from September 1984-December 31, 2006



Sources: Bureau of Epidemiology, MOPH, Thailand

Most PHA also contracted opportunistic infections. The top 5 infections from most to least common from the year 1984 to 2006 are:

- 1) *Mycobacterium tuberculosis*, pulmonary [79,347 people, 28.71%]
- 2) *Pneumocystis Carinii* pneumonia [57,084 people, 20.48%]
- 3) *Cryptococcosis* [43,260 people, 14.88%]
- 4) *Candidiasis* (tracheal, bronchial) [14,177 people, 5.15%]
- 5) Recurrent bacterial pneumonia [10,054 people, 3.49%]

Based on a 2001 projection by experts at the Thai Working Group, the cumulative number of PHA in Thailand in 2004 was an estimated 1,092,327. This figure is comprised of 50,620 children, 551,550 anticipated cumulative deaths, 540,822 patients that required continuing care and treatment, and 18,172 new cases. For 2006, the number likely increased to 1,109,000, with 53,400 infected children, 600,600 anticipated cumulative deaths, 508,300 patients that required continuing care and treatment, and 17,000 new cases (Bureau of Epidemiology, MOPH, 2006).

Thus far five waves of the HIV epidemic have been reported in Thailand. The first epidemic occurred in 1984 during the same period in which the first case of HIV/AIDS was reported among bisexuals and homosexuals in Thailand. A second wave occurred among intravenous drug users (IDU) from 1987-1988. The third and fourth wave of the Thai HIV epidemic occurred when the virus spread among sex workers and their clients from 1989 -1990, resulting in increased HIV/AIDS transmissions between heterosexuals. The fifth epidemic occurred from 1990-1991, when increased numbers of mother to child transmission of the virus were reported (Executive Summary HIV/AIDS, MOPH, 2004).

2.2 Policy Structure and Budget

Total government funding for HIV/AIDS programs increased from 1.44 to 1.6 billion Baht during the period from 1999 to 2005. 75% of the budget in 2005 was allocated towards treatment and care, including the procurement of antiretroviral and opportunistic infection drugs, viral testing, and social welfare for People Living with HIV/AIDS (PLWHA). Prevention programs accounted for only 15% of the budget, covering public information, condom promotion (including condom procurement), prevention of mother-to-child transmission (excluding antiretroviral drugs), and other community prevention activities. An additional 70 million Baht was distributed to non-governmental organizations for community level AIDS prevention and support activities. Grant funding for NGOs remained constant from 2001 to 2005. Many NGOs view that their level of funding were consistently reduced in recent years. Complete funding does not always reach NGOs, PHA support groups, and community based organizations. The slow

disbursement and questionable management of funds from the national to provincial to district level is a point of concern (WHO Review, 2005).

Twelve other ministries apart from the Ministry of Public Health received funding from the Prime Minister's office in accordance with their work plan. In the last few years, the amount of funds allocated to each ministry was generally at a constant level except for the Ministry of Interior whose AIDS budget increased from 31 million Baht in 2002 to 67 million Baht in 2005, for work on empowerment of families and communities. In addition the Bureau of AIDS, TB, and STIs (BATS) received and distributed 50 million Baht to other ministries for prevention activities. The Global Fund for AIDS, TB and Malaria (GFATM) is a major contributor to Thailand's work on HIV/AIDS with US\$192 million allocated over a five year period (2003-2007) for prevention and care activities. From 2000 - 2003, total expenditure on HIV/AIDS increased from 3.141 billion Baht in 2000 to 4.479 billion Baht in 2003, with the public sector accounting for 60% of total expenditures and households accounting for 21%. The sizeable proportion of household spending on HIV/AIDS treatment was due in part to antiretroviral drugs, including 2nd line regimens not yet covered by the Universal Coverage scheme. The two main components of household spending on HIV/AIDS were antiretroviral drugs (45.6%) and opportunistic infection treatment (32.8%) (CDCC, Thailand 2004). Expenditure for 2007 was 3.855 billion Baht, with treatment and antiretroviral drugs accounting for 79.86% of spending, viral and opportunistic infection testing accounting for 14.69%, counseling for 1.8%, and human resource and quality management accounting for 3.61% (CDCC Thailand 2007).

2.3 Health Care Reform and Decentralization

Health care reform was long recognized as essential to the transformation of Thailand's health service system due to the need to enable equal coverage of the entire population. The promulgation of the 1997 constitution created the necessary changes in Thailand's socio-political infrastructure for health care reform to occur. With policies developed by the Thaksin administration in 2001, the promotion of Thai citizens' rights to

basic health care access, and the 30 Baht scheme, Thailand underwent public sector reform, decentralization of central authority, and restructuring of the Ministry of Public Health in accordance with constitutional mandate. This resulted in important consequences for the HIV/AIDS response at the national, provincial and local levels (WHO, 2005).

Decentralization presents an opportunity to bring HIV prevention, treatment, and support programs closer to local communities. In order to accommodate these programs, provincial health organizations need to increase their capacity to manage key responsibilities including funding, priority status assignment to HIV-related issues, coordination of local initiatives, and the establishment of linkage between HIV and other local priorities. While some provinces have already developed the necessary structure and skills to cope with these changes, many do not possess the required capacity or preparedness to fulfill their new roles due to flaws in actual implementation, lack of funding, as well as limited human resources and training. It remains to be seen whether HIV/AIDS networks at the regional and provincial levels will be able to sustain their prevention and control programs.

From 1997-2000 the Ministry of Public Health was tasked with managing a clinical research network (CRN) and had the responsibility of distributing antiretroviral drugs and coordinating HIV/AIDS treatment, prevention, and research efforts at select hospitals. This link enabled greater collaboration in HIV/AIDS research as well as access to comprehensive care for local patients. The clinical research network was the basis of Thailand's publicly funded. The program formed part of the National Strategy for the Prevention and Treatment of HIV/AIDS, which included programs for PMTCT, a safe donated blood supply, HIV vaccine development, as well as condom use campaigns. The network initially consisted of 45 hospitals (expanded to 58) in 20 provinces and provided ART to 1,095 patients.

The effect of the CRN was evaluated with a report commissioned by the World Health Organization and the Division of AIDS, Department of Communicable Diseases, Ministry of Public Health in July 2000. The report concluded that during the three years of CRN operations, program capabilities for HIV/AIDS prevention and care was limited, as the roles of different organizations in the network were not clearly defined, network constituents were overloaded with work, and resources were scarce.

Following Thailand's national health care restructuring process in 1996, the Ministry of Public Health's role again shifted from being Thailand's main health care provider to a policy maker for strategic national health care. Consequently, the role of the Department of Disease Control (DDC) has evolved from that of a vertical HIV/AIDS program manager to a strategic manager tasked with providing technical guidance. At the same time, the roles and function of national, regional, provincial and local level government agencies in HIV/AIDS management and care have been adjusted to reflect their new responsibilities. The National Health Security Office's (NHSO) policy of universal access to health care has likewise necessitated restructuring and functional reorientation of the nation's health care system (Bureau of Health Policy and Planning, 2006).

2.4 Social Exclusion and Human Rights

Hospital reimbursement takes place only for people registered in a locality. Some areas include large numbers of unregistered resident foreigners and migrant workers. Foreign residents are often reluctant to register locally and migrant workers may not be allowed to do so. In such cases, cash payments are the only alternative when seeking hospital care and treatment. These groups have limited access to health information and services, including condoms, as well as cultural and language barriers. As a result, HIV prevalence among migrants is frequently higher than among Thai nationals. Non-governmental organizations, local organizations, and HIV/AIDS networks are in the best position to assist these vulnerable groups, but require technical support from government agencies. Most intervention with migrants are conducted by NGOs in

partnership with the Thai Ministry of Public Health, with funding provide by the Global Fund and other international organizations. Existing HIV prevention and treatment efforts are largely focused on seafarers in the southern and eastern regions of Thailand (WHO, 2005).

Thailand's 1997 constitution, 2002 Health Security Act, and 1997 Information Act embody provisions for the protection of human rights and dignity, particularly against discrimination. In January 2005 the Ministry of Labor produced a Code of Practice on the Prevention and Management of HIV/AIDS for formal and informal establishments applicable to all employers and employees, including job applicants in the public and private sectors. The Medical Council's Regulation on Professional Medical Ethics (1983) contains clauses on the protection of confidentiality in the relationship between individuals and care providers, complemented by specific Guidelines on AIDS for Medical Doctors (2002).

A study (Sringernyuang et al. Personal Communication, 2005) reviewed the situation of HIV-AIDS related discrimination in Bangkok, and concluded that human rights violations continued to occur in the health care setting manifest in practice such as refusal to provide treatment or altered health care quality for patients on grounds of HIV/AIDS status, as well as viral testing without the patient's knowledge, and breach of confidentiality.

2.5 The Public and Private Sectors, and Non-Governmental Organizations

Thailand's public sector response to the emergence of HIV/AIDS occurred in 1987. Thailand was the first nation in the Southeast Asian region to integrate a prevention and control program for HIV/AIDS as part of its National Health Development Plan. The nation is currently in its 10th National Health Development Plan (2007-2011) as of October 2006. The plan emphasizes a people-centric and sufficiency economy approach and involves the effort of all sectors (Universal Health Care Coverage Policy, 2006). The plan aims to built on three capital groups: economic capital (physical capital, financial capital,

and intangible capital), social capital (education, health, and human security), and natural resources and environment capital (based on biodiversity management).

Thailand has not yet seen large scale contributions from wealthy donors as in Western nations, as the Thai business community's approach to donating funds is different and may require a new outlook. Nevertheless, many companies and individuals have contributed to the HIV response. The private health sector has recently become engaged, in cooperation with the Ministry of Labor, and the International Labor Organization, in the development of health care coverage for workers and the AIDS Standards Organization (ASO).

Outside of public and private health organizations, government agencies such as the Ministry of Education, Ministry of Defense, and Ministry of Social Development and Human Security were not initially engaged in the HIV/AIDS response. However, all became involved when necessary funds were allocated from the Prime Minister's Office. Ministries have been less than forthcoming in providing funding from their own budgets and have not developed specific strategies and work plans tailored towards addressing the HIV/AIDS issue, although some agencies have made minor progress. An example is the Ministry of Labor's implementation of a Code of Practice for HIV in its workplace.

The HIV epidemic and its social impacts with regards to PHA and their families, especially those who are marginalized, have created an unprecedented level of awareness and attracted non-governmental organizations and civil society to join strongly in the fight against HIV/AIDS. These organizations form a range of groups, including non-profit foundations, associations, and social clubs. These activities are significantly correlated with the year 1992 when the Thai government implemented the National AIDS Plan and allocated funding for NGOs to carry out AIDS activities (Sunthrajarn T. 2005).

Initially most NGOs focused on the dissemination of HIV/AIDS education, public relations, and the promotion of public understanding regarding the disease. As a result of the National AIDS Plan implementation in 1992, more NGOs have shifted their attention to curative and rehabilitative work, especially counseling and helping PHA and their families improve their socio-economic status. NGOs also provide temporary shelter, financial support for emergency cases, funds for occupational start-up, assistance with employment activities, and support for children of patients (Rujjanavet et al.1995). Religion oriented NGOs including Buddhist and Christian groups have played a vital role in HIV/AIDS patient care and education.

The Thai Network of People Living with HIV/AIDS (TNP+) is one of the strongest HIV/AIDS support and advocacy bodies in the Asia-Pacific region, with membership comprising over 500 groups, working in coalition with other non-government AIDS organizations and local governments. The TNP+ group has been advocating for universal treatment access for people living with HIV/AIDS since 1997. Many international agencies have also cooperated with Thailand in the HIV/AIDS response. These include organizations within the United Nations, the Global Fund for AIDS, TB and Malaria (GFATM), bilateral agencies, research institutes and international non-governmental organizations (INGO). The technical and financial support from these agencies has made an important contribution, although differences in administrative requirements, such as report formats, have presented challenges. The reporting requirements of GFATM, in particular, were said to be a heavy burden.

2.6 Voluntary Counseling and Testing (VCT)

Thailand has a comprehensive and extensive network of voluntary counseling services staffed by trained counselors and supported by extensive referral networks. Psychosocial support is provided by mental health professionals linked to psychiatric hospitals. HIV/AIDS counselors work at regional, general, community and private hospitals, health centers at partner non-governmental and community-based organizations. Voluntary counseling and testing (VCT) accounted for 2% of total

HIV/AIDS expenditure in the Ministry of Public Health's 2003 budget. The first VCT service was established in 1991 in Chiang Mai province with the support of the Thai-Australian Northern AIDS Prevention and Care Program. Shortly after, anonymous clinics were opened by the Thai Red Cross in Bangkok. These VCT settings are designed to conduct early HIV surveillance and prevention among the general population (Chiang Mai University, Thailand, 1993).

The Ministry of Public Health requires that every public hospital establish voluntary counseling and testing for HIV/AIDS. The ministry also requested the formation of local clinics to provide antiretroviral therapy (ART) and essential health care to AIDS patients. Most hospitals have integrated services into ordinary out-patient clinics, antenatal clinics, and counseling or health education units. However, some clinics remain isolated for HIV/AIDS treatment purposes. HIV testing is provided as a routine part of antenatal care, allowing nearly 100% of women attending antenatal care to learn of their HIV status before giving birth (Department of Communicable Diseases, MOPH, 2005). Many NGOs also provide counseling in various forms, such as telephone counseling by the Hotline Center Foundation and the AIDS access project, clinic-based anonymous voluntary counseling and testing (VCT), counseling skills training, and mobile counseling services. Thailand's HIV epidemic has changed significantly in recent years with progressively lower levels of transmission affecting more diverse population groups, therefore new strategies are required to improve access and treatment.

Human resource shortages is the main obstacle in VCT, with responsible health personnel such as nurses, social workers, psychologists, and health educators in short supply, overloaded with work, in need of additional training. Close supervision over personnel is required in order to improve care quality (Sunthrajarn T. 2005). The referral system for HIV patients' psychological assistance is often non-operational due in part to shortages of mental health professionals and lack of support networks. Most practitioners count VCT as a diagnostic test rather than an opportunity to promote HIV/AIDS prevention. NAPHA does not cover VCT, while VCT costs are covered under

the 30 Baht Universal Coverage scheme if the service is prescribed by a physician. Costs coverage is not provided for patients who refer themselves for care. Anonymity for HIV/AIDS patients is usually not guaranteed as counseling services can be delivered individually or in groups.

2.7 Biological Indication of HIV and Implementation of Antiretroviral Therapy

Human Immunodeficiency Virus is a virus in the family Retroviridae which can lead to the Acquired Immunodeficiency Syndrome, or AIDS condition. HIV/AIDS is currently a global pandemic with an estimated 30.6-36.1 million adults and children currently infected with the disease (UNAIDS, 2007). HIV causes progressive destruction of the body's capacity to resist serious diseases. Once the characteristics of opportunistic infections (OI) or cancer emerges, the HIV patient is deemed to have entered the AIDS stage of their illness with an accompanying decline in their life expectancy. Factors that influence the progression of HIV/AIDS include the disease's virulence, the patient's genetics, nutrition, general health, and access to antiretroviral therapy. Progression of the disease can be hindered but not halted at present.

The right combination of antiretroviral drugs can limit damage caused to the immune system by the virus in addition to delaying the onset of AIDS by impeding the replication of HIV. Different classes of anti-retroviral drugs act at different stages of the virus's life cycle. Combinations of anti-retroviral drugs are known as Highly Active Anti-Retroviral Therapy (HAART). Without ART, people living with HIV cannot conduct a physically and mentally productive life due to shortened life expectancy and impaired health conditions (Revenge et al. The Economics of Effective AIDS Treatment: Evaluating Policy Options for Thailand 2006). An estimated 12,000 people become infected with HIV every day. Half of these are young adults, whose potential productivity is high (Sanath Jayasuriya, Sri Lankan Cricket Team, UNAIDS). Some modes of HIV transmission are:

- Sexual intercourse (heterosexuals and homosexuals)
- Intravenous drug use
- Blood transfusion
- Mother to child transmission during pregnancy, labor, delivery or breastfeeding

The most indicative biological marker of HIV disease progression is a decline in the number of CD4 cells (also known as *T4-helper cells*) in the host's blood. When HIV enters the body, it binds itself to CD4 cells, combines with the DNA in the cell nucleus, and eventually destroys these cells. During the initial stage of infection, the level of circulating virus (viral load) is high, and CD4 count drops. Over time HIV progressively destroys the immune system until CD4 count reaches zero, resulting in the inability of the host body to protect itself from viral, fungal, and mycobacterial agents, and cancerous tumors. The patient becomes highly susceptible to opportunistic infections and cancers. In general, a CD4 count of less than 200 cells per cubic millimeter is a high risk for the development of serious illnesses (Gold et al. 2005).

Treatment and support for HIV/AIDS patients are comprised of (Nan Hospital Annual Report Fiscal Year 2006):

- Antiretroviral therapy: basic regimen, resistance/failure regimen
- Laboratory testing: HIV status, CD4 count, viral load, blood chemistry, etc.
- Voluntary Counseling and Testing: Counseling unit, peer counseling, etc.
- Improvement of patient occupational skills: Continuing education, work skills training, etc.
- Quality service management/development

Diagnosis characteristic guidelines for Nan Provincial Hospital:

- Patients verified to have HIV/AIDS
- Patients undergo highly active antiretroviral therapy (HAART)
- Assessment of opportunistic infection signs or symptoms after receiving antiretroviral medication
- Assessment of unidentified signs or symptoms, as well as treatment side effects
- Unidentified of symptom and sign, OI or the ARV treatment side effects

In most cases opportunistic infection occur 6 months after antiretroviral therapy initiation. If the patient never received prior medication to prevent opportunistic infections, there is greater probability of such an infection occurring when the patient's CD4 count is low.

Figure 2.2: Decline in CD4 Count by Year of Follow-up Visits at Siriraj University Hospital, Thailand, 2004

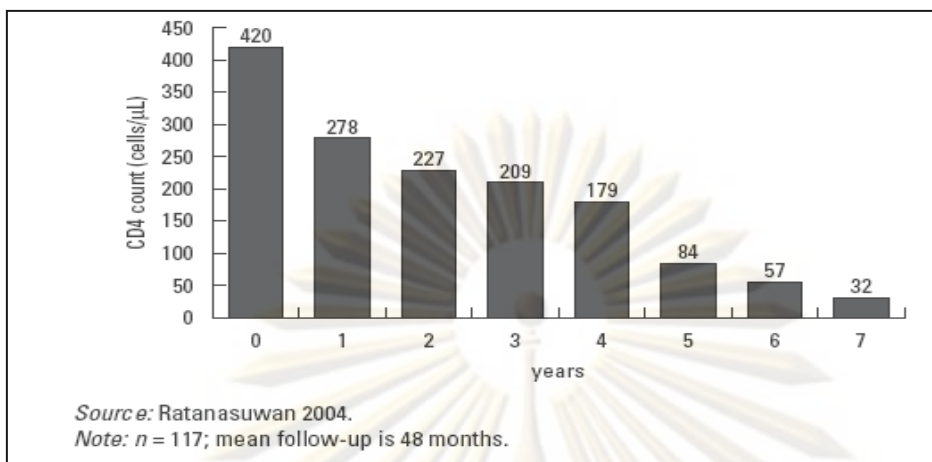


Table 2.1: Characteristics and Disease Progression Rates in a Cohort of HIV Patients at Chulalongkorn University Hospital, Thailand, 1998

Characteristic	Number of patients	Median CD4 count (cells/mm ³)	Rate per 100 person years observed (%)	Relative risk (confidence interval) unadjusted/adjusted for initial CD4 count
All	757	324	12.2	
<i>CD4 count (cells/mm³)</i>				
< 200	169	93	47.1	9.1 (5.4–16.0)
200–499	366	343	6.6	1.3 (0.7–2.3)
500+	222	713	6.0	1.0
<i>Risk group</i>				
Heterosexual	562	321	11.7	1.0
Homosexual	104	501	13.6	1.1 (0.7–1.9)/2.4 (1.4–4.0)
Injecting drug users	57	480	13.4	1.1 (0.5–2.4)/1.8 (0.9–3.9)
Other	19	588	6.9	0.6 (0.1–2.5)/1.8 (0.4–7.5)
<i>Sex</i>				
Male	644	355	13.1	1.0
Female	113	384	5.4	0.4 (0.2–0.9)/0.4 (0.2–1.0)
<i>Age at entry</i>				
< 20	23	471	0	1.0
20–29	343	373	10.8	1.4 (0.9–2.2)/1.1 (0.7–1.8)
30–39	233	324	13.7	1.6 (0.9–2.7)/1.3 (0.7–2.3)
40–49	115	332	14.5	
<i>Antiretrovirals (usually zidovudine)</i>				
No	452	456	9.2	1.0
Yes	305	277	15.5	1.7(1.2–2.5)/0.9(0.7–1.7)

Source: Adapted from Wannamethee and others 1998.

A relevant marker for HIV disease progression is the rate of CD4 cell destruction.

A recent retrospective cohort study which was conducted at Siriraj University Hospital suggests that the decline in CD4 counts among infected patients from Thailand mirrors those among patients in industrialized countries, with CD4 dropping by 50 to 70 cells per year (Ratanasuwan, 2004).

2.8 Access to Care Program

The Ministry of Public Health established the Access to Care program, the precursor to NAPHA, in 2000. The goals of antiretroviral therapy, according to the Nan Provincial Hospital handbook, are a clinical response to prevent opportunistic infections and to improve quality of life, an immunological response to increase the patient's CD4 cell count, and a virological response to decrease HIV viral load. Antiretroviral therapy was provided through a clinical research network with patient eligibility to participate in the program determined by the following criteria:

- Exhibiting symptomatic HIV
- Showing a CD4 count of less than 200 cells per cubic millimeter.
- Having been diagnosed with an AIDS-defining opportunistic infection or cancer

Table 2.2: Indication of ART

Category	CD4 Count	HIV RNA	Recommendation
AIDS Defining Illness (C1-C3)	Any level	Not recommended	Start ART
Symptomatic	< 250	Not recommended	Start ART
Asymptomatic	< 200	Not recommended	Start ART
Asymptomatic	< 200	Not recommended	Close observation

Source: Thai Guideline 2004

The Access to Care (ATC) program initially offered 8 Highly Active Antiretroviral Therapy (HAART) regimens for adults and 12 HAART regimens for children. About 78 % of patients received two nucleoside reverse transcriptase inhibitors (NRTIs) plus one non-nucleoside reverse transcriptase inhibitor (NNRTI), while 22% of patients received two NRTIs plus a protease inhibitor. Antiretroviral therapy under this program was provided on a patient co-payment basis. The Ministry of Public Health supplied either efavirenz or ritonavir-boosted indinavir for free, and the patient purchased two backbone nucleoside drugs to make up a triple anti-retroviral drug combination.

In parallel to the development of the ATC program, the government decided to strengthen national capacity to manufacture a variety of off-patent ARV drugs. Generic production of ARV drugs by the GPO (Government Pharmaceutical Organization) significantly reduced their price (Table 2.3). Most important, GPO produced a single-tablet triple-drugs combination regimen called GPO-vir (stavudine + lamivudine + nevirapine) at a price of US\$30 (B 1,200) per month. The ATC program was upgraded, and GPO-vir became the first-line regimen for treating naive patients.

Table 2.3: Declining Minimum Prices of ART in Thailand

<i>ART triple-drug regimen</i>	<i>Year</i>	<i>Price (B per month)^a</i>
2 NRTIs + PI	Before 2000	> 25,000
2 NRTIs + boosted PI	2000	13,000
	2002	6,000
2 NRTIs + NNRTI	Before 2000	15,000
	Early 2001	13,000
	Mid-2001	< 6,000
	Late 2001	2,300
GPO-vir	2002	1,200
GPO-vir	2004	1,200

Source: Phoolcharoen and others 2004b.
Note: NRTI = nucleoside reverse transcriptase inhibitor; NNRTI = nonnucleoside reverse transcriptase inhibitor; PI = protease inhibitor.
 a. These are the minimum prices for drugs in Thailand in the public sector. Actual prices paid may vary significantly.

The Access to Care program was first evaluated in several hospitals in six northern region provinces from February to October of 2001. 774 adult HIV patients from 54 district and provincial hospitals participated in a cohort study. The mean CD4 count at commencement of the patients' antiretroviral therapy was 84 cells per cubic millimeter. After 24 weeks, 68.6% of patients remained in treatment. Others ceased therapy for various reasons: 101 patients or 13.1% experienced adverse effects, 41 patients or 5.3% passed away, 42 patients or 5.4% experienced non-specified treatment failure, 35 patients or 4.5% did not follow up on therapy, and 24 patients or 3.1% ceased therapy for other reasons (Leuchai et al. 2002).

A second evaluation of the Access to Care program, this time throughout the entire northern region of Thailand revealed that dropout rates was at 45% (Community

Medicine Department, Chiang Mai University 2002). Both evaluations concluded that significant changes were necessary to ensure greater adherence to treatment regimes. Researchers found that capacity building for antiretroviral therapy management among health care providers, especially for health care personnel such as nurses and pharmacists was necessary. Strengthening the role of HIV/AIDS counselors and greater involvement of patients' family members and local communities were also recognized to be important.

2.9 NAPHA and Scale-up of National Access to Antiretroviral Therapy

NAPHA originated from the Access to Care (ATC) program and was initiated in 2000. The Thai government, along with the Global Fund, designated the National Access to Antiretroviral Program for People Living with HIV/AIDS (NAPHA) to provide antiretroviral drugs to a number of people living with HIV/AIDS. ARV budget accounted for 40-60% of the program's budget, while the remaining funds were spent on training, database management, and laboratories facilities (Panumas et al. 2005). NAPHA is made up of five sub-programs (Niyada, 2006):

- 1) Access to Care (ATC) for adults, both new and prior cases
- 2) Pediatric Access to Care (PATC) for children
- 3) Prevention of Mother to Child Transmission (PMTCT plus)
- 4) Co-payment
- 5) Research

Table 2.4: Budget for NAPHA Program

Main activities	Budget (Million Baht)				
	Training, database management, monitoring & evaluation, and public relations	ARVs	Labs	Others	Total
FY2001	132	363	294		789
FY2002	138	167	129		434
FY2003	121	356	149		626
FY2004	194	664	131		989
FY2005	63	996	29	100	1,208

Source: Panumas Yanwessakul et al. 2005

Antiretroviral drugs were distributed to PHAs at over 900 public and private health care providers throughout the nation. From 2004, ARV drugs provided by NAPHA/Global Fund are channeled through a network of 34 regional hospitals, 80 general hospitals, and 895 community hospitals (Table 2.4). The Thai government and the Global Fund are the major sources of support for antiretroviral therapy facilities under the program. ARV regimens are prescribed according to national guidelines.

Table 2.5: Public Hospitals where ARVs were provided in 2004

	Number of facilities		
	Global Fund	NAPHA	MSF
community hospital	174	721	3
general hospital	11	69	1
regional hospital	10	24	0
special hospitals	0	?	0
university hospital	0	6+	0
BMA hospitals	0	2+	0
Total	185	822++	4

Source: Niyada Kiatying-Angsulee et al. 2006

Table 2.6: Thai National ARV Drug Guidelines in 2004

	Regimen	Indication
1 st Line Regimen	GPO VIR (d4T + 3TC + NVP)	As shown
2 nd Line Regimen	1. AZT + 3TC + NVP	Allergic to d4T
	2. d4T + 3TC + EFV	Allergic to NVP + d4T
	3. AZT + 3TC + EFV	Allergic to NVP + d4T
	4. d4T + 3TC + EFV	Allergic to NVP, AZT, and d4T
	5. d4T + 3TC + IDV/r or SQV/r	Allergic to NVP and EFV
	6. AZT + 3TC + IDV/r or SQV/r	Allergic to NVP, EFV, and d4T

Source: Ministry of Public Health 2004

Table 2.7: ARV provided under NAPHA at Participating Hospitals in 2004

Type of ARV and diagnostics provided	Manufacturer
ATC first line : d4T+3TC+NVP (GPO vir)	GPO
ATC second line: d4T+3TC+EFV, AZT+3TC+NVP, or AZT+3TC+EFV	GPO
ATC third line: d4T+3TC-IDV/RTV or AZT+3TC-IDV/RTV	GPO
PATC first line: d4T+3TC(AZT+3TC)+NVP	GPO
PATC second line: d4T+3TC(AZT+3TC)+EFV	GPO
PATC third line: d4T+3TC-IDV/RTV or AZT+3TC-IDV/RTV	GPO
PMTCT first line: AZT	GPO
Diagnostic facilities	
CD4 count	Import
Viral load	

Source: Ministry of Public Health 2004

The Thai government expanded the Access to Care program in 2003 and renamed it the National Access to Antiretroviral Program for People Living with HIV/AIDS (NAPHA). NAPHA formed its own core operations with a \$6 million antiretroviral therapy budget for 3,000 initial PHAs and a four year commitment (2003-2006) to provide triple-drug antiretroviral therapy as standard care for PHAs. Treatment was gradually scaled up to 10,000 patients with an accompanying budget of \$9 million. ARV drug procurement for the program is financed in part by the Global Fund to Fight AIDS, Tuberculosis, and Malaria (GFATM), through the Thai Social Security Scheme, and through the Prevention of Mother to Child Transmission (PMTCT) Care program. Funding for treatment is provided by GFATM and the Thai Ministry of Public Health. One of GFATM's main objectives is to strengthen public health service infrastructure in order to ensure that treatment programs remain sustainable. The number of treatment sites increased from 112 in 2001 to 462 in early 2003 and to 841 in 2005 (Ministry of Public Health 2005). A sample of treatment sites under NAPHA can be seen in Table 2.8.

Table 2.8: NAPHA Network in 2004

RDCC	Province Centre	Number hospitals				Number patients	
		RH	GH	CH	OH	Expect	Result
1	BKK	1	5	36		4,020	1,774
2	Saraburi	2	8	39		2,337	1,316
3	Cholburi	3	4	54		5,304	2,829
4	Ratchaburi	2	9	43		4,679	2,678
5	Nakorn Ratchasima	2	3	82		2,821	2,110
6	Kon Kaen	2	6	95		2,286	3,160
7	Ubon Ratchathani	1	6	82		2,701	2,527
8	Nakorn Sawan	1	6	42		1,988	1,150
9	Pitsanulok	2	4	53		2,817	1,754
10	Chiang Mai	3	4	67		7,232	7,232
11	Nakorn Srithammarat	2	7	65		3,224	2,063
12	Songkla	3	7	63		2,815	1,564
BKK	-	0	0	0		5,830	3,060
PHPT	ChiangMai	0	0	0		1,500	756

Note: RDCC = Regional Disease Control Centre

BKK not under MOPH rather covered by local authority (BMA) and universities

RH = Regional hospital, GH = General hospital, CH = Community hospital

Source: Niyada Kiatying-Angsulee et al. 2006

Table 2.9: HIV/AIDS demographics in Thailand

Type of case	1997	1998	1999	2000	2001	2002	2003	2004
People living with HIV/AIDS	751,235	740,349	719,765	649,564	665,344	635,057	603,942	572,484
People living with AIDS	59,752	65,333	68,311	68,677	67,057	64,832	62,871	61,394
People using ART from public care	1,095 ^a	1,095 ^a	1,095 ^a	2,095 ^a	2,095 ^a	8,341 ^a	27,158	52,593 ^b
Percentage of AIDS cases in public ART	1.8	1.7	1.6	3.1	3.1	12.9	43.2	81.4
Percentage of reported AIDS in public ART	4.1	4.0	4.0	4.5	8.5	35.5	122.6	—

Source: Thai Working Group on HIV/AIDS Projection 2001; Gold and others 2004; MOPH 2004.
Note: — = not available.
a. Follow-up to the Declaration of Commitment of HIV/AIDS (UNGASS) Country Report 2002.
b. Figures are as of February 2005. The data were provided by the Bureau of AIDS, TB, and STI at MOPH (2004)

Table 2.10 shows the number of people receiving public antiretroviral therapy by region as of March 2004. Samples were calculated as a function of the estimated number of symptomatic HIV and AIDS cases in corresponding regions (with data obtained through local hospitals). The northern and northeastern regions have the highest ratios of patients on ART.

Table 2.10: Number of patients receiving ART in Thailand by region, March 2004

<i>Region</i>	<i>Accumulated patients^a</i>	<i>Current patients on ART</i>	<i>New patients</i>	<i>Target in 2004</i>
Bangkok	2,846	2,648	272	5,830
Central	7,491	6,749	1,537	16,240
North	8,777	7,459	1,030	11,648
Northeast	7,643	6,983	1,461	8,673
South	3,232	2,825	213	6,109
Other (PHPT)	494	494	—	1,500
Total	30,483	27,158	4,513	50,000

*Source:*MOPH 2004.
Note: PHPT = Program for HIV Prevention and Treatment (PHPT): Clinical trials on the prevention of mother to child transmission of HIV; — = not available.
 a. Accumulated from ATC 2000 up to NAPHA, March 2004.

NAPHA encouraged a larger number of PHAs to undergo ART from a baseline of 3,000 in 2003 to 69,337 in 2006. The Global Fund and NAPHA aimed to accelerate the expansion of treatment services to all eligible HIV/AIDS patients by establishing set benchmarks for antiretroviral therapy expansion. During this period the Thai government was in the process of integrating NAPHA and other vertical HIV/AIDS programs (Table 2.11) into the Universal Coverage Scheme. Integration was completed in 2006. The rapid scale-up of antiretroviral therapy provision for patients from different programs will add substantial pressure on health care providers. In 2006, the Universal Coverage Scheme covered preventive and curative care but not antiretroviral therapy or associated testing and monitoring. During the same period NAPHA still maintained coverage to antiretroviral therapy for PHAs who met eligibility criteria and arrived for treatment at their registered hospitals. Patients must pay for the first CD4 tests (from 200-500 Baht), while NAPHA will cover all other monitoring and testing. Some hospitals will ask for co-payment for ARV drugs from patients who are assessed to have the means to pay (PPI Report Thailand, 2006).

Table 2.11: ARV Provision in Thailand

ARV Programme	Number of patients	As of
NAPHA and Global Fund	52,593	Feb 2005
Social Security Office	8,000	(apx)
HIV-NAT	1,850	Jan 2005
MSF	615*	as of 2003
MSF-PDA	60	
TRC-1 MTCT Plus	678 currently	March 2005
TRC-2 PMTCT	328 currently	March 2005
Others/ clinical trial/ private clinic	n/a	

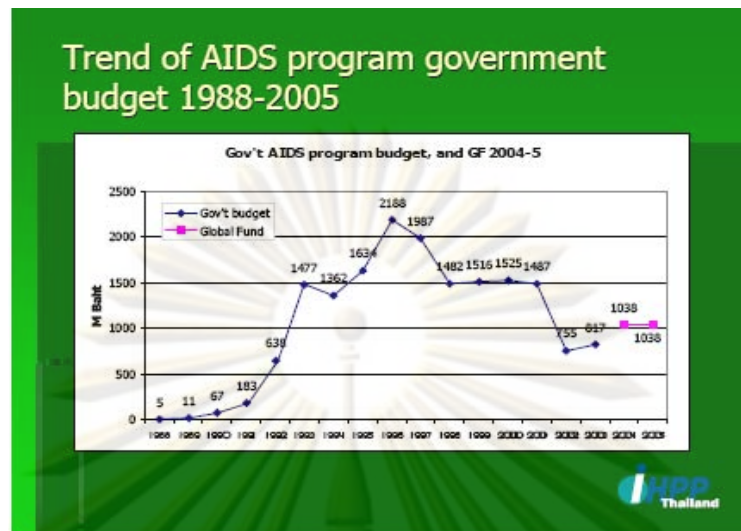
Note: * now partly included into NAPHA programme

Source: Niyada Kiatying-Angsulee et al. 2006

Key developments taking place under NAPHA include capacity building for physicians and medical personnel, laboratory networking, and improvements in drug procurement. NAPHA program coordination hinges on monthly reports to relevant agencies, the establishment of service delivery sites at health care providers, and regulation of antiretroviral drug supply to PHAs. The Thai Ministry of Public Health's findings on NAPHA indicates that the program is cost-effective, yielding large benefits in terms of life-years saved. It is also believed that since most ART patients are in the low-income bracket, increased public financing will help assure equitable access. Public financing can also generate positive spillovers and limit negative spillovers of antiretroviral therapy (Bureau of AIDS, TB, and STI, 2004).

The Thai government's expenditure for AIDS prevention increased to 2.188 billion Baht in 1996 and gradually declined to under 1.038 billion Baht in 2004 (Figure 2.3). Meanwhile ARV drug funding increased gradually, and doubled from 2004-2005 (Teokul et al. 2004). The percentage of opportunistic infection drug expenditure decreased from 48.6% in 2000 to 32.8% in 2003 (Praphan Panupak, 2004).

Figure 2.3: Trend of AIDS Program Government Budget Fiscal Years 1988-2005



To develop a national budget for HIV/AIDS prevention and treatment, many related agencies must first develop and propose their own budgets which are consistent with their policies. Agency budget proposals go through a formal approval process and must remain within set budgetary limits (The Declaration of Commitment on HIV/AIDS, UNGASS, 2004). Key factors that affect budget approval quantity include the overall policy of the current government, the nation's economic growth, the severity of the HIV/AIDS epidemic, past results of prevention and treatment programs, statistical or technical information supporting budgetary proposals, and the capacity of agencies requesting the budget.

Budget to support the prevention and treatment of HIV/AIDS was first allocated by the Ministry of Public Health in 1988, in the sum of 4.6 million Baht. In 1991, the Thai government developed an approach to allocate budget to projects which spanned the term of duty of many ministries. Later in 2002, part of the budget for HIV/AIDS prevention and treatment (480 million Baht) was combined with the National Universal Health Assurance Budget to pay for medical supplies used in the treatment of opportunistic infections, and the procurement of powder milk and AZT medicine to prevent mother-to-child transmission of HIV/AIDS. Table 2.12 indicates that 480 million Baht from the 2002

budget was transferred to the National Universal Health Assurance Program, resulting in the reduction of the 2003 budget to 1.188 billion Baht. The budget for 2004 rebounded to 1.629 billion Baht due to NAPHA's antiretroviral drug provision to 50,000 target PHAs, worth over 822 million Baht.

To keep up with the changing epidemiology of HIV/AIDS, the National Plan for the Prevention and Alleviation of HIV/AIDS was conceived from 2002-2005, with the aim of improving conceptual and operational work. The overall budgetary structure was separated into 4 main areas: HIV/AIDS prevention, HIV/AIDS alleviation, and HIV/AIDS intellectual development and research, and HIV/AIDS plan management. Funds were allocated according to the duties and area of responsibility of each agency (UNGASS, 2004).

Table 2.12: Summary of the national HIV/AIDS prevention and alleviation plan's budget for 2002-2004 (grouped by major activities)

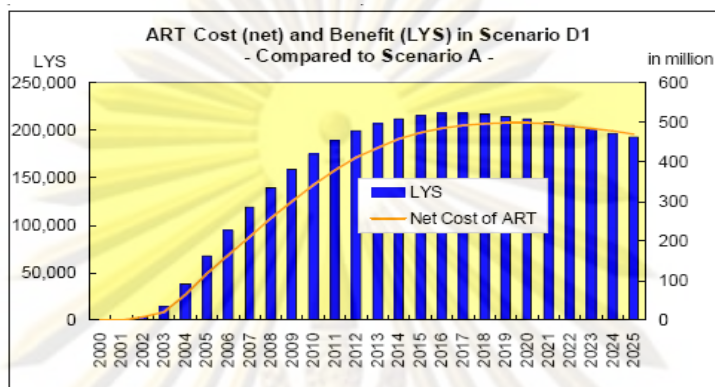
Type of Activities	Budget (in million Baht)					
	2002	%	2003	%	2004	%
1. Prevention of HIV/AIDS Transmission	288.23005	19.57	181.5789	15.28	244.101	14.98
2. Alleviation/Treatment for people living with HIV/AIDS.	992.287654	67.37	780.13998	65.65	1221.066283	74.92
3. Management of HIV/AIDS Plan	149.5814	10.16	162.5867	13.68	91.91309	5.64
4. Intellectual Development and HIV/AIDS Research	42.80	2.91	64.04	5.39	72.69	4.46
Total Budget	1,472.8963	100.00	1,188.3475	100.00	1,629.7664	100.00

Source: UNGASS, 2004

A 2004 study indicates that the NAPHA program is generally cost effective and yielded large benefits in terms of life years saved (see Figure 2.4). Projections for the program indicated that by 2015, NAPHA would have allowed 220,000 PHAs to live. By keeping PHAs alive longer, NAPHA would have been associated with an increase in the number of HIV patients receiving treatment, resulting in projected costs for second line treatment under NAPHA approaching \$450 million in 2020. At a convention discount rate of 3%, the cost per life year saved for the NAPHA policy is \$2,144, only slightly greater

than Thailand's 2002 gross national income per capita of \$2,000 (Joint Study Thai Ministry of Public Health and the World Bank, 2004).

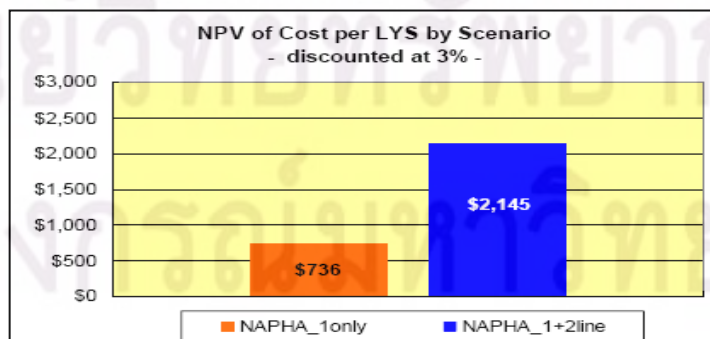
Figure 2.4: Benefit (Life Years Saved) and Costs of NAPHA relative to baseline (2004 costs are in millions of US dollars)



Joint Study Thai Ministry of Public Health and the World Bank, 2004

First line treatment under NAPHA is more affordable and cost effective, albeit yielding significantly lower benefits in terms of life years saved (See Figure 2.5). Financing the program through the public will help assure equitable access to antiretroviral therapy for poor patients by reducing the cost of first line regimens, and significantly reducing the cost of second line regimens. Public financing will allow for more prevention activities to occur, especially voluntary counseling and testing, resulting in limited development of drug resistance among patients (Joint Study Thai MOPH and the World Bank, 2004)

Figure 2.5: Program with first line only is more cost-effective



Joint Study Thai Ministry of Public Health and the World Bank, 2004

2.10 Private Access to Antiretroviral Therapy

Data on private access to ART in Thailand is relatively scarce, with no direct data from private health care providers available. However, the Government Pharmaceutical Organization sells a share of its GPO-vir triple drug combination directly to the private sector through several retail centers in Bangkok. Figures on these sales can be used as a tentative proxy for private sector access to antiretroviral therapy. Table 2.13 shows the share of GPO-vir sales to the public, private domestic, and private international sectors from 2002 -2004. A survey of Thai physicians conducted in January 2004 indicated that 18% of PHAs received private counseling. Most private patients were generally immunosuppressed (66% with CD4 counts of less than 100 cells per millimeter), while 68% were symptomatic for HIV/AIDS. About 60% of private patients received antiretroviral drugs, with most taking GPO-vir or other types of first line regimens. 13% of patients were taking protease inhibitor-based regimens, and about 30% of patients were not taking any antiretroviral drugs but were instead receiving treatment or prophylaxis for opportunistic infections (Gold et al. 2004).

Table 2.13: Data on Private Access to ART in Thailand 2004

<i>Sector</i>	<i>2002</i>	<i>2003</i>	<i>2004 (projected)</i>	<i>Total (projected)</i>
Public	58.2	78.2	82.2	80.5
Private domestic	39.9	20.0	15.9	17.7
Private international	1.9	1.8	1.9	1.8
Total	100.0	100.0	100.0	100.0
For memo:				
Total volume of sales	44,415	283,894	929,656	1,257,965
<i>Source: Data from Thailand's Government Pharmaceutical Office provided by the MOPH to the authors in 2004.</i>				

2.11 Selection, Procurement and Distribution of ARV

All selection, procurement, and distribution of ARVs were formerly carried out by NAPHA before the Thai government incorporated all of the aforementioned activities under the Global Fund's protocols into the national guideline. A committee was established to produce treatment guidelines and select ARV drugs to be used under the Universal Coverage Scheme. On December 31st, 2004, there were 13 ARV drug types

registered in Thailand. The costs of ARV and test kits produced by the Government Pharmaceutical Organization are indicated in Table 2.14.

Table 2.14: NAPHA Antiretroviral drug list for 2004 fiscal year

Generic name	Abbreviation	Package	Price (Baht)
1. Zidovudine 100 mg Capsule	AZT 100 mg	Bottle (100 Cap)	600.00
2. Zidovudine 300 mg Capsule	AZT 300 mg	Bottle (100 Cap)	1,700.00
3. Zidovudine syrup 10 mg per ml	AZT syrup 10 mg/ml	Bottle (60 ml)	50.00
4. Zidovudine 300 mg + Lamivudine 150 mg	AZT 300 mg + 3TC 150 mg	Bottle (60 Tab)	1,500
5. Didanosine buffered Powder for Oral Suspension 115 mg	ddi 115 mg	Box (30 sachet)	600
6. Didanosine buffered Powder for Oral Suspension 167 mg	ddi 167 mg	Box (30 sachet)	840
7. Nevirapine 200 mg + Lamivudine 150 mg + Stavudine 30 mg	GPO vir S 30	Bottle (60 Tab)	1,200
8. Nevirapine 200 mg + Lamivudine 150 mg + Stavudine 40 mg	GPO Vir S 40	Bottle (60 Tab)	1,320
9. Lamivudine 150 mg tablet	3TC 150 mg	Bottle (60 Tab)	600
10. Lamivudine syrup 10 mg/ml	3TC syrup 10 mg/ml	Bottle (60 ml)	60
11. Nevirapine 200 mg Tablet	NPV 200 mg	Bottle (60 Tab)	900
12. Nevirapine Powder for Oral Suspension 10 mg/ml	NPV suspension 10 mg/ml	Bottle (60 ml)	36
13. Stavudine 15 mg Capsule	d4T 15 mg	Bottle (60 Cap)	150
14. Stavudine 20 mg Capsule	d4T 20 mg	Bottle (60 Cap)	150
15. Stavudine 30 mg Capsule	d4T 30 mg	Bottle (60 Cap)	210
16. Stavudine 40 mg Capsule	d4T 40 mg	Bottle (60 Cap)	270
17. Stavudine Powder for Oral Suspension 1 mg/ml	d4T suspension 1 mg/ml	Bottle (60 ml)	25
18. Stavudine Powder for Oral Suspension 5 mg/ml	d4T suspension 5 mg/ml	Bottle (60 ml)	38
19. Efavirenz 50 mg Capsule	EFV 50 mg	Bottle (30 Cap)	187
20. Efavirenz 200 mg Capsule	EFV 200 mg	Bottle (90 Cap)	2,140
21. Efavirenz 600 mg Tablet	EFV 800 mg	Bottle 30 Tab()	1,722
22. Indinavir 200 mg Capsule	IDV 200 mg	Bottle (360 Cap)	2,803
23. Indinavir 400 mg Capsule	IDV 400 mg	Bottle (180 Cap)	2,803
24. Ritonavir 100 mg Capsule	RTV 100 mg	Bottle (84 Cap)	2,735
25. Saquinavir Soft Gel 200 mg Capsule	SQV 200 mg	Bottle (180 Cap)	4,852
26. Lopinavir 133.3 mg + Ritonavir 33.3 mg Capsule	LPV 133.3 mg + RTV 33.3 mg	Bottle (180 Cap)	17,547

EDL = Thai Essential Drug List, NEDL = Non-Essential Drug List

Source: Niyada Kiatying-Angsulee et al. 2006

Thailand's local ARV production infrastructure, drug registration system, and quality assurance have been recognized to be competent. However, Thailand's GPO products are not included in the World Health Organization's pre-qualification list, and the interim status for GPO product certification has expired as of April 2005. The Thai Government Pharmaceutical Organization's newly opened plant remains under assessment by the WHO. Thus far only American and British pharmaceutical plants in Thailand have been approved by the WHO. The phasing out of patented ARV drugs and

lack of proper credentials in local ARV production are problematic issues that the Thai government must overcome (PPI Report Thailand, 2006).

In 2004, the ARV drug distribution chain under NAPHA was processed via 2 routes. First, drugs from the Government Pharmaceutical Organization were distributed to 12 Regional Communicable Disease Control Center throughout the country. Each RDCC then distributes the drugs to provincial public health offices, which then sends them to local hospitals according to distribution plans or requests. Imported ARV drugs not produced by the GPO were distributed to the RDCCs by individual drug companies.

The second drug distribution route is directly through the Vendor Managed Inventory (VMI) purchasing system in which a central government agency-the Ministry of Public Health under NAPHA and the National Health Security Office under the Universal Coverage Scheme-allows purchasers (hospitals) to order or adjust the amount of ARV drugs they require via an internet program. Once orders are placed the GPO sends ARV drugs directly to each hospital. Some ARV drugs which are not produced by the GPO, such as imported drugs, are purchased centrally from the Department of Disease Control, Ministry of Public Health, and distributed to Regional Disease Control Centers for later delivery to provincial public health offices and local hospitals.

NAPHA, the Social Security Scheme, and the Universal Coverage Scheme all utilize the VMI purchasing system. The system provides an electronic online database for the DMIS (Disease Management Information System: an online system for managing epidemics) and has been continually improved from the time of NAPHA to the UCS. In the past, drug procurement was conducted through a central agency with ARV and complementary drugs distributed through several bureaucratic layers, entailing large amounts of paperwork. The VMI system simplifies drug orders and procurement, and reduces the risk of drug shortages. Only authorized staffs are allowed access into the VMI system, ensuring the confidentiality of HIV/AIDS patient records.

2.12 NAPHA's Integration into the Universal Coverage Scheme

The Universal Coverage Scheme or 30 Baht Scheme replaced all previous health care schemes targeting the poor and uninsured. In 2006, HIV/AIDS activities under NAPHA were integrated into the Universal Coverage Insurance Package, effectively shifting treatment from a vertical program to a publicly funded nationwide policy. In addition to the services already covered under NAPHA, the Universal Coverage Scheme provides voluntary counseling and additional testing for HIV/AIDS patients at no extra cost, with tests including viral load counts and assessment of viral resistance. The scheme also covers the procurement of second line regimens for eligible PHAs (Joanna Swabe, PPI Report Thailand, 2006).

Prior to 2006, patients under NAPHA could receive health care from any local hospital, but under the Universal Coverage Scheme, PHAs can only use services at health care providers in their registered resident district (Bureau of Policy and Strategy, Ministry of Public Health, 2006). Data record processing changed to a more networked system under the UC policy. PHAs are required to conduct electronic registration to obtain their National AIDS Program number, or NAP number, a special number based on citizen IDs assigned to PHAs. HIV/AIDS patient data are recorded in the VMI system with continual updates following each hospital visit. ARV drug management for patients is also conducted through the VMI. Alterations of ARV regimens were flexible under NAPHA, but under the new UC policy ARV drug guidelines are established within the VMI network. Physicians and pharmacists log onto to the network and coordinate the patient's medication online. Any alterations such as in the event of drug resistance must be approved by a specialist physician.

Thailand's health care system reflects the entrepreneurial market-driven nature of the nation's economy. It is a pluralistic mix of public and private health care provision and financing. Overall resources devoted to health care have increased in the last few years. Total health expenditure has increased gradually, though at a faster rate than that of the nation's gross domestic product. In 2003, total health expenditure was 3.3% of the

GDP, 61.6% of which is financed by the public sector and 38.4% by the private sector (Thailand Health Policy, 2006).

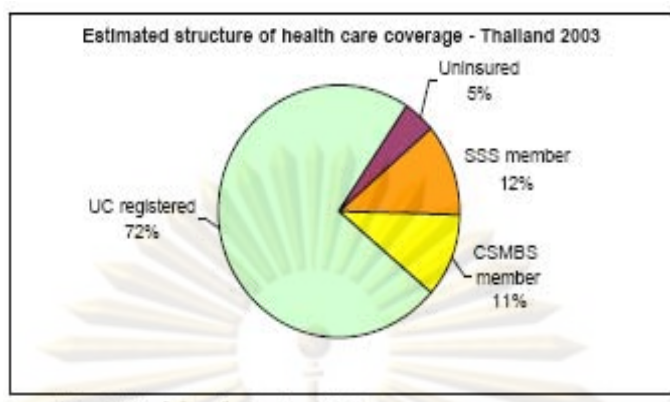
Table 2.15: Source of Health Expenditure (%)

SOURCE	2001	2002	2003
GOVERNMENT	56.3	60.2	61.6
- Government budget			
- Social security exp (% of government health exp)			
PRIVATE	43.7	39.8	38.4
- Out of pocket exp (% of private health exp)			
- Private prepaid plans (% of private health exp)			
EXTERNAL AID	0.1	0.2	0.3

Source: World Health Report 2006

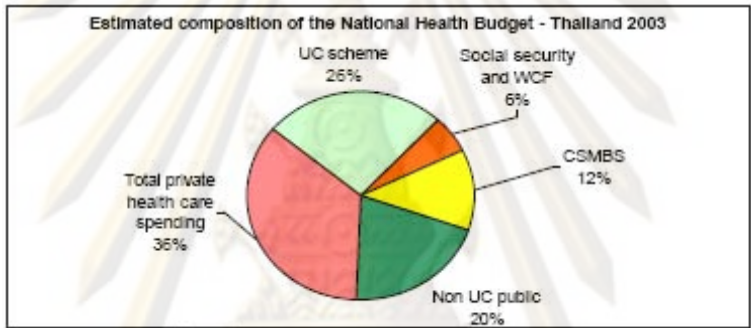
Thailand's health care financing system consists of five major sources: the Social Security Scheme (SSS) which presently covers about 7.4 million card holders eligible for health care benefits, the non-contributory Civil Servant Medical Benefit Scheme (CSMBS) which covers 7 million eligible people (comprised of 3 million civil servants and 4 million dependents: spouses, children, and parents), the Universal Coverage Scheme (UCS) which covers 46.5 million registered members, voluntary private insurance which covers 5 million people, and 3 million self-payers/non-covered groups (such as people in remote areas). Universal Coverage beneficiaries are classified into two groups: 24.3 million people who are exempted from the scheme's 30 Baht co-payment during each visit, and 22.2 million people who are able and required to contribute a 30 Baht co-payment at the service provider's point of service during each visit. The Universal Coverage Scheme also provides second-tier coverage for people already covered by other schemes (Surasiangsang et al., 2002).

Figure 2.6: Estimated Structure of Health Care Coverage



Source: ILO and IHPP mission estimates, May 2004, Geneva.

Figure 2.7: Estimated Composition of the National Health Budget



Source: ILO and IHPP mission estimates, May 2004, Geneva.

The Universal Coverage Scheme provides health care access to about 70% of the Thai population. A health and welfare survey conducted by the National Statistics Office (NSO) in 2003 indicates that 57% of registered members used outpatient services at health care providers that are finance by the scheme, while 81% used inpatient services. The take-up rate was found to be significantly higher among low income registered members (International Labor Organization and International Health Policy Program, Thailand, 2004). Obviously resource allocation based exclusively on the basis of the number of registered patients per health care provider network can result in large budgetary shifts at service sites. Facilities in over-supplied affluent provinces may face large budget reductions if their population size is small, while facilities in less supplied and poorer provinces may receive increased budgets if the local population size is sizeable. It is expected that these allocation inconsistencies will gradually disappear over time as the capacity of the Universal Coverage health infrastructure adapts, though

tremendous short-term budgetary constraints may arise in individual health facilities. To address this issue, the National Health Security Office (NHSO) and MOPH have decided to establish strict budgetary allocation based on capitation payment per patient for an initial period of three years (2002-2004). The cost of health care personnel has been temporarily excluded from the capitation system in order to avoid creating immediate budget deficits at major facilities.

The Universal Coverage Scheme has established concrete legal entitlement to health care for all persons through the abolishment of all financial barriers. The co-payment amount of 30 Baht is minimal and low income groups are exempt from this fee. Health care access entitlement is backed up by the capitation payment system for public health sector resources, ensuring that all public health care providers receive a fixed budget for each USC patient who receives care. The scheme is modeled on the United Kingdom's National Health Service, and combines insurance elements of legal health benefit entitlements to citizens, and public service elements (through distribution of funds accrued from general government revenue) (International Labor Organization and International Health Policy Program, Thailand, 2004).

2.13 Financing the Universal Coverage Scheme

The government allocates budget to the National Health Security Office for the purchase of medical services and management of the scheme. The NHSO then allocates budget to its provincial branch offices based on a capitation basis, with the current capitation fee currently at 1899 Baht, and a patient contribution fee of 30 Baht per visit. A certain portion amounting to several hundred Baht from each patient's capitation fee is directed towards the budget of prevention programs. The allocation of prevention funds to the district level assumes that information, education, communication (IEC) materials can be developed at the local health care facility level. It is not financially viable to develop and circulate educational health material at the central, national level due to the high printing and shipping costs.

Under the Universal Coverage Scheme, the National Health Security Office was appointed as the collective purchaser of health services for more than 40 million constituents in 2002. As a result access to health care for the Thai population increased from around 75% to 95% in 2004. The per capita health budget allocation increased from 700 Baht in 2001 to 1,396 Baht in 2005, from 1,650 Baht in 2006 to 1,899 Baht in 2007, and will most likely increase to 2,100 Baht in 2008. The budget includes services for individuals and families, disease prevention, health promotion, therapeutic care and rehabilitation. The service purchasing criterion is designed as an incentive for health care providers to deliver service with quality, efficiency and equity. Budget is allocated to primary care units (PCU) for the areas of prevention and care, ambulatory care, inpatient care, emergency care and catastrophic illnesses (MOPH, Thailand 2005).

The purchasing criteria for the Universal Coverage Scheme are in continual development and an increasing number of health services are being included. While the National Health Security Office is revising guidelines for care and financing, accompanying changes in management might adversely impact disease vertical programs, including HIV/AIDS, as these are integrated under the universal health care system. Careful planning and implementation are therefore necessary to ensure that the health needs of the population are met. Examples of potential gaps include interruptions and shortages in condom supplies for sex workers, shortages of funds for community-based health programs such as the village health worker project, and lack of support to PHA and their families.

Rapid expansion of the Social Security Office's (SSO) coverage is necessary to ensure the success of the Universal Coverage Scheme. The Thai government is seeking to consolidate the costs of the Civil Servant Medical Benefit Scheme (CSMBS) by containing the per capita health care costs of the scheme's beneficiaries, whose expenditure exceeds that of the SSO and the USC by a wide margin. This cost containment measure will have a positive savings effect on the Universal Coverage Scheme (Sustainability and Effectiveness of Health Care Delivery, 2006).

The National Health Security Act of 2002 initiated the implementation of the Universal Coverage Scheme, and transferred management of this scheme from the Ministry of Public Health to the National Health Security Office. The government allocated budget to the NHSO for medical service purchase and for management of the scheme. Article 30 of the National Health Security Act of 2002 lists the following sources of income for the UCS:

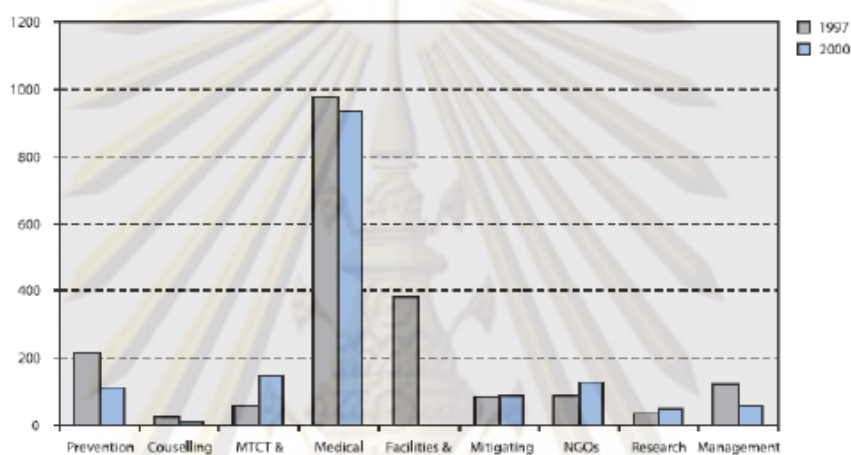
- General government revenue
- Contributions from local level government
- Co-payment by patients
- Fines from violation of state laws
- Donations and contributions
- Interest on assets
- Other cash income earned

Presently the scheme is almost fully financed by general government revenue except for small amounts of income derived from patient co-payment, accounting for 2.4% of total revenue. The UCS covers more than 75% of the Thai population (about 47.34 million people) as of September, 2006. A majority of studies concluded that the Universal Coverage Scheme was a success (International Health Policy Program, 2006), as it is rapidly providing health care access to an increasing number of people who have previously been hampered by financial barriers and limited health facilities. The scheme has increased overall national health care costs by 20-25 billion Baht annually, although its adoption of a resource allocation mechanism based on capitation should limit costs.

The Universal Coverage Scheme, if relying entirely on general revenue financing will remain vulnerable to budgetary competition and political manipulation among different agencies. To isolate sufficient resources for personal health care amidst budgetary demands, earmarked funds should be set aside for the Universal Coverage Scheme. Studies into the scheme's sustainability indicates that the fund would be self-sustainable if the government earmarks two thirds of Thailand's tobacco tax revenue, and 50% of the nation's excise tax on alcoholic beverages into the scheme's funds. A personal health tax imposed on citizens who are not members of the CSMBS or SSO will greatly contribute to the Universal Coverage Scheme's sustainability (International Labor

Organization, 2004). An increase of tobacco taxes to 100% and 50% taxation on alcoholic beverages, as well as cost savings from CSMBS contributions and expanded SSO membership would more than compensate the Universal Coverage Scheme's expenditure, in addition to minimizing negative fiscal externalities (International Health Policy Program, 2004).

Figure 2.8: Details of HIV/AIDS budgets, 1997 and 2000



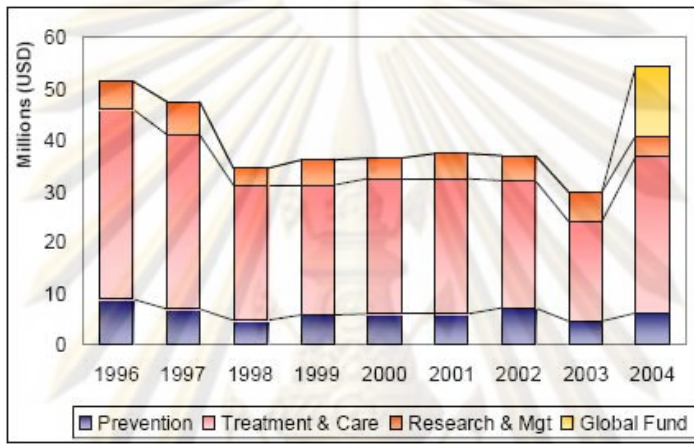
Source: PPI Report Thailand, 2006

The Ministry of Public Health's budget has increased in the past decade. There was therefore a sizeable budget to finance social health activities until the Asian economic crisis in 1997. As a consequence of the crisis, Thailand's foreign debt increased from 5% in 1997 to 10.9% in 2001. There were a significant number of foreign loans received during the 1997-2001 period. Figure 2.8 shows that the majority of budget was spend on medical treatment whereas the lowest amount of funds are used for counseling (PPI Report Thailand, 2006)

According to the National AIDS Account (Teukul and Tangcharoensathien 2004), total health expenditure on HIV/AIDS increased from 2.9 billion Baht in 2000 (US \$74.4 million) to over 4.1 billion Baht (US \$101.3 million) in 2003. The largest funding during this period was for antiretroviral programs and outpatient care. AIDS expenditure for ART increased from 20.3% in 2000 to 50.1% in 2003. Jointly, antiretroviral (ART) and

opportunistic infection (OI) treatment accounts for 85.1% of total AIDS spending. Budgetary share for prevention activities declined sharply from 9.3% in 2000 to 5.1% in 2003 (Figure 2.9). In 2007 the Thai government allocated a sum of 3.8 billion Baht to the National Health Security Office for AIDS treatment, 78.9% of which accounted for antiretroviral therapy.

Figure 2.9: National AIDS Budget Allocation from 1996-2004



Source: MOPH, National Prevention and Alleviation of AIDS Budget Allocation by the RTG

Thai health care policymakers have been working to expand insurance coverage to the nation while ensuring the national health care system's financial soundness. The government's decision to finance HIV/AIDS treatment raises sustainability issues regarding the overall health financing system and whether AIDS care should be financed in the same way as care for other health problems

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Table 2.16: Health Insurance Schemes in Thailand

Characteristics	CSMBS	SSS	UCS
<i>Conditions excluded</i>	No	15 conditions	12 conditions
Maternity benefits	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 (>2,000 baht)	Capitation (1,500 baht)	capitation for OP; DRG for IP (1,202 baht)
<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>per capita tax subsidy, 1999</i>	2,106 baht	519 baht	1,275 baht

Source: Thailand Investing in Health Report, 2004. ⁽²⁵⁾

2.14 Antiretroviral Situation in Thailand

Expenditure for antiretroviral programs as a percentage of the national health budget is expected to increase from 6.1% in 2004 to 10.2% in 2010. Considering that a large proportion of patients on first line therapy will require second line therapy in the near future, the number of second line therapy patients is expected to increase to account for almost three quarters of the overall treatment budget by 2020, resulting in the cost of second line regimen provision reaching US \$500 million per year.

The total number of PHAs in need of ARV drugs is still uncertain. By the end of 2006, approximately 70,000 patients received ARVs in the public sector (Table 2.17). Most of these patients are covered by government/public programs such as NAPHA which was later integrated under the Universal Coverage Scheme. Several smaller programs also provided ARV drugs to PHAs; the scope and number of patients involved are currently unknown (Niyada et al. 2006).

Table 2.17: Chronology of ARV treatment programs and initiatives

Year	Activities	Number of Patients (Approximately)
1991/1992	MOPH started ARV provision as pilot and as mono-therapy	
1995	Dual therapy	
1996	Thai Red Cross AIDS Research Centre started MTCT	
1997	Started network of ARV research	
1999	GPO submitted a request for a compulsory licence to override patents and produce generic to the Thai Department of Intellectual Property	
2000	- MOPH started programme development for service and treatment of PLWHA (ATC) - TNP+, Access and MSF began providing education on treatment within their own community and cooperating with healthcare system to prepare for wider availability of treatment. -MSF started ART in Thailand 2000 (home-based care), 2001 (hospital)	
2001	- Access to Care 109 hospitals	3,600
2002	- Expand ATC to 430 hospital - Applied for Global Fund ATM by Thai MOPH as first round - 2 Thai PHA won legal case on Didanosin patent over Bristol-Meyers Squibb	13,000
2003	- NAPHA started with activities as follows 1. Planning 2. Development of guidelines 3. Training 4. Support of ARVs 600 hospitals 5. Support of CD4 6. Health facilities start working 7. Monitoring and evaluation - Started CARE project	23,000
2004	- SSO announced the policy and guideline for PLWHA beneficiary	50,752
2004-2005	Global Fund (MOPH) (round 1) and Raks Thai Foundation (round 3) programme implementation	
2005	As of Feb 2005 for NAPHA	52,593
2006	NHSO announced the inclusion of ARV drugs into the national universal coverage scheme (UC)	> 70,000

Source: Niyada et al. 2006

Many hospitals in Thailand report not filling all antiretroviral treatment slots allocated to them. This shortfall may exist due to lack of preparation among service providers in terms of scarce human resources, and inadequate training, resulting in the inability to fully deliver ARV treatment. The MOPH trains and certifies more than 8,000 professional nurses each year, although this number is insufficient to meet patient loads. The northern and northeastern regions of Thailand face the greatest nursing staff shortage (WHO: Country Health Profile, 2004). PHAs may also be partially responsible for the trend, with patient ambivalence, immobility, and fear of stigmatization or discrimination great obstacles in seeking treatment. Fear of discrimination led PHAs to

seek treatment outside of their district or to seek private sector treatment. In both cases patients have to cover their own expenses, which impose a sizeable financial burden on individuals and households.

Thailand was the first nation to introduce a CD4 cell count of less than 200 as an inclusion criterion for antiretroviral therapy. In practice a CD4 count at this level, and the presence of related opportunistic symptoms have been given priority (Kowatcharakul W., 2001). Cases that are not as severe in magnitude are also usually accepted into the Global Fund/NAPHA programs if their symptoms respond positively to first line ARV treatment. The cost of CD4 testing by Standard Flow Cytometry ranges from 200 to 800 baht (200 baht under NAPHA, and 500 Baht under the SSO program) depending on the provider. The price of certain viral load tests can be as high as 3,500 Baht. Other tests include basic safety chemistry panels - SGPT (serum-glutamic-oxaloacetic-transaminase), creatinine, and glucose tests – which costs on average 100 Baht. Tests that are free of charge under NAPHA are those related to routine follow-up (CD4 cell count, viral load, and kidney function tests) consultations. Under the Universal Coverage Scheme other tests will also be provided free of charge. Lack of information about ART is cited as a significant barrier to access (Phongpit, 2004) for HIV/AIDS patients.

2.15 Thailand's Universal Coverage Scheme

The Ministry of Public Health (MOPH) is the core organization responsible for Thailand's public health care system. The ministry has the authority to supervise medical care, public health, health promotion and development, food and drug control, and materials which are deemed toxic or hazardous to the general public. The ministry is also tasked with supervising and supporting the Thai Red Cross Society (MOPH, 2006). There are also other entities playing prominent roles in Thailand's medical and health development program including the Ministry of Education, the Ministry of Interior, the Ministry of Defense, the Bangkok Metropolitan Administration, and various state enterprises and private sector organizations. These agencies maintain health facilities that provide primary, secondary, and tertiary medical services.

During the last decade, private hospitals and clinics have been expanding rapidly in Bangkok and other cities. The numbers of public and private health care facilities in 2003 are shown in Table 2.18. The ratio of hospital beds to population in Bangkok is 1:206, while in other provinces the ratio is around 1:462. The ratio of physician to population is 1:767 for Bangkok, and 1:3,295 for the whole country.

Table 2.18: Public and private health facilities, Thailand in 2003

Type	Bangkok (urban)	Provinces (urban)	Districts (rural)	Tambons (rural)	Villages (rural)
Medical schools					
- <i>Public</i>	6	5	-	-	-
- <i>Private</i>	1	-	-	-	-
Specialized Hospitals	19	40	-	-	-
Regional Hospitals	-	25			
General Hospitals					
- <i>Public</i>	29	70	-	-	-
- <i>Private</i>	100	246	-	-	-
Community Hospitals	5	-	725	-	-
Private Clinics	3,100	11,853	-	-	-
Health Centers	61/82	-	214	9,765	-
PHC Centers (village health volunteers)	-	-	-	-	-66,223 (800,000)
1 st class drug stores	3,393	4,832	NA and include in province	-	-
2 nd class drug stores	985	5,774	NA and include in province	-	-
Groceries selling medicines	-	-	-	-	400,000

Source: Thailand Health Profile 2001-2004

As a result of political and administrative reform in 1996, the MOPH's roles has changed from that of a service provider to a policymaker which establishes services standards, monitors for guideline compliance, and provides technical support to all public and private health facilities. The ministry supervised the vertical HIV/AIDS NAPHA program from 2002-2006, and as of October 2006 the National Health Security Office is responsible for overall management of the Universal Coverage Scheme.

The government allocates funds to the NHSO for two major components, namely, medical service purchasing from health contractors, and overall management of the scheme. Allocation of service provision budget is made to provincial branch offices based on a capitation basis. Further payment to service units and deductions are made at the central level. Capitation reimbursement for the Universal Coverage Scheme increased from 1,650 Baht in 2006 to 1,899 Baht in 2007. Provincial level health responses may be complicated by the division of the Universal Coverage Scheme's funding between the Ministry of Public Health and the National Health Security Office. Management changes and revised guidelines for financing and care may adversely affect the foundations set by the NAPHA vertical program.

The NHSO pays contracted providers by age differential capitation for curative care and flat rate capitation for preventive care and health promotion services. 60% of the Universal Coverage's budget is allocated towards capitation payments, while about 40% of budget accounts for labor costs. Change in the number of registered health care contractors can occur throughout the year so the NHSO pays contractors 2 months in advance, and employ accredited registration databases to recalibrate payment.

There are two types of reimbursement to health care contractors under the Universal Coverage Scheme, namely capitation for outpatient treatment, and diagnosis related group (DRG) weights for inpatient costs (a formula based on length of patient stay and the hospital level). 84% of OP high costs claims and 94% of IP high costs claims were reimbursed in 2006. Average reimbursement for outpatient care was 3,061 Baht per case and 3,796 Baht per DRG weight. The reimbursement-charge ratio of high costs outpatient treatment was nearly double that of inpatient treatment, 71% compared with 3% (Netrawichien and Boon-Arj, 2006).

Financial sustainability is a major concern regarding the UCS, so alternatives for the scheme's long term financing are under study. Currently, the scheme relies primarily on the government's annual budget. Negotiations with the Bureau of Budget for a per

capita budget are conducted every year. Feasibility studies on alternatives funding such as sin tax, and value added tax are being undertaken, in addition to measures to improve the efficiency of the scheme (Sustainable and Effectiveness of Health Care Delivery: National Experiences of Thailand, 2006).

In the area of international cooperation, Thailand will continue to pursue a proactive international and regional health policy, in conjunction with domestic health policies. The nation's most recent plan involves the modernization of health care systems in order to enhance the development of e-health, as well as high quality medical services and health research centers (Bureau of Policy and Strategy, MOPH, 2006).

Key stakeholders agreed that the main objectives of the Universal Coverage policy are (Jongudomsuk P., Health Care Reform Office, January 2002):

- 1) Universal coverage: All Thai citizens are entitled to equal access to quality care according to their needs, regardless of their socioeconomic status and religion.
- 2) Single standards: The benefit package and quality of care provided for all Thai citizens should be of the same, single standard.
- 3) Sustainable system: The UC policy should be sustainable in terms of policy, financial, and institutional sustainability, in addition to functioning as an efficient system with both allocation and technical efficiency, as well as possessing an adequate and stable budget.

The Universal Coverage Scheme emphasizes the provision of primary care with a primary care unit (PCU) established in every locality, allowing health care access for up to 10,000 patients with maximum waiting time set at 30 minutes. Primary care establishes the best setting for providing quality treatment based on a holistic approach (Valayasewee et. al. Health Care Reform Office. November 1999). Local communities are in closest contact with primary care providers, and this level of care is better suited to accommodate the socio-economic needs of patients. Second primary care functions as a gatekeeper to control the overall costs of health care at more specialized levels (Martin

et al., 1989). Primary care in Thailand has long been neglected, resulting in poor and unacceptable quality of care and crowded outpatient departments (Srivinishakorn et. al. Thailand Health Research Institute, 1996). The Universal Coverage Scheme seeks to rectify this shortcoming.

Instead of automatically assigning a large hospital as the main contractor of primary care, a suitable public or private health facility will be identified and assigned as a contracting unit for primary care (CUP) for a certain number of population registered under the UC policy. The contractor unit for primary care shall be a gatekeeper, with direct access to more hospitals not permitted except in the incident of accidents or emergencies. CUPs are also fund-holders, they care use their budgets to contract other health facilities to provide care, resulting in the promotion of a primary care network (Jongudomsuk P., Health Care Reform Office, January 2002). The responsibilities and structure of a primary care unit under the Universal Coverage Scheme can be seen in Table 2.19. The PCU allows public health maintenance on a continual basis, encompassing curative and preventive services within the service facility and community. Cases beyond the responsibility of the PCU can be referred to a secondary or tertiary unit.

Table 2.19: Minimum Requirement of CUP

Inputs and Structure	
1. One facility for no more than 10,000 population	- personnel work in CUP more than 75% of their working time
2. Facility is located close to the responsible pop. (transportation time < 30 min.)	- available laboratory system for the investigation
3. Adequate health personnel	- available vehicle for the referral
- physician 1: 10,000-20,000*	Provision of Services
- dentist 1: 20,000-40,000*	- service available at least 56 hours/week
- pharmacist 1: 20,000-30,000*	- be able to provide comprehensive care
- register nurse 1: 5,000	- be able to provide in-house service and community based services
- health personnel 1: 1,250	

* the lower proportion of health personnel to population are proposed to use in rural areas where there are severe shortage of health personnel

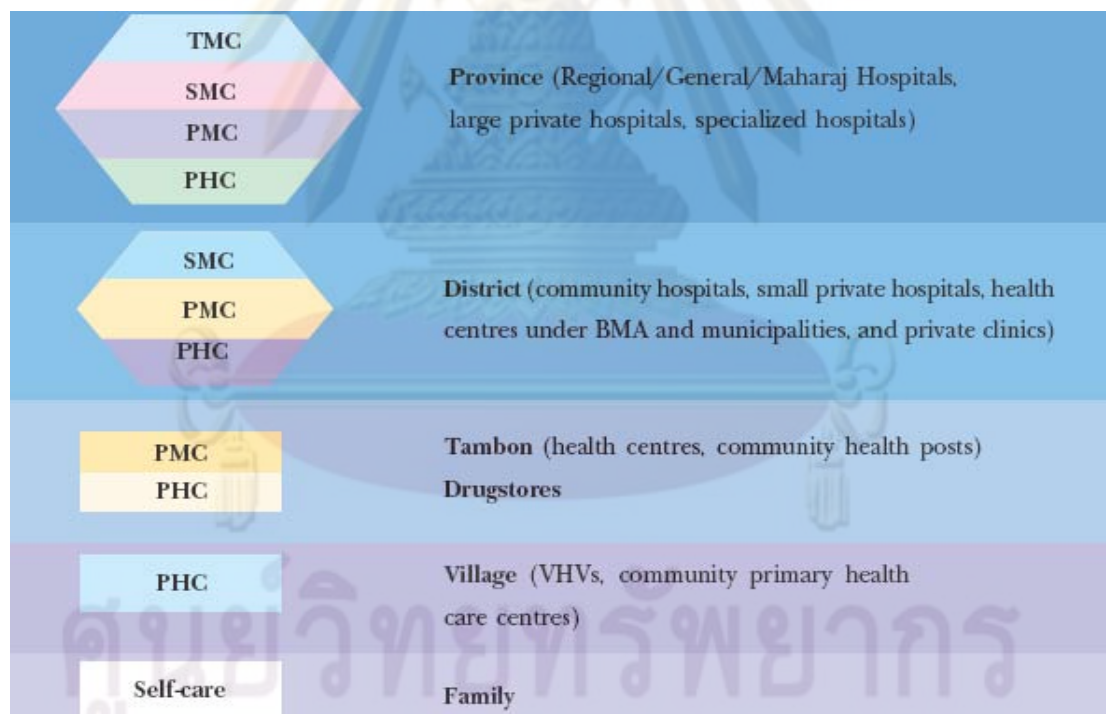
Source: Health Care Reform Office, 2002

The Universal Coverage Scheme created a general increase in the number of patients for both outpatient and inpatient treatment. Restructuring of the Ministry of Public Health was undertaken in accordance with the 1997 constitution and poses important consequences for the HIV/AIDS response at the national, provincial, and local levels. Thailand's public health care system is divided into 5 levels (Bureau of Health Policy and Planning, 2004):

- **Self-care level** encourages people to exercise self-care and healthy lifestyle choices. People in this health level possess basic health knowledge, such as avoidance of smoking and habitual exercise.
- **Primary health care level** encompasses primary health care services organized by local communities, including disease prevention, as well as basic curative and rehabilitative care. Health care at this level is organized by local residents or volunteers in accordance with the community's culture and needs.
- **Primary care level** is provided by trained health care personnel and general practitioners (GPs). The primary care level can be broadly divided into 4 levels:
 - 1) Community health posts which are village level health service units in remote areas, covering a population of 500 to 1,000.
 - 2) Health centers which are sub-district village health first-line service units, covering a population of 1,000 to 5,000, and receiving technical supervision and support from community hospitals. Health center staffs organize health programs according to standard procedures established by the MOPH.
 - 3) Municipality health centers, outpatient departments of public and private hospitals, and private clinics where outpatient care is provided by physicians and other health professionals.
 - 4) Drugstores, which are primary care facilities providing drugs and staffed with pharmacists or other trained personnel.
- **Secondary care level** is provided by medical and health personnel with a certain degree of specialization. Secondary care facilities include:

- 1) Community hospitals located in districts or sub-districts, with 10 to 150 inpatient beds, and covering a population of 10,000, staffed with physicians and health professionals.
 - 2) General or regional hospitals equipped with 200 to 500 beds, and possessing physicians, health professionals, and a variety of medical specialists.
 - 3) Private hospitals, most of which are operated as a business enterprise staffed by full-time and part-time physicians, health professionals, and specialists, with clients required to pay for medical services.
- **Tertiary care** are generally health services requiring specialists who receive referred patients from secondary or primary care levels at regional, general, university, or large private hospitals.

Figure 2.10: Level of Health Services in Thailand



Source: Thailand Health Profile 2001-2004

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Accreditation is required among participating hospitals in order to ensure suitable quality of care. The Thai Ministry of Public Health accepts hospital accreditation (HA) as a means of quality assurance and quality improvement for both public and private health facilities (Supachutikul and Sriratanaban, Quality of Health System. HSRI, August 2000). HA is also accepted as a basic requirement for health facilities who would like to participate in the Universal Coverage Scheme. The Hospital Accreditation Institute has been established for this long term mission. The NHSO provides funding to the Institute of Hospital Quality Improvement and Accreditation to assist hospitals in improving service provision and to receive health accreditation. In 2004, there were 531 hospitals (54.57%) implementing level 1 risk management systems, 10 hospitals (1.03%) having quality assurance and continuous quality development, and 100 hospitals (10.28%) passing all criteria. (Netrawichien and Boon-Arj, 2006).



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CHAPTER III

RESEARCH AND METHODOLOGY

3.1 Study Design and Methodology

This is a descriptive study which aims to examine HIV/AIDS treatment and management changes experienced during the transition from NAPHA to the Universal Coverage Scheme at 4 hospitals in Nan province, in the northern region of Thailand. The 4 hospitals are: Nan Provincial Hospital, Somdej Phrayuparaj Pua Hospital, Wiang Sa Hospital, and Chiang Klang Hospital. The structure and function of antiretroviral treatment and their development during program transition were also examined. Interviews with hospital staff at sample sites, as well as literature review were conducted in order to gather retrospective information on NAPHA, and the Universal Coverage Scheme. The study identified gaps between NAPHA and the Universal Coverage Scheme in five main areas:

1. Antiretroviral therapy
2. Laboratory testing
3. Patient counseling
4. Human resource development
5. Service management

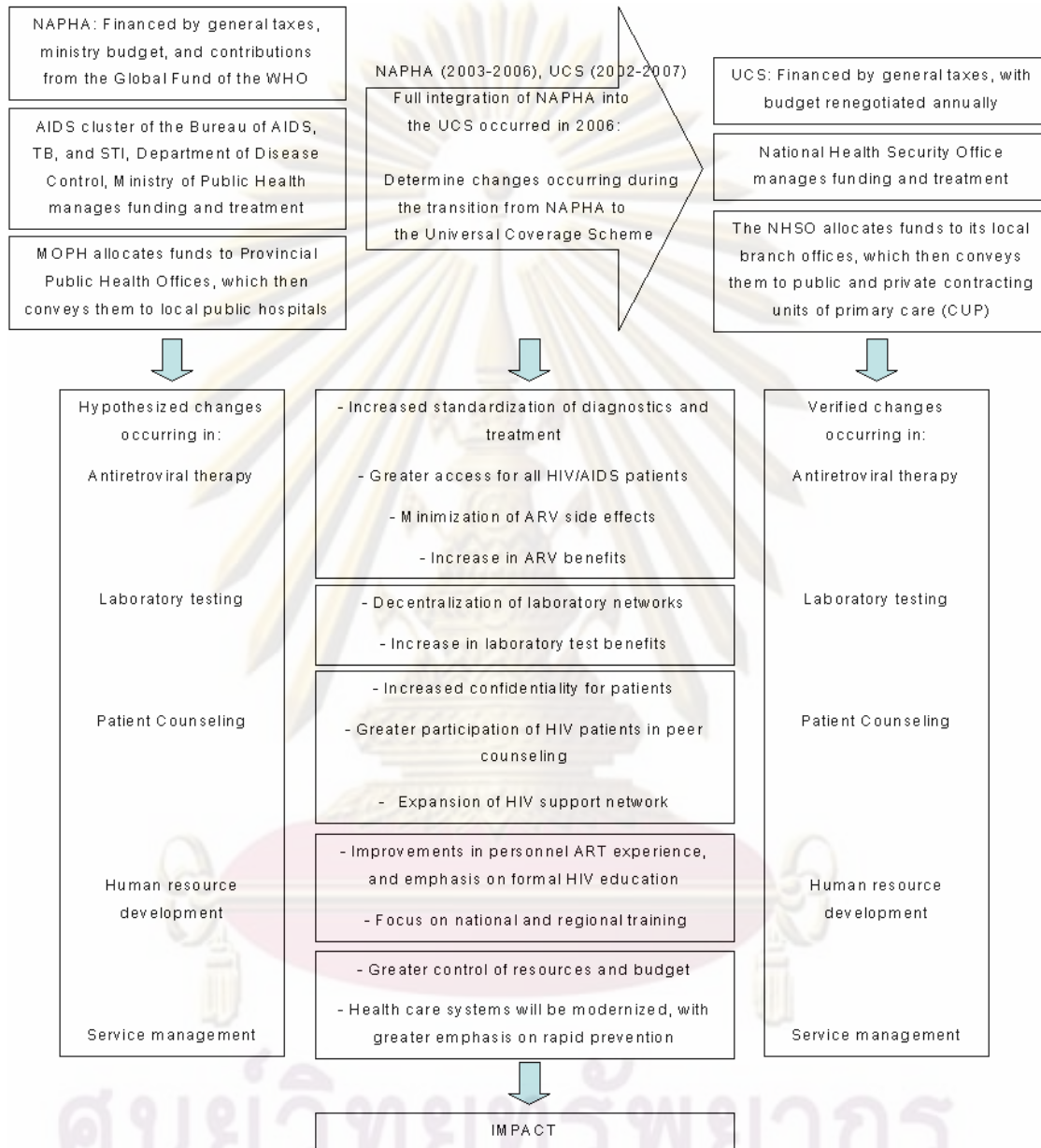
Qualitative variables to be studied under the 5 areas are indicated in figure 3.2. The first four areas are studied from the health care provider's perspective while the fifth area is studied from the fund and program manager's perspective. NAPHA is funded by the Ministry of Public Health (MOPH) and the World Health Organization's Global Fund, and managed by the MOPH. Antiretroviral therapy under the Universal Coverage Scheme is funded and managed by the National Health Security Office, though non-governmental and international organizations still provide some funding.

Nan Provincial Hospital, Somdej Phrayuparaj Pua Hospital, Wiang Sa Hospital, and Chiang Klang Hospital were selected as case studies for these five areas, as these four hospitals began their ARV programs for HIV/AIDS adults in 1999 and for HIV/AIDS children in 2004. In late 2002, these four hospitals were voluntarily involved in the NAPHA program. These hospitals operated under NAPHA until 2006, when the vertical program was included in the Universal Coverage Scheme, a national health coverage scheme initiated in 2002. Most patients under NAPHA who met eligibility criteria were transferred into the Universal Coverage Scheme at these hospitals. Eligibility criteria under NAPHA consisted of the following: 1) Patients diagnosed as having an AIDS-defining illness, except Tuberculosis (TB), regardless of their CD4 level. 2) HIV patients with a CD4 count of less than or equal to 250 cells per cubic millimeter with opportunistic infections, including unidentified chronic fever, unidentified prolonged diarrhea (exceeding 14 days), and weight loss (more than 15% of total body weight over 3 months). 3) HIV positive patients with a CD4 count of less than 200 cells per cubic millimeter.

3.2 Conceptual Framework

The objective of this study is to describe the impact of the integration of the National Access to Antiretroviral Program for People Living with HIV/AIDS into the antiretroviral benefits package of the Universal Coverage Scheme at hospitals in Nan province, Thailand. The conceptual framework of this study, figure 3.1, illustrates hypothesized changes during the transition from NAPHA to the UCS and attempts to confirm or refute them through questionnaires and interviews conducted on hospital staff at sampled sites, as well as literature review to gather retrospective information. The first frame of figure 3.1 indicates hypothesized changes occurring during the transition from NAPHA to the UCS, in 5 areas, including antiretroviral therapy, laboratory testing, patient counseling, human resource development, and service management. The middle frame describes specific hypothesized changes, while the third frame indicates verified changes in these 5 areas, which will be described in the results section.

Figure 3.1 Conceptual framework: Hypothesized changes during transition



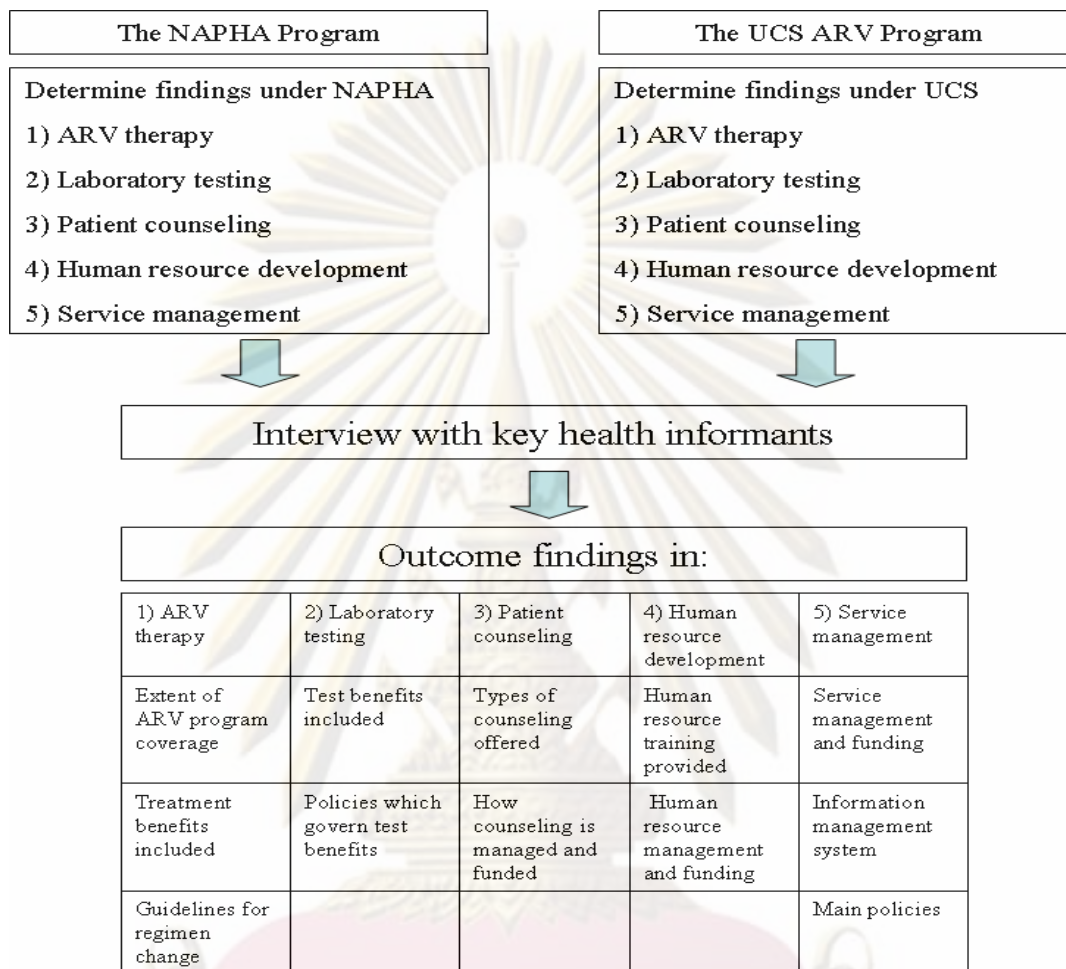
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In terms of antiretroviral therapy, hypothesized changes during the transition from NAPHA to the UCS include increased standardization of diagnostics and treatment, greater access to antiretroviral therapy for HIV/AIDS patients, minimization of ARV side effects, and an increase in ARV benefits provided. Under laboratory testing, hypothesized changes are that greater decentralization of laboratory networks will occur, and increased laboratory test benefits will be provided. Under patient counseling, hypothesized changes include increased patient confidentiality, greater HIV patient involvement in peer counseling, and the expansion of HIV support networks at a national level. Hypothesized changes in human resource development are that improvements in hospital personnel's antiretroviral therapy experience will occur, emphasis will be placed on formal HIV education for personnel, and greater focus will be placed on national and regional training. Under service management, hypothesized changes during the transition from NAPHA to the UCS include increased control of resources and budget, as well as modernization of health care systems, with an emphasis on prevention rather than cure.

Figure 3.2, illustrates the 5 areas being examined in this study namely changes in antiretroviral therapy, laboratory testing, patient counseling, human resource development, and service management. The different qualitative variables are indicated in the outcome findings section. These variables will be examined under both NAPHA and the UCS using interview findings and literature review.

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Figure 3.2 Variables being studied



Qualitative variables for antiretroviral therapy include extent of ARV program coverage, treatment benefits included, and guidelines for regimen changes. Variables for laboratory testing include test benefits provided, and policies which govern test benefits. Variables for patient counseling include types of counseling offered, as well as how counseling management and funding. Variables for human resource development include human resource training provided, and human resource management and funding. Variables for service management for NAPHA and the UCS include characteristics of service management and funding, and changes in the disease information management systems under both programs.

3.3 Data Analysis

Data analysis involved the assessment of variables influencing antiretroviral therapy, laboratory testing, patient counseling, human resource development, and service management. The impact of these variables on the 5 areas is also described. Structural and function changes occurring during the transition from NAPHA to the UCS are described from data collected from interviews and literature review.

3.4 Data Source and Collection

Research data sources include hospital administrators and staff at Nan Provincial Hospital, Somdej Phrayuparaj Pua Hospital, Wiang Sa Hospital, and Chiang Klang Hospital, as well as past studies and other literature. Qualitative data collection is conducted through open-ended, informal interviews with hospital staff at 4 hospitals, including hospital administrators, policy workers, physicians, pharmacists, nurses, laboratory technicians, and health workers. Interviews were conducted from August 15-August 24, 2007. Data collection is also conducted through literature review.

- 1) Document review: Documents include statements on HIV/AIDS health care policy, structure and organization, and objectives, as well as annual hospital reports, policy and guidelines for various programs, and past studies on the antiretroviral situation in Nan province and Thailand.
- 2) Interviews: Open-ended, informal interviews were conducted with hospital staff at Nan Provincial Hospital, Somdej Phrayuparaj Pua Hospital, Wiang Sa Hospital, and Chiang Klang Hospital. Questions for staff members were based on their role and responsibilities under NAPHA and under the Universal Coverage Scheme. Separate questionnaires were given to hospital staff and administrators for further information gathering. Three different questionnaires were used (see appendix C).

Table 3.1 Sample Site Hospital Staff

Hospital	Total Physicians	Physicians with direct involvement in ARV program who were interviewed	Total Pharmacists	Pharmacists with direct involvement in ARV program who were interviewed	Total Registered nurses	Registered nurses with direct involvement in ARV program who were interviewed
Somdej Phrayuparaj Pua Hospital	14	1	8	1	90	1
Wiang Sa Hospital	4	0	5	1	71	2
Chiang Klang Hospital	3	1	3	0	32	2
Nan Provincial Hospital	39	1	18	1	367	2

There were also 3 interviews conducted with 2 public health analysts, and 1 physician at the Nan Provincial Public Health Office. 4 interviews were conducted at Nan Provincial Hospital, and 3 interviews conducted at each of the 3 remaining hospitals. The total number of interviewees was 16. Physician and nurse interviewees (10) at each of the 4 sample hospitals were all involved under both NAPHA and the UCS. All hospitals studied are public hospitals, and were involved under both NAPHA and the UCS. Nan Provincial Hospital is the largest sampled hospital and provides treatment for patients from throughout Nan province.

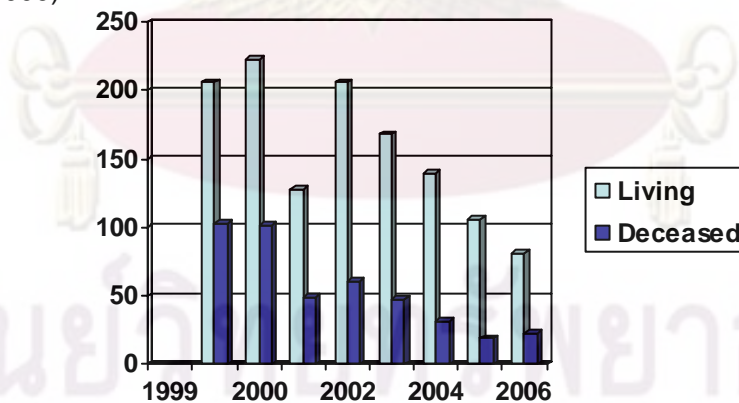
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CHAPTER IV

RESULTS AND DISCUSSIONS

Nan has a population of 477,747 residents, 240,956 of whom are male, and 236,791 of whom are female. Nan is experiencing high numbers of HIV/AIDS cases, with 19.27 per one hundred thousand population, resulting in it being ranked 30th nationally and 7th among northern region provinces. Nan province has 8.64 births per thousand populations, and 6.74 deaths per thousand populations. From 1990-2004, the province reported 3,207 HIV/AIDS patients, 2,268 male, and 939 female. 1,164 patients have since passed away. The ratio of male to female HIV/AIDS patients was 1.3:1 in 2003. Figures 4.1 and 4.2 indicates the number of HIV/AIDS patients living, deceased, and accumulated in Nan province from 1999-2006. NAPHA was initiated in 2000, and was formally integrated under the Universal Coverage Scheme's antiretroviral treatment benefit package in 2006.

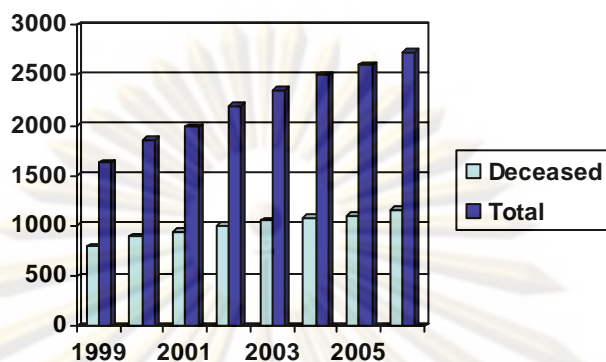
Figure 4.1: AIDS Patients at Nan Provincial Hospital, 1999-2006 (Only patients reported from 1999-2006)



	1999	2000	2001	2002	2003	2004	2005	2006
Living	206	223	128	206	168	140	106	81
Deceased	103	102	49	61	48	32	19	23

Source: Nan Provincial Hospital Handbook, 2006

Figure 4.2: Accumulated number of AIDS patients from 1999-2006 at Nan Provincial Hospital (as of September 30, 2006)



Accumulated Years	1999	2000	2001	2002	2003	2004	2005	2006
Deceased	794	896	945	1006	1054	1086	1105	1164
Total	1632	1855	1983	2189	2357	2497	2603	2726

Source: Nan Provincial Hospital Handbook, 2006

4.1 Findings: HIV/AIDS Situation for Health Care Providers in Nan Province

86% of Nan province is mountainous terrain, resulting in difficulty establishing information and communications technology infrastructure in hospital facilities, therefore the majority of Nan residents living in remote areas are treated by 147 small community health centers. There are 13 community level hospitals and 1 provincial level hospital, all public. HIV/AIDS treatment infrastructure and facilities in Nan differs from more developed and populated provinces in the northern region, such as Chiang Mai or Chiang Rai. These provinces possess high speed information and communications networks, regional hospitals, university teaching hospitals, general hospitals and private hospitals, in addition to extensive health collaboration with central public and private sector organizations due to large airports, road connections, commercial and industrial ties, as well as more prominent migration of populations.

72% of Nan provincial residents work in the agricultural sector, a large percentage when compared with more developed northern region provinces. In Chiang Mai, a sizeable percentage of local residents may work in the tourism sector, industrial sector, and commercial sector due to the province's emphasis on tourism, as well as local manufacturing. 32.6 percent of Nan residents from 6 – 24 years of age are not attending school, perhaps due to financial burdens, or the limited number of secondary and tertiary level institutes in the province. Again, more developed provinces possess greater educational alternatives.

The 4 hospitals surveyed as part of this study, including Nan Provincial Hospital, Somdej Phrayuparaj Pua Hospital, Chiang Klang Hospital, and Wiang Sa Hospital are located about 668 kilometers from Bangkok, and serve more than 90,000 Nan residents. Nan Provincial Hospital is particularly experienced in providing specialized services to HIV patients. The remoteness of Nan means that the effects of the transition from NAPHA to the UCS will be more pronounced, as local hospitals need to be almost self sustaining in order to adequately treat HIV/AIDS patients and function properly under the Universal Coverage Scheme. When considering the 5 areas being examined in this study, including ARV therapy, laboratory testing, patient counseling, human resource development, and service management, Nan province's situation is unique from other provinces in 3 main areas:

1) ARV therapy: Information and communications technology networks in Nan province are less developed than industrialized provinces, due to the rugged terrain, remoteness of the province, and small population. Slow internet connections leads to sluggish data entry, causing delays in reimbursements, delays in antiretroviral regimen change and delays in laboratory supply delivery for hospitals providing antiretroviral treatment under the Universal Coverage Scheme.

2) Patient counseling: There is a little over 300,000 people living in the Nan municipal area and over 110,000 households located throughout the province. Patient

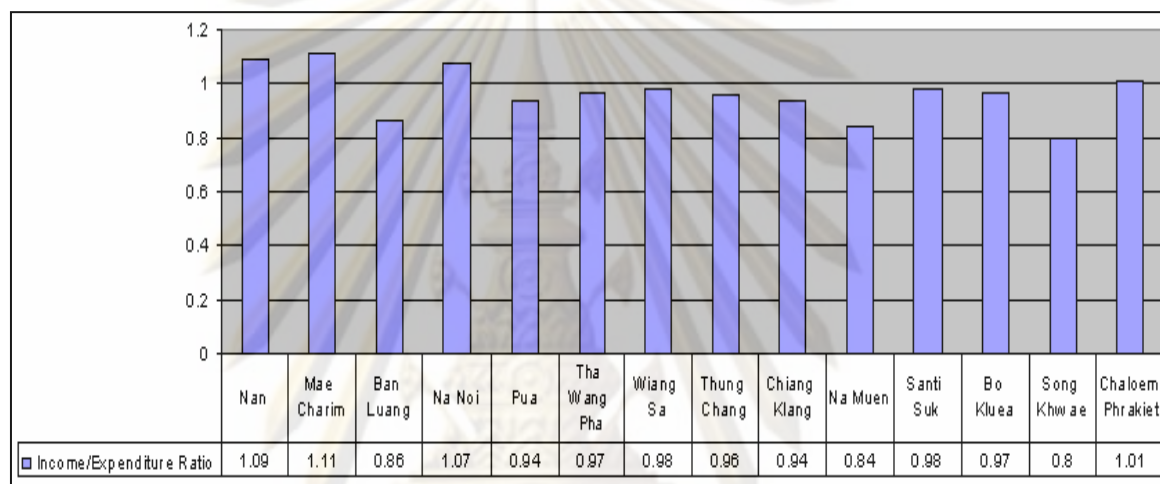
counseling in Nan must take into account HIV/AIDS patients living in far flung districts, as well as more than 40,000 local hill-tribes living in inaccessible terrain. No major obstacles have been reported in communication between hill-tribes and government officials, as most hill tribe members can also speak Thai. Nan health personnel provide mobile services for hill tribes living in isolated areas, in contrast with industrialized or more populated provinces in which there are sufficient and conveniently located health care facilities for patients to visit by themselves.

3) Human resource development: Health personnel shortages in Nan may be due in part to limited local tertiary education institutions, and the complete absence of medical schools in the province. Nan residents who seek medical training in more developed provinces may also be reluctant or unable to return to their home province as there are better employment opportunities, and commitments elsewhere. This has resulted in heavy workloads for existing personnel who must contend with increase paperwork during the transition period from NAPHA to the UCS. Nan medical personnel must also develop their computer skills and their familiarity with the newly revamped National AIDS Program, Disease Management Information (DMIS) system, and Vendor Managed Inventory (VMI) system.

This study is aimed at describing non-financial phenomena occurring during the transition from NAPHA to the UCS, but it should be mentioned in passing that from an initial review of their financial data, hospitals in Nan province show minimal changes in their income/expenditure ratios before and after the transition of NAPHA into the UCS antiretroviral benefit package. Nan Public Health Analyst Chalermkwan Katkajon reports that health care providers in the province normally experience low income/expenditure ratios due to a small provincial population, and therefore low per capitation payments from the National Health Security Office under the Universal Coverage Scheme. Patients in Nan province are also less likely to seek expensive secondary and tertiary care unless absolutely necessary due to their limited earnings. The correlation between the low ratio and local antiretroviral treatment was predicted to be minimal by a majority of

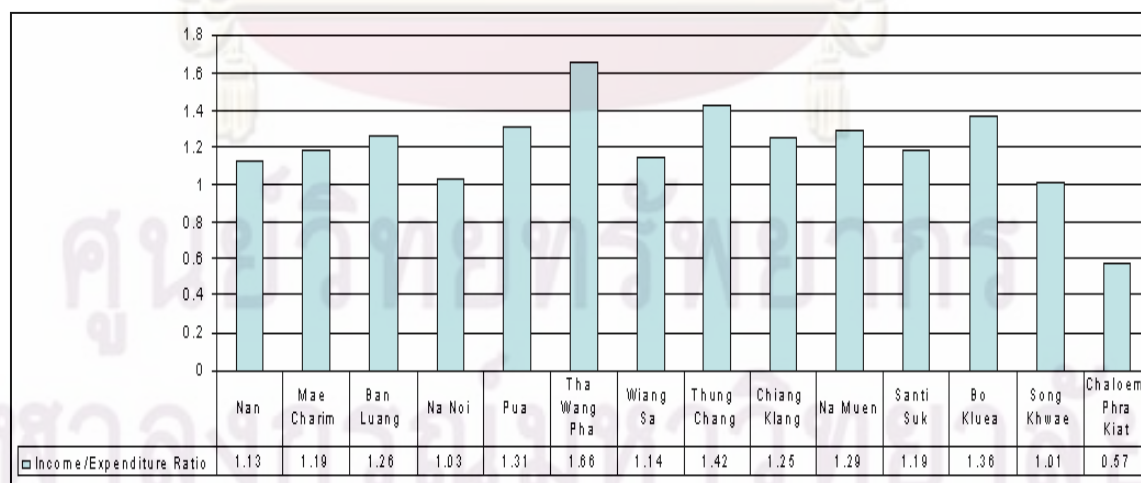
interviewees (16), including those from each of the four sampled hospitals and the Nan Provincial Public Health Office. This is due to the fact that HIV/AIDS patients do not account for a significant portion of hospital services rendered, and are less likely to influence total hospital income and expenditure. Figure 4.3 and 4.4 below illustrates the income/expenditure ratio for hospitals in Nan province.

Figure 4.3: Income/Expenditure Ratio at Hospitals in Nan Province from October 2005 to September 2006



Source: Nan Provincial Hospital Handbook, 2006

Figure 4.4: Income/Expenditure Ratio at Hospitals in Nan Province from October 2006 to August 2007



Source: Nan Provincial Hospital Handbook, 2006

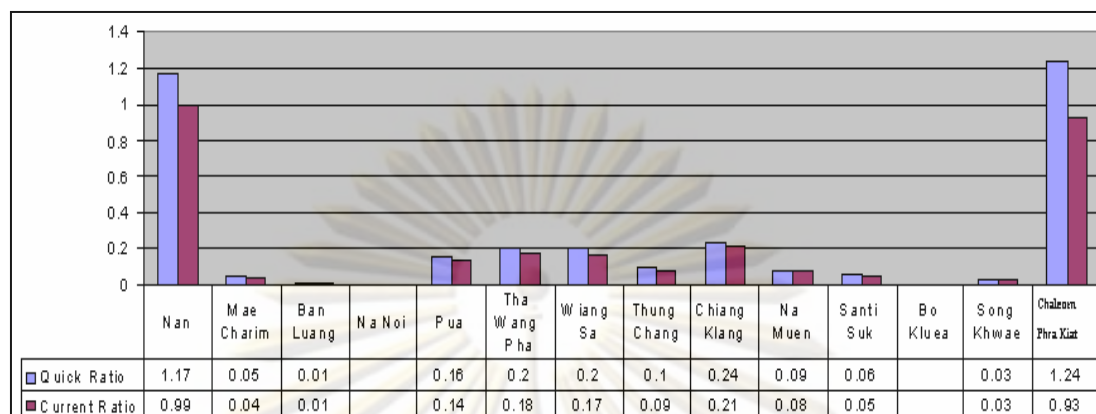
Two frequently used ratios to measure a firm's liquidity are quick and current ratios. Quick ratio measures a firm's short term liquidity and its ability to meet short term obligations. A high quick ratio value, usually exceeding 1:1, is considered healthy. Quick ratios do not take into account a firm's existing inventories. Current ratios are also used to measure a firm's ability to pay off its short term obligations, while taking into account a firm's existing inventories. A high current ratio value, usually exceeding 1:1, is considered healthy (Tracy, John A. 2004).

$$\text{Quick ratio} = \frac{\text{Current Assets} - \text{Inventory}}{\text{Current Liabilities}}$$

$$\text{Current ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

A high current ratio is usually indicative of reduced risk due to a budget surplus for hospitals, while a lower current ratio may indicate that more of the hospital's assets are being invested in capital development. A current ratio greater than or equal to one indicates that current assets should be sufficient to satisfy the hospital's obligations. A current ratio of less than one may mean that the hospital is experiencing liquidity issues. In comparing the short and long term liquidity ratios of hospitals in Nan province obtained through review of hospital records (Figure 4.5 and 4.6), it can be seen that all hospitals except Nan Provincial Hospital currently possess quick and current ratios which are less than 1 in value, which indicates that these hospitals have more liabilities than assets. Reimbursement for health services under the Universal Coverage Scheme conducted by inputting patient treatment records into the Disease Management Information System (DMIS). If local health care providers do not record data in a prompt manner, they will receive late reimbursement for their services, thus increasing their liabilities and decreasing their liquidity. This will influence whether hospital assets cover liabilities and whether they continue to operate or shut down.

Figure 4.5: Comparison of Short and Long Term Liquidity Ratios at Hospitals in Nan Province in September 2005

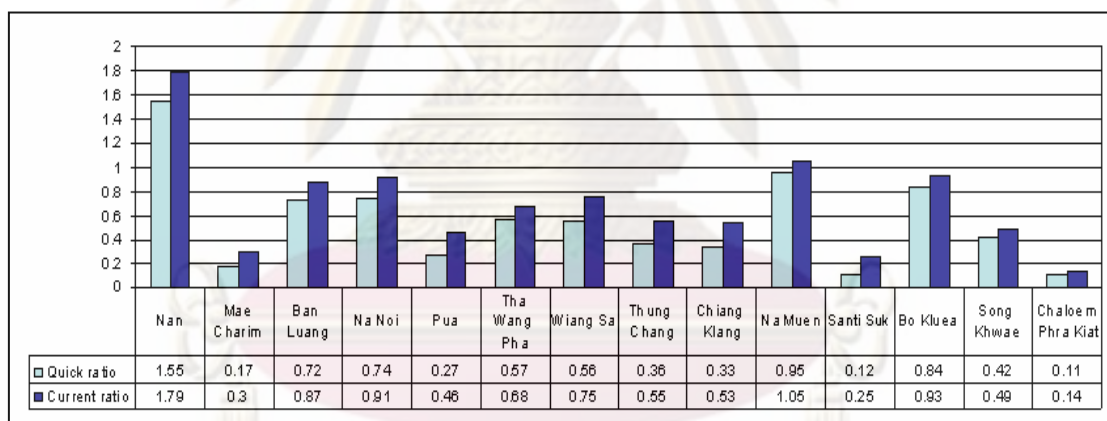


Source: Nan Provincial Hospital Handbook, 2006

Please note that there were no documented liquidity ratios available for Na Noi and Bo Kluea

Hospitals for the year 2005.

Figure 4.6: Comparison of Short and Long Term Liquidity Ratios at Hospitals in Nan Province from October 2006 to August 2007



Source: Nan Provincial Hospital Handbook, 2006

In 2005 all hospitals except Nan Provincial Hospital and Chalerm Phra Kiat Hospital had liquidity ratios below 1 (Figure 4.5). While from 2006-2007, liquidity in at least 10 hospitals showed improvements. Nan public health analysts, Mr. Kantichon Pinchaipat and Ms. Chalermkwan Katkajon, report that the increase in hospital liquidity may be due to the Universal Coverage Scheme's policy on providing contingency funds to hospitals in remote areas. New funding for the 2007 fiscal year most likely contributed to short term improvements in liquidity at smaller hospitals in Nan province. Meanwhile,

the reduction in liquidity ratio at Chaloe Phra Kiat Hospital was reported to be an isolated incident by public health analysts, as the hospital just recently began operation, therefore capital investments such as personnel hiring and medical equipment procurement, as well as low initial patient numbers will naturally result in low liquidity. Public health analysts report that due to Nan Provincial Hospital's role as a tertiary health care center and a provincial level hospital, patient load and the severity of patient cases are generally higher than in other hospitals, resulting in greater health care costs for patients seeking specialized care, and thus greater income for the hospital. Any changes in funding or management during the transition from NAPHA to the UCS are less likely to create perceivable financial changes at Nan Provincial Hospital.

Deterioration in hospital budget surplus over time will adversely affect medical services, including antiretroviral treatment. Officials from the Nan Provincial Public Health Office therefore recommended that local hospitals invest in personnel training and development of infrastructure for their DMIS system in order to ensure that prompt reimbursement occurs over the long term for all health services, including antiretroviral therapy, thus maintaining hospital liquidity. Nan Provincial Hospital interviewees, MD Anupob Chitmuang, Mrs. Sujinda Wannawat, and Mrs. Unwana Charoensiri report that current management by local National Health Security Offices is adequate in minimizing the risk of small hospitals being inundated with liabilities. Contingency funds and per capita payment are also believed to be beneficial mechanisms introduced under the Universal Coverage Scheme.

4.2 Findings: HIV/AIDS Situation for Patients in Nan Province

Fatality rates from HIV per one hundred thousand populations in the province have decreased from 12.73 in 2004 to 6.91 in 2006. In 2006, provincial residents in the 30-34 year age range account for 31.28% of HIV/AIDS patients, followed closely by residents in the 20-25 year age range. 34.55% of patients are agriculturists, while 6.66% are juveniles. The main cause of HIV infection in Nan province is sexual intercourse, which accounts for 94% of all cases, while mother to child transmission accounts for 5%

of cases. AIDS infections as a result of intravenous drug use have remained below 1% over the last three years.

The 9th National Economic and Social Development Plan aimed to ensure that AIDS infection among pregnant Nan residents remains below 0.85 %, and to ensure that AIDS infection in enlisted soldiers serving in Nan remains below 0.35 %. Over a three year period from 2004-2006, public health officials succeeded in reducing AIDS infection among pregnant patients from 0.55 to 0.34 %. AIDS infection among enlisted soldiers in Nan increased from 0.06 to 0.70 %, however. There are also an increasing number of HIV cases among students of both genders between 15-19 years of age. A 2001 study conducted by the Nan Provincial Public Health Office reports high risk behavior among 353 male Mathayom 5 secondary school students in Nan province, it was found that 5.4% (19) have had sexual intercourse. The average age for initial sexual intercourse is 14.9. Among students who have had sexual intercourse, only 47.3 percent (9) used condoms. Surveys of 385 female students from the same school and grade, found that 1.8 percent (7) have had sexual intercourse. From this number, only 28.7% (2) used condoms.

A separate study on high risk behavior was conducted among youths residing in dormitories in the Nan municipal area in 2003. 572 youths were surveyed with 71.3% between the age of 15 and 19. 62.4 percent of respondents were female, 61.9 percent of respondents were studying in vocational schools, and 22.4 percent of respondents were in secondary schools. 120 respondents (21%) have had sexual intercourse, with the average age of first time sexual intercourse being 16.5 years. Only 34.4 percent of respondents report using condoms.

Nan public health officials report that close disease surveillance, contraceptive campaigns, and social support are necessary to ensure that youths refrain from high risk behavior. Youth campaigns for safe sex, sexual abstinence, and adherence to family values have been cited as necessary activities for local youths in order to effectively

reduce the spread of HIV/AIDS. Social support mechanisms for HIV patients remain strong in the northern and northeastern regions due to traditional family structures that are conducive to strong domestic ties.

4.3 Findings: Comparison of Gaps between NAPHA and the Universal Coverage Scheme's Antiretroviral Therapy Program

The National Access to Antiretroviral Program for people living with HIV/AIDS (NAPHA) was conceived in 2003, and funded and managed by the Ministry of Public Health and the World Health Organization's Global Fund in order to limit the spread of communicable disease in Thailand. The Royal Thai government completed integration of NAPHA into the Universal Coverage Scheme's antiretroviral therapy benefit package in 2006. ARV therapy will improve patients' immune system, overall health, quality of life, and social interaction. Treatment will generally reduce the mortality and morbidity of patients, prevent the onset of opportunistic infections or cancer, and reduce the likelihood that the patient will inadvertently transmit HIV to others. This study attempts to determine the impact of NAPHA's integration into the UCS in 5 main areas:

- 1) ARV therapy
- 2) Laboratory testing
- 3) Patient counseling
- 4) Human resource development
- 5) Service management

4.3.1 ARV Therapy

The main distinctions between antiretroviral therapy under NAPHA and under the Universal Coverage Scheme are indicated under the benefit and problem sections for both NAPHA and the UCS, respectively. Qualitative variables being studied for ARV therapy are highlighted in the "Benefits under NAPHA" section and include: 1. Extent of ARV program coverage. 2. Treatment benefits included. 3. Guidelines for regimen change.

Table 4.1 ARV Therapy Gaps between NAPHA and UCS

Benefits under NAPHA	Problems under NAPHA	Resolution of problem during transition from NAPHA to UCS	Benefits under UCS	Problems under UCS
<p>Extent of ARV program coverage: Hospitals had limited ARV supplies, as drug procurement was overseen by the Ministry of Public Health.</p> <p>Foreigners and migrant workers, as well as patients under different health insurance schemes, such as the CSMBs and the SSS were allowed ARV treatment under NAPHA.</p> <p>Treatment benefits included: Antiretroviral drug treatment was the specific aim of NAPHA and thus only ARV drugs and basic laboratory tests were provided. Patients under NAPHA received first line ARV drugs for free.</p> <p>Guidelines for regimen change: Large provincial or regional hospitals could alter ARV regimens at their discretion, and normally collaborated with smaller hospitals to assist them in altering their drug regimens.</p>	<p>There was less flexibility in replenishing ARV drug stocks and meeting HIV/AIDS patient demands. Paperwork need to be filed with several different agencies in order to initiate drug deliveries.</p> <p>No major problems were reported, except that there were not adequate attempts to expedite cross subsidization of ARV funding from different health schemes in order to maintain NAPHA's sustainability.</p> <p>Treatment for opportunistic infections and treatment for ARV side effects were not included under NAPHA and were paid for by the patient's current health insurance scheme or out of the patient's own pocket. Second and third line regimens were not covered.</p> <p>Regimen changes occurring at local levels may not have been consistent with national health policies. Discretionary changes in ARV regimen greatly increased the risk of delivery of incorrect drug supplies.</p>	<p>Yes, the UCS emphasized online systems for drug procurement.</p> <p>-</p> <p>Yes, the UCS expanded ARV benefits to patients.</p> <p>Yes, under the UCS, national guidelines for ARV regimens are set and must be authorized by regional HIV/AIDS experts.</p>	<p>The UCS enhanced ARV drug logistics and emphasizes an online internet purchasing system for drugs (VMI) where hospitals can specify the drug quantity they require.</p> <p>The UCS allows Thai citizens with valid identification cards to be registered for ARV treatment. Only foreigners who were registered under NAPHA before October 1, 2005 are covered under the UCS. Patients under different health schemes such as the CSMBs and SSS are no longer covered.</p> <p>The Universal Coverage Scheme covers most major aspects of ARV therapy including the provision of antiretroviral drugs, treatment for opportunistic infections (OI), and treatment for ARV side effects, such as Hypercholesterolemia.</p> <p>ARV regimen changes under the UCS can be requested through the NAP system. The risk of misfiled or faulty paperwork is greatly reduced. Regional NHSO oversight into regimen changes ensures consistent ARV service provision across regions.</p>	<p>Obstacles to a fully operational VMI system include slow internet connectivity, and lack of information technology training among hospital staff.</p> <p>Patients under different health benefit schemes are no longer allowed to receive essential ARV treatment under the UCS. This is detrimental to funding cross subsidization, and fragments ARV services across different health schemes.</p> <p>Greater expenditure may occur when patients who were formerly on first line ARV regimens under NAPHA have to switch to second line regimens, which are more expensive. So far Nan hospitals report no major funding or drug shortages.</p> <p>Requests for regimen changes are more rigid and structure. Regional HIV/AIDS consultants take up to 2 weeks to process requests.</p>

All interviewees (16) agree that ARV drug regimen types are not vastly different under either NAPHA or the Universal Coverage Scheme due to preparations made by regulatory agencies to expedite the integration of NAPHA into the UCS. Most of Thailand's antiretroviral drugs are being produced by the Government Pharmaceutical Organization. One ARV drug regimen emphasized under the UCS are fourth line regimens used in the event of treatment failure, which constitute triple drug combinations that contain boosted Protease Inhibitors (PIs). Similar guidelines under both programs imply that treatment procedures can be more readily integrated.

The most important criterion for inclusion is the patient's own willingness to join NAPHA. A suspected HIV positive patient will usually be advised to take an HIV diagnosis test. If the results are positive, the patient will be informed about the hospital's ARV program and asked to join. Patient data is recorded after each visit and are part of hospital records. Patients receive ARV drugs, basic laboratory tests, and community-supported counseling as part of NAPHA benefit packages. Data is conveyed to Provincial Public Health Offices, Regional Communicable Disease Control Centers, and the Ministry of Public Health in the form of documents.

Hospital interviewees (13) report that Nan Provincial Hospital, Somdej Phrayuparaj Pua Hospital, Wiang Sa Hospital, and Chiang Klang Hospital all participated under NAPHA, and included ARV patients by following the Ministry of Public Health's guidelines for the program, which consist of the following criteria (see figure 4.7):

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Table 4.2: Enrollment criteria for NAPHA

Adults	Children
ARV naive	ARV naive
<ol style="list-style-type: none"> 1. Clinical AIDS 2. Advanced HIV infection with CD4 count < 250 cells/μL or 3. Asymptomatic HIV infection with CD4 count < 200 cells/μL 	<ol style="list-style-type: none"> 1. WHO Clinical Stage B or C or 2. CD4 count < 20% or
ARV experienced	ARV experienced
<ol style="list-style-type: none"> 1. Rollover of those on GPO-vir from ATC-1 & 2 with good clinical response to NAPHA 2. Dual NRTI and VL < 50 copies/ml or 3. Triple therapy and VL < 50 copies/ml 	<ol style="list-style-type: none"> 1. Rollover of those on GPO-vir with good clinical response from ATC-1 & 2 to NAPHA 2. Dual NRTI and VL < 50 copies/ml or 3. Triple therapy and VL < 50 copies/ml

Source: *Scaling up Antiretroviral Treatment: Lessons Learnt from Thailand, WHO external evaluation, 2007*

Hospital interviewees (13) explained that under the Universal Coverage Scheme people living with HIV/AIDS (PHA) are considered eligible for ARV therapy when their CD4 count is less than 200 cells/ mm^3 . The main goal of antiretroviral treatment is to reduce HIV viral load to less than 50 copies per milliliter in the patient's plasma, and to increase CD4 count to greater than 200 cells/ mm^3 . HIV positive patients will be processed for registration under the National AIDS Program and assigned a National AIDS Program (NAP) number. Only after registration are patients eligible to receive antiretroviral therapy, laboratory testing, and counseling as part of the Universal Coverage Scheme's benefit package. Data such as laboratory test results and patient health status will be recorded on the NAP/DMIS online system for each visit. Physicians will also document patients' resistance to ARV regimens, while pharmacists will document patients' ARV drug prescriptions. Data is conveyed to the National Health Security Office and Ministry of Public Health through the internet network.

According to interviewees (16), ARV therapy under NAPHA encompasses only antiretroviral drug treatment for symptomatic and asymptomatic HIV/AIDS patients. Treatment for opportunistic infections (OI), and other complications are not covered under NAPHA, and is left to the current insurance scheme of patients, or covered by out of pocket payment. NAPHA patients are eligible to receive ARV drugs after meeting

certain established clinical criteria or immunological criteria. Patients must be registered for treatment in their locality, but can enter any hospital participating under NAPHA, which is managed as through a stand-alone, non-networked NAP program. HIV/AIDS patient records are sent to Provincial Public Health Offices (provincial level) which then conveys the documents to regional Communicable Disease Control Centers (regional level), which sends them to the Ministry of Public Health (national level). HIV/AIDS patients from the Civil Servant Medical Benefit Scheme, Social Security Scheme, as well as foreigners and migrant workers are eligible for treatment under NAPHA.

In contrast, ARV therapy under the Universal Coverage Scheme encompasses antiretroviral drug treatment, treatment for opportunistic infections (OI), and treatment for ARV side effects. The scheme only covers Thai citizens who possess a 13 digit ID card and are registered under for Universal Coverage health benefits. Universal Coverage health contracts will provide treatment to non-Thai patients or foreign workers only on the condition that they possess prior membership under the NAPHA program before October 1, 2005. Eligible patients will receive their ARV medication through the National AIDS Program (NAP) system which is managed by the National Health Security Office. Antiretroviral therapy benefits under the Universal Coverage Scheme are not provided to members of the Civil Servant Medical Benefit Scheme, or the Social Security Scheme who can only receive ARV therapy from their own insurance programs.

Interviewees (16) also reported that large provincial or regional hospitals under NAPHA could alter ARV regimens at their discretion, and normally collaborate with smaller hospitals to assist them in altering their drug regimens. MD Apichart Rothsom elaborated that no authorizations from central agencies are necessary to alter ARV regimens under NAPHA. Drug regimen alterations under NAPHA possess greater flexibility than under the Universal Coverage Scheme, as the UCS system sets rigid ARV regimen guidelines within its online VMI and NAP network.

Nan Provincial Public Health and hospital interviewees (16) explained that under the Universal Coverage Scheme, Regional AIDS Consultants, who are appointed by the National Health Security Office, provide advice to local hospitals and to HIV/AIDS experts, who are also appointed by the NHSO. Requests for alteration of ARV regimen by local hospitals can be conducted through National AIDS Program/DMIS system. Alteration of ARV regimen at regional or provincial hospitals can only be authorized by HIV/AIDS experts, who are usually physicians with specialized knowledge in the matter. In order to initiate a change of drug regimens at the regional level, the National Health Security Office must meet with all of its offices from 4 regions in order to consult on the matter. This is a lengthy and time-consuming process.

Interviewees from Nan Provincial Hospital, Somdej Phrayuparaj Pua Hospital, Chiang Klang Hospital, and Wiang Sa Hospital (13) stated that record-keeping under the Universal Coverage Scheme is hindered by slow internet connectivity for the National AIDS Program/Disease Management Information System, and Vendor Managed Inventory system. Early technical issues within the computer program in addition to lack of computer and systems training also delay data entry, capitation reimbursement, and coordination of health prevention. Hospital interviewees (13) report that there are also delays in the assignment of user names and passwords by the National Health Security Office to hospital staff for the National AIDS Program system. According to Nan Provincial Hospital nurse Sujinda Wannawat, local hospitals are inundated with paperwork during the transition from paper records to digital records. Conclusively, the two main problems in the area of ARV therapy during transition from NAPHA to the Universal Coverage Scheme are infrastructure and training.

Under NAPHA, hospitals possessed less flexibility in replenishing ARV drug stocks and meeting HIV/AIDS patient demands due to extensive paperwork which need to be filed and conveyed through several different agencies in order to initiate drug deliveries. The VMI system existed during later years under NAPHA, but greater emphasis was placed on drug requests through paper during the program's operation.

Also hospitals had less control over their ARV stocks, as the Ministry of Public Health ultimately exercised centralized control over ARV drug procurement and stocks. As a result, hospitals were granted limited ARV supplies on an as-needed basis. Hospital interviewees (13) report that prior to the introduction of the VMI system, health personnel had to contend with storage of records, in paper and floppy disk format, not to mention the possibility of misfiled, damaged, or lost reports. Errors made at the local level in the antiretroviral drug procurement process will affect the health status of local patients, while errors made at a national level will destroy the balance in ARV drug and may lead to an ARV shortage, resulting in large-scale HIV/AIDS morbidity.

Under the Universal Coverage Scheme, enhanced ARV drug logistics and greater emphasis on online internet purchasing system for drugs (VMI) greatly improved ARV drug stocks, as hospitals could specify delivery time, quantity, and other requirements. The VMI system under the UCS decentralized drug management and provided hospitals with greater autonomy regarding ARV drug procurement and stocks. Vendor managed inventory reduces stock shortages and reduces the need to keep large inventories within the supply chain, thus shortening the order and delivery process and allowing for health care providers experiencing ARV shortages to receive priority for their drug shipment. Nan public health analysts (2) believe that for the VMI system to function efficiently, the GPO must coordinate closely with the National Health Security Office (NHSO) in order to ensure smooth work flow.

Interviewees from Nan Provincial Hospital (3) pointed out that the selection of ARV drugs by both NAPHA and the Universal Coverage Scheme depends on the purpose of use, whether for adults, children, or the prevention of mother to child transmission (PMTCT). Under NAPHA the number of available health care providers for antiretroviral treatment is limited, but under the Universal Coverage Scheme providers are widespread, therefore the establishment of strong drug supply system elements is crucial to meeting diverse and widespread patient demands. Further interviews on this issue with remaining interviewees (13) indicated that Universal Coverage scheme's

supply chain should include the development of required infrastructure including facilities for importation, manufacturing, and storage. The storage of antiretroviral drugs takes into account several factors include drug shelf life, handling requirements, storage security, and temperature control. Laboratory supply management for test chemicals and test kits should be managed in a similar fashion, but with a buffer stock to account for lead time, as laboratory chemicals have a longer shelf life than ARV drugs. Table 4.2 indicates some of the demand and supply issues related to ARV drugs.

Table 4.3: Demand and Supply Issues related to ARVs

Demand issues related to ARVs	Supply issues related to ARVs
Health care provider capabilities	Facility stock handling capabilities
Patients' residency	Lead time between order and delivery
Patient transfers/ loss of follow up/ death	The nature of the current ARV market
Treatment interruptions (drug holidays)	The number of pharmaceutical suppliers
Change in patient drug regimen	Regulatory approval for regimen change
Historical consumption data	Level of current funding/ delays in budgetary allocation

4.3.2 Laboratory Testing

Since the development of antibody testing for HIV in 1995, testing procedures and chemicals have been continuously improved. Selection of testing methods rely on the objective of the laboratory testing, the sensitivity and specificity of the test chemicals, the prevalence rate of HIV among the local population, the quantity of requested test samples, as well as other factors, chief among them the possibility of adverse effects due to improper ARV regimen provision to patients. The main distinctions between laboratory testing under NAPHA and under the Universal Coverage Scheme are indicated under the benefit and problem sections for both NAPHA and the UCS, respectively. Qualitative variables being studied for laboratory testing are highlighted in the "Benefits under NAPHA" section and include: 1. Test benefits included. 2. Policies which govern test benefits.

Table 4.4: Laboratory Testing Gaps between NAPHA and UCS

Benefits under NAPHA	Problems under NAPHA	Resolution of problem during transition from NAPHA to UCS	Benefits under UCS	Problems under UCS
<p>Test benefits included: NAPHA covered diagnostic, immunological, virological, and basic follow up tests.</p> <p>Policies which govern test benefits: Lump sum funds were allocated from the Ministry of Public Health to Regional Communicable Disease Control Center, to Provincial Public Health Offices, to local hospitals.</p> <p>NAPHA emphasized curative care rather than positive prevention.</p> <p>Under NAPHA, there were about 56 laboratories for HIV/AIDS related tests throughout the nation.</p>	<p>NAPHA did not cover PCR tests for mother-to-child transmission of HIV/AIDS, nor did it cover Voluntary Counseling and Testing (VCT) for early HIV/AIDS diagnosis.</p> <p>Lump sum funds were limited. Funding allocation also involves too many agencies, necessitating extensive paperwork and collaboration.</p> <p>Preventive care should have been promoted to reduce transmission of HIV/AIDS and identify undiagnosed HIV patients for treatment before the onset of severe AIDS or OI.</p> <p>Laboratory facilities were limited, and were mostly located in Bangkok. Coordination was centralized in Bangkok.</p>	<p>Yes, the UCS added testing for these two areas.</p> <p>Yes, the UCS simplified the regulatory structure of laboratory testing, and also introduced an improved funding system.</p> <p>Yes, the UCS supports a policy of preventive care, as is evident in its laboratory testing benefits for patients, in order to ensure a health national population.</p> <p>Yes, under the UCS, laboratory facilities were greatly expanded through the management of local NHSO branches.</p>	<p>The UCS covers diagnostic, immunological, virological, and basic follow up tests in addition to VCT tests for early diagnosis and PCR tests for mother-to-child transmission of HIV/AIDS.</p> <p>The UCS provides itemized capitation for each laboratory service rendered. Hospitals no longer have to contend with budgetary constraints. The National Health Security Office oversees funding disbursement.</p> <p>The UCS provides VCT and PCR as part of its policy on positive prevention and early treatment.</p> <p>There is greater laboratory networking with over 130 public and private hospitals, universities, and public health agencies providing testing services. Laboratory coordination is decentralized to local NHSO branches.</p>	<p>None reported by interviewees (16).</p> <p>Delays in laboratory funding have been reported due to technical issues with the NAP and VMI systems, as well as lack of computer training for personnel.</p> <p>None, according to interviewees (13).</p> <p>None reported by interviewees (16).</p>

Interviewees (13) from Nan Provincial Hospital, Somdej Phrayuparaj Pua Hospital, Chiang Klang Hospital, and Wiang Sa Hospital explained that NAPHA covers the cost of laboratory diagnostic tests to determine the status of infection in HIV/AIDS patients. Immunological and virological tests are also provided, and use criteria such as anti-HIV antibody, CD4 count, viral load, and drug resistance. Basic follow up tests are also provided and include CD4 monitoring every 6 months after baseline testing, complete blood count (CBC), chest x-rays, and liver enzyme (alanine transaminase/ALT) tests. There is a limit to how many tests NAPHA patients can undergo before they have to cover the costs themselves. NAPHA does not cover Voluntary Counseling and Testing (VCT), which is used to determine HIV/AIDS health status in suspected patients in advance, due to the program's emphasis on cure rather than prevention. NAPHA test benefits are available to registered HIV/AIDS patients from health benefit schemes such as the CSMBS, or SSS. Foreigners or migrant workers under NAPHA are also entitled to laboratory tests, except VCT.

For the Universal Coverage Scheme, interviewees (13) reported that laboratory benefits for HIV patients include diagnostic, immunological, virological, and follow up testing. Patients under the Universal Coverage Scheme will receive the 3 following laboratory testing benefits, each of which possess their own capitation amount:

1. Basic laboratory testing, including complete blood count (CBC), fasting blood sugar (FBS) creatinine (Cr), triglyceride, total cholesterol and liver enzyme (SGPT/ALT)
2. Immunological and virological testing including anti-HIV antibody, CD4 count, viral load, and viral genotype (drug resistance).
3. Polymerase Chain Reaction (PCR) tests to investigate possible Mother to Child transmission of HIV.

Nan hospital nurses (7) reported that follow-up visits are scheduled after two weeks of antiretroviral therapy initiation, in which tests such as CBC (Complete Blood Count), fasting blood sugar (FBS), and creatinine (Cr) are provided. Visits to hospital clinics are made every 3 months, with follow up test for CD4, CBC, and liver enzyme

(SGOT/SGPT) conducted. Interviewees (7) said that HIV viral load tests are conducted annually; patients who exceed the annual testing limits are required to pay extra. Universal Coverage laboratory testing benefits are no longer provided to members of the Civil Service Medical Benefit Scheme or Social Security Scheme, as they are covered by their own health benefits. Foreigners or migrant workers who were registered under NAPHA before October 1, 2005 remain entitled to UCS test benefits.

Under the Universal Coverage Scheme, Voluntary Counseling and Testing (VCT) are included as health benefits as part of the scheme's commitment to positive prevention of HIV/AIDS. The UCS also covers Polymerase Chain Reaction (PCR) tests to determine whether transmissions of HIV from mother to child have occurred. Newborn infants of HIV positive women are eligible for PCR tests. Infants must be from 6 weeks to 6 months in age, with tests limited to 2 times. Early testing and treatment for infected newborns or undiagnosed HIV patients are also part of the UCS's policy.

Laboratories under NAPHA are provided with a limited lump sum budget per fiscal year. The lump sum allocation means that patients who undergo laboratory tests other than those for immunological or virological conditions, such as testing for blood sugar, lipid profile, and liver function must pay extra. Hospital interviewees (13) report that there were some constraints in laboratory testing under NAPHA due to limited funds. The problem was addressed by allowing NAPHA patients entry into any participating laboratory for testing purposes, although facilities were limited. Laboratory test records and requests are made individually at each hospital or testing center; these records are then transmitted to Provincial Public Health Offices (PPO) which conveys them to Regional Communicable Disease Control Centers, and the Ministry of Public Health. Laboratory supplies are then transported from the GPO to local hospitals. Regional Communicable Disease Control Centers were responsible for training lab technicians. There are limited laboratory facilities under NAPHA, with 19 facilities for CD4 testing in Bangkok, and 21 facilities in other provinces. There are 11 facilities for viral load testing in Bangkok, and 5 facilities in other provinces.

Under the UCS each laboratory contractor will receive a capitation payment set by the National Health Security Office per test per patient. Laboratory supplies are reimbursed on a capitation basis for each itemized service. According to hospital interviewees (13), the NHSO provides significant funding, but there are delays in funding allocation due to the necessity of inputting NAP and VMI data into each hospital's computer, shortages in data entry personnel, lack of computer training, and lack of familiarity with the NAP and VMI systems. Laboratory test criteria are set by the NHSO and are managed through the National AIDS program (NAP) and VMI systems.

The integration of NAPHA into the Universal Coverage Scheme signifies the provision of additional test benefits for PHAs, resulting in a reduction in cost burden in this area. Under the UCS, there is also enhanced laboratory networking, as the NHSO and its branch offices are more capable of nationwide coordination due to improved information and communications technology infrastructure, as well as greater autonomy in management. There are 15 facilities for CD4 testing in Bangkok, and 84 facilities in other provinces. There are 5 facilities for viral load testing in Bangkok, and 22 facilities in other provinces. There are 7 facilities for drug resistance testing in Bangkok and other provinces. There are 2 PCR testing facilities, one at the Ministry of Public Health, and the other at Chiang Mai University.

4.3.3 Patient Counseling

The main distinctions between patient counseling under NAPHA and under the Universal Coverage Scheme are indicated under the benefit and problem sections for both NAPHA and the UCS, respectively. Qualitative variables being studied for patient counseling are highlighted in the "Benefits under NAPHA" section, and include: 1. Types of counseling offered. 2. How counseling is managed and funded.

Table 4.5: Patient Counseling Gaps between NAPHA and UC

Benefits under NAPHA	Problems under NAPHA	Resolution of problem during transition from NAPHA to UCS	Benefits under UCS	Problems under UCS
<p>Types of counseling offered:</p> <p>Under NAPHA patients received health education, home care, as well as psychological, social, and financial counseling either at established health centers or through home visits.</p> <p>How counseling is managed and funded:</p> <p>Formal and informal counseling were conducted under the guidelines of the Provincial Public Health Office, Regional Communicable Disease Control Centers, and the Department of Disease Control, Ministry of Public Health.</p> <p>Funding for HIV/AIDS counseling were allocated as a lump sum amount from the Ministry of Public Health, to Regional Communicable Disease Control Centers, to Provincial Public Health Offices, and local hospitals.</p>	<p>(See human resource development, section 4.3.4).</p> <p>Hospital interviewees (13) reported lack of hospital staff and volunteers for counseling, as well as lack of training among personnel.</p> <p>Small numbers of counseling sites hindered patients from seeking support due to concerns over social stigmatization / feeling of discrimination</p> <p>Hospital interviewees (13) reported no major problems, as lump sum funding were sufficient to cover counseling services.</p>	<p>Yes, many staff and volunteers who received work experience under NAPHA were integrated into the UCS, while newly graduated personnel will be hired. Continuous training is provided.</p> <p>Yes, the UCS created a nationwide HIV/AIDS network which patients can consult. PHA also jointly manages and operates health centers with local hospitals, allowing other PHA to be more comfortable with seeking counseling.</p> <p>-</p>	<p>The UCS offers health education, VCT, as well as psychological, social and financial counseling. Comprehensive Continuum of Care Centers was expanded, and a national HIV/AIDS network comprised of over 1,000 small groups was established.</p> <p>Counseling is managed by the NHSO with an emphasis on formal, auditable services. PHA have a greater role in peer counseling at Comprehensive Continuum of Care Centers. They offer other PHA the chance to seek help without fear of discrimination.</p> <p>Funding for HIV/AIDS counseling is allocated by the NHSO in capitation form for services rendered. Local NHSO branches receive funding for allocation to local hospitals.</p>	<p>According to hospital interviewees (13), no problems have yet been reported for counseling services offered under the UCS, despite some small informal volunteer counseling programs losing funding.</p> <p>Hospital interviewees (13) report no problems as of the time this study was published. Further research will be needed to determine the feasibility of the NHSO counseling policies and the CCC Centers.</p> <p>Hospital interviewees (13) report that some informal and volunteer programs lost funding due to the end of the Nan Provincial Public Health Office's role as fund manager.</p>

Nan Provincial Public Health Office interviewees (3) report that, under the Ministry of Public Health, health care centers for people living with HIV/AIDS were established at health care facilities in order to provide comprehensive care and support for PHA and their families. The centers allowed HIV/AIDS patients within the community to meet and to receive a variety of support services, including health education, and psychological, social, and financial counseling. Informal counseling services were also provided, usually on the health worker's or volunteer's own time, entailing instructions on self care, meditation, nutrition, traditional medicine, vocational training, and exercise methods. Patient counseling records may be stored in a stand-alone non-networked National AIDS Program (NAP) system. For patients who are immobile or unable to travel, home visits are conducted by health workers or volunteers, who seek to ensure that patients adhere to their drug regimen schedule, as patients who fail to take their drugs regularly will develop drug resistance or opportunistic infections.

The ministry's health centers and counseling programs were utilized under NAPHA with funding derived from social service and health promotion budgets which are allocated by the Ministry of Public Health to Provincial Public Health Offices in a lump sum amount each fiscal year. Non-governmental organizations, such as the Thai-US Collaboration (TUC), and local hospitals are also responsible for funding these programs. The MOPH and NGOs also provide some financial support to HIV/AIDS patients and their families. According to interviewees (16) there is close collaboration between the Nan Provincial Public Health Office and local hospitals in funding formal and informal HIV/AIDS counseling programs under the NAPHA system. Accountability in counseling service funding under NAPHA can be difficult to ascertain due to the mixture of formal and informal hospital, health center, and volunteer services provided. Nevertheless the Nan Provincial Public Health Office maintains close working relationships with hospital personnel, thereby facilitating funding requests and allocation, as well as work results.

Hospital interviewees (13) revealed that problems which arose during NAPHA include lack of hospital staff and volunteers for counseling, as well as lack of training. Shortages in graduating nurses were taking place nationwide during the early years of NAPHA, resulting in heavy workload for NAPHA personnel, who must balance their hospital work with HIV/AIDS work. Volunteers were also difficult to recruit, as compensation for HIV/AIDS work was limited, while the time and effort required was extensive. Further discussion of human resource development will take place in section 4.3.4 below. HIV/AIDS patients' fear of social stigmatization or discrimination was also a problem due to the limited availability of counseling services at hospitals. According to Nan Provincial Hospital nurses, Mrs. Sujinda Wannawat and Mrs. Unwana Charoensiri, HIV/AIDS patients seeking counseling sessions at their hospital were concerned over meeting acquaintances who were not aware of their disease, as Nan province's population is quite small and most municipal patients visit Nan Provincial Hospital for treatment. A number of patients were routinely absent from counseling for this reason.

Nan Provincial Public Health Office interviewees (3) report that under the Universal Coverage Scheme health education, pre-test and post-testing counseling for Voluntary Counseling and Testing (VCT), as well as psychological, social, and financial counseling are provided at participating hospitals. The National Health Security Office encourages health promotion through alternative medicine and lifestyle changes, including relaxation techniques, good nutrition, and regular exercise. Under the UCS professional psychiatric support for HIV/AIDS patients are provided through the cooperation of the Department of Mental Health. Furthermore, the NHSO established a national HIV/AIDS network and health centers which are known as Comprehensive Continuum of Care Centers. As part of the new policy on comprehensive care, Nan Provincial Hospital interviewees (3) report that they hoped to stabilize patient loads through the introduction of services by nutritionists and physical therapists.

Hospital interviewees (13) reports that the Universal Coverage Scheme provides pre-test and post-test counseling to HIV/AIDS patients seeking Voluntary Counseling and Testing, with advice and guidelines provided and funded by capitation payment from the NHSO. Counseling helps patients cope with the results of their tests, regardless of whether they are HIV positive or negative. Patients are also provided knowledge and understanding which will reduce high risk behavior, adjusting lifestyles, increasing their access to social and psychological support, and aiding in their referrals to relevant health services. VCT counseling is provided to Thai citizens, patients with National AIDS Program (NAP) numbers, or patients who have just received a VCT service, regardless of whether they paid out of pocket or through a health benefit package.

Under the UCS, Comprehensive Continuum of Care Centers were established as part of the National Health Security Office's policy on shifting the role of people living with HIV/AIDS (PHA) from health service receivers to joint service providers. Emphasis is placed on allowing PHA to play a greater role in assisting other HIV/AIDS patients in their community by operating the care centers jointly with hospital staff and health workers. Nurses from each of the 4 surveyed hospitals (7) report that PHA at the centers are trained under NHSO-funded programs to recognize the onset of opportunistic infections, to provide basic medical and antiretroviral treatment, and to provide peer counseling. PHA treating PHA results in reduction in patients' fear of social stigmatization or discrimination, and encourages them to seek counseling and to create stronger counseling relationships. The storage of counseling records in the online and password protected National AIDS Program (NAP) system, rather than in paper form, also creates greater patient confidence in the safety and confidentiality of their records.

Interviewees from the Nan Provincial Public Health Office (3) report that the National Health Security Office also united more than 1,000 health groups related to HIV/AIDS into a national HIV/AIDS network in order to create structured nationwide support for patients. The network is headed by 7 elected committees, one for the upper northern, lower northern, central, northeastern, eastern, western, and southern regions,

respectively. These committees will interact with local NHSO branches in conducting support activity for people living with HIV/AIDS (PHA). The network aims to promote equal access to health care, as well as long lasting and quality care for PHA. The organization seeks to provide knowledge to local communities to allow the integration of PHA into society, provide knowledge to PHA regarding their treatment rights, and to coordinate these efforts in all localities. It remains to be seen whether this partnership between the National Health Security Office and the national HIV/AIDS network can be coordinated effectively.

Funding for counseling services, Comprehensive Continuum of Care Centers, and the nationwide HIV/AIDS network is provided by the NHSO. Health worker's reimbursement for counseling services are based on capitation, with an emphasis on itemized counseling services provided to people living with HIV/AIDS (PHA). Condoms are provided free of charge to the general public as part of the Universal Coverage Scheme's positive prevention policies. Budgetary allocation for covered counseling programs under the UCS was reported to be satisfactory by hospital interviewees (13) although, most (10) believed that collaboration between the NHSO and local counseling program managers was not as close-knit as during NAPHA. This is attributed to the NHSO's focus on regional and national health, rather than local issues.

Interviewees (16) agreed that a number of informal and volunteer counseling programs lost funding during the transition from NAPHA to the UCS. Provincial Public Health Offices originally received funds from the Ministry of Public Health for further allocation to local health counseling programs under NAPHA, but these funds are now under the management of the National Health Security Office, which transfers funds to its own local branches. The Nan Provincial Public Health Office is therefore playing a much more limited role in supporting local health care.

The NHSO is lacking in clear policy on how to accommodate informal volunteer counseling programs, as the organization prefers to reimburse programs which provide defined, itemized services in order to adhere to its capitation system. Only the most major informal volunteer programs, such as home care visits by health workers, were brought to the NHSO's attention. The transition from NAPHA to the UCS means that smaller and less influential programs are now required to develop concrete management structure and submit formal project proposals and funding request to the NHSO if they wish to continue operation. These proposals may require lengthy review time prior to approval by the NHSO. In the short run, some informal volunteer programs may shut down. In order to account for this gap, the NHSO has advised provincial-level hospitals under the Universal Coverage Scheme to coordinate with local hospitals, volunteer organizations, and academic institutes in assisting informal volunteer counseling programs in developing management and budgetary structure.

4.3.4 Human Resource Development

The main distinctions between human resource development under NAPHA and under the Universal Coverage Scheme are indicated under the benefit and problem sections for both NAPHA and the UCS, respectively. Qualitative variables being studied for human resource development are highlighted in the "Benefits under NAPHA" section, and include: 1. Human resource training provided. 2. Human resource management and funding.

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Table 4.6: Human Resource Development Gaps between NAPHA and UC

Benefits under NAPHA	Problems under NAPHA	Resolution of problem during transition from NAPHA to UCS	Benefits under UCS	Problems under UCS
<p>Human resource training provided: General training for physician and nurse interviewees working under NAPHA (10) included introductions to the program, ART management and practice, and prevention and treatment of adverse effects. Specific training was provided to physicians, nurses, pharmacists, and laboratory technicians based on their roles and responsibilities.</p>	<p>Before 2000, in-depth information on HIV/AIDS and antiretroviral therapy were not part of regular health profession coursework or training, thus NAPHA personnel lacked knowledge. Physicians and nurses interviewed (10) reported low confidence in their ability to provide ART, and unfamiliarity with the NAP/DMIS system.</p>	<p>Yes, the MOPH and NHSO promoted the inclusion of HIV/AIDS and ART in health profession courses and seminars. Health personnel working under NAPHA during the last 3 years gained treatment experience and confidence, and improved their handling of the NAP/DMIS system.</p>	<p>The NHSO organizes training and refresher courses for hospital personnel, as well as AIDS experts in 76 provinces. Continuing education for health personnel is sponsored by the NSHO and MOPH. Networking among hospitals, as well as AIDS experts and consultants aid in effective ART provision.</p>	<p>As of the time this study was conducted in 2006, hospital and Nan Provincial Public Health Office interviewees (16) reported no major problems in general human resource training provided under the UCS, but lack of computer training and unfamiliarity with the NAP/DMIS system still exists, especially among new personnel. Specific training by the NSHO will hopefully address this short fall.</p>
<p>Human resource management and funding: Human resource development was hierarchically managed by the Department of Disease Control, Ministry of Public Health, Regional Communicable Disease Control Centers, and Provincial Public Health Offices.</p>	<p>The numbers of personnel working under NAPHA were not sufficient to meet HIV/AIDS patient demands. Physicians, nurses, and health workers assigned to the program had limited experience and suffered from heavy workload and subsequent burnout.</p>	<p>Partly, the UCS involved health personnel who had prior experience in treating patients under NAPHA. The expansion of contractors offering ART alleviated staff workloads and burnouts. However, the number of medical and nursing graduates in Thailand remains low.</p>	<p>The NHSO manages human resource development through decentralized branch offices. The NHSO aims to provide complete ART knowledge and expertise to personnel and PHA volunteers, in addition to promoting comprehensive continuum of care.</p>	<p>National and regional training programs are conducted directly through the NHSO and not regional or local agencies. This may create blind spots in disease surveillance. Public health interviewees (3) report that the so far the NHSO has maintained quality training.</p>
<p>Under NAPHA there was hierarchical allocation of lump sum budget from the MOPH to the Nan Provincial Public Health Office. Hospitals coordinate with the office to receive funding for training and volunteer programs.</p>	<p>There was limited funding for human resource development each fiscal year. Hospitals coordinated almost solely with public sector organizations for training programs.</p>	<p>Yes, funding is based on hospital objectives and activities, and is much more flexible. Training courses provided by the NHSO are plentiful, and greater participation from all public and private organizations occurs.</p>	<p>Budget is allocated from the central NHSO to 4 regional NHSO centers for further disbursement to local hospitals and institutes. General and specific training are available for all health personnel.</p>	<p>Under the UCS, funding has been reduced at Provincial Public Health Offices. Hospitals requiring training budget for programs other than those agreed upon with the NHSO are required to write a project proposal which takes time prior to approval.</p>

Under NAPHA, human resource development is focused at local levels, due to limited funding and difficulty in coordination between Provincial Public Health Offices and hospitals in different regions. NAPHA also focuses on specific treatment targeting HIV/AIDS, and is not a national health scheme like the Universal Coverage Scheme. According to Nan Provincial Hospital interviewees (4), physicians, nurses, and specialty personnel from other provinces conduct routine visits to Nan Provincial Hospital in order to study the province's health situation and hospital operations. Physicians and nurses interviewed at Nan Provincial Hospital, Somdej Phrayuparaj Pua Hospital, Wiang Sa Hospital, and Chiang Klang Hospital (10) reported that they were provided introductory courses on NAPHA, and antiretroviral therapy management and implementation, which includes the administration of first and second line ARV drug regimens. Physicians and nurses working under NAPHA also received training on prevention and treatment of opportunistic infections (OI), drug resistance, and ARV side effects.

More specific training was provided for physicians, nurses, pharmacists, and laboratory technicians, respectively. Physicians and nurses were trained on antiretroviral treatment adherence protocols, including when to start, substitute, or stop antiretroviral medication. Moreover physicians and nurses under NAPHA were trained in patient counseling techniques. Meanwhile pharmacists interviewed (3) reported that they were trained on ARV drug supply chain management. Under NAPHA system drug stocks were stored and managed by the Department of Communicable Disease Control (CDC), Ministry of Public Health. Quality assessment and training seminars for pharmacists and laboratory technicians are conducted approximately every year by the CDC. Meanwhile literature review of the Nan Provincial Hospital handbook indicates that laboratory technicians were trained on HIV/AIDS test management and testing techniques, as well as HIV sample storage and delivery. Personnel (13) directly involved in NAPHA also received instructions on how to use the stand-alone NAP/DMIS and VMI systems.

Problems which were reported by 13 interviewees at the 4 sampled hospitals were that HIV/AIDS and antiretroviral therapy were not part of mainstream health profession courses, graduate or post-graduate coursework, or training seminars. Only specialized medical personnel studied these topics in depth, while physicians and nurses participating in NAPHA were provided only basic introductory training, thus hindering them from fully developing their full treatment skills. Physicians and nurses interviewed (10) reported low personal confidence in their ability to provide antiretroviral therapy, manage antiretroviral drug side effects, and handle opportunistic infections. Interviewees attributed the lack of confidence to minimal experience prior to NAPHA, heavy patient workload, and limited training. In addition, physicians, nurses, and pharmacists (13) reported some unfamiliarity in handling the then-new introduced NAP/DMIS, and VMI systems under NAPHA. Lack of capacity for pediatric HIV/AIDS treatment, including limited full-time pediatricians and lack of training on how to provide antiretroviral therapy for children and newborns were also reported by physicians at the district level (2). Treatments for HIV-infected children or newborns are therefore usually sought at provincial-level hospitals.

According to hospital interviewees (10), the expansion in NAPHA's coverage was not accompanied by a proportionate increase in the number of health personnel added to the program. Small numbers of physicians, nurses and short term health workers and volunteers contributed to the limitations of the program, especially at Nan Provincial Hospital, where interviewees (3) are already treating large numbers of non- HIV/AIDS patients from throughout the province. Since 2000, the Ministry of Public Health has trained 8,000 nurses per year, but remains unable to meet human resource demands (WHO: Country Health Profile, 2004). Physician and nurse interviewees (10) reported that staff fatigue and burnout commonly occurs under these work conditions, especially at large hospitals such as Nan Provincial Hospital. In addition to regular clinical work, and antiretroviral therapy, nurses at sample hospitals (7) must also manage HIV/AIDS health centers during their free hours, usually without overtime compensation.

Under NAPHA, funds were allocated in lump sum amounts from the Department of Disease Control, Ministry of Public Health, to Regional Communicable Disease Control Centers, to Provincial Public Health Offices. The Nan Provincial Public Health Office then disburses these funds to local hospitals, who generally established their own policies for health care. Nan Provincial Hospital interviewees (3) report that some constraints existed in antiretroviral coordination between district and provincial hospitals, due to schedule conflicts and lack of time for regular meetings.

Nan Provincial Public Health interviewees (3) explained that, under the Universal Coverage Scheme, human resource development is focused at national and regional levels. Physicians, nurses, pharmacists, and laboratory technicians under the UCS are largely the same personnel who worked under NAPHA; therefore their fundamental training was obtained from 2003 onwards, after NAPHA's inception. The NHSO introduced changes to training by providing greater emphasis on HIV/AIDS and antiretroviral therapy during initial training of newly graduated health personnel in 76 provinces, including physicians and nurses. Hospital interviewees (10) reported that physicians, nurses, and health consultants in 76 provinces who worked under NAPHA are provided refresher courses on antiretroviral therapy; these courses include new treatment methods to reduce HIV transmission and AIDS development, anti-HIV programs, and guidelines to reduce drug resistance and opportunistic infections. Laboratory technicians throughout the country are also provided specific training and refresher courses on laboratory testing techniques, HIV specimen delivery, and reporting format. Computer skills and NAP/DMIS program training provided as part of the UCS introductory courses also aided in personnel familiarity with the systems.

Hospital and Nan Provincial Public Health Office interviewees (16) reported no major problems in HIV/AIDS training content provided by the NHSO. Hospital interviewees (13) adamantly agreed that they gained experience and confidence from NAPHA, and were able to utilize acquired skills under the UCS. Continuing education for the majority of interviewees and NHSO sponsored training aided greatly in this area, with

the National Health Security Office and Ministry of Public Health collaborating with academic institutes in including seminars and increased coursework content on HIV/AIDS under graduate and post-graduate programs for medical and nursing students. Hospital staff can register to participate in monthly seminars and courses on a variety of health topics, including HIV/AIDS, provided by academic, medical, or public health speakers. Seminars and courses are plentiful and new ones are introduced every year, according to demand and needs. Other organizations such as the Department of Mental Health, the Department of Medical Services, the Thai AIDS Society, and the Pediatric Infectious Disease Society of Thailand also assist in training personnel.

Personnel shortages under NAPHA were addressed by the NHSO through a variety of measures, although shortages are dependent on medical education curriculum and university student career choices, and are not directly controllable by the NHSO. Large number of provider sites under the UCS served to reduce workload for hospitals participating in the scheme's antiretroviral therapy program. More specialized care for HIV/AIDS patients is also available via referrals between UCS hospitals. The appointment of specialized physician consultants and experts to regional and national AIDS committees by the NHSO aided greatly in effective patient consultation for difficult cases, and coordination of antiretroviral regimen changes between local hospitals. Public health interviewees (3) reported that specific training is provided to consultants and experts on ARV regimen changes for third and fourth line regimens.

The NHSO's policy on comprehensive care also aided in solving personnel shortages through the inclusion of People living with HIV/AIDS (PHA) volunteers in counseling and HIV prevention work. PHA take part in peer counseling at comprehensive continuum of care centers and are a part-time health workforce, resulting in the alleviation of counseling workloads by nurse interviewees (7). PHA volunteers helped physician and nurses in retrieving records, evaluating HIV patients' needs, and provided peer counseling. Nurse interviewees (6) noted that training is provided to more than 1,000 peer counselors for Comprehensive Continuum of Care Centers and other

programs each year. The NHSO's emphasis on capacity building in HIV/AIDS knowledge and antiretroviral therapy for medical students in public universities means that a larger human resource pool now exists from which to recruit ART program physicians.

The National Health Security Office divides training programs and budgets between 4 regions, and sets funding based on activity items under health objectives. With the NHSO's pronounced role in managing the UCS, the Nan Provincial Public Health Office no longer receives lump sum funding to allocate to local hospitals for human resource development. The NHSO instead allocates budget directly to its branch offices in local areas, from where funds are transferred to local hospitals. Hospital administrators meet with local NHSO officials to coordinate training. Hospitals requesting additional training in excess of those already provided by the NHSO during each fiscal year must draft project proposals with a budget ceiling, although this is a lengthy process requiring several months. Additional funding requests for training are also dependent on the capitation ceiling of hospital outpatient departments. Budget is eventually allocated from the central NHSO to local NHSO branches for these specific training courses. Despite this shortcoming, Nan Provincial Public Health interviewees (3) report that training provided by the NHSO are generally adequate to local hospital demands.

4.3.5 Service Management

The main distinctions between service management under NAPHA and under the Universal Coverage Scheme are indicated under the benefit and problem sections for both NAPHA and the UCS, respectively. Qualitative variables being studied for service management are highlighted in the "Benefits under NAPHA" section, and include: 1. Service management and funding. 2. Information management system.

Table 4.7: Service Management Gaps between NAPHA and UC

Benefits under NAPHA	Problems under NAPHA	Resolution of problem during transition from NAPHA to UCS	Benefits under UCS	Problems under UCS
<p>Service management and funding: NAPHA's management was centralized, with the Ministry of Public Health in charge of policymaking and funding.</p>	<p>NAPHA aimed to create positive health outcomes primarily at local levels.</p>	<p>The UCS aims to create more positive health outcomes primarily at a national level.</p>	<p>The UCS's antiretroviral program is decentralized with the National Health Security Office tasked with overseeing policy and funding.</p>	<p>Nan Provincial Public Health interviewees (3) believe that some gaps occurred, mainly in lack of funding to small informal volunteer programs.</p>
<p>NAPHA was an active HIV eradication program. It was a vertical program as its sole purpose is treating HIV/AIDS. It treats Thai citizens, foreign nationals, and migrant workers.</p>	<p>Provider sites were set by the Ministry of Public Health. Only public hospitals are included. NAPHA was not governed by legislature and provides limited access as it is a pilot program.</p>	<p>Yes, public or private hospitals voluntarily enter the UCS as contracting units of primary care (CUP). The UCS covers more than 70% of the Thai population expanded ART benefits nationwide.</p>	<p>The UCS is a passive health scheme in the sense that equal importance is placed on treating all types of disease, including HIV. Constitutional amendments guarantee equal health access for Thai citizens.</p>	<p>Foreign nationals or migrant workers are marginalized. Also Thai citizens under the CSMBS or SSS can not receive ART under the UCS.</p>
<p>NAPHA's funding was derived from general taxes and NGO contributions. The MOPH and the WHO Global Fund manages lump sum budget allocations.</p>	<p>Funding was limited therefore antiretroviral therapy, laboratory tests, and counseling services were limited.</p>	<p>Yes, capitation funding is based on services rendered; therefore an increased number of services are possible.</p>	<p>Antiretroviral treatment under the UCS is financed mainly by general taxes. Capitation budget is allocated by the NHSO.</p>	<p>None reported by interviewees (16).</p>
<p>Information management system: Under NAPHA, sampled hospitals (4) did not possess the necessary infrastructure to operate online NAP/DMIS systems. HIV patient records, budget requisitions, and relevant documents were in paper form.</p>	<p>Misfiled or lost documents were detrimental to patient confidentiality, ARV drug supplies, and budget allocation. Lack of computer skills and familiarity with the NAP/DMIS systems were also a problem.</p>	<p>Yes, the online NAP/DMIS and VMI systems simplified ARV drug requests, patient record storage, and capitation budget requests.</p>	<p>The UCS possesses online, fully networked NAP/DMIS and VMI systems which benefits both health care providers and recipients. The NHSO seeks to fully modernize the UCS, allowing for instantaneous response to health situations.</p>	<p>Obstacles to a fully operational NAP/DMIS, and VMI systems include slow internet connectivity, and lack of information technology training among hospital staff.</p>

NAPHA was a vertical program established in 2003 order to provide targeted scale-up antiretroviral coverage for HIV/AIDS patients at local levels. The program's fund manager and policymaker was the Ministry of Public Health. Provider sites were at public hospitals and were set by the MOPH based on budgetary constraints and patient needs. Thai citizens under different health benefit schemes, foreign nationals, or migrant workers are covered under NAPHA antiretroviral therapy benefits. NAPHA funds are allocated from the Ministry of Public Health to the Regional Communicable Disease Control Center, to Provincial Public Health Offices, to local hospitals. The World Health Organization's Global Fund also contributes directly to Provincial Public Health Offices and local hospitals. Under NAPHA, information management for antiretroviral therapy was conducted through a stand-alone National AIDS Program (NAP) system, which is a specific type of Disease Management Information System (DMIS) in use by Thailand. Due to infrastructure, technical and human resource constraints, the program remained offline, with patient records, antiretroviral drug requests, and budget requests submitted either on a floppy disk or on paper.

Problems which existed under the program include disparities in treatment guidelines among participating hospitals who exercise their own decisions concerning changes in drug regimens, patient counseling, and human resource development. Budgets in lump sum form also limit the number of antiretroviral services that can be provided. Due to the stand-alone NAP/DMIS system, patient records, ARV drug request forms, or budget requisitions were at risk of misfiling or loss.

The Universal Coverage Scheme was a national health scheme established in 2002 under the Thaksin administration. Full integration of NAPHA into the scheme occurred in 2006. The National Health Security Office is the fund manager and policymaker for all health services provided under the UCS, including antiretroviral therapy. Under the scheme, hospitals participating under NAPHA, and new public or private hospitals can become included as antiretroviral treatment contactors following

submission of applications. The scheme covers more than 70% of the Thai population and united antiretroviral treatment under a set of national guidelines. Capitation funds for antiretroviral therapy are allocated from the NHSO to its local branches, and to local public and private hospitals. Capitation funding ensures comprehensive treatment for patients. Under the UCS, information management of antiretroviral treatment was conducted through fully online and networked NAP/DMIS and VMI systems, allowing for rapid patient record storage, ARV drug management, and capitation reimbursement. The system is password-protected, ensuring the confidentiality of patients.

Problems which exist under the UCS include the overlooking of some beneficial local HIV/AIDS support programs by the NSHO in its bid to implement nationwide changes. Smaller informal volunteer programs lost their funding when the role of fund manager shifted from the MOPH to the NHSO; Provincial Public Health Offices under the MOPH no longer receives funding to support local hospitals in patient counseling or human resource development, responsibilities which are now tasked to local NHSO branches. The scheme does not cover foreign nationals, or migrant workers who were registered under NAPHA after October 1, 2005, nor does it cover HIV patients under other health benefit schemes, such as the CSMBS or SSS. Some issues have been reported with the NAP/DMIS system, including slow network connections, lack of personnel training in computer and DMIS skills, and extra workload required to fully digitalize information relevant to antiretroviral treatment.

4.4 Discussions

The integration of NAPHA into the UCS resulted in increased standardization of diagnostics and treatment. Antiretroviral treatment contractors now have to adhere to set guidelines for treating patients, as is evident on online National AIDS Program (NAP)/DMIS forms which cannot be changed; physicians and nurses providing antiretroviral treatment must fill in NAP forms exactly as they appear on the computer screen, whether for patient records, ARV drug regimen, or the number of services provided to patients. This is to ensure that treatment is uniform nationwide, in order to

expedite smooth capitation reimbursement and adherence to the Universal Coverage Scheme's policies in all localities. Set guidelines for treatment under the UCS also minimized ARV drug side effects, opportunistic infections, and drug resistance through the provision of comprehensive antiretroviral therapy benefits, and laboratory testing.

The quality of the Government Pharmaceutical Organization's GPO-vir drugs should also be maintained, and approved under the World Health Organization's qualification criteria. Coordination between the National Health Security Office, GPO, and research institutes in conducting studies on the efficacy and efficiency of antiretroviral drugs, as well as the development of ARV drug types and dosages for pediatrics will also be beneficial to HIV/AIDS patients in Thailand. Compulsory licensing policies for drugs should be carefully scrutinized as implementation of the policy will impact the costs of ARV drugs.

The National Health Security Office should consider excess demand which will likely lead to increased costs for antiretroviral therapy. Excess demand can occur when HIV/AIDS patients, who must remain on ARV therapy for the rest of their lives, develop ARV side effects or drug resistance which necessitates the alteration of drug regimen. ARV demands from these patients will add to demands from new HIV/AIDS patients. Also patients who are undergoing their first regimen under NAPHA will now be taking their second regimen under the Universal Coverage Scheme, which will result in higher costs. The NHSO should take into account the social and medical implications of longer life-spans among HIV/AIDS patients, including possible viral transmission to new hosts. Preventive social health policies should be established to prevent the negative externalities of ARV therapy.

The NHSO should also consider the social implications of ARV therapy. While therapy will reduce the mortality and morbidity rate among HIV/AIDS patients, care should be taken to ensure that these patients do not become complacent and engage in high risk behavior, namely sexual intercourse, which will result in the spread of their

disease. PHA may also wish to establish families with other PHA; therefore care should be taken to insure that they do not transmit their own virus to their spouse, as this may lead to the emergence of a new strain of HIV. Measures such as nationwide support networks, comprehensive continuum of care centers, and peer counseling programs established by the NHSO have aided in ensuring positive domestic lifestyles for HIV/AIDS patients.

The Universal Coverage Scheme's coverage of more than 70% of the Thai population and its operation is dictated by constitutional amendments which stipulated equal access to health care for Thai citizens. HIV/AIDS patients entitled to UCS health benefits are guaranteed access on a nationwide scale. Antiretroviral viral therapy under NAPHA was focused only on a local scale with a limited number of provider sites participating in the program. The national coverage of the UCS provides justification to increase general tax financing of the scheme, resulting in more treatment benefits to HIV/AIDS patients. However, there remain marginalized groups, including foreign nationals, and migrant workers, who are not entitled to antiretroviral treatment benefits under the UCS if they were registered under NAPHA after October 1, 2005. Policies to allow vulnerable and marginalized groups, including foreign nationals, migrant workers, intravenous drug users, children, and hill tribes to receive access to ARV drugs should be considered. Promotion of existing HIV prevention programs such as free and easily accessible condoms at the community level, and consultation with marginalized groups will aid greatly in reducing antiretroviral treatment gap between UCS members and marginalized groups. The Thai government's support for international and non-governmental organizations who are willing to work with marginalized groups will also serve to address this issue.

The National Health Security Office should also consider allowing HIV patients from other health schemes, such as the Civil Servant Medical Benefit Scheme, and the Social Security Scheme, to receive treatment under the Universal Coverage Scheme. On a national level, a single set of guidelines for ARV therapy provision already exists for

70% of covered populations, thereby facilitating the inflow of patients from different health benefit schemes. This will allow for greater cross subsidization of funds between schemes and will allow health care providers under different schemes to better coordinate national antiretroviral treatment and HIV/AIDS prevention efforts.

The UCS decentralized laboratory sites, by expanding laboratories participating in HIV/AIDS testing to outer provinces. The scheme's nationwide coverage, capitation reimbursement system, and subsequent funding by general taxes increased laboratory test benefits provided to HIV/AIDS patients. Expanded benefits include HIV testing for pregnant women and voluntary counseling and testing, as part of the UCS policy on positive prevention. Care should be taken to ensure that the Vendor Managed Inventory system which supplies laboratories, and the National AIDS Program/DMIS system which conveys test results, are suitably supported in terms of information technology infrastructure and personnel computer skills. Currently slow network performance in outlying provinces, and lack of computer and DMIS skills among personnel have been reported.

In the areas of patient counseling, the UCS emphasis on the online NAP/DMIS system ensures that confidentiality of patient records is maintained. The scheme's advocacy of comprehensive continuum of care also resulted in greater HIV/AIDS patient involvement in peer counseling. Capitation funding for counseling services and new policy resulted in the establishment of a nationwide HIV/AIDS support network.. However, the roles of Provincial Public Health Offices were greatly diminished in the area of patient counseling as their funding was diverted to local National Health Security Office branches. Greater responsibilities in patient counseling management should be reinstated to the Provincial Public Health Offices in order to allow them to alleviate the workload of local National Health Security Offices, which will allow the regulatory body to focus on the quality of treatment of UCS health contractors for improved overall efficiency. Continuous budget should be allocated to HIV/AIDS public networks in order

to ensure that HIV support groups aid HIV patients in maintaining uninterrupted treatment adherence even when patients are not present in a formal health care setting.

In the area of human resource development, training seminars, courses, and programs provided by the National Health Security Office are ample. The participation of academic, public health, and medical organizations from both the public and private sector also aided in training new personnel, and refreshing and enhancing the knowledge of existing personnel. Graduate and post-graduate programs for health professions have also added more coursework involvement antiretroviral therapy. Again, the role of the Provincial Public Health Office is greatly diminished in this area, as funding was diverted to local NHSO branches. Greater responsibilities in human resource development should be reinstated to Provincial Public Health Offices in order to allow them to alleviate the workload of local National Health Security Offices, which will allow the regulatory body to focus on the quality of treatment of UCS health contractors for improved overall efficiency.

Officials should also take into account improvements to the quality of life for health care staff in the field, which will greatly boost morale and will allow personnel to better handle stress and increased workloads, in addition to preventing burnouts and malpractice. Establishment of a formal mentoring system for new physicians and nurses in the UCS antiretroviral program will lead to smoother integration of personnel. Hiring of information technology personnel to manage the NAP/DMIS, and VMI systems will also serve to ensure smooth operations by alleviating health personnel stress, aiding in computer skills, and keeping health information systems online continuously.

Lastly, the integration of NAPHA into the UCS resulted in greater control of resources and budget by an agency with decentralized authority. So far the National Health Security Office has taken steps to modernize health care systems, including service provision, and health information systems. Greater emphasis is placed on national and regional disease prevention; however care should be taken to ensure that

health situations in local areas are not overlooked by regulatory organizations. Hospital personnel interviewed during this study have reported that the NHSO is taking on a corporate structure with a focus on fund management rather than policymaking. In order to enhance public health expertise and management under the Universal Coverage Scheme, it may be necessary to allow the Ministry of Public Health and local Provincial Public Health Offices greater roles in policymaking under the scheme.



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CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

Since 2003, the Thai Ministry of Public Health developed the National Access to Antiretroviral Program for People Living with HIV/AIDS (NAPHA), a vertical program which seeks to expand antiretroviral therapy access to HIV patients in Thailand, through the provision of ARV drugs, laboratory testing, and counseling. Past studies suggested that the program significantly aided in HIV patients' productivity, continuing employment, and health status, resulting in decreased hospitalization and visits and stable personal and family income. The cost to society under NAPHA remains high, however. In 2006, the Thai government integrated NAPHA into the Universal Coverage Scheme's (UCS) antiretroviral therapy benefit package. The UCS was introduced in 2002 as a national health benefit scheme which is financed by general taxes. The scheme provides general health benefits to over 70% of the Thai population.

This study, the Impact of the Integration of the National Access to Antiretroviral Program for People Living with HIV/AIDS into the Universal Coverage Scheme in Nan Province, Thailand studied changes which took place during the transitional period in 5 key areas, including antiretroviral therapy, laboratory testing, patient counseling, human resource development, and service management. Interviews and questionnaire collection was conducted with public health personnel (3) and hospital personnel (13) in Nan province, Thailand. Literature review was also conducted to supplement research findings.

Findings for the HIV situation in Nan province suggested that the numbers of HIV/AIDS fatalities has decreased from 2004-2006, partly due to the introduction of NAPHA at local hospitals. Nan public health officials report increasing high risk trends among youths and students, however, and suggested that close disease surveillance, contraceptive campaigns, and social support be rendered in order to prevent HIV infection in this demographic group. The 4 hospitals surveyed in Nan province as part of this study:

Nan Provincial Hospital, Somdej Phrayuparaj Pua Hospital, Chiang Klang Hospital, and Wiang Sa Hospital are distinctive from health care providers in other provinces in three key areas, including antiretroviral therapy, patient counseling, and human resource development.

Due to the emphasis on usage of the online National AIDS Program (NAP) and Vendor Managed Inventory information systems as part of antiretroviral therapy, information and communication technology infrastructure is especially vital to the development of effective antiretroviral treatment in Nan province. The hilly, rugged, and remote terrain of Nan province has led to slow internet connections, resulting in sluggish data entry, delays in reimbursements, delays in antiretroviral regimen change and delays in laboratory supply delivery for hospitals providing antiretroviral treatment under the Universal Coverage Scheme. Nan province also contains more than 40,000 hill tribes living in inaccessible areas that receive mobile health services and require their unique disease prevention campaigns. So far HIV/AIDS outbreaks in this demographic group have been low. The lack of tertiary education institutes in Nan province means that local residents must travel to larger provinces for higher education. This leads to a “brain drain” and lack of qualified health professionals working in the provinces. This has resulted in heavy workloads for existing personnel who must contend with increase paperwork during the transition period from NAPHA to the UCS.

Under the 5 areas examined during the integration of NAPHA into the UCS, the researchers has found that the transition of antiretroviral treatment from NAPHA into the Universal Coverage Scheme’s benefit package was expedited through the establishment of prior guidelines for treatment of HIV/AIDS patients. The bulk of these guidelines are transferred from NAPHA into the UCS with an emphasis on expanding ART access to HIV patients, increasing antiretroviral and laboratory service benefits, establishing patient counseling systems on a national and regional basis, expanding human resource development on a national and regional basis, and modernizing service management.

Antiretroviral therapy coverage was expanded during the integration of NAPHA into the UCS. The UCS covers more than 70% of the Thai population and as such HIV patients

who are of Thai nationality and possess 13 digit citizen identification cards can register for treatment benefits. In the event that HIV/AIDS patients are not registered under any health benefit schemes, are not of Thai nationality and do not possess valid identification cards, the Universal Coverage Scheme will only admit patients who are registered under the NAPHA program before October 1, 2005. The UCS also does not provide additional health benefits for members of the Civil Servant Medical Benefit Scheme or the Social Security Scheme, as members of these schemes possess their own health benefits.

Nonetheless, ARV services increased from NAPHA to the UCS, with antiretroviral drug treatment, treatment for opportunistic infections (OI), and treatment for ARV side effects provided. Laboratory services also increased, with basic laboratory tests, immunological and virological tests, Polymerase Chain Reaction tests, and Voluntary Counseling and testing provided. The latter two tests are part of the UCS policy on positive prevention of diseases.

The National Health Security Office also introduced a reformed information and communication technology system, the disease management information system (DMIS), to aid in disease management. The DMIS for antiretroviral treatment is known as the National AIDS Program (NAP). A Vendor Managed Inventory system was also introduced to simplify order of drugs and laboratory supplies. Under the UCS these systems were hooked up to fully online networks in order to allow all provinces to communicate with the National Health Security Office. Obstacles reported by hospitals in Nan province during the transition from NAPHA to the UCS are lack of infrastructure development and training for data entry into the information systems. Slow network performance and lack of computer skills training were the main complaints voiced by interviewees. Infrastructure issues also affect drug and laboratory supply chain management and logistics, but not to a severe degree. So far there have been no reports of drug or laboratory supply shortages.

In terms of patient counseling, the UCS emphasized peer counseling of HIV patients by HIV patients, as well as the establishment of comprehensive continuum of care centers, and a nationwide HIV/AIDS support network comprised of over 1,000 small groups. The addition of HIV peer counselors and volunteer workers to local hospital workforce

resulted in alleviation of workload among regular antiretroviral program staff, including physicians and nurses. Peer counseling also reduced HIV patients' feeling of stigmatization and encouraged them to attend counseling sessions and treatment adherence programs. The Universal Coverage Scheme seeks to shift the role of HIV/AIDS patients from that of service receivers to joint service providers. The shift of the role of policymaker and fund manager from that of the Ministry of Public Health to the National Health Security Office has resulted in Provincial Public Health Offices losing their lump sum funding for counseling programs. Instead the NHSO funds counseling directly, although some gaps do exist as small, informal programs are now deprived of funding. Most major counseling programs remain unchanged, however.

Human resource development and service management are priorities in order to provide the best and most efficient treatment. To this end, the National Health Security Office coordinated closely with the public health, medical, and academic organizations in the public and private sector in order to provide training seminars and courses to physicians, nurses, pharmacist, laboratory technicians, health workers, and AIDS consultants. The shift of the role of policymaker and fund manager from that of the Ministry of Public Health to the National Health Security Office has resulted in Provincial Public Health Offices losing their lump sum funding for local training purposes. Training requests are usually conducted in an impromptu manner under NAPHA, with the MOPH delegating training programs and allocating lump sum funding to local Provincial Public Health Offices for this purpose. Under the UCS, local NHSO branches manage capitation funds, and coordinate with local hospitals directly in order to derive training programs. The central NHSO also provides plentiful training seminars, and courses each fiscal year. Hospitals requiring training in excess of those provided by the NHSO must submit a written training budget proposal in order to hold local training sessions.

5.2 Recommendations

The Royal Thai Government should consider excess demand which will likely lead to increased costs for antiretroviral therapy. Excess demand can occur when PHAs, who must remain on ARV therapy for the rest of their lives, develop ARV side effects or drug resistance which necessitates the alteration of drug regimen. Also patients who are

undergoing their first regimen under NAPHA will now be taking their second regimen under the Universal Coverage Scheme, which will result in higher costs. The government should consider the social implications of ARV therapy. While therapy will reduce the mortality and morbidity rate among HIV/AIDS patients, care should be taken to ensure that these patients do not become complacent and engage in high risk behavior, and the government also must be established measures to ensure positive domestic lifestyles for HIV/AIDS patients, and to prevent possible viral transmission to new hosts. Preventive social health policies should be established to prevent the negative externalities of ARV therapy. The Ministry of Public Health should take greater responsibility for policy making, instead of the National Health Security Office, and the provincial public health offices also should be given greater responsibilities too.

5.3 Further Study

The efficiency of ARV programs for HIV/AIDS patients hinge on limited health care financing resources in Thailand, therefore future studies should consider the following factors:

- 1) Health behavior among HIV/AIDS patients following treatment in ARV drug programs.
- 2) The pattern and burden of disease in the long run among HIV/AIDS patients following treatment in antiretroviral programs
- 3) Financial sustainability of the antiretroviral benefit packages under the Universal Coverage Scheme.

5.4 Limitations of the Study

Due to the limited time frame available to conduct interviews and collect questionnaires from Nan health personnel, this study was unable to conduct a thorough study of all hospitals in Nan province, but instead focused on 4 hospitals, namely Nan Provincial Hospital, Somdej Phrayuparaj Pua Hospital, Wiang Sa Hospital, and Chiang Klang Hospital. Therefore the impact of the transition from NAPHA into the Universal Coverage Scheme in Nan province is represented through these hospitals, which constitute the bulk of patient treatment slots. Additional details on the transition from NAPHA to UC may exist, but these fall into the realm of future studies. The context and situation of this study differs from central region provinces where HIV prevalence rates are also quite high, therefore presenting a point of comparison for future studies.

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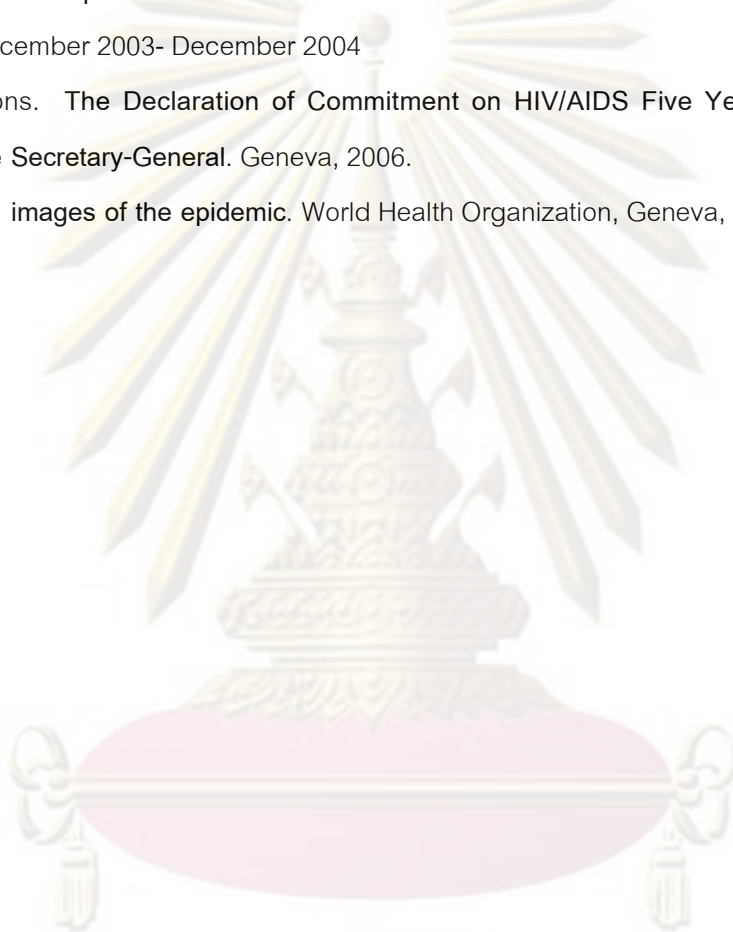
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APPENDICES

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APPENDIX A: Interview Form for Hospital Background

Facility Background:

Size of Hospital _____ Number of Beds _____

Number of Doctors _____ Nurses _____ Pharmacists _____

Director _____

Address _____

Tel _____ Fax _____

ARV Background:

Provided by MOPH _____ (years) NHSO _____ SSO _____ Others _____

Number of health workers involved in ARV program

Doctor _____ Nurse _____

Counselor _____ Pharmacist _____

HIV Clinic: M T W Th F Others _____

Home visit: M T W Th F Others _____

Number of HIV/AIDS patients _____

Number of ARV users _____

HIV Test CD4 _____ Viral Load _____

Provided Treatment/Prevention:

IEC on Prevention _____

Provision of Condoms _____

Treatment of STI _____

Treatment of TB _____

PMTCT _____

Others _____

Are People Living with HIV/AIDS Networks involved in the program? Yes / No

APPENDIX B: Interview Form for Hospital Administrators/Policy-Makers

1. What antiretroviral therapy gaps occurred at a national level after the transition from NAPHA to UC?

2. What antiretroviral therapy gaps occurred in Nan province after the transition from NAPHA to UC?

3. What service process changes occurred after the integration of antiretroviral therapy into the UC scheme?

4. Is there a national AIDS policy on treatment and care? Is your treatment policy in line with this national policy? _____ If not, what are the differences? _____

5. What are the selection, procurement and distribution procedures for antiretroviral medication? Are these in line with national regulatory procedures and treatment protocols? _____

6. Does your program benefit from donations from charitable organizations?

7. Do you have any financing difficulties under the UC scheme ?

8. Do you have an antiretroviral adherence support program? Please describe it.

APPENDIX C: Interview Form for Health Workers (physicians, nurses, pharmacists, health volunteers, etc.)

1. What is your role in the ARV program and how long were you involved? _____
 How do you feel about working in the ARV treatment program ? _____
 In what way has the availability of AIDS medicines for people living with HIV and AIDS affected your routine work? _____

2. Do you have any contact with HIV/AIDS family and community members ? ____ How is contact maintained ? _____ Should community involvement be strengthened in your view ? If yes, how ?

3. Has availability of ARV's in your view diminished the stigma related to HIV/AIDS in this community? How ? _____

4. In what ways do you inform and prepare AIDS patients for ARV treatment? _____
 What kind of information do they receive ? _____

5. In your opinion, what are the differences between NAPHA and UC Scheme ? _____

6. Are you involved in decisions concerning antiretroviral program organization? _____
 If yes, what kind of involvement? ____ Do you prefer increased influence in decision - making? ____

Adherence and Scale-up:

7. Does your clinic aim to scale-up treatment over time? _____

8. What are the levels of non – adherence to ARV regimens in your center? _____
 How do you monitor adherence? _____ what do you think are the main Reasons for non – adherence? _____

9. Does the health facility have a system to follow up on ARV patients? _____
 if yes, how is this system organized ? _____

10. Are there any specific problems related to scaling up of treatment? _____
 Can your health center cope with increased patient load? ____ How will this affect quality of care?

Treatment:

11. Do you use written treatment guidelines? _____ How often (per month) ? _____ Do you always prescribe in accordance with the guidelines (yes/no)? ____ if not, in what cases / for what reasons _____ do you sometimes deviate from the guidelines? _____

12. Specifically, what medical criteria and conditions are used to decide which patients should initiate ARV treatment? Who determines these criteria? _____

13. What do you see as major problems in your ARV treatment program? _____

14. Have there been shortages in ARV drug supplies in the past few months? _____

15. How much do patients have to pay for third line regimens? _____

16. How are ARV drugs distributed to hospital? _____

APPENDIX D: Name of Interviewees From Nan Province

Name (ชื่อ - นามสกุล)	Position (ตำแหน่ง)	Work place (สถานที่ปฏิบัติงาน)
นส.เฉลิมขวัญ ชัดขจร Ms. Chalermkwan Katkajon	นักวิชาการ สาธารณสุข Public Health Analyst, Level 7	สำนักงานสาธารณสุขจังหวัดน่าน Nan Provincial Public Health Office
นายขันติชน ปิ่นชัยพัฒน์ Mr. Kantichon Pinchaipat	นวก.สาธารณสุข Public Health Analyst, Level 7	สำนักงานสาธารณสุขจังหวัดน่าน Nan Provincial Public Health Office
นพ.อภิชาติ รอดสม MD Apichart Rothsom	นายแพทย์ 9 ด้านเวชกรรมป้องกัน Physician, Tropical Disease Prevention, Level 9	สำนักงานสาธารณสุขจังหวัดน่าน Nan Provincial Public Health Office
นพ.อนุภาพ จิตเมือง MD Anupob Chitmuang	นายแพทย์ 6 Physician, Level 6	โรงพยาบาลน่าน Nan Provincial Hospital
นางสุจินดา วรรณวัตร Mrs. Sujinda Wannawat	พยาบาลวิชาชีพ 7 Registered Nurse, Level 7	โรงพยาบาลน่าน Nan Provincial Hospital
นางอัญมณา เจริญศิริ Mrs. Unwana Charoensiri	พยาบาลวิชาชีพ 7 Registered Nurse, Level 7	โรงพยาบาลน่าน Nan Provincial Hospital
นายสมพล ศิริรัตนพฤกษ์ Mr. Sompol Sirirattanaplueig	เภสัชกร 7 Pharmacist, Level 7	โรงพยาบาลน่าน Nan Provincial Hospital
นายวิรุจน์ พุทธา Mr. Rawiruth Puttha	พยาบาลวิชาชีพ 7 Registered Nurse, Level 7	โรงพยาบาลสมเด็จพระยุพราชปัว Somdej Phrayuparaj Pua Hospital
นพ.ธีวรุทธิ์ สุทชนะ MD Theerawut Suthana	นายแพทย์ 6 Physician, Level 6	โรงพยาบาลสมเด็จพระยุพราชปัว Somdej Phrayuparaj Pua Hospital
นางสุวิชา มั่นคงดี Mrs. Suwicha Mankongdee	เภสัชกร 6 Pharmacist, Level 6	โรงพยาบาลสมเด็จพระยุพราชปัว Somdej Phrayuparaj Pua Hospital
นางอรทัย พิพิธภักทไพศิษฏ์ Mrs. Orathai Pipithapat-Phaisin	พยาบาลวิชาชีพ 7 Registered Nurse, Level 7	โรงพยาบาลเขียงกลาง Chiang Klang Hospital
นางจินตนา แสงจันทร์ Mrs. Chinthana Sangchan	พยาบาลวิชาชีพ 7 Registered Nurse, Level 7	โรงพยาบาลเขียงกลาง Chiang Klang Hospital
พญ.จิตราภรณ์ ความคณี MD Chitraporn Kwamkhanueing	นายแพทย์ 5 Physician, Level 5	โรงพยาบาลเขียงกลาง Chiang Klang Hospital
นางเพชรฯ สารเถื่อนแก้ว Mrs. Pechara Sarntheurnkaew	พยาบาลวิชาชีพ 7 Registered Nurse, Level 7	โรงพยาบาลเวียงสา Wiang Sa Hospital
นางละเอียด ทะริยะ Mrs. La-eath Thariya	พยาบาลวิชาชีพ 7 Registered Nurse, Level 7	โรงพยาบาลเวียงสา Wiang Sa Hospital
นางวนิดา ศรชัย Mrs. Wanida Sornchai	เภสัชกร 7 Pharmacist, Level 7	โรงพยาบาลเวียงสา Wiang Sa Hospital

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