การใช้โปรแกรม HIVQUAL-T เพื่อประเมินคุณภาพในการดูแลผู้ป่วยเอชไอวี / เอดส์ ของโรงพยาบาลชุมชน จังหวัดนครราชสีมา

นางสาวขนิษฐา วัลลีพงษ์

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USE OF HIVQUAL-T PROGRAM TO ASSESS QUALITY OF CARE AMONG HIV PATIENTS AT COMMUNITY HOSPITALS, NAKHONRATCHASIMA PROVINCE

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A Thesis Submitted in Partial Fulfillments of the Requirements

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Thesis Title	USE OF HIVQUAL-T PROGRAM TO ASSESS QUALITY OF CARE AMONG HIV PATIENTS AT COMMUNITY HOSPITALS, NAKHONRATCHASIMA PROVINCE
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ขนิษฐา วัลลีพงษ์ : การใช้โปรแกรม HIVQUAL-T เพื่อประเมินคุณภาพในการดูแลผู้ป่วยเอชไอวี/เอดส์ ของโรงพยาบาลชุมชน จังหวัดนครราชสีมา. (Use of HIVQUAL-T program to access quality of care among HIV patients at community hospitals, Nakhonratchasima Province) อ.ที่ปรึกษาวิทยานิพนธ์หลัก : รศ.ภก.ดร.วิทยา กุลสมบูรณ์, อ.ที่ปรึกษาวิทยานิพนธ์ร่วม : นพ.พีระมล นิงสานนท์, 101 หน้า.

การศึกษาครั้งนี้ มีวัตถุประสงค์ เพื่อสำรวจความครบถ้วนของข้อมูลของโรงพยาบาลชุมชนในจังหวัดนครราชสีมาในการประเมินคุณภาพการดูแลผู้ป่วยเอชไอวี/เอดส์ เพื่อใช้โปรแกรม HIVQUAL-T version 4.0 ประเมินคุณภาพการดูแลผู้ป่วยเอชไอวี/เอดส์ตามแนวทางการดูแลผู้ติดเชื้อเอชไอวี/เอดส์ของสำนักงานหลักประกันสุขภาพแห่งชาติ และเพื่อเสนอกลยุทธ์ในการพัฒนาคุณภาพการดูแลผู้ป่วยเอชไอวี/เอดส์อย่างต่อเนื่อง ทำการศึกษาโดยการประเมินความครบถ้วนของข้อมูลการดูแลผู้ป่วยเอชไอวี/เอดส์ จากการบันทึกข้อมูลใน NAPHAโปรแกรม และในเวชระเบียนผู้ป่วย จากโรงพยาบาลชุมชนในจังหวัดนครราชสีมา ระหว่างเดือน ตุลาคม 2549 - กันยายน 2550 และจัดประชุมกลุ่มผู้รับผิดชอบงานเอดส์ในโรงพยาบาลชุมชน เพื่อเสนอกลยุทธ์ในการพัฒนาคุณภาพการดูแลผู้ป่วยเอชไอวี/เอดส์ ผลการศึกษาพบข้อมูลครบถ้วนเป็นปัจจุบันและครอบคลุมในการประเมินตัวชี้วัด 6 โรงพยาบาล จาก 26 โรงพยาบาล มีจำนวนผู้ป่วยเอชไอวี/เอดส์ จำนวน 262 ราย เป็นเพศหญิง 138 ราย เพศชาย 124 ราย และผู้ป่วยที่ศึกษาทุกรายได้รับยาต้านไวรัสเอชไอวี เมื่อนำข้อมูลมาประเมินคุณภาพโดยใช้โปรแกรม HIVQUAL-T พบว่าผู้ป่วยได้รับการติดตาม CD4 ปีละครั้ง 37.4% และได้รับการตรวจ CD4 อย่างน้อย 2 ครั้งต่อปี 43.5%, ผู้ป่วยได้รับการติดตาม Viral load ปีละครั้ง 1.91%, ผู้ป่วยที่ได้รับการป้องกันโรคจากเชื้อฉวยโอกาส PCP จำนวน 95% และป้องกัน Cryptoccosis 83% แต่ไม่มีรายใดได้รับการป้องกันโรคจากเชื้อฉวยโอกาส MAC, ผู้ป่วยที่เป็นTB ได้รับการรักษาครบทุกราย แต่ไม่ได้รับการคัดกรองโดย PPD skin test, ผู้ป่วยได้รับการคัดกรองซิฟิลิส โดย VDRL test เพียง 6.49% และผู้ป่วยหญิงได้รับการคัดกรองมะเร็งปากมดลูกเพียง 10.87% เมื่อนำผลการประเมินคุณภาพมาทบทวนร่วมกันโดยตัวแทนทีมผู้รับผิดชอบงานเอดส์ในโรงพยาบาลชุมชนในจังหวัดนครราชสีมา ได้ข้อเสนอแนวทางในการพัฒนาคุณภาพการดูแลผู้ป่วยเอชไอวี/เอดส์ โดยให้มีการพัฒนารูปแบบการบันทึกข้อมูลผู้ป่วยรายคน พัฒนาการจัดการเชิงระบบในการติดตามประเมินผลผู้ป่วย ส่งเสริมให้ผู้ป่วยมีส่วนร่วมติดตามการประเมินคุณภาพ และประเมินคุณภาพการดูแลผู้ป่วยร่วมกันอย่างสม่ำเสมอโดยทีมผู้ดูแลผู้ป่วย

ภาควิชา เภสัชศาสตร์สังคมและบริหาร ลายมือชื่อนิสิต.....ขนิษฐา วัลลีพงษ์.....
ปีการศึกษา 2551 ลายมือชื่ออ.ที่ปรึกษาวิทยานิพนธ์หลัก.....
ลายมือชื่ออ.ที่ปรึกษาวิทยานิพนธ์ร่วม.....

4976856433 : MAJOR SOCIAL AND ADMINISTRATIVE PHARMACY
KEY WORD : QUALITY OF CARE / HIVQUAL-T PROGRAM

KHANIDTHA WANLEEPONG: USE OF HIVQUAL-T PROGRAM TO ASSESS QUALITY OF CARE AMONG HIV PATIENTS AT COMMUNITY HOSPITALS, NAKHONRATCHASIMA PROVINCE. THESIS PRINCIPAL ADVISOR: ASSOC.PROF. VITHAYA KULSOMBOON, PH.D., THESIS COADVISOR: PEERAMON NINGSANOND, M.D., 101 pp.

The objectives of this study were 1) to explore the completeness of HIV/AIDS patients care databases in community hospitals, 2) to assess quality of care in HIV/AIDS patients by the HIVQUAL-T program version 4.0 in HIV/AIDS patients, based on the guidelines of National Health Security Office for HIV/AIDS management, and 3) to propose a strategy for the continuous improvement of quality of care in HIV/AIDS patients. The study assessed the completeness of HIV/AIDS patient's data in the NAPHA program and medical record from community hospitals during October 2006 to September 2007. The study also conducted a group meeting of the representation of ARV team in community hospitals to propose a strategy to improve quality of care of HIV/AIDS patients. The results showed that only 6 from 26 hospitals updated and completed data which covered all 7 indicators. There were 262 HIV/AIDS patients including 138 females and 124 males. All of them received ARV drugs. After assessing quality of care by HIVQUAL-T, 37.4% of patients had CD4 counts monitored once a year, 43.5% of patients had CD4 counts checked at least twice a year, 1.91% patients had viral load monitored once a year. For OI prophylaxis, 95% of patients received PCP prophylaxis and 83% of patients received Cryptococcosis prophylaxis. None of them received MAC prophylaxis. All patients with TB received TB treatment but none of them had a PPD skin test during the study. Only 6.49% of patients had a VDRL test for syphilis screening and 10.87% of female HIV/AIDS patients received PAP smear screening. The results of overall quality assessments were reviewed by the representative of ARV team in community hospitals to propose a strategy to improve quality of care of the HIV/AIDS patients. They proposed to have the individual patient record form that gathered all HIV care data. They also proposed the systematic management of quality of care assessment, to encourage HIV/AIDS patients to participate in quality assessment monitoring, and continuous quality of care assessment by the ARV team.

Field of study: Social and Administrative Pharmacy Student's signature..Khanidtha Wanleepong

Academic year: 2008 Principal Advisor's signature.....

Co-advisor's signature.....

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LIST OF ABBREVIATIONS

AIDS	=	Acquired Immune Deficiency Syndrome
ALC	=	Absolute Lymphocyte Count
ART	=	Antiretroviral Treatment
ARV	=	Antiretroviral drug
HAART	=	Highly Active Anti-retroviral Therapy
HIV	=	Human Immunodeficiency Virus
HIVQUAL-T	=	HIV Quality of care program - Thailand
MAC	=	Myclobacterium Avium Complex
NAPHA	=	The National Access to ARV for People living with HIV/AIDS
NHSO	=	National Health Security Office
NNRTIs	=	Non-Nucleoside Reverse Transcriptase Inhibitors
NRTIs	=	Nucleoside Reverse Transcriptase Inhibitors
NtRTIs	=	Nucleotide Reverse Transcriptase Inhibitors
OIs	=	Opportunistic Infections
PCP	=	Pneumocystic Carinii Pneumonia
PIs	=	Protease Inhibitors
TB	=	Tuberculosis Bacteria
VDRL	=	Venereal disease research laboratory
VL	=	Viral load

CHARPTER I

INTRODUCTION

Goals of HIV/AIDS therapy are to achieve maximum and durable suppression of viral load, to restore and/or prevent of immunologic function, to improve quality of life, and to reduce HIV related morbidity and mortality.

In 2004, National Access to Antiretroviral Programs for People Living with HIV AIDS (NAPHA) was established to extend the service for HIV patients[1] in Thailand. There are 908 HIV clinics in public health hospital in 2005 which provided Antiretroviral drugs (ARV) for HIV patients more than 70,000 cases, in 76 provinces of Thailand.

NAPHA program supported HAART (High Active Antiretroviral Therapy) for HIV patients. The combination of antiretroviral drugs prolongs viral suppression leading to the improvement of HIV patients. Government Pharmaceutical Organization (GPO) can produce HAART namely GPO-vir, which is the combination of Stvudine, Lamivudine and Nevirapine. While GPO-vir used to first-regiment for treatment in NAPHA program, it was studied to be compared with original brands products and the results studied could be interpreted as bioequivalence[2,3]. In 2006, ARV Clinic assigned to be a service in benefit under The Universal Coverage (UC). National Health Security Organization, Ministry of Public Health and relevant divisions have developed the manual to improve the quality of services for HIV/AID patients, for example Guidelines for diagnosis, Antiretroviral treatment, Counseling and continuous monitoring. There guidelines enable the hospital team to clearly understand the direction of the services.

Nowadays HIV/AIDS patients have better access to HAART than the past. However, monitoring of antiretroviral treatment, is still be necessary such as CD4 cell count, Viral load, weight, Adverse Drug Reactions (ADRs) from antiretroviral drugs. It is important to monitor CD4 cell count because it can identify the symptom of patients and act as the predictor for primary prophylaxis of opportunistic infection. The recommendation as a standard of care is primary prophylaxis of PCP, cryptococcosis and toxoplasmosis[4] Opportunistic Infections is still the important cause of dead. A long time uses of antiretroviral medication should be monitored of ADRs such as hypersensitivity, lipodystrophy, lipoatrophy, hepatitis, lactic acidosis, hyperglycemia, hypercholesterolemia, hypertriglyceridemia, etc. Severe ADRs may be the reason to change medicine for HIV/AIDS patients. Therefore, it is important of monitor patients while using antiretroviral drug in order to push to the efficiency of treatment and prophylaxis of opportunistic infection. From the assessment of Public and Private ARV Treatment Programs, found that quality of health service (treatment, monitoring and etc) may be different with each health facility level[5]. Self-assessment is the principle of quality improvement in every project including HIV care in health service, HIVQUAL-T is an initiative for performance measurement and quality improvement (QI) in Thai outpatient HIV clinics that is based upon the U.S. National HIVQUAL Project model developed by the New York State Department of Health AIDS Institute and supported by HHS/HRSA. In 2007, HIVQUAL-T was promoted to assess quality of HIV care in public health care to develop a sustainable QI program structure that supports ongoing improvement in the quality of HIV care as well as to promote reporting of HIV care

performance data by hospitals. The goal is to also to improve the quality of care for people living with HIV/AIDS.

Nakhonratchasima is a large province that consists of 32 districts, 26 community hospitals and has a HIV care management team in every hospital. For quality improvement, initiative assessment is important. Therefore, this research in conducted to assess quality of HIV care in community hospitals in Nakhonratchasima province by using HIVQUAL-T program and using the results for continuous quality improvement in HIV care clinic.

RESEARCH QUESTIONS

1. Are HIV/AIDS patient care data available in community hospital for assessing quality of care?
2. Do HIV/AIDS patients in community hospitals receive the quality of care based on NHSO guidelines?
3. Does the quality of care based on NHSO guidelines in each community hospital differ?
4. What are suitable strategies for quality improvement of HIV care?

OBJECTIVES

1. To explore the availability of HIV/AIDS patient care database in community hospitals and the applicability of using NAPHA and HIVQUAL-T program in the assessment of quality of patient care.
2. To use HIVQUAL-T program to assess quality of care in HIV/AIDS patients based on NHSO guidelines for HIV/AIDS management.
3. To propose strategies in using HIVQUAL-T program for continual improvement of quality of care.

EXPECTED BENEFITS

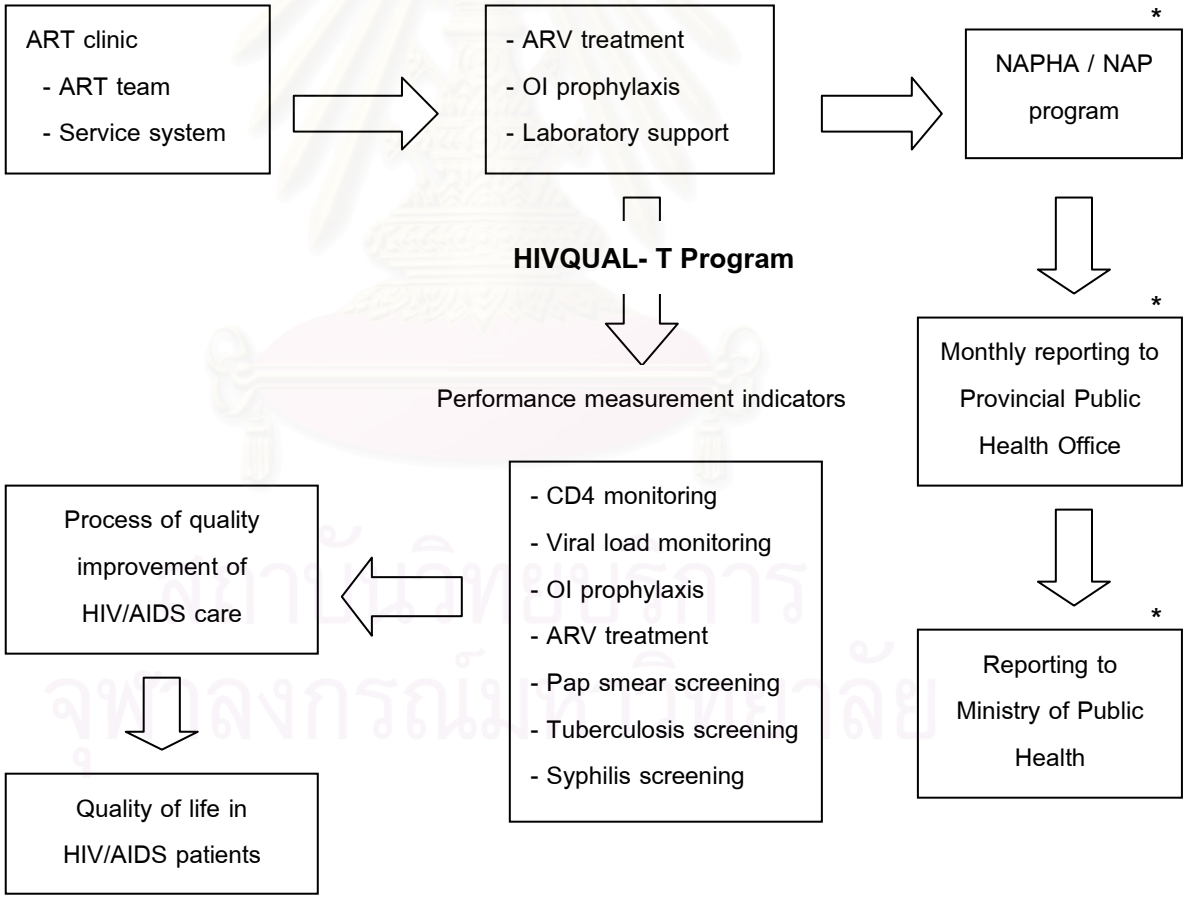
1. To disclose situation of quality of care in Nakhonratchasima province.
2. The HIVQUAL-T model can be used to improve quality of care in ART clinic that affects quality of life in HIV/AIDS patients.

DEFINITION OF TERMS

- HIV patients: OPD cases, Adult HIV patients in ART clinic at Community Hospital, Nakhonratchasima province.
- Quality of care: Service following Guidelines of National Health Security Organization for HIV/AIDS patients in ART clinic. Refer to any service provided in a clinic setting: ARV drug therapy, Prevention OI, Laboratory testing follow up

- Antiretroviral Treatment (ART) clinic: HIV clinic that used Highly Active Antiretroviral for treatment (HAART) and care for HIV/AIDS patient which has no access to antiretroviral drug on National Access to Antiretroviral Programs.
- OI prophylaxis: Prophylaxis of opportunistic infection in HIV/AIDS patients following Guidelines of Treatment on National Access to Antiretroviral Programs.
- Laboratory testing follow up: Laboratory testing follow up in ART clinic following National Access to Antiretroviral Programs.

CONCEPTUAL FRAMEWORK



* This part is the monitoring of HIV/AIDS patients in the national system

CHARPTER II

LITERATURE REVIEW

1. HIV/AIDS CARE AND SUPPORT

1.1 THE FOUR MAIN DOMAINS OF HIV/AIDS COMPREHENSIVE CARE[6]

Providing care to people living with HIV/AIDS and to their families requires a broad range of services that include not only clinical care focusing on diagnosis and treatment but also supportive and complementary services to ensure that adequate nutrition, psychological, social and daily living support are available. Efforts to prevent HIV transmission is also needs whenever opportunities arise.

Comprehensive HIV/AIDS care must include clinical care for everyone, psychological support, socioeconomic support, involvement of people living with HIV/AIDS, their families as well as respect for human rights and legal needs.

Clinical care. Everyone should receive clinical care regardless of gender and age. Services include counseling and testing for diagnostic purposes (including dedicated program of voluntary counseling and testing); protection of prophylaxis of opportunistic infections; management of HIV/AIDS-related illnesses; control of tuberculosis and management of sexually transmitted infections; management of HIV disease with antiretroviral combination therapy; palliative care; access to drugs related to HIV/AIDS, including drugs for opportunistic infections, cancer related to HIV/AIDS and antiretroviral drugs; interventions to reduce the mother-to-child transmission of HIV; support systems

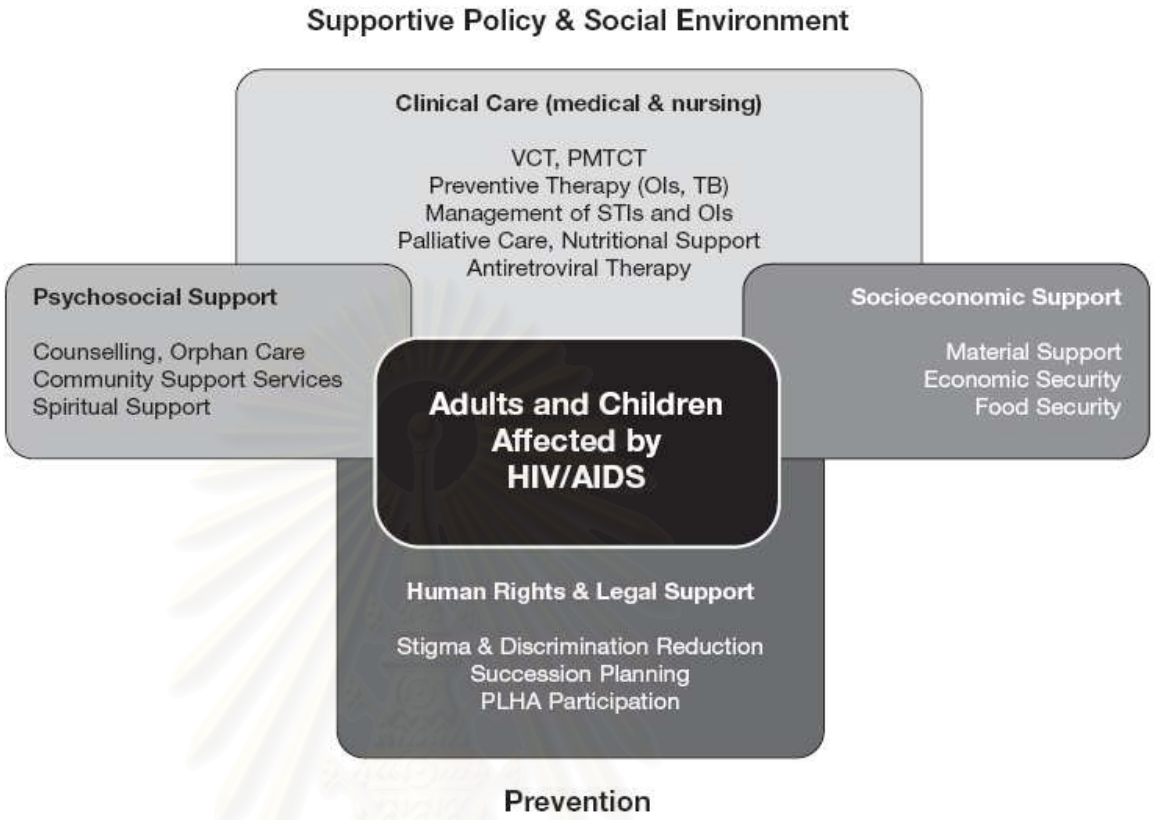
such as functioning laboratories and drug management systems; nutritional support; health education measures; adequate universal precautions in clinical settings; and post exposure prophylaxis.

Psychological support. Psychological support includes initial and follow-up counseling services to meet the emotional and spiritual needs of people living with HIV/AIDS and their families in order assist in disclosure, including psychosocial support through support groups (post-test clubs) and other peer, volunteer or outreach approaches within communities.

Socioeconomic support. Material and social support is needed within communities to ensure that nutritional and daily living needs are met. Various options include microcredit schemes; housing; food support; helping hands in the household; health insurance schemes that include HIV/AIDS care and treatment; and planning and support for orphans and vulnerable children in households and communities.

Respect for human rights and legal needs. Services are needed to address the stigma and discrimination in health facilities, in communities as well as in the workplace and promote equal access to care. This should also include succession planning and protection of property.

Figure 2.1 THE FOUR MAIN DOMAINS OF HIV/AIDS COMPREHENSIVE CARE[6]



Source: Treatment Division, Family Health International

All strategic plans of national AIDS program should reflect this comprehensive approach to HIV/AIDS care, which should be promoted by both the public and nongovernmental health program and institutions. “ Each service in this comprehensive approach reinforces and is linked to other services in a continue of care that begins when a person learns of his or her HIV status and is offered for the duration of the illness comprehensive care and support that also addresses the holistic needs of people living with HIV/AIDS and their family members.”

1.2 CLINICAL CARE COMPONENT

The principles of clinical care of HIV/AIDS patients are holistic care in which psychosocial and socioeconomic factors play an important role. Counseling, patient

education, assessment of affordability to antiretroviral therapy, treatment and prevention of opportunistic infection, including affordability to laboratory monitoring (CD4 cell count and plasma HIV RNA or viral load) are important aspects.

VOLUNTARY HIV COUNSELING AND TESTING (VCT)[7]

VCT is the process of providing counseling to an individual to enable him or her to make an informed choice about being tested for HIV. This decision must be entirely the choice of the individual, and he or she must be assured that the process will be confidential.

VCT is an entry point for prevention and care and is acknowledged internationally as an effective strategy for both HIV/AIDS prevention and care. Research by Family Health International-in collaboration with the Joint United Nations Program on AIDS (UNAIDS), the World Health Organization (WHO), and the Center for AIDS Prevention Studies at the University of California at San Francisco—has provided strong evidence that VCT is an effective and cost-effective strategy for facilitating behavioral changes.

HIV/AIDS CARE AND TREATMENT[8]

PRETREATMENT EVALUATION

Each patient initially entering care should have a complete medical history, physical examination, and laboratory evaluation. The purpose is to confirm the presence of HIV infection, determine the stage of HIV infection, determine the presence of co-infections, and assess overall health condition as recommended by the primary care guidelines for the management of HIV-infected patients

The following laboratory tests should be performed for each new patient during initial patient visits:

- HIV antibody testing (if laboratory confirmation not available)
- CD4+ T cell count
- Plasma HIV RNA
- Complete blood count, chemistry profile, transaminase levels, BUN and creatinine, urinalysis, RPR or VDRL, tuberculin skin test (unless a history of prior tuberculosis or positive skin test), Toxoplasma gondii IgG, Hepatitis A, B, and C serologies, and PAP smear in women
- Fasting blood glucose and serum lipids if considered at risk for cardiovascular disease and for baseline evaluation prior to initiation of combination antiretroviral therapy and
- For patients with pretreatment HIV RNA >1,000 copies/ml - genotypic resistance testing prior to initiation of therapy; if therapy is to be deferred, resistance testing may still be considered.

In addition:

- An optional test for Chlamydia trachomatis and Neisseria gonorrhoeae is suggested in order to identify high risk behavior and the need for STD therapy ; and
- Chest x-ray if clinically indicated .

Patients living with HIV infection must often cope with multiple social, psychiatric, and medical issues. Thus, the evaluation should also include assessment of substance abuse, economic factors, social support, mental illness, co-morbidities, and other factors

that are known to impair the ability to adhere to treatment and to alter outcomes. Once evaluated, these factors should be managed accordingly.

INITIATING ANTIRETROVIRAL THERAPY FOR THE HIV INFECTED PATIENT

The optimal time to initiate therapy is unknown among people with asymptomatic disease and CD4+ T cell count of >200 cells/mm3. This table provides general guidance rather than absolute recommendations for an individual patient. All decisions regarding initiating therapy should be made on the basis of prognosis as determined by the CD4+ T cell count and level of plasma HIV RNA indicated, the potential benefits and risks of therapy, and the willingness of the patient to accept therapy.

Table 2.1 Initiating antiretroviral therapy for the HIV infected patient

Clinical Category	CD4+ T cell count	Plasma HIV RNA	Recommendation
AIDS-defining illness or severe symptom*	Any value	Any value	Treat
Asymptomatic**	CD4+T cell <200 cell/mm^3	Any value	Treat
Asymptomatic	CD+ T cell>200-350 cell/mm^3	Any value	Treatment should be offered following full discussion of pros and cons with each patient
Asymptomatic	CD4+ T cell >350 cell/mm^3	$\geq$ 100,000	Most clinicians recommend deferring therapy, but some clinicians will treat
Asymptomatic	CD4+ T cell >350 cell/mm^3	<100,000	Defer therapy

* AIDS-defining illness per Centers for Disease Control, 1993. Severe symptoms include unexplained fever or diarrhea > 2-4 weeks, oral candidiasis, or >10% unexplained weight loss.

** Clinical benefit has been demonstrated in controlled trials only for patients with CD4+ T cells < 200/mm^3, however, the majority of clinicians would offer therapy at a CD4+ T cell threshold < 350/mm^3. A collaborative analysis of data from 13 cohort studies from Europe and North America found that lower CD4 count, higher HIV viral load, injection drug use, and age over 50 were all predictors of progression to AIDS or death in antiretroviral-naïve patients beginning combination antiretroviral therapy. These data indicate that the prognosis is better for patients who initiate therapy at > 200 cells/mm3, but risk after initiation of therapy does not vary considerably at > 200 cells/mm3

The decision to begin therapy for the asymptomatic patient is complex and must be made in the setting of careful patient counseling and education. Considerations of initiating antiretroviral therapy should be primarily based on the prognosis of disease free survival as determined by baseline CD4+ T cell count. Also important are baseline viral load, readiness of the patient to begin therapy; and assessment of potential benefits and risks of initiating therapy for asymptomatic persons, including short-and long-term adverse drug effects; the likelihood, after counseling and education, of adherence to the prescribed treatment regimen. Recommendations vary according to the CD4 count and viral load of the patient, as follows.

CD4+T cell count <200 cells/mm^3, with AIDS-defining illness, or symptomatic. Randomized clinical trials provide strong evidence of improved survival and reduced disease progression by treating symptomatic patients and patients with <200 CD4+ T cells/mm^3. Observational cohorts indicate a strong relationship between lower CD4+ T cell counts and higher plasma HIV RNA levels in terms of risk for progression to AIDS for untreated persons and antiretroviral-HIV patients beginning treatment. These data provide strong support for the conclusion that therapy should be initiated in patients with CD4+T cell count<200cells/ mm^3.

CD4+T cell count 200-350 cells/mm^3, patient asymptomatic. The optimal time to initiate antiretroviral therapy among asymptomatic patients with CD4+T cell counts >200 cells/ mm^3 is unknown. For these patients, the strength of the recommendation for therapy must balance other considerations, such as patient readiness for treatment and potential drug toxicities. After considering available data in terms of the relative risk for progression to AIDS at certain CD4+ T cell counts and viral loads, and the potential risks

and benefits associated with initiating therapy, most specialists in this area believe that the evidence supports initiating therapy in asymptomatic HIV-infected persons with a CD4+ T cell count of 200-350 cells/mm^3 There is a paucity of data from both randomized and controlled trials concerning clinical endpoints (e.g., the development of AIDS-defining illnesses or death) for asymptomatic persons with >200 CD4+ T cells/mm^3 to guide decisions on when to initiate therapy. Observational data from cohorts of HIV-infected persons provide some guidance to assist in risk assessment for disease progression.

CD4+ T cell count >350 cells/mm^3, patient asymptomatic. There is little evidence on the benefit of initiating therapy in asymptomatic patients with CD4+ T cell count > 350 cells/mm^3. Most clinicians would defer therapy.

• The deferred treatment approach is based on the recognition that robust immune reconstitution still occurs in the majority of patients who initiate treatment while CD4+ T cell counts are in the 200–350 cells/mm^3 range. Also, toxicity risks and adherence challenges generally outweigh the benefits of initiating therapy at CD4+ T cell counts >350 cells/ mm^3. In the deferred treatment approach, increased levels of plasma HIV RNA (i.e., >100,000 copies/ml) are an indication for monitoring CD4+ T cell counts and plasma HIV RNA levels at least every three months, but not necessarily for initiation of therapy. For patients with HIV RNA <100,000 copies/ml, therapy should be deferred.

• In the early treatment approach, asymptomatic patients with CD4+ T cell counts >350 cells/ mm^3 and levels of plasma HIV RNA >100,000 copies/ml would be treated because of the risk for immunologic deterioration and disease progression.

1.3 HIV/AIDS TREATMENT GOALS[9]

Eradication of HIV infection cannot be achieved with available antiretroviral regimens. This is chiefly because the pool of latently infected CD4+T cells are established during the earliest stages of acute HIV infection and persists with a long half-life, even with prolonged suppression of plasma viremia. Therefore, once the decision is made to initiate therapy, the primary goals of antiretroviral therapy are to:

- reduce HIV-related morbidity and mortality,
- improve quality of life,
- restore and preserve immunologic function, and
- maximally and durably suppress viral load.

Adoption of treatment strategies recommended in these guidelines has resulted in substantial reductions in HIV-related morbidity and mortality. Plasma viremia is a strong prognostic indicator of HIV disease progression. Reductions in plasma viremia achieved with antiretroviral therapy account for substantial clinical benefits. Therefore, suppression of plasma viremia as much as possible for as long as possible is a critical goal of antiretroviral therapy.

2. HIV/AIDS CLINICAL CARE AND MONITORING

2.1 MONITORING OF OPPORTUNISTIC INFECTION [9,10,11,12]

Opportunistic infections (OIs) continue to cause morbidity and mortality in patients with human immunodeficiency virus (HIV)-1 infection throughout the world. Potent combination antiretroviral therapy (ART) has reduced the incidence of OIs for certain patients with access to care. However, certain patients in the developed and developing

world do not have access to care and have OIs. Other patients do not have a sustained response to antiretroviral agents for multiple reasons, including poor adherence, drug toxicities, drug interactions, or initial acquisition of a drug-resistant strain of HIV-1. Therefore, OIs will continue to cause substantial morbidity and mortality in patients with HIV-1 infection.

The therapy of OIs has changed substantially during the AIDS epidemic. As more information about efficacy, toxicity, and interactions of the drugs to treat and prevent OIs has emerged, management strategies have evolved. New drugs have also become available which occupy important roles in our therapeutic armamentarium.

***Pneumocystis carinii* pneumonia (PCP)**

PCP occurred in 70%–80% of patients with AIDS. The course of treated PCP was associated with a mortality of 20%–40% in persons with profound immunosuppressant. Approximately 90% of cases occurred among patients with CD4+ T Cell Count of <200 cell/mm^3. Other factors associated with a higher risk of PCP included CD4+ T lymphocyte percentage <15%, previous episodes of PCP, oral thrush, recurrent bacterial pneumonia, unintentional weight loss, and higher plasma HIV-1 RNA.

Trimethoprim-sulfamethoxazole (TMP-SMX) is the treatment of choice. The dose must be adjusted for abnormal renal function. Oral outpatient therapy of TMP-SMX is highly effective among patients with mild-to-moderate disease. Alternative therapeutic regimens include 1) dapsone and TMP for mild-to-moderate disease (this regimen may have similar efficacy and fewer side effects than TMP-SMX but is less convenient because of the number of pills) 2) primaquine plus clindamycin (this regimen is also effective in mild-to-moderate disease, and the clindamycin component can be

administered intravenously for more severe cases; however, primaquine is only available orally 3) intravenous pentamidine (generally the drug of second choice for severe disease) 4) atovaquone suspension (this is less effective than TMP-SMX for mild-to-moderate disease but has fewer side effects) and 5) trimetrexate with leucovorin (this is less effective than TMP-SMX but can be used if the latter is not tolerated and an intravenous regimen is needed). Leucovorin must be continued 3 days after the last trimetrexate dose.

Careful monitoring during therapy is important to evaluate response to treatment and to detect toxicity as soon as possible. Follow-up after therapy includes assessment for early relapse, especially when therapy has been with an agent other than TMP-SMX or was shortened for toxicity. PCP prophylaxis should be initiated promptly and maintained until the CD4+ T lymphocyte count is >200 cells/mm^3. If PCP occurred at a CD4+ T lymphocyte count >200 cells/mm^3, maintaining PCP prophylaxis for life regardless of the CD4+ T cell response might be prudent. However, data about the most appropriate approach in this setting are limited. Adverse reaction rates among patients with AIDS are high for TMP-SMX (20%–85%). Common adverse effects are rash (30%–55%) (including Stevens-Johnson syndrome), fever (30%–40%), leukopenia (30%–40%), thrombocytopenia (15%), azotemia (1%–5%), hepatitis (20%), and hyperkalemia. Supportive care for common adverse effects should be attempted before discontinuing TMP-SMX. Rashes can often be "treated through" with antihistamines, nausea can be controlled with antiemetics, and fever can be managed with antipyretics.

The most common adverse effects of alternative therapies include methemoglobinemia and hemolysis with dapsone or primaquine (especially in those with

G-6-PD deficiency), rash, and fever with dapsone; azotemia, pancreatitis, hypo- or hyperglycemia, leukopenia, fever, electrolyte abnormalities, and cardiac dysrhythmia with pentamidine, anemia, rash, fever, diarrhea, and methemoglobinemia with primaquine and clindamycin, headache, nausea, diarrhea, rash, fever, and transaminase elevations with atovaquone and bone marrow suppression, fever, rash, and hepatitis with trimetrexate.

Cryptococcosis

Virtually all HIV-1–associated cryptococcal infections are caused by Cryptococcus neoformans var neoformans. Before the advent of ART, approximately 5%–8% of HIV-1–infected patients in developed countries acquired disseminated cryptococcosis. The incidence has declined substantially with use of effective ART. The majority of cases of infection are observed among patients who have CD4+ T Cell Count of <50 cells/ mm^3. Cryptococcosis among patients with AIDS most commonly occurs as a subacute meningitis or meningoencephalitis with fever, malaise, and headache.

Untreated cryptococcal meningitis is fatal. The recommended initial treatment for acute disease is amphotericin B which is usually combined with flucytosine for a 2-week duration followed by fluconazole alone for an additional 8 weeks. This approach is associated with a mortality of <10% and a mycologic response of approximately 70%.

Adult and adolescent patients appear at low risk for recurrence of cryptococcosis when they have successfully completed a course of initial therapy, remain asymptomatic with regard to signs and symptoms of cryptococcosis, and have a sustained increase (i.e. >6 months) in their CD4+ T Cell Count to >100–200 cells/ mm^3 after ART. The numbers of such patients who have been evaluated remain limited. On the basis of these observations and inference from more extensive data regarding safety of

discontinuing secondary prophylaxis for other opportunistic infections during advanced HIV-1 disease, discontinuing chronic maintenance therapy among such patients is a reasonable consideration. Certain HIV specialists would perform a lumbar puncture to determine if the CSF is culture-negative and antigen negative before stopping therapy even if patients are asymptomatic; other specialists do not believe this is necessary. Maintenance therapy should be re-initiated if the CD4+ T lymphocyte count decreases to <100–200 cells/ mm^3.

***Mycobacterium tuberculosis* Disease**

The World Health Organization (WHO) estimates that TB is the cause of death for 11% of all AIDS patients. The percentage and absolute number of patients with TB disease who are HIV-1 infected is declining in the United States because of improved infection-control practices and better diagnosis and treatment of both HIV-1 infection and TB. With increased voluntary counseling and testing and the increasing use of treatment for latent TB infection. TB disease occurs among HIV-1–infected persons at all CD4+ T lymphocyte counts. The clinical manifestations might be altered depending on the degree of immunosuppression. Those with more advanced immunosuppression (CD4+ T lymphocyte count <200 cells/ mm^3) are more likely to have extrapulmonary or disseminated disease. In areas where TB is endemic, certain patients have higher CD4+ T Cell Count at the time HIV-1–related TB disease develops; in countries with low rates of TB disease (e.g., United States and countries in Western Europe), more patients have advanced HIV-1 disease at the time TB develops. TB disease in persons with HIV-1 infection can be developed immediately after exposure (i.e., primary disease) or as a result of progression after establishment of latent TB infection (i.e., reactivation disease).

Primary TB has been reported in certain group outbreaks, particularly in persons with advanced immune suppression, and might account for one third or more of cases of TB disease in the HIV-infected population. Progression to disease among those with latent TB infection is more likely among HIV-1–infected than in HIV -uninfected persons. HIV-uninfected persons with a positive tuberculin skin test (TST) result have a 5%–10% lifetime risk for developing TB, compared with a 7%–10% annual risk in the HIV-1–infected person with a positive TST result. Patients with TB disease have higher HIV-1 viral loads and a more rapid progression of their HIV-1 illness than comparable HIV-1–infected patients without TB

When HIV infection was first recognized, the patient should receive a tuberculin skin test (TST). Routine evaluation for allergy is not recommended. However, situations exist in which allergy evaluation might assist in guiding decisions concerning preventive therapy. All HIV-infected persons who have a positive TST result (>5 mm of indurations) should undergo chest radiography and clinical evaluation to rule out active TB. HIV-infected persons who have symptoms indicating TB should promptly undergo chest radiography and clinical evaluation regardless of their TST status. All HIV-infected persons, regardless of age, who have a positive TST result but have no evidence of active TB and no history of treatment for active or latent TB should be treated for latent TB infection.

Close follow-up, consisting of clinical, bacteriologic, and occasionally, laboratory and radiographic evaluations, is essential to ensure treatments' success. In patients with pulmonary TB, at least one sputum specimen for microscopic examination and culture should be obtained at monthly intervals until two consecutive specimens are negative on

culture. Drug susceptibility tests should be repeated on isolates from patients who have positive cultures after 3 months of treatment. Patients who have positive cultures after 4 months of treatment should be considered as having failed therapy and managed accordingly. For patients with extrapulmonary TB, the frequency and types of evaluations will depend on the sites involved and the ease with which specimens can be obtained. A detailed clinical assessment should be performed at least monthly to identify possible medication intolerance and to assess adherence. As a routine, monitoring blood tests for patients being treated with first-line drugs unless baseline abnormalities were identified is unnecessary. More frequent clinical and laboratory monitoring is indicated for patients with underlying liver disease, including hepatitis C co-infection.

INH, RIF, and PZA can all cause drug-induced hepatitis, and the risk might be increased in patients taking other potentially hepatotoxic agents or in persons with underlying liver dysfunction. However, because of the effectiveness of these drugs (particularly INH and RIF), they should be used, if at all possible, even in the presence of preexisting liver disease. Frequent clinical and laboratory monitoring should be performed to detect any exacerbation.

Tests to monitor hepatotoxicity (aminotransferases, bilirubin, and alkaline phosphatase), renal function (serum creatinine), and platelet count should be obtained for all patients started on treatment for TB. At each monthly visit, patients taking EMB should be asked about possible visual disturbances including blurred vision or scotomata. Monthly testing of visual acuity and color discrimination is recommended for patients taking doses that, on a milligram per kilogram basis, are greater than those listed in recommended doses and for patients receiving the drug for >2 months.

***Mycobacterium avium* Complex Disease**

Organisms of the Mycobacterium avium complex (MAC) are ubiquitous in the environment. M. avium is the etiologic agent in >95% of patients with AIDS who develop disseminated MAC disease. An estimated 7%–12% of adults have been previously infected with MAC, although rates of disease vary in different geographic locations. Although certain epidemiologic associations have been identified, no environmental exposure or behavior has been consistently associated with the subsequent development of MAC disease in susceptible persons. The mode of transmission for MAC infection is thought to be through inhalation, ingestion, or inoculation through. Most cases of MAC disease occur among persons with CD4+ T Cell Count <50 cells/ mm^3. Other factors that are associated with increased susceptibility to MAC disease are high plasma HIV-1 RNA levels (>100,000 copies/ml), previous opportunistic infections (particularly CMV disease), previous colonization of the respiratory or gastrointestinal tract with MAC, and reduced in vitro lymphoproliferative immune responses to M. avium antigens, possibly reflecting defects in T-cell repertoire.

Initial treatment of MAC disease should consist of two antimycobacterial drugs to prevent or delay the emergence of resistance. Clarithromycin or azithromycin are the preferred prophylaxis agents. The combination of clarithromycin and rifabutin is no more effective than clarithromycin alone for chemoprophylaxis and is associated with a higher rate of adverse effects. Clarithromycin is the preferred first agent. It has been studied more extensively than azithromycin and appears to be associated with more rapid clearance of MAC from the blood. However, azithromycin can be substituted for clarithromycin when drug interactions or clarithromycin intolerance preclude the use of

clarithromcyin. Ethambutol is the second recommended drug. Some clinicians would add rifabutin the third drug. One randomized clinical trial demonstrated that the addition of rifabutin to the combination of clarithromycin and ethambutol for the treatment of disseminated MAC disease improved survival, and in two randomized clinical trials, this approach reduced emergence of drug resistance. Primary MAC prophylaxis should be discontinued among adult and adolescent patients who have responded to HAART with an increase in CD4+ T Cell Count to >100 cells/ mm^3 for >3 months

2.2 MONITORING FOR THERAPEUTIC RESPONSE

Two surrogate markers are routinely used to determine indications for treatment and to monitor the efficacy of therapy: CD4+ T cell count and plasma HIV RNA (or viral load).

CD4+ T cell count.

The CD4+T cell count (or CD4 count) serves as the major clinical indicator of immunocompetence in patients with HIV infection. It is usually the most important consideration in decisions to initiate antiretroviral therapy. The most recent CD4 cell count is the strongest predictor of subsequent disease progression and survival, according to clinical trials and cohort studies data on patients receiving antiretroviral therapy. A significant change between two tests (2 standard deviations) is defined as approximately 30% change of the absolute count and 3 percentage point change in CD4 percentage.

• **Use of CD4+ T Cell Count for Monitoring Therapeutic Response**. Adequate viral suppression for most patients on therapy is defined as an increase in CD4+ cell count that averages 100-150 cells/mm^3 per year with an accelerated response in the first

3 months. This is largely because of redistribution. Subsequent increases with good virologic control show an average increase of approximately 100 cells/mm^3 per year for the subsequent few years until a threshold is reached.

• **Frequency of CD4+ T Cell Count Monitoring.** In general, CD4+ count should be determined every 3 to 6 months to (1) determine when to start antiretroviral in patients who do not meet the criteria for initiation; (2) assess immunologic response to antiretroviral therapy; and (3) assess the need for initiating chemoprophylaxis for opportunistic infections.

Viral Load

Plasma HIV RNA (viral load) may be a consideration in the decision to initiate therapy. In addition, viral load is critical for evaluating response to therapy. Three HIV viral load assays have been approved by the Food and Drug Administration (FDA) for clinical use:

• HIV-1 reverse transcriptase polymerase chain reaction assay (Amplicor HIV-1 Monitor Test, version 1.5, Roche Diagnostic);

• Nucleic acid amplification test for HIV RNA (NucliSens HIV-1 QT, bioMerieux); and

• Signal amplification nucleic acid probe assay (VERSANT HIV-1RNA 3.0 assay, Bayer).

Analysis of 18 trials with over 5,000 participants with viral load monitoring showed a significant association between a decrease in plasma viremia and improved clinical outcome. Thus, viral load testing serves as a surrogate marker for treatment response and may be useful in predicting clinical progression. The minimal change in viral load considered to be statistically significant (2 standard deviations) is a threefold or a 0.5 log10 copies/ml change. One key goal of therapy is a viral load below the limits of

detection (at <50 copies/ml for the Amplicor assay, <75 copies/ml for the VERSANT assay, and <80 copies/ml for the NucliSens assay). This goal should be achieved by 16-24 weeks.

• **In Patients With Viral Suppression Where Changes are Motivated by Drug Toxicity or Regimen Simplification.** Some experts also recommend repeating viral load measurement within 2-8 weeks after changing therapy. The purpose of viral load monitoring at this point is to confirm potency of the new regimen.

• **In Patients on a Stable Antiretroviral Regimen** The viral load testing should be repeated every 3-4 months thereafter or if clinically indicated.

Monitoring in Patients with Suboptimal Response. In addition to viral load monitoring, a number of additional factors should be assessed, such as non-adherence, altered pharmacology, or drug interactions. Resistance testing may be helpful in identifying the presence of resistance mutations that may necessitate a change in therapy.

2.3 HIV CLINICAL CARE AND MONITORING IN THAILAND

Since 1992, the development of Thailand's ARV program may be viewed as consisting of three phases. Phase I (1992 – 1997) involved the introduction of ART. It aimed to assess the readiness of the health system on the use of ART, and to identify the most appropriate way to provide the service to patients. Due in part to the high cost of ART, only a small number of PLWHA were provided with Zidovudine mono-therapy at a handful of participating hospitals.

Phase II, the Clinical Research Network Phase (1997-2000), aimed to strengthen clinical service centers with a strategy to integrate ART into a comprehensive care and

support program for PLWHA. It involved the participation of 58 hospitals. Mono-therapy, dual therapy and, in the last year of Phase II, highly active anti-retroviral therapy (HAART) treatments were used. However, the number of patients involved was only a few thousand. Of these, a few hundred participated under co-payment.

The lowering of ARV prices and the expansion of local generic ARV production at the turn of the century were among a number of factors that catalyzed the onset of Phase III of Thailand's ARV Program, the expansion of ART towards the goal of universal coverage. With continuing reductions in ARV prices, the production of generic drugs, particularly GPO-VIR (a triple therapy ARV combination developed by the Government Pharmaceutical Organization (GPO), Thailand) in early 2002, and growing political pressure to provide such vital treatment to the large numbers that required it, the Government initiated significant efforts to introduce ART into the universal health coverage scheme and to expand access to ARVs.

The Access to Care (ATC) Program and the National Access to Anti-retroviral Program for PHA (NAPHA) aimed to achieve the national policy target, set in 2003, of 50,000 people on ART by the end of 2004. The Government of Thailand was expected to achieve this goal by mid-2005. The National Policy Framework on the Provision of Anti-Retroviral Treatment for People with AIDS in Thailand (2003) stated that by the end of 2004, all health service centers must be able to provide ARV to those in need. In addition to expanding the number of sites providing ARV, policy also focused on the development of appropriate drug combinations, negotiations on price reductions as well as drug purchases from the GPO, the training of health care professionals involved in providing ARV delivery (physicians, nurses, pharmacists, counselors and laboratory

technicians) and the development of CD4 count laboratory capacity. The national ARV program also emphasized issues of adherence, highlighting on the role of PLWHA and family members to support adherence to ARV medication and encouraging hospitals to work closely with NGOs, PLWHA groups and family members to support patients taking ARV.

2006, National Health Security Office (NHSO) announced the inclusion of ARV drugs into the national universal coverage scheme (UC). As HIV/AIDS is a chronic infectious disease, prevention and control services were included under the general services provided through the 30-Baht Scheme, including health check-ups and the provision of counseling and support. Specific reference to HIV/AIDS was made in the context of the prevention and treatment of OIs which were included under the 30-Baht Scheme, and to the provision of ART.

NHSO GUIDELINE FOR HIV/AIDS MANAGEMENT[9,13]

HIV/AIDS could be received 4 set of benefit from National Health Security Office (NHSO) following:

1. HIV/AIDS treatment

   Anti-retroviral Drug Treatment

   Treatment of Opportunistic Infections: OIs

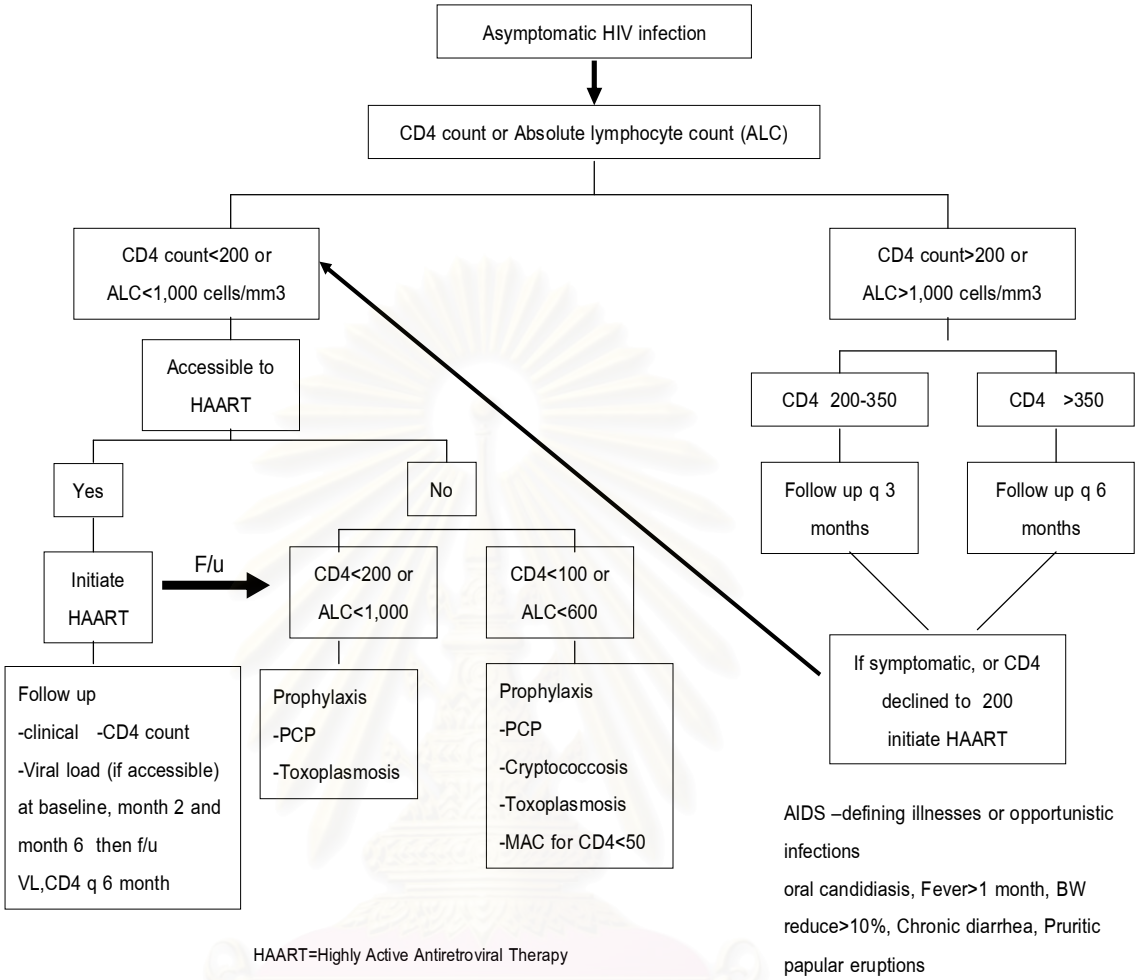
   Treatment of Hyperlipidemia

2. Laboratory testing

3. Voluntary Counseling & Testing: VCT

4. Positive prevention

Figure 2.2 GUIDELINE FOR ASYMPTOMATIC TREATMENT



1. HIV/AIDS treatment

1.1 Anti-retroviral Drug Treatment

Goal of treatment:

-To achieve maximal and durable suppression of viral load

-Restoration and/or prevention of immunologic function

-Improvement of quality of life

-Reduction of HIV related morbidity and mortality.

Inclusion criteria for start Anti-retroviral Drug:

Consideration from Clinical signs and symptoms and CD4 level

Table 2.2 Criteria for treatment following from NHSO guideline

Clinical signs and symptoms	CD4 level (cell/mm3)	Recommendation
AIDS-defining illness	Any value	Start Anti-retroviral Drug
Symptomatic	< 250	Start Anti-retroviral Drug
Asymptomatic	< 200	Start Anti-retroviral Drug
Asymptomatic	≥ 200	No start Anti-retroviral Drug, Monitoring CD4 q 6 mo.

Anti-retroviral Drug (ARV) provided in NHSO supported hospital

RT Inhibitors:

1. Nucleoside RT Inhibitors (NRTIs) : Zidovudine(AZT), Didanosine(ddI), Stavudine(d4T), Lamivudine (3TC)
2. Non-Nucleoside RT Inhibitors (NNRTIs) : Nevirapine(NVP), Efavirenz(EFV)
3. Nucleotide RT Inhibitors (NtRTIs) : Tenofovir DF (TDF)

Protease Inhibitors (PIs):

Ritonavir(RTV), Indinavir(IDV), Nelfinavir(NFV), Lopinavir/r(LPV/r), Atazanavir(ATV)

Adverse Effect / Toxicity of Antiviral drugs

Nucleoside RT inhibitors (NRTIs) :

AZT (Zidovudine): Nausea, Vomiting, Headache, Myopathy, Neutropenia, Lactic acidosis.

d4T (Stavudine): Peripheral neuropathy, Elevated transaminase, Lacticacidosis, Lipoatrophy.

3TC (Lamivudine): few side effects.

ddI (Didanosine): Peripheral neuropathy, Pancreatitis, Nausea, Vomiting, Diarrhea, Hepatitis, Lactic acidosis.

Non-nucleoside RT inhibitors (NNRTIs) :

Nevirapine : Rash (16%), if this is involvement of mucous membrane the medication must be stopped it might induce to Stevens-Johnson Syndrome (SJS) or Toxic Epidermal Necrolysis (TEN)

Efavirenz: Rash (less than Nevirapine), Dizziness, Confusion, Hallucination, Nigthmare, Increase cholesterol, Increase Liver transaminase

Protease inhibitors (PIs):

Class adverse effects:

Nausea, Vomiting, Diarrhea

Increasing SGOT/SGPT

Hypercholesterolemia, Hypertriglyceridemia

Lipodystrophy

Hyperglycemia

1.2 Treatment and Prophylaxis of Opportunistic Infections in HIV/AIDS

Goal : Prophylaxis and treatment HIV/AIDS who has risk or illness from OIs

Table 2.3 Treatment and prophylaxis of opportunistic infections

CD4 count (cells/mm3)	ALC (cells/mm3)	Prophylaxis of OI	Drug Prophylaxis
<200	<1000	PCP, Toxoplasmosis	Cotrimoxazole 2 tab od
<100	<600	Add prophylaxis for Cryptococosis	Fluconazole(200mg) 2 cap once weekly
<50		Add MAC prophylaxis	Azithromycin(250mg) 4-5 tab once weekly

Prophylaxis of Pneumocystic carinii pneumonia (PCP)

Primary prevention, inclusion criteria

1. CD4 < 200 cells/mm^3 or <14% or

2. History of Oropharyngeal candidiasis or Oropharyngeal candidiasis or

3. Has an Pruritic Papular Eruption (PPE) or

4. Unknown Chronic diarrhea more than 14 days or

5. Unknown Weight loss >10-15% with in 3 months

Drug use : Cotrimoxazole (TMP/SMZ 80/400 mg) 2 tablets/day or 2 tablets 3 time/week

: Dapsone 100 mg/day if Sulfonamide or Trimethoprim allergy

Periods of prophylaxis : Long life or CD4>200 cells/mm^3 (in patients on HAART)

Prophylaxis of Toxoplasma encephalitis

Primary prevention, inclusion criteria: CD4 <100 cells/mm^3

Drug use: Cotrimoxazole (TMP/SMZ 80/400 mg) 2 tablets/day

: Dapsone 50 mg /day + Pirymethamine (25 mg) 2 tablets/week + Folic acid 25 mg /week if Sulfonamide or Trimethoprim allergy

Period of prophylaxis: Long life or CD4>200 cells/mm^3 (in patient on HAART)

Prophylaxis of Cryptococcosis

Primary prevention, inclusion criteria

1. CD4<100 cells/mm^3 or

2. Asymptomatic and symptomatic of C.neoformans

3. Negative results of cryptococcal antigen

Drug use: Fluconazole 400 mg / week

Periods of drug use: Long life or until has disease of C. neoformans

Prophylaxis of Mycobacterium avium complex (MAC)

Primary prevention, inclusion criteria

CD4<50 cells/mm^3 and asymptomatic disease and negative of blood's microbacteria

Drug use : Azithromycin (250 mg) 4-5 capsule/ week or

:Clarithromycin (250 mg) 2 tablet/day

Period of prophylaxis : Long life or CD4 > 100 cells/mm^3 (in patients on HAART)

1.3 Treatment of Hyperlipidemia

Goal: Reduce risk of Cardio Atherosclerosis Disease from Hyperlipidemia after Antiretroviral treatment

Inclusion criteria:

1. Used or using Antiretroviral drug

2. Total cholesterol $\geq$ 240 mg/dl

3. Not improve by used Dietary therapy and Therapeutic lifestyle changes

Drug use: Sivmastatin, Gemfibrozil, Fenofibrate

2. Laboratory Testing

2.1 Basic Laboratory Testing: Complete Blood Count(CBC), Fasting Blood Sugar(FBS), Creatinine(Cr), Triglyceride, Total Cholesterol, Liver enzyme (SGPT/ALT)

2.2 Immunology and Virology: Anti HIV, Antibody, CD4, Viral load, Drug resistance

2.3 Investigation neonatal HIV infection from HIV mother by Polymerase Chain Reaction (PCR)

Set of benefits

1. No use Antiretroviral Drug : CD4 not more than 2 time/year (every 6 months)
2. Use Antiretroviral Drug:

   2.1 Basic Laboratory Testing

   2.2 CD4 not more than 2 times/year (every 6 months)

   2.3 Viral load not more than 1 time/year

   2.4 Drug resistance if has indication and not more than 1 time/year
3. Neonatal (HIV mother): PCR between age begin 6 weeks to 6 months

3. Voluntary Counseling and Testing: VCT

- For screening asymptomatic HIV/AIDS
- For HIV/AIDS has alternative choice for reduce risk that cause of reduce naïve
- For counseling and advice HIV/AIDS self care

Set of benefit: Anti-HIV testing not more than 2 times/year

4. Positive prevention

To prevent spread disease in HIV/AIDS and person who receive VCT

Set of benefit: receive condoms

3. QUALITY IMPROVEMENT USING HIVQUAL-T [14,15]

3.1 QUALITY IMPROVEMENT CONCEPT

Quality is the degree to which a health or social service meets or exceeds established professional standards and user expectations. Evaluation of the quality of care should consider 1) the quality of the inputs, 2) the quality of the service delivery process and 3) the quality of outcomes, in order to continuously improve systems of care for individuals and populations.

Quality improvement (QI) is an organizational approach to improve quality of care and services using a specified set of principles and methodologies.

Quality Improvement (QI) refers to activities aimed at improving performance and is an approach to the continuous study and improvement of the processes of providing services to meet the needs of the individual and others.

Quality Improvement Principles

• Use data to improve care

• Focus on the important patient outcomes and consumer needs

• Involvement of participants: encourage direct participation in teams by those individuals who implement the processes being evaluated

• Enhance communication & accountability

• Emphasis on strengthening systems of care through analyzing and processes

Quality Improvement Method

• Use reliable performance data

• Minimize variation in the delivery of healthcare services

• Involve the healthcare team in implementing changes

• Emphasize effective use of limited resources

• Improve processes of health care that result in desired health outcomes

• Support implementation of national guidelines and accreditation standards

3.2 THE NATIONAL HIV QUALITY OF CARE PROGRAM (HIVQUAL)

The HIVQUAL program was developed by the New York State AIDS Institute as a vehicle for building quality improvement (QI) capacity within HIV medical care programs, in order to improve the quality of care for persons living with HIV. In October 2000, the Health and Disability Working Group (HDWG) at the Boston University School of Public Health was funded by Health Resources Services Administration (HRSA) to conduct a two-year evaluation of the HIVQUAL program and provide recommendations for future implementation.

HIVQUAL is a program designed to teach a QI structure and implement QI projects using that structure. HIVQUAL has three major aims: 1) to teach the HIVQUAL model of QI by conducting basic QI projects, 2) to build QI capacity by integrating the HIVQUAL model into an organization's infrastructure, and 3) to use the HIVQUAL QI projects to improve quality of HIV care. Successful HIVQUAL outcomes include implementation of the QI projects, integration of the HIVQUAL QI framework within the organization, and improved quality of HIV care. This evaluation attempts to address all of these outcomes.

HIVQUAL model had four components: 1) infrastructure for QI which was factor for supporting quality improvement, 2) performance measurement for explored problems and weak point of system to use their results for quality improvement. However,

re-evaluating had been important which was showed a development and success of quality, 3) quality improvement was the changing process for usefulness of patients, staff and organization, and 4) group learning was the process for sharing knowledge and experience of person whom involved these problems which gave effect to improve quality rapidly.

Total Quality Management (TQM) was a philosophy of management that strived to help workers improve the quality of care or service by the means of Continuous Quality Improvement (CQI) activities. CQI activities were methods of identifying and reducing waste and inefficiencies whereby staff were expected to consistently explore the needs and expectations of those we served. These methods include a variety of activities and tools that applied scientific thinking and information gathering to our existing work processes.

Principles and practices of TQM/CQI included the following concepts;

- focusing on meeting customer needs and expectations
- creating teamwork and constructive working relationships
- involving every individual in improving his/her work processes
- making small improvements to produce significant changes over time
- using specific statistical tests/tools to assist in problem identification, information organization, data analysis, planning, and decision making

3.3 HIV QUALITY OF CARE PROGRAM-THAILAND (HIVQUAL-T)

The HIVQUAL-T developed by the New York State AIDS Institute joint with Thailand MOPH-US CDC Collaboration (TUC) and Bureau of AIDS, TB and STI (BATS)

Initial using HIVQUAL-T software at 12 piloted sites on 2003 and continues developing software and improve indicator. At present support HIVQUAL-T software to every hospital.

HIVQUAL-T Goals

- Develop a sustainable Quality Improvement program structure that supports ongoing improvement in the quality of HIV care
- Promote reporting of HIV care performance data by hospitals
- Improve the quality of care for PLHA

HIVQUAL-T: Data Collection Methodology

HIVQUAL-T Method

Inclusion criteria for Performance Measurement

- HIV positive
- Age 15 years or older
- Case with at least 2 visits to HIV service during the calendar year

Select random sample of records for review

Abstract indicator data from medical records

Software automatically generates report on each indicator

Use report to identify priority areas for quality improvement activities

HIVQUAL Indicator

Core Indicators

- CD4 testing : % CD4 testing in HIV patients, %CD4 testing follow up at least 2 times during the calendar year,% HIV patients who has CD4>350 cells/mm^3 receiving CD4 testing every 6 month, % HIV patients who has $\leq$ 350 cells/mm^3 and no ARV treatment receiving CD4 testing every 2-4 month, % HIV patients who use ARV receiving CD4 testing at least 2 times during the calendar year
- Viral load testing : % HIV patients receiving VL testing in monitoring year,% HIV patient who use ARV receiving VL testing
- OI prophylaxis for PCP, Cryptococosis : % HIV patients in OI criteria receiving OI prophylaxis
- ARV therapy : % HIV patients continue follow up for receive ARV drug, % HIV patients who use ARV receiving evaluate ARV use
- TB Screening
- Positive prevention : HIV patients receiving education for positive prevention
- Pap smear screening : every year

Optional Indicators

- OI prophylaxis for Pennicilium, MAC
- ARV adherence
- STI screening (Syphilis Chlamydia, Gonorrhea, Ulcer)
- Option for hospital

Alternative

Psycho/social issues

HIVQUAL-T Process

1. Enter hospital data
2. Add/edit patient profile or import patient profile from excel file
3. Select random sampling
4. Review medical record: for each patient, identify information on key indicators
5. Record data : paper abstract form
6. Enter data to HIVQUAL-T software
7. Generate report: HIVQUAL generates pre-programmed reports for each indicator and can be run immediately after data entry
8. Use performance measurement report for improvement quality of care

CHAPTER III

METHODOLOGY

STUDY DESIGN

This study was retrospective study and use hospital database of HIV/AIDS care between October, 2006 - September, 2007 from community hospitals in Nakhonratchasima province. This study was conducted after the community hospital allowance using letter of permission from Faculty of Pharmaceutical Science, Chulalongkorn University.

The study was divided to 3 parts:

Part I: Explore the availability of HIV/AIDS patients care database in community hospital by using questionnaire and interview for collect ART clinic characteristics and infrastructures in community hospitals.

Part II: Assess quality care of HIV/AIDS patients based on NHSO guideline for HIV/AIDS management by using HIVQUAL-T.

- Collecting data of performance measurement indicators by using paper abstract form
- Using HIVQUAL-T program to assess quality of care based on NHSO guideline for HIV/AIDS management
- Comparing performance measurement indicators among community hospitals

Part III: HIV/AIDS care teams meeting for finding suitable strategy for quality improvement HIV/AIDS care by using HIVQUAL-T results.

STUDY POPULATION

Study adult HIV/AIDS patients who received care form ART clinic in community hospitals, Nakhonratchasima province

Inclusion criteria:

- HIV/AIDS patients who received care from ART clinic in community hospitals, Nakhonratchasima province
- HIV/AIDS patients who received care from ART clinic between October, 2006 – September,2007

STUDY INSTRUMENT

- NAPHA program database : National Access to Antiretroviral Program for PHA , NAPHA as program for record HIV/AIDS care database such as CD4 monitoring, Viral load monitoring, ARV regimens, Opportunistic infection, Adverse drug reaction for each patient and each visit. At was developed under NAPHA, Department of Disease Control, MOPH.
- HIVQUAL- T program: HIVQUAL-T program is a program designed for evaluating data of care of HIV/AIDS patients. The HIVQUAL-T developed by the New York State AIDS Institute joint with Thailand MOPH-US CDC Collaboration (TUC) and Bureau of AIDS, TB and STI (BATS).
- LAN system, OPD card

DATA ANALYSIS

The following data collected were analyzed into 3 parts:

Part I: Exploring availability of HIV/AIDS patients care database in community hospitals and the applicability of using HIVQUAL-T program in assessment of quality of patient care.

Part II: Reporting performance measurement indicators from HIVQUAL-T program and assessment the quality of care in HIV/AIDS patients based on NHSO guidelines for HIV/AIDS management.

Part III: Proposing strategies in using HIVQUAL-T program for continual improvement of quality of care.

ETHICAL CONCIDERATION

Patient database using in this study were confidential and were protected by using blinding the patient's name.

CHAPTER IV

RESULTS

Results of the study were presented in three parts as follows;

Part I : Exploring availability of HIV/AIDS patients care database in community hospitals and the applicability of using HIVQUAL-T program in assessment of quality of patient care.

Part II : Reporting performance measurement indicators from HIVQUAL-T program and assessment the quality of care in HIV/AIDS patients based on NHSO guidelines for HIV/AIDS management.

Part III : Proposing strategies in using HIVQUAL-T program for continual improvement of quality of care.

Part I : HIV patients care database in community hospitals

This part included the description of (1) the completeness and availability of HIV/AIDS care database, and (2) infrastructure of HIV/AIDS clinic.

1. Completeness and availability of HIV/AIDS care database

Completeness and availability of HIV patients care database in community hospitals which were the requirement of the applicability of using HIVQUAL-T program in

assessment of quality of patient care were briefly described in Table 4.1 and were explained in the following ;

Table 4.1 Completeness and availability of HIV/AIDS care database 2007

Hospitals data	Number of hospitals
Total community hospitals	26
Complete NAPHA database*	9
Available of complete HIV/AIDS care database**	6

* Source of information NAPHA database from Nakhonratchasima Provincial Public Health Office

** Available HIV patient care databases such as OIs drug prophylaxis, data of TB and TB screening, data of syphilis and syphilis screening, data of PAP smear test

Complete = an update and cover of HIV/AIDS database on NAPHA program

National Access to Antiretroviral Program for PHA : NAPHA as a program for record HIV/AIDS care database such as CD4 monitoring, Viral load monitoring, ARV regimens, Opportunistic infection, Adverse drug reactions for each patient and each visit, So NAPHA program was important sourced for assessment by HIVQUAL-T program.

Although a program to record HIV/AIDS care database was changed from NAPHA program to NAP (National AIDS program), Nakhonratchasima province by Provincial Public Health Office had a commitment with community hospitals to still report HIV/AIDS database from NAPHA program until the end of year 2007. This study found completed NAPHA database only in 9 community hospitals from 26 community hospitals. The community hospital's NAPHA databases that the study used were collected by Nakhonratchasima Provincial Public Health Office.

Nine hospitals had completed NAPHA database. The study explored of the availability of HIV/AIDS care databases (between October 2006- September 2007) about Opportunistic Infection drug prophylaxis, Data of TB treatment, TB screening, Syphilis treatment, Syphilis screening and data of pap smear test. These data were collected more than one source such as computer, record forms, or medical record. However, complication to database collection increased if they have more than one department of HIV/AIDS care.

This study found that the 6 community hospitals had complete data covering items for evaluated performance measurement indicator by use of HIVQUAL-T program in the next step.

2. Infrastructure of HIV/AIDS clinic in 6 hospitals

This part included the status of ARV team, training of ARV team, and the other of infrastructure of HIV/AIDS clinic.

2.1 Status of ARV Team

Results from the interviewing of ARV team of 6 hospitals showed that the component of every ARV team was a pharmacist who was assigned to work at AIDS clinic. Almost all of the head of ARV teams was a nurse. However, Hospital2 had a public health officer as the head of ARV team. Almost all of the ARV team had a physician assigned to work in HIV/AIDS clinic except the Hospital4 which had a rotated physician. However, the ARV team was not only responsible for AIDS clinic.

Details of each hospital indicating status of ARV team was shown in table 4.2

Table 4.2 Status of ARV Team in each hospital

Number	Hospital	Status of ARV Team			
		Physician	Nurse	Pharmacist	Public health officer
1	Hospital 1	Fixed	Fixed *	Fixed	Fixed
2	Hospital 2	Fixed	no	Fixed	Fixed *
3	Hospital 3	Fixed	Fixed *	Fixed	no
4	Hospital 4	Rotated	Fixed **	Fixed	Fixed
5	Hospital 5	Fixed	Fixed *	Fixed	no
6	Hospital 6	Fixed	Fixed *	Fixed	Fixed

* Head of ARV team ** Person was changed in year studied

Fixed = stable of person who was assigned to work in HIV/AIDS clinic

Rotated = no had specified person who was assigned to work in HIV/AIDS clinic

2.2 Training of ARV Team

Every ARV team received HIV/AIDS care training, except physician and nurse from Hospital4 because the physician was rotated to work in other place as well as the nurse.

Explaining the team receiving training of ARV case appears in table 4.3.

Table 4.3 Training of ARV Team in each hospital

Number	Hospital	HIV/AIDS care Train *			
		Physician	Nurse	Pharmacist	Public Health Officer
1	Hospital 1	Train	Train	Train	Train
2	Hospital 2	Train	-	Train	Train
3	Hospital 3	Train	Train	Train	-
4	Hospital 4	No	No	Train	Train
5	Hospital 5	Train	Train	Train	-
6	Hospital 6	Train	Train	Train	Train

* Staff in ARV Team have trained about HIV/AIDS care

2.3 Other Infrastructure of HIV/AIDS clinic

Table 4.4 showed Infrastructure consisting four parts including service system, AIDS policy, ARV team Assignment, and ARV team meeting.

Service system;

Two hospitals had one stop service which meant that the hospital provided a special clinic area for HIV/AIDS group meeting, screening, prescribing, dispensing and counseling in clinic day. The other 4 hospitals had clinic areas for HIV/AIDS group meeting, screening and some prescribing, but the laboratory and dispensing were included in general hospital services.

AIDS policy;

Almost all of the hospitals had AIDS policy, except Hospital4 that did not have AIDS policy.

ARV Team assignment;

Almost all of the hospitals assigned their staff to work not only for AIDS but also for other communicable diseases, except Hospital4 that did not assigned their staff to work for AIDS policy.

ARV Team meeting;

ARV team meeting, five hospitals had combined with other communicable diseases meeting. Hospital4 did not have ARV team meeting at all because the hospital did not have ARV team assignment. All of the hospitals did not have separately ARV team meeting.

Table 4.4 The other Infrastructure of HIV/AIDS clinic in each Hospital

Number	Hospital	Infrastructure			
		Service system*	AIDS policy**	ARV Team Assignment***	ARV Team meeting ****
1	Hospital 1	one stop	part of CD	part of CD	part of CD
2	Hospital 2	No	especially	especially	part of CD
3	Hospital 3	one stop	part of CD	part of CD	part of CD
4	Hospital 4	No	no	no	no
5	Hospital 5	No	especially	especially	part of CD
6	Hospital 6	No	part of CD	part of CD	part of CD

CD = Communicable Disease

* Service system; one stop service = has a especially clinic for group meeting, screening, prescribing, dispensing and counseling in clinic

** AIDS policy = Hospital policy that especially for AIDS

*** ARV Team Assignment = Hospital order for AIDS care team

**** ARV Team meeting = Frequency of AIDS team meeting

PART II Performance measurement indicators from HIVQUAL-T program

Performance measurement indicators from HIVQUAL-T program and assessment the quality of care in HIV/AIDS patients based on NHSO guidelines for HIV/AIDS management were reported.

1. HIV/AIDS cases for assessment by use HIVQUAL-T program

Six community hospitals HIV/AIDS' databases had a total of 519 clinical cases, 446 cases were recorded in NAPHA program. They were patients who received ARV

drugs. Seventy-three HIV/AIDS patients who did not received ARV drugs were not recorded their treatment information which made the data could not be analyzed.

From the 446 cases on NAPHA program, 262 cases were selected. They were HIV/AIDS patients who had continuous database during studied period, October 2006 – September 2007. Of the 262 cases, 138 cases were female and 124 cases were male.

Table 4.5 reported HIV/AIDS cases for assessment using HIVQUAL-T program

Table 4.5 HIV/AIDS cases for assessment using HIVQUAL-T program

Number	Hospital	Total HIV/AIDS in clinic *	Total HIV/AIDS in NAPHA program **	HIV/AIDS for study *** (female, male)
1	Hospital 1	139	109	82 (45,37)
2	Hospital 2	83	75	46 (21,25)
3	Hospital 3	145	125	53 (25,28)
4	Hospital 4	28	23	7 (4,3)
5	Hospital 5	55	53	45 (24,21)
6	Hospital 6	69	61	29 (19,10)
	Total	519	446	262 (138,124)

* Source of data from the monthly reported (on September 2007) of Nakhonratchasima Provincial Public Health Office

** HIV/AIDS in NAPHA program = HIV/AIDS patients who received ARV drug (during October 2006- September 2007)

*** HIV/AIDS patients' databases for study were select from cases who received care from HIV/AIDS clinic between October 2006 and September 2007 and had completed NAPHA database.

2. The Performance measurement indicators base on HIVQUAL-T program assessment.

Table 4.6 showed the results of Performance measurement indicators. For CD4 monitoring, HIV/AIDS patients who did not received CD4 test during the review period were 19.08%, HIV/AIDS patients who received CD4 test once during the review period were 37.40% and HIV/AIDS patients received CD4 test twice were 43.51%. Therefore, HIV/AIDS patients who received CD4 testing at least once in year studies were 80.91%.

HIV/AIDS patients receiving Viral load monitoring that was a core performance measurement indicator only 1.91% which is very low.

Eligible HIV/AIDS patients receiving opportunistic infection prophylaxis covered PCP and Cryptococcosis were 95.45% and 83.33% respectively except for MAC which had eligible HIV/AIDS patients who did not received drug prophylaxis.

All of the patients received adhered to their hospitals services. All HIV/AIDS patients adhered to their drug treatment base on the assessment from their clinic visit.

HIV/AIDS patients who had no history of TB illnesses or TB treatment were screened of TB by assessment of clinical symptoms or risk factors but none of the HIV/AIDS patients were screened by PPD skin test during the review period.

Cervical cancer screening by pelvic examination and PAP smear test in female HIV/AIDS patients were only 10.87% during the review period.

Only 6.49% of HIV/AIDS patients received syphilis screening by VDRL test.

Table 4.6 The results of Performance measurement indicators

Performance measurement indicator	Goal	Activities	Case	Total case	% Received	Remark
Core performance measurement indicator						
CD4 monitoring	At least twice in year	None receive CD4 test	50	262	19.08	min 0, max 85.71
		Once in year	98	262	37.40	min 14.29, max 72.41
		At least twice	114	262	43.51	min 0, max 92.68
Viral Load monitoring	At least once in year	None receive VL test	257	262	98.09	min 89.13, max 100
		At least once	5	262	1.91	min 0, max10.87
Opportunistic infection prophylaxis	100% prophylaxis	PCP	63	66	95.45	min 91.30, max100
		Cryptococcosis	20	24	83.33	min 62.5, max100
Adherence	100% adherence	Service adherence	262	262	100.00	-
		Drug adherence assessment	262	262	100.00	-
PAP smear screening	At least once in year	PAP smear test	15	138	10.87	min 0 , max 45.83
TB screening	Received follow up	Received follow up for TB	240	240	100.00	-
Optional performance measurement indicator						
OI prophylaxis	100% prophylaxis	MAC	0	13	0.00	-
Syphilis screening (VDRL)	At least once for their life time	VDRL test	17	262	6.49	min 0, max 20.73
TB screening (PPD skin test)	At least once for their life time	PPD skin test	0	240	0.00	-

2.1 CD4 monitoring in HIV/AIDS patients in each hospital

Table 4.7 reported CD4 monitoring in HIV/AIDS patients in each hospital.

CD4 monitoring assessment of each hospital differed during the review period. At Hospital1, every HIV/AIDS patients received a CD4 test at least once and had the most HIV/AIDS patient receiving CD4 test at least twice by 92.76%. At Hospital2, HIV/AIDS patients who did not received CD4 test were 4.35% and received CD4 test at least twice were 63.04%. At Hospital3 HIV/AIDS patients who received a CD4 test at least once were 54.72% and received a CD4 test at least twice only 1.89%. Hospital4 had the most HIV/AIDS patients who did not received CD4 test by 85.71% and did not had HIV/AIDS patients who received CD4 test at least twice. At Hospital5 the number of HIV/AIDS patients who received and did not received a CD4 test were close being 37.78%, 57.78% respectively. At Hospital6, HIV/AIDS patients who did not received a CD4 test were 6.90% and 72.41% received a CD4 test at lease once.

Following NHSO guideline; HIV/AIDS patients on ARV drug should be monitored by CD4 test every 6 months while the result of the HIVQUAL-T assessment showed that only 43.51% of HIV/AIDS patients in community hospitals in Nakhonratchasima province could CD4 test monitored at least twice per year.

Table 4.7 CD4 monitoring in HIV/AIDS patients in each hospital

CD4 monitoring in HIV/AIDS patients		None received CD4 test	Once in year	At least twice	Total
H1	Number (case)	0	6	76	82
	Percentage	0	7.32	92.68	100
H2	Number (case)	2	15	29	46
	Percentage	4.35	32.61	63.04	100
H3	Number (case)	23	29	1	53
	Percentage	43.4	54.72	1.89	100
H4	Number (case)	6	1	0	7
	Percentage	85.71	14.29	0	100
H5	Number (case)	17	26	2	45
	Percentage	37.78	57.78	4.44	100
H6	Number (case)	2	21	6	29
	Percentage	6.9	72.41	20.69	100
Total	Number (case)	50	98	114	262
	Percentage	19.08	37.41	43.51	100

CD4 cell count is a core of HIVQUAL-T indicator **NHSO guideline:** CD4 test should be determined every 6 months

2.2 Viral Load monitoring in HIV/AIDS patients

Viral Load monitoring in cases studied as showed in Table 4.8, HIV/AIDS patients received ARV drug and monitored Viral Load test at least once during the reviewed period were 1.91% that only Hospital2 was monitored Viral Load.

Following NHSO guideline; HIV/AIDS patients on ARV drug should be monitored Viral Load test every 6 months or at least once while result from HIVQUAL-T assessment showed ARV clinic in community hospitals in Nakhonratchasima province could be monitored Viral Load test at least once a year only 1.91%.

Table 4.8 Viral Load monitoring in HIV/AIDS patients in each hospital

Hospital	Viral Load Test (case)	Total of HIV/AIDS patients	Percentage of VL test
H1	0	82	0
H2	5	46	10.87
H3	0	53	0
H4	0	7	0
H5	0	45	0
H6	0	29	0
Total	**5**	**262**	**1.91**

Viral Load (VL) is a core of HIVQUAL-T indicator

NHSO Guideline: Viral load testing should be determined every 6 months or at least 1 time/year

2.3 Opportunistic Infection prophylaxis

Table 4.9 reported opportunistic infection prophylaxis in HIV/AIDS patients in each hospital. HIV/AIDS patients who had CD4 monitored and CD4<200 cells/mm^3, 95.45% of them have received PCP prophylaxis. There was no difference of results, except Hospital4 showed 0% because there was only one patient receiving CD4 monitored during studies period and CD4>200 cells/mm^3.

HIV/AIDS patients who had CD4 monitored and CD4<100 cells/mm^3, 83.33% of them have received cryptococcosis prophylaxis. They had nearly results, except Hospital4 that showed 0% because there was only one patient receiving CD4 monitored during studies period and CD4>200 cells/mm^3

HIV/AIDS patients who had CD4 monitored and CD4<50 cells/mm^3, none of them had received MAC prophylaxis.

Following the NHSO guideline, HIV/AIDS patients received suitable PCP and cryptococcosis prophylaxis, except MAC prophylaxis in patients who had CD4<50 cell/mm^3.

Table 4.9 Opportunistic Infection Prophylaxis in HIV/AIDS patients in each hospital

Opportunistic Infection prophylaxis		H1	H2	H3	H4	H5	H6	Total
PCP *	CD4<200 cell/mm^3	23	17	13	0	8	5	66
	Received prophylaxis	21	17	12	0	8	5	63
	Percentage	91.30	100.00	92.31	0.00	100.00	100.00	95.45
Cryptococcosis	CD4<100 cell/mm^3	8	8	2	0	3	3	24
	Received prophylaxis	5	7	2	0	3	3	20
	Percentage	62.50	87.50	100.00	0.00	100.00	100.00	83.33
MAC **	CD4< 50 cell/mm^3	4	6	1	0	1	1	13
	Received prophylaxis	0	0	0	0	0	0	0
	Percentage	0.00	0.00	0.00	0.00	0.00	0.00	0.00

PCP*: Pneumocystic carinii pneumonia, MAC**: Mycobacterium avium Complex

PCP and Cryptococcosis prophylaxis is core of HIVQUAL-T indicators

MAC prophylaxis is an optional of HIVQUAL-T indicator

NHSO Guideline: CD4 < 200 cells/mm^3 should be received PCP prophylaxis

CD4< 100 cells/mm^3 should be received Cryptococcosis prophylaxis

CD4< 50 cells/mm^3 should be received MAC prophylaxis

2.4 ARV adherence

Table 4.10 reported ARV adherence in HIV/AIDS patients in each hospital.

This studied overall HIV/AIDS patients on ARV drug and 100% of them continuously followed up for receiving ARV drug. Before HIV/AIDS patients would be started ARV drug, they had committed about capability of continuously following up for receiving ARV drug and every ARV team had Pharmacist who dispensed, advised and monitored their patients about ARV adherence.

All of HIV/AIDS patients received drug adherence assessment every time by their Pharmacist who fixed on ARV clinic.

Table 4.10 ARV adherence in HIV/AIDS patients in each hospital

ARV adherence		H1	H2	H3	H4	H5	H6	Total
Total of HIV/AIDS patients		82	46	53	7	45	29	262
Service adherence	Number (case)	82	46	53	7	45	29	262
	Percentage	100	100	100	100	100	100	100
Received drug adherence assessment	Number (case)	82	46	53	7	45	29	262
	Percentage	100	100	100	100	100	100	100

% HIV/AIDS patients continuously followed up for receiving ARV drug (Service adherence) and % HIV/AIDS patients who used ARV drug receiving evaluate ARV used (Drug adherence assessment) were core of HIVQUAL-T indicator

2.5 Assessment of TB screening in HIV/AIDS patients

Table 4.11 showed HIV/AIDS patients with history of TB illnesses or TB treatment 8.4% and received TB treatment every cases, while HIV/AIDS patients who did not have history of TB illnesses or TB treatment were monitored by clinical screening every cases but none of the HIV/AIDS patients were screened by PPD skin test.

Table 4.11 Assessment of TB screening in each hospital

Assessment of TB screening		H1	H2	H3	H4	H5	H6	Total
Patients with history of TB illness or TB treatment	Total case	82	46	53	7	45	29	262
	History of TB illness or TB treatment	5	0	13	0	4	0	22
	Received treatment or follow up	5	0	13	0	4	0	22
	% of TB illness or TB treatment	6.10	0.00	24.53	0.00	8.89	0.00	8.40
	% of receiving treatment or follow up	100.00	0.00	100.00	0.00	100.00	0.00	100.00
Patients who had no history of TB illness or TB treatment	Total case patients no history of TB illness	77	46	40	7	41	29	240
	Received treatment or follow up	77	46	40	7	41	29	240
	Received PPD skin test screening	0	0	0	0	0	0	0
	% of received treatment of follow up	100.00	100.00	100.00	100.00	100.00	100.00	100.00
	% of PPD skin test screening	0.00	0.00	0.00	0.00	0.00	0.00	0.00

-TB screening is a core of HIVQUAL-T indicator

-TB screening meaning to clinical investigation and check up

-TB screening by PPD skin test is necessary for epidemic area

-PPD skin test also known as the tuberculin test is a test used to determine if someone has developed an immune response to the bacterium that causes tuberculosis (TB)

2.6 Assessment of syphilis screening in HIV/AIDS patients

From table 4.12 only 6.49% of HIV/AIDS patients received syphilis screening by VDRL test and among hospitals, only Hospital1 had syphilis screened by VDRL test.

VDRL test was mentioned in NHSO guideline for HIV/AIDS patients who started in ARV clinic, no mentioned to repeated or monitored on HIV/AIDS patients.

Table 4.12 Assessment of syphilis screening in HIV/AIDS patients in each hospital

Hospital	Syphilis screening (case)	Total of HIV/AIDS patients	% of VDRL test
H1	17	82	20.73
H2	0	46	0.00
H3	0	53	0.00
H4	0	7	0.00
H5	0	45	0.00
H6	0	29	0.00
Total	**17**	**262**	**6.49**

-Syphilis screening is an optional of HIVQUAL-T indicator

-VDRL testing should be received at least once for their life time and should be monitored and monitored in HIV/AIDS patients who had HIV risk behaviors.

-VDRL (Venereal disease research laboratory): The VDRL test checks for an antibody that can be produced in people who have syphilis and The test are used to screen for or to confirm a syphilis infection.

2.7 Assessment of cervical cancer in female HIV/AIDS patients

Table 4.13 reported assessment of cervical cancer screened by Pelvic examination and PAP smear test in female HIV/AIDS patients in each hospital.

Only 10.87% of female HIV/AIDS patients received pelvic examination and PAP smear test for screening cervical cancer. There were 3 hospitals of 6 hospitals result PAP smear monitored. However, Hospital5 was higher percentage than Hospital2 and Hospital3.

One case patient who received PAP smear test had abnormal Pap smear result and received appropriate following up.

PAP smear test did not attention in NHSO guideline for annual female HIV/AIDS patients monitored but it was a core of HIVQUAL-T indicator

Table 4.13 Assessment of PAP smear test in female HIV/AIDS patients in each hospital

Assessment of PAP smear screening		H1	H2	H3	H4	H5	H6	Total
Female patients who receiving PV and PAP smear	Total of female patients (case)	45	21	25	4	24	19	138
	Received pelvic examination	0	1	3	0	11	0	15
	Received PAP smear	0	1	3	0	11	0	15
	% of received pelvic examination	0.00	4.76	12.00	0.00	45.83	0.00	10.87
	% of received PAP smear	0.00	4.76	12.00	0.00	45.83	0.00	10.87
Appropriate follow up in patient with abnormal PAP smear result	Total of abnormal PAP smear result	0	0	0	0	1	0	1
	Receiving appropriate follow up	0	0	0	0	1	0	1
	% of received appropriate follow up	0.00	0.00	0.00	0.00	100.00	0.00	100.00

PAP smear screening is a core of HIVQUAL-T indicator

2.8 Comparison performance measurement indicators 2007 between Country, 5th Regional, and Nakhonratchasima province.

Table 4.14 showed comparison performance measurement indicators 2007 between Country, 5th Regional, and Nakhonratchasima province.

CD4 monitoring was similar result between Country, 5th Regional and Nakhonratchasima province. The CD4 monitoring showed as 90.87**%,** 86.29% and 80.92% respectively.

Viral load monitored, the result of Nakhonratchasima province was lower than another level.

Eligible HIV/AIDS patients of Nakhonratchasima province received PCP prophylaxis and Cryptococcosis prophylaxis were similar 5th Regional. However, the results of Nakhonratchasima province more than Country level. While the results of HIV/AIDS patients in Nakhonratchasima province received MAC prophylaxis very low.

All of HIV/AIDS patients in Nakhonratchasima province received drug adherence assessment every time which this result more than country level.

All of HIV/AIDS patients in Nakhonratchasima province were screened for TB by assessed clinical symptoms or risk factor for TB. However, none of them received PPD skin test for TB screened.

Cervical cancer screening in female HIV/AIDS patients by PAP smear test showed that Nakhonratchasima province had results lower than another level.

Only 6.49% of HIV/AIDS patients in Nakhonratchasima province received syphilis screening by VDRL test. And this result lowers than another level.

Nakhonratchasima province had performance measurement indicators 2007 were similar results in HIV/AIDS treatment monitored while results of screening were difference from Country and 5th Regional level.

Table 4.14 Comparison performance measurement indicators 2007 between Country, 5th Regional, and Nakhonratchasima province.

Level	Country	5th Regional	Province
Number of Hospital	502	20	6
Case list	78,513	2,486	519
Sample	28,235	1,175	262
CD4	90.87%	86.29%	80.92%
Viral load	27.23%	14.06%	1.19%
PCP prophylaxis	81.69%	88.35%	95.45%
Cryptococcosis prophylaxis	74.01%	85.21%	83.33%
MAC prophylaxis	17.19%	18.27%	0%
Adherence	81%	92.70%	100%
TB screening	81.39%	90.46%	100%
PAP smear screening	25.56%	24.05%	10.87%
Syphilis screening	20.85%	31.70%	6.49%

Country and 5th Regional performance measurement indicators 2007 from www.cqihiv.com

Case lists=Total of HIV patients in year assessment, Sample= HIV patients who were assessed in year assessment, CD4= Percentage of HIV patients who received CD4 test at least once in year assessment, PCP= Percentage of eligible patients receiving PCP prophylaxis, Cryptococcosis= Percentage of eligible patients receiving cryptococcosis prophylaxis, MAC= Percentage of eligible patients receiving MAC prophylaxis, Adherence= Percentage of patients receiving drug adherence assessment ever time, TB= Percentage of patients who had no history of TB illness or TB treatment received treatment of follow up, Syphilis= Percentage of patients who had ever received syphilis screening by used VDRL test, PAP smear= Percentage of female patients received PAP smear screening

PART III : Propose strategies for continual quality care improvement

After the implementation of HIVQUAL-T program to assess the quality of HIV/AIDS patients care at community hospitals in Nakhornratchasima province 2007, there were 262 study cases from 6 hospitals and all of them received ARV drugs. The results of this assessment had reviewed to find out the strategy of development the quality of caring the HIV/AIDS patients together. The meeting of concerned authorizers, who worked for AIDS clinics, had taken on date of April 11, 2008.

I Participants of group meeting

Participants of group meeting consisted of authorizers who took care of AIDS clinics;

1. 4 Pharmacists who had experience about AIDS for 5, 4, 2 and 1 year respectively and they should pass some training for taking care of HIV/AIDS patients.
2. A Public health officer that had experience about AIDS for 6 years and should pass some training for taking care of HIV/AIDS patients.
3. 2 Public health technician who had experience about AIDS for 6 and 2 years respectively and they should pass some training for taking care of HIV/AIDS patients.
4. A nurse who had experience about AIDS for 6 years and should pass some training for taking care of HIV/AIDS patients.

II Analytical Reviews of group meeting

Reviews of issue concerning the HIV care infrastructure

Most of community hospitals set up the organization chart for taking care of HIV/AIDS patients clearly but their staff were not be responsible only for the AIDS clinics. The rotation of staff who worked at AIDS clinic, especially physicians, caused the lack of continuity for taking care of HIV/AIDS patients. In addition, some staff did not have skill for caring, assessing and monitoring the treatment because they were not trained in HIV care course. Because the number of HIV/AIDS patients had increased, the staff had a lot of work and might not be able to taking care HIV/AIDS patients completely.

Reviews of issue concerning the HIV care indicators

CD4 monitoring

All patients who received ARV drugs, should be monitored CD4 at least twice a year. The results from HIVQUAL-T program indicated that only 43.51% were monitored CD4 twice a year and 37.40% were monitored CD4 once a year. Therefore, 19.08% of patients were not monitored CD4. From the analytical review in the group meeting, the cause of this incomplete laboratory test should come from the increasing number of HIV/AIDS patients and there was no recording system to support for HIV/AIDS databases. Even community hospitals had the ARV team who took care of patients, the responsibility of staff to review and monitor the CD4 checking was the staff who worked for screening patients. There was only one person to do this job, therefore the system was not effective. Lacking of the system for monitoring the required lab test, patients

might not be monitored CD4 completely. Thus, the group meeting recommended the permanent staff to be responsible for this job.

Viral load monitoring

The barriers to obtain viral load inspection made the community hospitals concentrated on the CD4 monitoring more than viral load. Based on the group meeting, ARV teams used viral load testing for their decision on treatment failure. Viral load was monitored in HIV/AIDS patients who received ARV drug and had their CD4 count decreased. In fact, viral load testing should be monitored case by case.

Opportunistic Infections prophylaxis

Based on the quality of care assessment's result, most of HIV/AIDS patients who had CD4<200 cells/mm^3 received PCP prophylaxis and some patients who had CD4<100 cells/mm^3 received cryptococcosis prophylaxis. However, some patients who had CD4<50 cells/mm^3 did not received MAC prophylaxis. Almost all of the community hospitals did not have azithromycin or clarithromycin in their hospital drug list. Both azithromycin and clarithromycin was high cost drug. These drugs were not supported by NHSO in addition to the ARV drug.

TB Screening

The result of assessment showed that all of HIV/AIDS patients in clinics who had TB did not receive screening by clinical investigation but none of them had TB screening by PPD skin testing. PPD skin testing requires tuberculin which is the liquid reagent testing. In general, community hospitals did not reserve tuberculin. They have to request tuberculin from Maharat Nakhonratchasima Hospital (Provincial Hospital at Nakhonratchasima). This was the limitation on the availability of the test. Besides, TB

screening by PPD skin testing was not the core indicators of HIVQUAL-T and NHSO guidelines because it is necessary only for epidemic area.

Syphilis Screening

The group meeting mentioned that most of the laboratory data of syphilis screening by VDRL testing were not monitored, because VDRL tests were checked only for new case before entering the AIDS clinics. Most of HIV/AIDS patients in this study were not new case, thus the syphilis screening by VDRL testing were not monitored. The other reason is that HIVQUAL-T recommended HIV patients to have syphilis screening by VDRL testing at least once in their life time or having VDRL test in HIV/AIDS patients who had HIV risk behaviors. The patients were not monitored VDRL testing because physician considered that HIV patients had screening by VDRL testing already when HIV patients were the new patients.

PAP smear test

Female HIV/AIDS patients received PAP smear test only 10.87%. The reasons that the frequent of PAP smear test was very low because: (1) patient who was woman must allow the physician to order PAP smear test before checking, (2) this PAP smear test was not the responsibility of AIDS clinics, and (3) NHSO guidelines did not required PAP smear checking for female HIV/AIDS patients. However, HIVQUAL-T recommended that PAP smear test must be monitored in female HIV/AIDS patients at least once a year.

Summary of group meeting

1. ARV teams had several responsibilities and lot of work to do. It is not only the work in AIDS clinic. The staff were also rotated especially the physicians. These burdens of work and rotating system resulting in the lack of skill and continuity of HIV/AIDS patient caring.
2. This HIV/AIDS patient assessment was focused only on NHSO guidelines. NHSO guidelines did not required PPD skin test, VDRL test, and PAP smear. Thus, whether patients had these tests or not was depended on physician opinions.
3. There was no system to monitor the laboratory test in advance. This resulted in the incomplete laboratory test among HIV/AIDS patients.
4. The hospital staffs in AIDS clinic had to wait for physician's order to plan for laboratory testing, therefore they could not plan the monitoring in advance.

III Proposal for improvement the quality of HIV/AIDS patient caring

Based on the reviews of issue concerning the HIV care infrastructure and HIV care indicators of AIDS clinics in community hospitals, the group meeting proposed the strategy for the development of the quality of HIV/AIDS patient caring in the following.

Hospital level:

1. Developing tools for assessment HIV/AIDS patient by individual.

    1.1 Create the personal report book for recording health information and treatment.

Create the annual check list for patient caring to monitor CD4, PAP smear and others.

2. Supporting the system that the AIDS clinic staff can monitor annual laboratory testing, in addition to physician monitoring.
3. Encouraging HIV/AIDS patients to participate in assessment and monitoring of the treatment with ARV teams.
4. Continuously reviewing and evaluating HIV/AIDS patient treatment to improvement quality of care.
5. Updating HIV/AIDS care databases for the completeness of the assessment.

Provincial level:

1. Routinely inspecting community hospital HIV/AIDS care databases.
2. Encouraging community hospitals to continuously assess quality of HIV/AIDS care.
3. Using community hospital's performance measurement indicators of HIV/AIDS care to monitor the improvement of quality of care.

Country level:

1. Providing the necessary OI prophylaxis drugs such as MAC, PCP, Crytococcosis prophylaxis in addition to the ARV drug.
2. Adding the essential screening such as PAP smear, and TB by PPD skin test, to be in the list of health care benefit supported by NHSO.

CHAPTER V

DISCUSSIONS AND CONCLUSIONS

This chapter included discussions and conclusions. Seven issues were discussed including representative of the sample, requirement of HIVQUAL-T program assessment, patients who did not received ARV drugs were not assessed, some laboratory tests need to be improved, benchmarking the results with country and sub-regional, the ARV team would take care the HIV/AIDS patients in the same way as the chronic disease patients, and development reimbursement system that link with quality assessment based on HIVQUAL-T.

The study concluded that the performance measurement indicators of care of HIV/AIDS patients showed a good quality of treatment. However, they should be improved annual monitoring of screening especially PAP smear in female HIV/AIDS patients which was the core indicator.

The strategy for the development of the quality of HIV/AIDS patients at hospital level, provincial and country level were also mentioned.

DISCUSSIONS

1. Representative of the sample :

Although 6 hospitals from 26 of AIDS clinic in community hospitals had HIV/AIDS patients care databases applicable for using HIVQUAL-T program in assessment of quality of patients care, these hospitals covered all of levels – 30,

60, 90, 120 beds respectively. Thus, this could be a good representative of AIDS clinic in each capability of hospital and quantity of patients.

2. Requirement of HIVQUAL-T program assessment :

Using the HIVQUAL-T program to assess quality of care of HIV/AIDS patients was simply and quickly. However, it required routine recording system in clinics for the complete assessment. The ARV teams must plan together to collect and complete all data required for the assessment. This might be the obstacles of ARV teams in some hospital that usually changed the staff who was responsible for internal coordinating system.

3. Patients who did not received ARV drugs were not assessed :

This study collected data of HIV/AIDS patients that received continuous treatment during October 2006 to September 2007 from 6 hospitals. There were 262 cases that received ARV drugs. However, HIV/AIDS patients who did not receive ARV drugs did not their treatment data recorded. This group of HIV patients should also have good quality of care assessment to assure their health.

4. Some laboratory tests need to be improved :

The results of the assessment by HIVQUAL-T program showed that hospitals usually had CD4 monitoring at least once a year. In general, OI prophylaxis was also good, except MAC prophylaxis. It can be explained that because they did not have the medication for MAC prophylaxis in hospitals. The study results indicated the need to improve TB screening by PPD skin test for

HIV/AIDS patients who had no history of TB illness and the screening of cervical cancer by PAP smear test which female HIV/AIDS patients should receive ever year. Although the study results showed that none of HIV/AIDS patients received TB screening by PPD skin test, it can be explained that because PPD skin test is necessary only epidemic area. Therefore, the screening of cervical cancer by PAP smear test is the only important laboratory test that need to be improved at first.

5. Benchmarking the results with Country and 5th Regional :

Comparing the results of quality of care assessment of Nakhonratchasima province from this study with country and 5th Regional level, there was the difference among various performance indicators especially viral load, MAC prophylaxis, Syphilis screening, and PAP smear test. Variation of the performance indicators between community hospitals in Nakhonratchasima were also occurred that should be monitored and improved. ARV team should continuous review and evaluate HIV/AIDS patient's treatment to continuously improve of quality of care at the level that is not lower than country or 5th Regional level.

6. The ARV team should take care the HIV/AIDS patients in the same way as the chronic disease patients :

At present, hospitals have experiences in taking of chronic disease patients. They must take care HIV/AIDS patients and prevent the disease progression in the same way as taking care chronic disease patients. The

administrator at hospital, provincial and country level should support ARV teams for the improvement of their knowledge and skill of patient caring. Furthermore, the hospital directors should suitably and adequately support enough resources, including human resources and instruments for monitoring patients.

7. Development reimbursement system that link with quality assessment based

on HIVQUAL-T

In conventional HIV/AIDS patients care in ARV clinic, HIV/AIDS patients caring were monitored by the data recorded in NAPHA program which was changed to the NAP program in 2007. The objective of recording the data is to obtain the reimbursement from NHSO. While the evaluation of caring quality had used HIVQUAL-T Program to analyze the data for quality improvement. The development of reimbursement system that is connected with the quality assessment data based on HIVQUAL-T may help to reduce the work from data collection.

The limitation of ARV teams was the number of staffs that was limited compared with their works. Thus, to continuously assess the quality of HIV patients care, the reimbursement and evaluation in system should be linked together for the efficient service system.

CONCLUSIONS

Of all of 26 community hospitals in Nakhonratchasima province, only 6 hospitals had HIV/AIDS patients care databases available for using HIVQUAL-T program to assess quality of patient care. All of these HIV/AIDS patients in the database received ARV drug.

Results from the assessment of HIV/AIDS patients showed that patients who received CD4 monitoring once a year were 37.40%, and patients who received CD4 monitoring at least twice were 43.51%. HIV/AIDS patients who received viral load monitoring were only 1.91%. HIV/AIDS patients who received PCP prophylaxis were 95.45%, and HIV/AIDS patients who received Cryptococcosis prophylaxis were 83.33%. HIV/AIDS patients, who had CD4<50 cells/mm^3 did not received MAC prophylaxis. HIV/AIDS patients had 100% service adherence, and all of them received ARV drug adherence assessment every time. No HIV/AIDS patient received TB screening by PPD skin test and 6.49% HIV/AIDS patients received syphilis screening by VDRL test. Among female HIV/AIDS patients, 10.87% received annual PAP smear test.

NHSO guidelines mainly focused on assessing quality of treatment based on CD4 monitoring, Viral load monitoring, and OI prophylaxis, while it paid less attention on annual monitoring of TB screening, syphilis screening, and pap smear test in female HIV/AIDS patients.

The performance measurement indicators of care of HIV/AIDS patients showed a good quality of treatment. However, they should be improved annual monitoring of screening especially PAP smear that was core indicator in female HIV/AIDS patients.

The results from the meeting of AIDS clinics staff among community hospital showed that the strategy for the development of the quality of HIV/AIDS patient care should be as followed;

Hospital level:

6. Developing tools for assessment HIV/AIDS patient by individual.

1.1 Create the personal report book for recording health information and treatment

1.2 Create the annual check list for patient caring to monitor CD4, PAP smear and

others.

7. Supporting the system that the AIDS clinic staff could monitor annual laboratory testing, in addition to physician monitoring.
8. Encouraging HIV/AIDS patients to participate in assessment and monitoring of the treatment with ARV teams.
9. Continuously reviewing and evaluating HIV/AIDS patient treatment to improvement quality of care.
10. Updating HIV/AIDS care databases for the completeness of the assessment.

Provincial level:

4. Routinely inspecting community hospital HIV/AIDS care databases.
5. Encouraging community hospitals to continuously assess quality of HIV/AIDS care.
6. Using community hospital's performance measurement indicators of HIV/AIDS care to monitor the improvement of quality of care.

Country level:

3. Providing the necessary OI prophylaxis drugs such as MAC, PCP, Crytococcosis prophylaxis in addition to the ARV drug.
4. Adding the essential screening such as PAP smear, and TB by PPD skin test, to be in the list of benefit.
5. Developing reimbursement system that link with quality assessment base on HIVQUAL-T program.

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APPENDICES

APPENDIX A

Questionnaire for AIDS clinic (English)

Questionnaire for Assessment Quality of HIV/AIDS Patient Caring

Community Hospitals in Nakhornratchasima Province in 2007

This questionnaire is a part of the thesis "Use of HIVQUAL-T Program to assess quality of care among HIV patients at community hospitals, Nakhornratchasima province". This is studied for data of HIV/AIDS patients caring during October 2006 to September 2007

Explanation The questionnaire consists of 6 parts;

Part I: General data

Part II: Service system

Part III: Service data recording system

Part VI: Assessment and development of HIV/AIDS patients caring

Part V: Operation supporting system

Part VI: Suggestions

Name of Hospital……..……..Size…….Beds

Which physician are specialists at your hospital ?

( ) Medical physician ( ) Surgery physician ( ) Obstetrician and Gynecologist

( ) Pediatrician ( ) Others, please specify.……

Part I: General Data

General data of person who replied this questionnaire

1.1 Gender ( ) Male ( ) Female

1.2 Age …… Years

1.3 Highest Education ( ) Diploma ( ) Bachelor's Degree

( ) Master's degree , Major……..

1.4 Present Position ……..

Department……..…

1.5 Experience in caring the HIV/AIDS patient in

hospital.....years

General date for the service clinic (as of the budget year end 2007)

HIV/AIDS Patients	In Adults	In Children
Number of total patients		
Number of patients who take preventive medicine		

Part II: Service system

Your hospital has service of caring HIV/AIDS patients for .....years, since.……

2.1 Factors in the service team Please be marked ☑ at choice that your hospital has service and please be mentioned details of clinic caring and training (if).

Physician ☐ None ☐ Fixed ☐ Rotation

☐ Medical physician ☐ General physician ☐ Others ….....

☐ Clinic caring by continuously for.....years (from.....to.....)

☐ Trained the patient caring at latest on.....

Nurse ☐ None ☐ Fixed ☐ Rotation

☐ Clinic caring by continuously for.....years (from.....to.....)

☐ Trained the patient caring at latest on.....

Pharmacist ☐ None ☐ Fixed ☐ Rotation

☐ Clinic caring by continuously for.....years (from.....to.....)

☐ Trained the patient caring at latest on.....

Public Health officer

☐ None ☐ Fixed ☐ Rotation

☐ Clinic caring by continuously for.....years (from.....to.....)

☐ Trained the patient caring at latest on.....

Others (Please specific) .....

☐ None ☐ Fixed ☐ Rotation

☐ Clinic caring by continuously for.....years (from.....to.....)

☐ Trained the patient caring at latest on.....

2.2 Place of Service Please be marked ☑ at sentence which is the Service System of your hospital.

☐ Place of service is specific area and service team has participated in clinic on date of appointment.

☐ Place of service is consolidating for receiving clients, screening and inspection. But receiving medicine is processed at Pharmacy department

☐ Place of service is consolidating for receiving clients. But other services are processed as normal process of hospital.

☐ Other (Please specify) .....

2.3 Format of service date arrangement (Please be marked ☑ at sentence which match to format of service date arrangement of yours. You can choose more than 1 choice.)

☐ On date of appointment, there are group meeting and also group activities of HIV/AIDS group.

☐ On date of appointment, there are group activities of HIV/AIDS group, inspection and taking medicine.

☐ The same date of appointment for patients who take ARV and patients who do not take ARV.

☐ Date of appointment for patients who take ARV is not the same day of appointment for patients who do not take ARV.

☐ Date of group meeting and activities of HIV/AIDS group is separated from date of inspection.

☐ None for group meeting and group activities of HIV/AIDS group.

☐ Other (Please specify)

.....

Part III: Service data recording system

Format of collecting data (Data in budget year 2007)

3.1 Data of inspection and prescription

☐ Recorded to LAN networks and to OPD CARD

☐ Recorded to LAN networks but do not record to OPD CARD

☐ Recorded to OPD CARD only. Not use computer.

☐ Other (Please specify).....

3.2 Data of result from LAB

☐ Recorded to LAN networks and to OPD CARD

☐ Recorded to LAN networks but do not record to OPD CARD

☐ Recorded to OPD CARD only. Not use computer.

☐ Other (Please specify).....

3.3 Data of result PAP smear

☐ Recorded to LAN networks and to OPD CARD

☐ Recorded to LAN networks but do not record to OPD CARD

☐ Recorded to OPD CARD only. Not use computer.

☐ Other (Please specify).....

3.4 Data recording and HIV/AIDS patient care monitoring (All activities can mention)

☐ Recorded to NAPHA program from year .....to (mm/yyyy).....

☐ Recorded to NAP program from year .....to (mm/yyyy).....

☐ Recorded to NAPHA workbook from year .....to (mm/yyyy).....

☐ No data recording and HIV/AIDS patient care monitoring by specifically.

☐ Other (Please specify).....

Part VI: Assessment and development of HIV/AIDS patients caring

4.1 Summary and assessment for HIV/AIDS patients caring in budget year 2007

(You can choose more than 1 choice)

☐ HIV/AIDS patients caring assessment by HIVQUAL-T program.

☐ HIV/AIDS patients caring assessment by others, please specify.....

Indicators or results of HIV/AIDS patients caring assessment for yours are ;

1.....

2.....

3.....

4.....

5.....

6.....

☐ Not yet assessment.

4.2 Result of assessment that under criteria identified (Three things from the top that not passed criteria) that are ;

1. ……..
2. ……
3. ……

Part V: Operation supporting system (Please be marked ☑ at choice that you choused)

1. Is there the operation policy about AIDS for your hospital ?

   ☐ Yes, clearly policy ☐ Yes, it's combined to others ☐ No

2. Do your hospital have established team for caring HIV/AIDS patient?

   ☐ Yes ☐ Yes, it's combined to others ☐ No

3. The patient caring team has planned to develop AIDS clinics service.

   ☐ Yes ☐ Yes, it's combined to others ☐ No

4. HIV/AIDS patients have participated in services of Clinic. ☐ Yes ☐ No

5. Society has participated in caring HIV/AIDS patients.

   ☐ Yes ☐ Yes, it's combined to others ☐ No

Part VI: Suggestions

6.1 Constraint / Obstruction for operating in HIV/AIDS patients caring

Staff .....

.....

Place ……..

……

Budget / Resource……..……

…….……

System.. ……....

……..

Others……..

……..

……

6.2 Which one that you want to improve the system of operating in HIV/AIDS patients caring.……
……
……
……
……
……

Thank you very much for your information. These are useful for development the service quality for HIV/AIDS patient caring in community hospitals in Nakhornratchasima.

Please send completed questionnaire to Ms.Khanidtha Wanleepong
Pharmacy department at Sungnoen hospital, Nakhonratchasima province
within 31st January 2008

APPENDIX B

Questionnaire for AIDS clinic (Thai)

แบบสอบถามการประเมินคุณภาพการดูแลผู้ป่วยเอชไอวี/เอดส์
โรงพยาบาลชุมชน จังหวัดนครราชสีมา ปีงบประมาณ 2550

แบบสอบถามฉบับนี้ เป็นส่วนหนึ่งของวิทยานิพนธ์ เรื่องการใช้โปรแกรม HIVQUAL-T เพื่อประเมินคุณภาพในการดูแลผู้ป่วยเอชไอวี/เอดส์ ของโรงพยาบาลชุมชน จังหวัดนครราชสีมา ซึ่งเป็นการศึกษาข้อมูลการดูแลผู้ป่วยเอชไอวี/เอดส์ ในระหว่างเดือน ตุลาคม 2549 – กันยายน 2550

คำชี้แจง แบบสอบถามมี 6 ส่วน คือ

ส่วนที่ 1 ข้อมูลทั่วไป

ส่วนที่ 2 ระบบการให้บริการ

ส่วนที่ 3 ระบบการบันทึก ข้อมูลการให้บริการ

ส่วนที่ 4 การประเมินและการพัฒนา การดูแลผู้ป่วย HIV/AIDS

ส่วนที่ 5 ระบบสนับสนุนการดำเนินงาน

ส่วนที่ 6 ข้อเสนอแนะอื่น ๆ

ชื่อโรงพยาบาล.....ขนาด.....เตียง

โรงพยาบาลของท่านมีผู้เชี่ยวชาญ สาขาใดบ้าง

( ) อายุรกรรม ( ) ศัลยกรรม ( ) สูตนรีเวช ( ) กุมารเวช ( ) อื่น ๆ ระบุ.....

ส่วนที่ 1 ข้อมูลทั่วไป

<u>ข้อมูลทั่วไปผู้ตอบแบบสอบถาม</u>

1.1 เพศ ( ) ชาย ( ) หญิง

1.2 อายุ ..... ปี

1.3 การศึกษาสูงสุด ( ) อนุปริญญา ( ) ปริญญาตรี ( ) ปริญญาโท สาขา.....

1.4 ตำแหน่งปัจจุบัน ..... ฝ่าย/งาน.....

1.5 ประสบการณ์ในการดูแลผู้ป่วย HIV/AIDS ในโรงพยาบาล ..... ปี

<u>ข้อมูลทั่วไปคลินิกบริการ</u> (ข้อมูล ณ สิ้นปีงบประมาณ 2550)

	ผู้ป่วยเอชไอวี/เอดส์ ผู้ใหญ่	ผู้ป่วยเอชไอวี/เอดส์ เด็ก
จำนวนผู้ป่วยทั้งหมด		
จำนวนผู้ป่วยที่รับยาต้าน		

ส่วนที่ 2 ระบบการให้บริการ

โรงพยาบาลของท่านให้บริการดูแลผู้ป่วย HIV/AIDS เป็นเวลา.....ปี ตั้งแต่ปี……

2.1 องค์ประกอบทีมให้บริการ กรุณาทำเครื่องหมาย ☑ ในข้อที่โรงพยาบาลของท่านมีให้บริการจริง และกรุณาระบุข้อมูลการดูแลคลินิก และการได้เข้าอบรม (ถ้ามี) ให้ครบถ้วนด้วยค่ะ

แพทย์ ☐ ไม่มี ☐มีประจำคลินิก ☐ มีแบบหมุนเวียน

☐ แพทย์อายุรกรรม ☐ แพทย์ทั่วไป ☐ อื่น ๆ ระบุ.....

☐ ดูแลคลินิก ต่อเนื่องเป็นเวลา .....ปี (ตั้งแต่.....-.....)

☐ ได้รับการอบรมแนวทางการดูแลผู้ป่วย ครั้งสุดท้ายเมื่อ.....

พยาบาลวิชาชีพ ☐ ไม่มี ☐ มีประจำคลินิก ☐ มีแบบหมุนเวียน

☐ ดูแลคลินิก ต่อเนื่องเป็นเวลา .....ปี (ตั้งแต่.....-.....)

☐ ได้รับการอบรมแนวทางการดูแลผู้ป่วย ครั้งสุดท้ายเมื่อ.....

เภสัชกร ☐ ไม่มี ☐ มีประจำคลินิก ☐ มีแบบหมุนเวียน

☐ ดูแลคลินิก ต่อเนื่องเป็นเวลา .....ปี (ตั้งแต่.....-.....)

☐ ได้รับการอบรมแนวทางการดูแลผู้ป่วย ครั้งสุดท้ายเมื่อ.....

เจ้าพนักงานสาธารณสุข / นักวิชาการสาธารณสุข

☐ ไม่มี ☐ มีประจำคลินิก ☐ มีแบบหมุนเวียน

☐ ดูแลคลินิก ต่อเนื่องเป็นเวลา .....ปี (ตั้งแต่.....-.....)

☐ ได้รับการอบรมแนวทางการดูแลผู้ป่วย ครั้งสุดท้ายเมื่อ.....

อื่นๆ (ระบุ) .....

☐ ประจำคลินิก ☐ หมุนเวียน

☐ ดูแลคลินิก ต่อเนื่องเป็นเวลา .....ปี (ตั้งแต่.....-.....)

☐ ได้รับการอบรมแนวทางการดูแลผู้ป่วย ครั้งสุดท้ายเมื่อ.....

2.2 สถานที่ให้บริการ ทำเครื่องหมาย ☑ หน้าข้อความที่เป็นระบบในการให้บริการของ รพ.ท่าน

☐ มีสถานที่ให้บริการเฉพาะ และทีมผู้ให้บริการ ร่วมให้บริการที่คลินิก ในวันนัด

☐ มีสถานที่สำหรับรวมผู้รับบริการ คัดกรองและตรวจที่คลินิก แต่รับยา ที่ห้องจ่ายยา

☐ มีสถานที่สำหรับรวมผู้รับบริการ แต่เข้ารับบริการรวมตามระบบทั่วไปของโรงพยาบาล

☐ รูปแบบอื่น (ระบุ) .....

.....

2.3 รูปแบบ ลำดับการให้บริการ : กรุณาใส่ ตัวเลข หน้ากรอบกิจกรรมตามลำดับ การให้บริการตรวจรักษาผู้ป่วย HIV/AIDS ของโรงพยาบาล ในวันที่มีกิจกรรมหลัก และกรอกข้อมูลในกรอบกิจกรรมที่ดำเนินการ (กรณีกิจกรรมใดทำในลำดับพร้อมกันให้ใส่เลขเดียวกัน หรือกิจกรรมใดไม่มี ให้☒)

☐ ประชุมให้ความรู้ / พบปะแลกเปลี่ยน ก่อน หรือ หลังรับบริการ โดยมีผู้ดำเนินการหลักคือ.....(ระบุตำแหน่ง)

☐ คัดกรอง โดย.....(ระบุตำแหน่ง)
สถานที่.....

☐ เจาะเลือดโดย.....(ระบุตำแหน่ง)
สถานที่.....

☐

☐

☐ ตรวจและสั่งยา โดยผู้มิใช่แพทย์ ได้แก่ .....(ระบุตำแหน่ง)
( ) ทุกราย
( ) บางราย ระบุเกณฑ์ที่เลือกตรวจ .....
.....
.....
สถานที่.....

☐ จ่ายยา โดย.....(ระบุตำแหน่ง)
สถานที่.....

☐ นัดติดตามครั้งต่อไป โดย.....(ระบุตำแหน่ง)
สถานที่.....

2.4 <u>รูปแบบ การจัดวันให้บริการ</u> (กรุณาทำเครื่องหมาย ☑หน้าข้อความที่ตรงกับรูปแบบการจัดวันให้บริการของหน่วยงานท่าน และสามารถตอบได้มากกว่า 1 ข้อ)

☐ วันที่นัดตรวจรักษา มีกิจกรรมประชุมกลุ่มผู้ติดเชื้อ และ ทำกิจกรรมกลุ่ม ร่วมด้วย

☐ วันที่นัดตรวจรักษา มีเฉพาะกิจกรรม ตรวจรักษา และรับยา

☐ วันที่นัดตรวจรักษา รวมกันทั้งผู้ป่วยที่รับยาต้านไวรัส และผู้ป่วยที่ยังไม่รับยาต้านไวรัส

☐ แยกวันสำหรับผู้ป่วยรับยาต้านไวรัส เป็นคนละวัน กับผู้ป่วยที่ยังไม่รับยาต้านไวรัส

☐ มีวันนัดประชุมกลุ่มผู้ติดเชื้อ และทำกิจกรรมกลุ่ม แยกจากวันที่นัดตรวจรักษา

☐ ไม่มีการประชุมกลุ่มผู้ติดเชื้อ และทำกิจกรรมกลุ่ม

☐ อื่น ๆ ระบุ .....

.....

ส่วนที่ 3 ระบบการบันทึก ข้อมูลการให้บริการ

<u>รูปแบบการเก็บบันทึกข้อมูลการให้บริการ</u> (ข้อมูลปีงบประมาณ 2550)

3.1 ข้อมูลการตรวจรักษา และสั่งยา

☐ บันทึกในระบบคอมพิวเตอร์เครือข่าย (LAN) และ บันทึกใน OPD CARD

☐ บันทึกในะบบคอมพิวเตอร์เครือข่าย (LAN) ไม่ บันทึกใน OPD CARD

☐ ไม่ใช้คอมพิวเตอร์ บันทึกใน OPD CARD

☐ รูปแบบอื่นๆ ระบุ .....

3.2 ข้อมูลผลตรวจทางห้องปฏิบัติการ

☐ บันทึกในระบบคอมพิวเตอร์เครือข่าย (LAN) และ บันทึกใน OPD CARD

☐ บันทึกในระบบคอมพิวเตอร์เครือข่าย (LAN) ไม่ บันทึกใน OPD CARD

☐ ไม่ใช้คอมพิวเตอร์บันทึกใน OPD CARD

☐ รูปแบบอื่นๆ ระบุ .....

3.3 ข้อมูลผลการตรวจมะเร็งปากมดลูก

☐ บันทึกในระบบคอมพิวเตอร์เครือข่าย (LAN) และ บันทึกใน OPD CARD

☐ บันทึกในระบบคอมพิวเตอร์เครือข่าย (LAN) ไม่ บันทึกใน OPD CARD

☐ ไม่ใช้คอมพิวเตอร์บันทึกใน OPD CARD

☐ รูปแบบอื่นๆ ระบุ .....

3.4 การบันทึกข้อมูล ติดตามการดูแลรักษาผู้ป่วย HIV/AIDS (ตอบได้ทุกข้อที่มีกิจกรรม)

☐ บันทึกใน โปรแกรม NAPHA ตั้งแต่ ปี..... ถึง เดือน ..... ปี .....

☐ บันทึกใน โปรแกรม NAP ตั้งแต่ ปี .....ถึง เดือน .....ปี .....

☐ บันทึกใน สมุดบันทึก NAPHA ตั้งแต่ ปี .....ถึง เดือน ..... ปี .....

☐ ไม่ได้บันทึก ข้อมูล ติดตามการดูแลรักษาผู้ป่วย HIV/AIDS เฉพาะ

☐ รูปแบบ อื่นๆ ระบุ .....

ส่วนที่ 4 การประเมินและการพัฒนา การดูแลผู้ป่วย HIV/AIDS

4.1 การสรุปและประเมิน การดูแลผู้ป่วย HIV/AIDS ปีงบประมาณ 2550 (ตอบมากกว่า 1 ข้อ)

☐ ประเมินการดูแลผู้ป่วย HIV/AIDS โดยใช้ โปรแกรม HIVQUAL-T

☐ ประเมินการดูแลผู้ป่วย HIV/AIDS โดยมีรูปแบบอื่น ระบุ .....

ตัวชี้วัด หรือผลลัพธ์ที่ประเมินการดูแลผู้ป่วย HIV/AIDS ของหน่วยงานท่าน ได้แก่

1.....

2.....

3.....

4.....

5.....

6.....

☐ ยังไม่ได้ประเมิน

4.2 ผลการประเมิน สิ่งที่ไม่ผ่านเกณฑ์ชี้วัดที่กำหนด (ระบุ 3 อันดับแรกที่ไม่ผ่านเกณฑ์) ได้แก่

1. .....

2.....

3.....

ส่วนที่ 5 ระบบสนับสนุนการดำเนินงาน (กรุณาทำเครื่องหมาย ☑หน้าหัวข้อที่เลือก)

1. โรงพยาบาลมีนโยบายการดำเนินงานเอดส์ ☐ มีชัดเจน ☐ มี รวมกับงานอื่น ☐ ไม่มี
2. โรงพยาบาลมีการแต่งตั้งทีมดูแลผู้ป่วยเอดส์ ☐ มีชัดเจน ☐ มี รวมกับงานอื่น ☐ ไม่มี
3. ทีมดูแลผู้ป่วยมีแผนพัฒนาคลินิกบริการเอดส์ ☐ มีชัดเจน ☐ มี รวมกับงานอื่น ☐ ไม่มี
4. ผู้ติดเชื้อเอชไอวี มีส่วนร่วมในการบริการในคลินิก ☐ มี ☐ ไม่มี
5. ชุมชน มีส่วนร่วม ในการดูแลผู้ป่วยเอชไอวี/เอดส์ ☐ มีชัดเจน ☐ มี รวมกับงานอื่น ☐ ไม่มี

ส่วนที่ 6 ความคิดเห็น และข้อเสนอแนะ

6.1 ข้อจำกัด / ปัญหาอุปสรรค ในการดำเนินงาน ดูแลผู้ป่วยเอชไอวี/เอดส์

ด้านบุคลากร .....

.....

.....

ด้านสถานที่ .....

.....

.....

ด้านงบประมาณ / ทรัพยากร.....

.....

.....

ด้านระบบ .....

.....

.....

อื่น ๆ .....

.....

.....

6.2 สิ่งที่อยากปรับปรุงระบบการดำเนินงาน ดูแลผู้ป่วยเอชไอวี/เอดส์

.....

.....

.....

.....

.....

.....

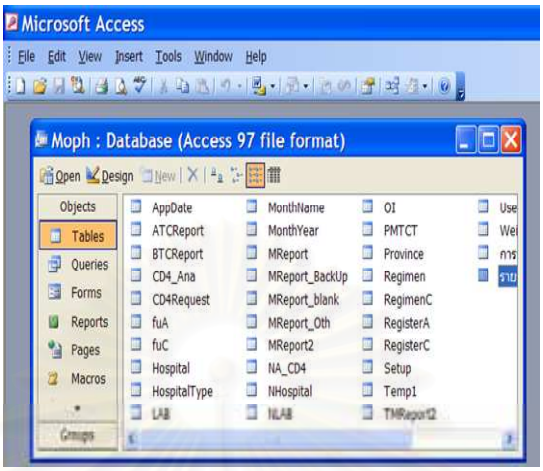
ขอขอบคุณที่ท่านกรุณาให้ข้อมูล ข้อมูลที่ได้จะเป็นประโยชน์ในการพัฒนาคุณภาพบริการผู้ป่วย HIV/AIDS อย่างเหมาะสมในโรงพยาบาลชุมชน จังหวัดนครราชสีมาต่อไป

กรุณาส่งข้อมูลกลับมายัง ภญ.ขนิษฐา วัลลีพงษ์ ฝ่ายเภสัชกรรมชุมชน อำเภอสูงเนิน โรงพยาบาลสูงเนิน จังหวัดนครราชสีมา ภายในวันที่ 31 มกราคม 2551

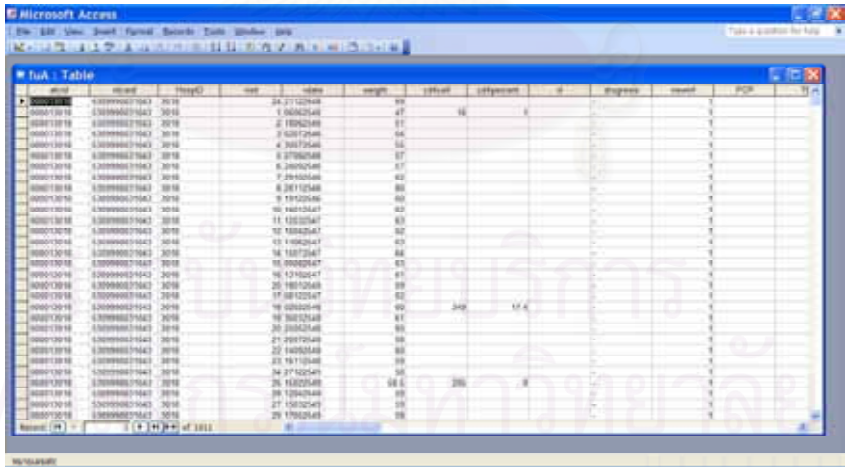
APPENDIX C

Screen of NAPHA program

NAPHA database screen



HIV/AIDS's follow up database

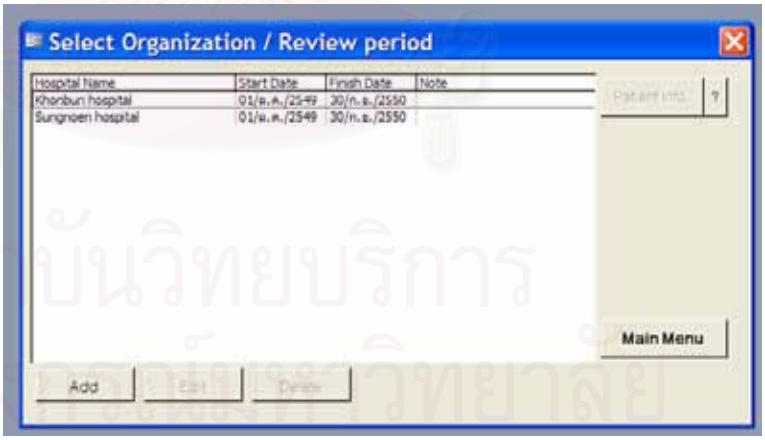


APPENDIX D

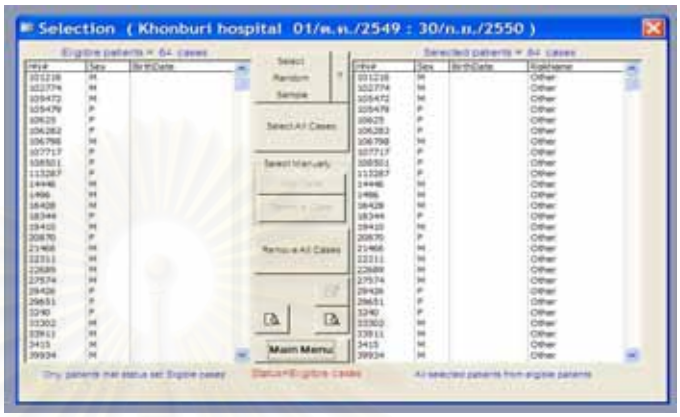
Screen of HIVQUAL-T program

HIVQUAL-T screen

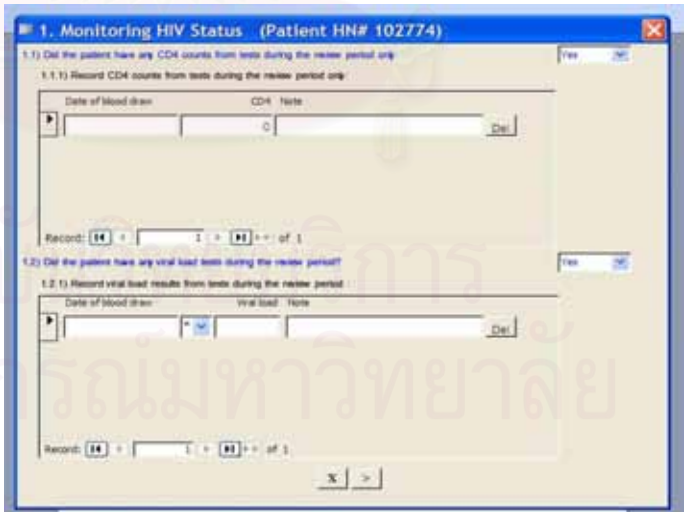
Select Organization



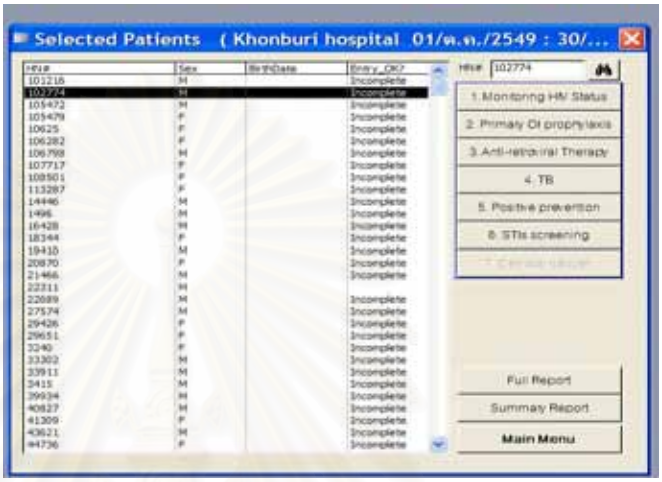
Selection



Monitoring HIV Status

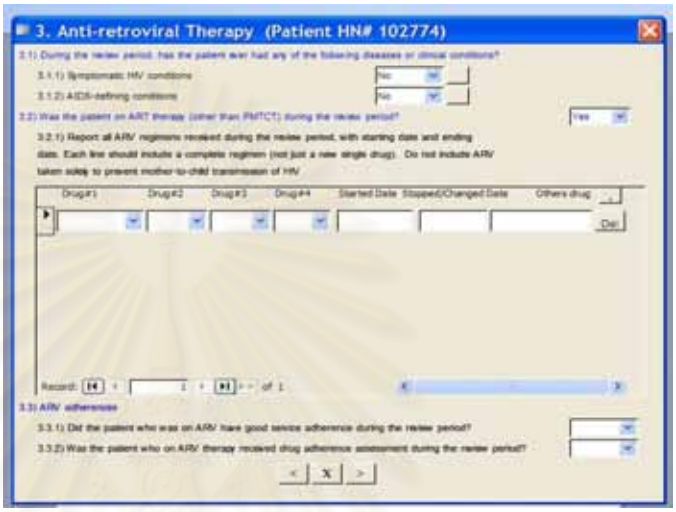


Indicators entry

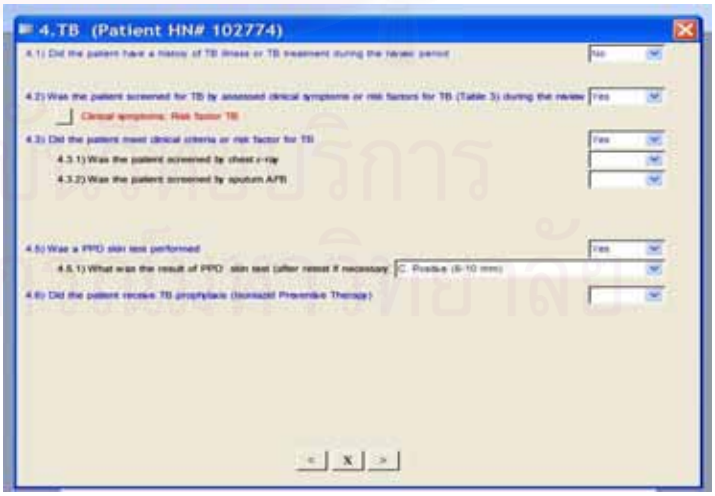


OI prophylaxis

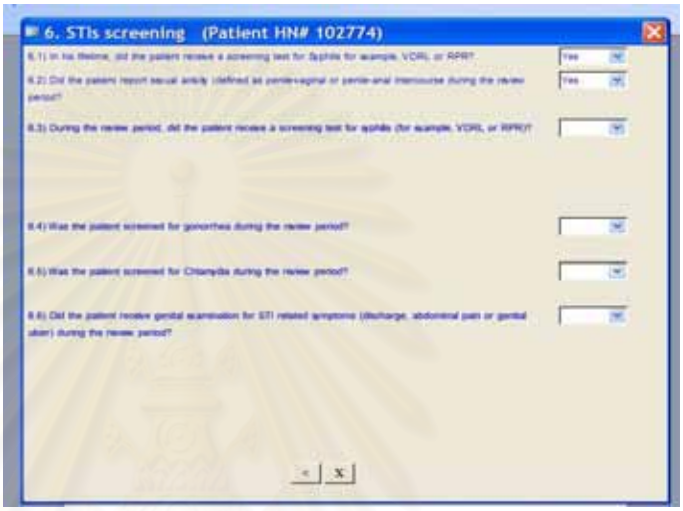
Anti-retroviral Therapy



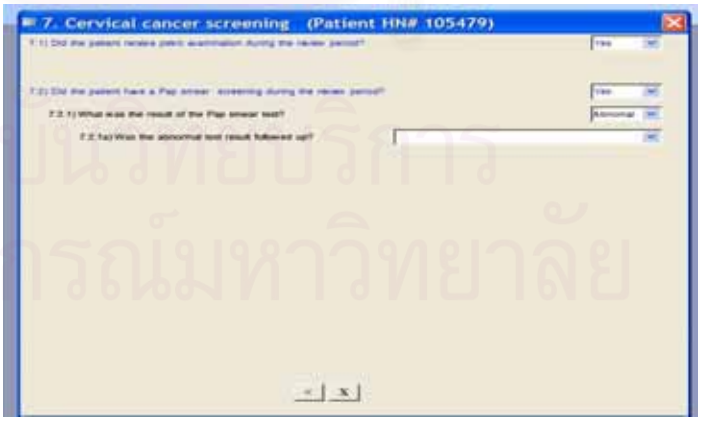
TB screening



STIs screening

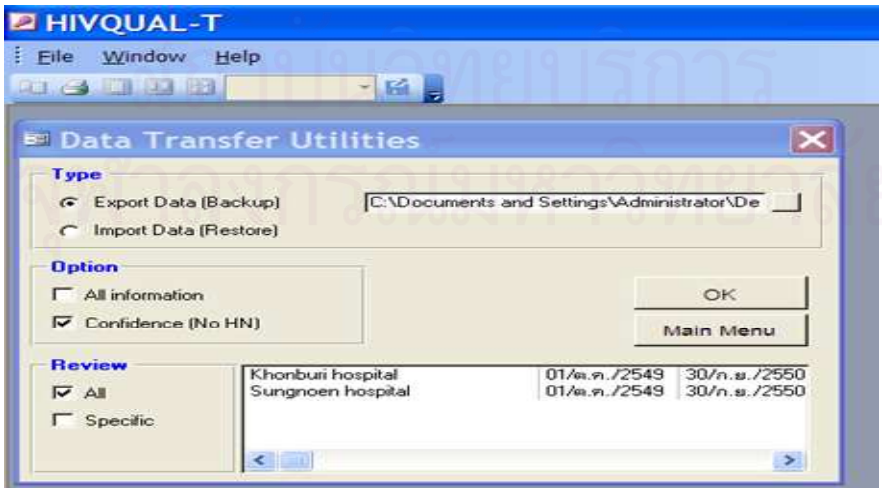


Cervical cancer screening



Report Generator

Data Transfer



BIOGRAPHY

Miss Khanidtha Wanleepong was born on August 14, 1974 in Saraburi, Thailand. She received her Bachelor's degree of Science in Pharmacy in 1997 from the Faculty of Pharmaceutical Sciences, Khon Kaen University. She currently works at Sungnoen Hospital, Nakhonratchasima.