FACTORS ASSOCIATED WITH THE RETENTION IN CARE AFTER DELIVERY AMONG THAI MOTHERS WITH HIV

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THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY (NURSING) FACULTY OF GRADUATE STUDIES MAHIDOL UNIVERSITY 2014

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entitled

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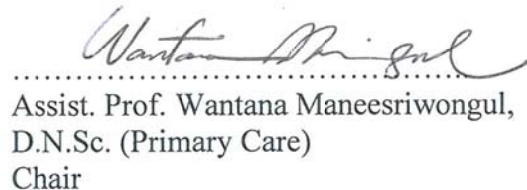
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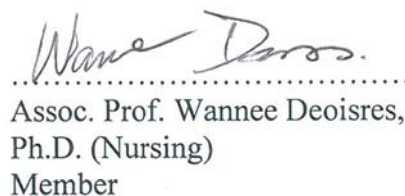
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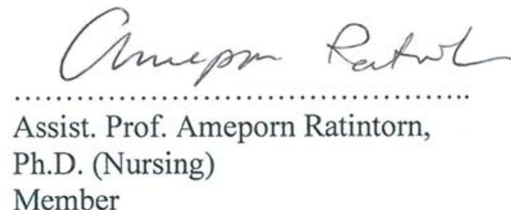
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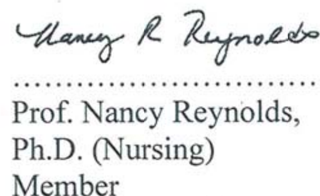
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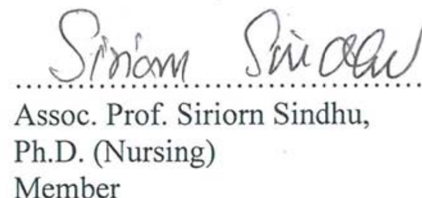
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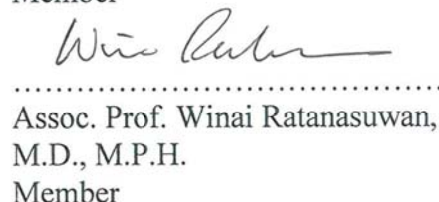
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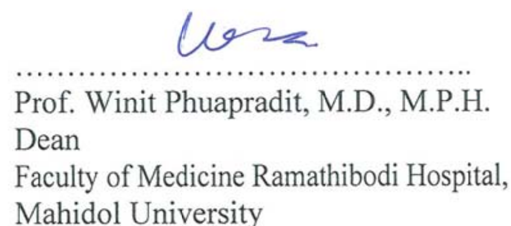
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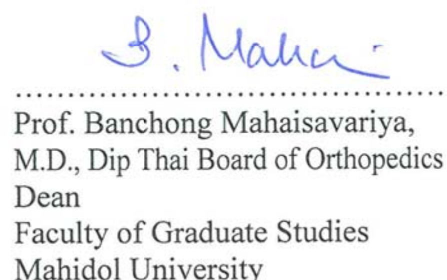
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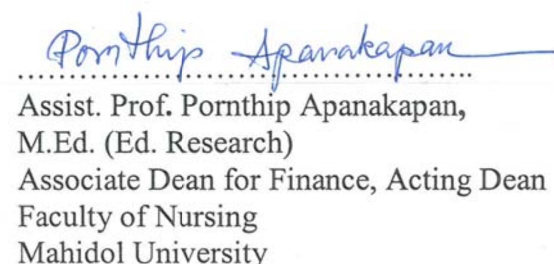
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FACTORS ASSOCIATED WITH THE RETENTION IN CARE AFTER DELIVERY AMONG THAI MOTHERS WITH HIV

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ABSTRACT

The objectives of this retrospective study were to study the prevalence of retention in care and examine the predictive factors of retention in care during the first year after delivery among Thai mothers with HIV. This study group was comprised of 185 mothers with HIV infection who gave birth at Siriraj Hospitals during the period from January 1, 2010 to December 31, 2012. The participants were recruited from the Gynecologic Infectious Diseases and Female Sexually Transmitted Disease Unit, Department of Obstetrics and Gynecology and HIVoutpatient clinic, Department of Preventive and Social Medicine, Faculty of Medicine Siriraj Hospital between March 1, 2014 and July 31, 2014. Data were collected through the distributions of a self-administered questionnaire and telephone interviews. Data were analyzed using frequencies, percentages, means, standard deviation, and binary logistic regression analysis.

Results showed that more than three forth (77.3%) of the participants had retention in care at the HIV clinics while only 46.5% retention in care at the Obstetrics and Gynaecology clinics. The top five reasons for non-retention in care included inconvenience, no antenatal care (ANC) or ANC at other hospitals and/or no postpartum examination, a lack of knowledge about benefits of their health coverage, no appointment from physician, and non-disclosure their HIV status. The results of multiple logistic regression analysis revealed that the predictive factors of retention in care at HIV clinics during the first year after delivery among Thai mothers with HIV were health coverage (OR=46.32, 95%CI = 9.86-217.71, $p<.001$), referral (OR=8.90, 95%CI = 2.44-32.44, $p<.01$), and perceived health status (OR = 1.50, 95% CI = 1.04-2.17, $p<.05$). These factors could explain the variance of retention in care at HIV clinic approximately 80%, with an overall correct prediction of 93%. The predictive factors of retention in care at OB&GYN clinics were referral (OR=3.80, 95%CI = 1.81-7.95, $p<.001$) and disclosure of HIV status (OR=2.46, 95%CI = 1.04-5.80, $p<.05$). These factors could explain the variance of retention in care at OB&GYN clinics approximately 14%, with an overall correct prediction of 63.2%.

The results suggested that health care providers should provide the effective referral system to refer patients to their registered hospital and improve benefits of health coverage to be relevant to patients' need. The health care providers should provide training course or work-shop for patients' self-disclosure to add patients' knowledge and practice and to promote patients' self-disclosure. Moreover, policy makers should provide opportunities for both patients perceived healthy and unhealthy in order to monitor their health equally.

KEY WORDS: RETENTION IN CARE / HEALTH COVERAGE / REFERRAL / MOTHERS WITH HIV / PERCEIVED HEALTH STATUS

178 pages

ปัจจัยที่เกี่ยวข้องกับการคงอยู่ในการดูแลสุขภาพของมารดาหลังคลอดที่ติดเชื้อเอชไอวี

FACTORS ASSOCIATED WITH THE RETENTION IN CARE AFTER DELIVERY AMONG THAI MOTHERS WITH HIV

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บทคัดย่อ

การวิจัยครั้งนี้เป็นเป็นการศึกษาแบบย้อนหลัง มีวัตถุประสงค์เพื่อศึกษาสำรวจความชุกของการคงอยู่ในการดูแลสุขภาพ เพื่อทดสอบปัจจัยที่สามารถทำนายการคงอยู่ในการดูแลสุขภาพในช่วง 1 ปีแรกหลังคลอดบุตรของมารดาที่ติดเชื้อเอชไอวี กลุ่มตัวอย่างที่ใช้ในการศึกษาครั้งนี้คือ มารดาติดเชื้อเอชไอวีที่มาคลอดบุตรที่โรงพยาบาลศิริราช ระหว่างวันที่ 1 มกราคม พ.ศ. 2553 ถึง 31 ธันวาคม พ.ศ. 2555 จำนวน 185 ราย โดยเก็บข้อมูลที่หน่วยตรวจโรคติดเชื้อทางนรีเวชและเพศสัมพันธ์สตรี ภาควิชาสูติศาสตร์-นรีเวชวิทยา และหน่วยตรวจโรคเอชไอวี ภาควิชาเวชศาสตร์ป้องกัน ร.พ. ศิริราช ระหว่างวันที่ 1 มีนาคม พ.ศ. 2557 ถึง 31 กรกฎาคม พ.ศ. 2557 เก็บรวบรวมข้อมูลโดยการตอบแบบสอบถามและสัมภาษณ์ผ่านทางโทรศัพท์ วิเคราะห์ข้อมูลโดยการแจกแจงความถี่ ร้อยละ ค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน และการวิเคราะห์ถดถอยลอจิสติก

ผลการวิจัยพบว่า 77.3% ของแม่ที่ติดเชื้อเอชไอวีคงอยู่ในการดูแลสุขภาพที่คลินิกเอชไอวี ขณะที่ 46.5% ของแม่ที่ติดเชื้อเอชไอวีคงอยู่ในการดูแลสุขภาพที่คลินิกสูติศาสตร์-นรีเวชวิทยา เหตุผลสำคัญ 5 อันดับแรกที่มารดาติดเชื้อเอชไอวีไม่สามารถคงอยู่ในการดูแลสุขภาพ ได้แก่ ความไม่สะดวก การไม่ได้ฝากครรภ์ ขาดความรู้เกี่ยวกับสิทธิการรักษาพยาบาล แพทย์ไม่ได้มีนัดตรวจ และไม่เปิดเผยการติดเชื้อเอชไอวี เมื่อวิเคราะห์ถดถอยลอจิสติกพบว่า ปัจจัยที่สามารถร่วมทำนายการคงอยู่ในการดูแลสุขภาพของมารดาที่คลินิกเอชไอวี ได้แก่ หลักประกันทางสุขภาพ (OR=46.32, 95%CI = 9.86-217.71, p<.001) การส่งต่อ (OR=8.90, 95%CI = 2.44-32.44, p<.01) และการรับรู้สภาวะสุขภาพ (OR = 1.50, 95% CI = 1.04-2.17, p<.05) โดยปัจจัยทั้งสามร่วมกันอธิบายโอกาสในการคงอยู่ในการดูแลสุขภาพได้ร้อยละ 80 และสามารถพยากรณ์การคงอยู่ในการดูแลสุขภาพได้ถูกต้องร้อยละ 93 ปัจจัยที่สามารถทำนายการคงอยู่ในการดูแลสุขภาพของมารดาที่คลินิกสูติศาสตร์-นรีเวชวิทยา คือ การส่งต่อ (OR=39.85, 95%CI = 14.89-106.65, p<.001) และการเปิดเผยการติดเชื้อเอชไอวี (OR=2.46, 95%CI = 1.04-5.80, p<.05) โดยปัจจัยทั้งสองร่วมกันอธิบายโอกาสในการคงอยู่ในการดูแลสุขภาพได้ร้อยละ 14 และสามารถพยากรณ์การคงอยู่ในการดูแลสุขภาพได้ถูกต้องร้อยละ 63.2

ข้อเสนอแนะจากงานวิจัย ผู้ให้การดูแลสุขภาพควรจัดให้มีระบบการส่งต่อผู้ป่วยที่มีประสิทธิภาพไปยังสถานบริการพยาบาลที่ผู้ป่วยมีสิทธิหลักประกันสุขภาพ และปรับปรุงบริการของสิทธิประโยชน์ชนิดต่างๆ ให้สอดคล้องกับความต้องการของผู้ป่วยโดยรวมอย่างแท้จริง นอกจากนี้ยังควรจัดให้มีหลักสูตรอบรมเพิ่มความรู้และแนวทางปฏิบัติในการเปิดเผยตนเองให้กับผู้ป่วย นอกจากนี้ผู้กำหนดนโยบายทางสุขภาพควรให้โอกาสผู้ป่วยทั้งในรายที่รับรู้ว่ามีสุขภาพดีและสุขภาพไม่ดีเข้ารับการติดตามโรคแบบเท่าเทียมกัน

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CHAPTER I
INTRODUCTION

1.1 Background and Significance of the Study

Postpartum mothers with HIV need to remain in health care to receive medical check-ups regularly. Regular medical care ensures that people with HIV infection have their disease monitored and it gives such individuals the opportunity to receive antiretroviral therapies (ARTs) for prolonging life, improving general health and alleviating suffering among people living with HIV (Lee, Karon, Selik, Neal, & Fleming, 2001). The standard of care determines that medical management should begin immediately after HIV diagnosis because newly diagnosed patients frequently delay or fail to establish out-patient HIV care (CDC, 2006). In mothers with HIV, most of them are first detected with HIV status at prenatal clinics (Levy, 2009; The Bureau of Epidemiology, 2010). Thus, postpartum care is a key entry point for them to receive a broad range of health promotion and an opportunity to link the women to a HIV clinic and to maintain that link (Kranzer et al., 2010; Peltzer, Mosala, Dana, & Fomundam, 2008; USAID, 2007).

Retention in care is keeping patients in clinical visits or health service use (Kempf et al., 2010; McKinney et al., 2002). There are three important goals for patients with HIV and the health service system. For people on ART, retention in care is needed to prevent medication interruptions (Tungsiripat, Drechsler, & Aberg, 2007), maintain immunologic levels (Naar-King et al., 2007), prevent HIV drug resistance, and monitor the effects of therapy (Auswinporn et al., 2002). For people without ART indications, continuous monitoring is needed to prevent advanced stages of the disease (Girardi et al., 2004). Moreover, people with HIV infection benefit from counseling and other ancillary services that are provided at regular medical visits such as health education to prevent them engaging in risk behaviors and reducing transmission to other people (Das et al., 2010; Granich, Gilks, Dye, De Cock, & Williams, 2009; Montaner et al., 2010). Outside Thailand, people with HIV infection who are retained

in health care also receive other services such as mental health care, case management services, food/nutrition counseling, complementary services, child care and housing arrangements (Bradford, Coleman, & Cunningham, 2007; Lo, MacGovern, & Bradford, 2002; Rumptz et al., 2007). For the health service system, retaining people with HIV infection has the potential to help contain health care costs by improving HIV-specific health outcomes (Tripathi, Youmans, Gibson, & Duffus, 2011) and reducing emergency department visits and hospitalizations (Cree, Bell, Johnson, & Carriere, 2006; Gill, Mainous III, & Nsereko, 2000).

In November 2012, the last report of the epidemiological surveillance of the Thai Bureau of Epidemiology (BOE) Ministry of Public Health, showed 276,947 patients living with HIV/AIDS. Most patients were aged 15-45 years (65%) and a plurality were laborers (45.6%). The main risk factors of HIV infection was sexual intercourse (85%). The HIV infection ratio of female to male equal 1.5:1 (Bureau of Epidemiology, 2014). The prevalence of new HIV-infected cases was approximately 1% of all people with HIV screening. From 2007 to 2013, the seropositive rate of pregnant women slightly declined from 0.84 to 0.57. By the last three years, the average prevalence of HIV in pregnant women has stabilized at around 0.57 percent. During the same period, the prevalence of pregnant women with HIV in Bangkok was increased. The lowest HIV infection rate was 0.61% for pregnant women in 2008 and the highest was 0.94% in 2012. Although HIV infected rates of pregnant women were less, the greatest number of HIV detections were in pregnant women when compared with other populations with HIV screening such as blood donors, injecting drug users, male and female sex workers, males with sexually transmitted disease (STD) screening, and fishermen (Bureau of Epidemiology, 2014). Moreover, HIV-infected teenage pregnancy (aged 15-19 years) was also increase (UNAIDS, 2012).

The National Guidelines on HIV/AIDS Diagnosis and Treatment for Thai pregnant women with HIV follows the World Health Organization (WHO) guidelines that aim to reduce mother-to-child transmission of HIV. All pregnant women with HIV receive routine antenatal service and a package to prevent mother-to-child transmission (PMTCT). The PMTCT package emphasizes individual and couple counseling as well as antiretroviral drug prescription. In the early stage of the PMTCT project, azidothymidine (AZT) or zidovudine (ZDV) monotherapy was widely used

but the rate of mother to child HIV transmission was still high with reports of about 19-25 percent of children being infected (Kanshana & Simonds, 2002). Afterwards, nevirapine (NVP) was combined with AZT; this protocol was able to reduce the HIV infection rate in children to 2 percent (Lallemant et al., 2004). However, there were reports about NVP resistance in Thailand (Chalermchockcharoenkit et al., 2009) and other countries (Eshelman et al., 2001). Therefore, to reduce NVP mutation and the HIV transmission rate after delivery, the WHO guidelines recommend HAART drug administration (AZT + lamivudine (3TC) + lopinavir/ritonavir (LPV/r). The Thai Ministry of Public Health first implemented highly active antiretroviral therapy (HAART) in October 2011 (Phanuphak, 2011). The HAART regimen covers approximately 95% of the total pregnant women with HIV who have antenatal care each year and reduced the HIV vertical transmission rate to only 0.84% (AIDS Control Division, 2008; Department of Health, 2011). However, in Thailand, available research on the adverse effects of HAART in the mothers with HIV after delivery is limited. However, one study has reported that use of protease inhibitor (PI)-based HAART in the pregnant women was associated with an increase of gestational diabetes mellitus (GDM) and altered lipid metabolism (Wetchitthichareon & Asavapiriyanont, 2013). Studies about the long-term effects of HAART have shown that patients taking HAART have increased incidences of rash and hypersensibility reactions (Phanuphak et al., 2007), dyslipidemia (Lapphra, Vanprapar, Phongsamart, Chearskul, & Chokephaibulkit, 2005), insulin resistance and pancreatitis (Dejkhamron, Unachak, Aurpibul, & Sirisanthana, 2014), cardiovascular disease (Edwards-Jackson et al., 2011), liver failure, renal failure (Chaisiri, Bowonwatanuwong, Kasettratat, & Kiertiburanakul, 2010), and peripheral neuropathies (Konchalard & Wangphonpattanasiri, 2007). Therefore, the adverse effects and HAART toxicities, such as viral load, cholesterol, triglyceride, as well as liver and renal function test, should be monitored in postpartum mothers with HIV. The mothers should have regular health check-ups and linkage to HIV clinic to prevent opportunistic infection (OI)-related morbidity and mortality.

Previous studies have shown that CD4 counts decreased during the postpartum period. For examples, in the AZT monotherapy era, Chalermchockcharoenkit and colleagues (2006) reported the CD4 count of mothers

with HIV as ranging from 9 to 1608 cells/mm^3 (mean = 397 cells/mm^3) at 4-6 weeks after delivery; 14.8% of the participants had CD4 counts less than 200 cells/mm^3. In another study, a rapid decline of immunology in HIV-positive Thai pregnant women with short course AZT could be found as early as two months after child delivery (average 12.07 months); 15.6% of them had immune deficiency during the first two years after giving birth (Kongyu, 2006). In Thailand, in current research there is still a lack of monitoring of HAART use in mother after childbirth. However, recent studies in Africa report that pregnant women with HIV who received HAART during pregnancy were more likely to have CD4 counts of less than 350 cells/mm^3 within 24 months (Ekouevi et al., 2012; The Kesho Bora Study Group, 2012). Low immunity level is a risk for morbidity or opportunistic infections (OIs) such as Tuberculosis, *Pneumocystis carinii* pneumonia (PCP), Cryptococcal Meningitis, Candidiasis, recurrent Pneumonia, Cerebral Toxoplasmosis, HIV Encephalopathy, CMV Retinitis (Bureau of Epidemiology, 2007), and gynaecological conditions such as cervical cancer from Human Papilloma Virus (HPV) (Chalermchockcharoenkit, Sirimai, & Chaisilwattana, 2006; Sirimai, Chaisilwattana, Sutchritpongsa, & Laothong, 2003).

During postpartum, mothers should receive not only routine postnatal care but also other comprehensive care to promote retention in care such as the provision of comprehensive health education to emphasize the importance of continuing care after HIV infection. After that, the women should be referred to ID physicians for follow-up after discharged from PMTCT services. The benefits of being in the care of ID physicians are to continue ART initiated during antenatal care, to start timely of ART for women when eligible, to monitor immunologic and virologic level throughout opportunistic infection for care and treatment (World Health Organization, 2011).

In the literature review on HIV retention in care, studies about the evolution and progression of interventions to increase the rate of retention in care are identified. For example, several studies have reported intervention strategies to facilitate retention in care at both individual and structural-system levels. Individual retention strategies included accompanying patients to medical appointments (Bradford, Coleman, & Cunningham, 2007), providing transportation (Andersen et al., 2007), conducting intensive outreach (e.g., using a mobile van to provide services in the community) (Purcell et al., 2007), providing bilingual and culturally competent

care (Enriquez, Farnan, & Cheng, 2008), and reminder materials or calls (Gardner et al., 2012). Retention strategies have dealt with aspects of the structural-system level such as advocating for access to resources to address financial and structural barriers (Rajabiun, Cabral, Tobias, & Relf, 2007), reducing HIV-related stigma in the community (Naar-King et al., 2007), appointment tracking systems and flexible clinic hours (Giordano, 2011), using health department surveillance data to track persons missing in care (Hall et al., 2012), and co-locating services or having medical care and social services in the same agency (Davila et al., 2013; Hightow-Weidman, Smith, Valera, Matthews, & Lyons, 2011). Studies in Kenya and Tanzania have shown that obstacles to retention were the quality of post-test counseling, poor patient reception at clinics, frequency of clinic appointments, different appointments for mother and child, inconsistent linkage data (Wachira et al., 2014), poor communication between patients and healthcare workers, care without sympathy, and unfriendly medical personnel (Layer et al., 2014). In conclusion, the researches on retention in care outside Thailand are continuingly developed through a variety of methods to retain the patient in the health service system. In Thailand, a few study is found in this topic that is in early stage of the research.

There are only two studies that report specifically on short-term health monitoring in Thai mothers with HIV infection. Firstly, Chalermpichai and colleagues (2008) studied the prevalence of loss to postpartum follow-up in mothers with HIV. They showed that approximately 61% of mothers with HIV who delivered at Siriraj Hospital, Bangkok came back to the postpartum clinic at 6 weeks after giving birth. Secondly, Kongyu (2006), whose study focused on Phetchaburi and Ratchaburi provinces, reported that only 38.5% of the mothers with HIV had regular interval check-ups during the two years after delivery. It is possible that most statistics about retention in care of the mothers are included in studies of other populations. In Thailand, a study showed that persons with HIV infection returned to treatment when they had CD4<200 cell/mm^3 (Thanawuth & Chongsuvivatwong, 2008). In conclusion, the issue about retention in care in Thai mothers with HIV infection should be closely monitored to be able to follow the stages of disease and to access to treatment as soon as possible when they needed.

The literature review shows that factors of the health service system (i.e. health coverage, access to health care, receiving HIV care, and referral) and patient factors (i.e. attitudes toward health care providers, stigma, disclosure of HIV status, and perceived health status, perception of severity of HIV/AIDS, family responsibility, and social support) are associated with retention in care after delivery. Regarding health coverage, according to the National Statistical Office (2013), 99.12 percent of Thai people are registered in Thai health coverage including 74.74% with universal coverage, 16.56% in social security scheme, 7.82% with civil servant medical benefits and local government benefits and 0.75% with private health insurance. Although health coverage reimburses patients for the cost of HIV care and treatment to reduce out-of-pocket for medical expense, several patients might not use health coverage (Limwattananon et al., 2011). For instance, first, patients with HIV who are mobile workers may live far away from their registered hospital, and thus are not able to access or be retained in HIV care (Wattradul, 2002). Second, patients who live near their registered hospital (Sangchart, Hanucharurnkul, Rujkorakarn, Euswas, & Yoddumnern-Attig, 1999) might be afraid to use their health care coverage because of fears of HIV disclosure (Li et al., 2010). Moreover, patients have to pay by themselves for excess health care costs of health coverage allocation (Social Security Office, 2011) including laboratory testing costs, out-patients' fees (90 baht), and the co-payment cost (30 baht) (Himakalasa, Grisurapong, & Phuangsaichai, 2013). In conclusion, whether they use health coverage or not, there are still barriers to retention in care in the patients with HIV. If the patient can overcome those obstacles, health coverage would facilitate retention in care after delivery.

About access to health care, several studies in Thailand have specified that cost remained a significant barrier to starting HIV care and treatment (Himakalasa, Grisurapong, & Phuangsaichai, 2013; Kitajima et al., 2005; Lertpiriyasuwat et al., 2004). Some patients had to travel a long distance from their home to the health facility so it was inconvenient for them to go to the hospital. They could not access or be retained in HIV care (Wattradul, 2002). It is possible that patients with HIV find it difficult to get treatment from HIV or infectious disease (ID) specialists because of the imbalance proportion between ID specialists and patients with HIV (Aung-Prapan et al., 2004; Pramualratana & Wibulpolprasert, 2002; Wibulpolprasert & Pengpaibon,

2003). Moreover, a study has indicated that general physicians (GP) provided substandard care and treatments. The naive patients with HIV infection may receive advanced drug regimens that are inappropriate to their stage of disease or drug resistance history (Voramongkol, 2011). In conclusion, several issues about perceived problems with access, such as cost of HIV care and treatment, travel inconvenience, and difficulty in accessing HIV specialists or ID physicians, affected retention in care in patients with HIV.

In regard to receiving HIV care, a variety of methods of HIV nurses, such as counseling and mobile phone messaging services (Raper, 2014), providing step-up counseling on antiretroviral (ARV) adherence and other issues (Scanlon & Vreeman, 2013), communication with patients between visits and serving as patient advocates (Braitstein et al., 2012), nurse-centered antiretroviral treatment (ART) prescription (Shumbusho et al., 2009), linkage or ancillary services to decrease barriers to health care (Andersen et al., 2007; Andersen, Smereck, Hockman, Ross, & Ground, 1999), have been pursued to assist patients with HIV to be retained in health care. These nursing services can effectively assist the patient in retention or re-engagement in care and thereby reduce early mortality (Callaghan, Ford, & Schneider, 2010). Another factor of the health service system is referral; the mothers with HIV need to be referred to HIV care and treatment units. In Thailand, although there are lines of referral in the health service system including primary, secondary, and tertiary hospitals, there is a lack collaborative and proactive services to retain the mothers after giving birth in the health care system for long term health monitoring (Sirinirund et al., 2008; Voramongkol, 2011). In the United Stated, referrals have been found to be necessary for patients with HIV to access antiretroviral drug treatment, sub-speciality care, and to maintain service; referrals have had a positive influence on retention in HIV medical care (Andersen et al., 2007; Bradford, Coleman, & Cunningham, 2007; Enriquez, Farnan, & Cheng, 2008; Wohl, A. R. et al., 2011)

Several patient factors might be facilitators of and barriers to retention in care of mothers with HIV; among these are attitudes toward health care providers, stigma, disclosure of HIV status, perceived health status, perception of severity of HIV/AIDS, family responsibility, and social support. Regarding attitudes toward health care providers, most studies about attitudes in Thailand have focused on

attitudes of health care providers toward patients with HIV. Most health care providers had negative attitudes to people living with HIV (Benjakul, 2006; Chan, Stoove, Sringernyuang, & Reidpath, 2008). The negative attitudes of health care providers are reflected in the negative service behaviors such as denying treatment for patients with HIV (Kersey-Matusiak, 2013; Kunstadtera, 2013). If the patients perceived this behavior, they refused HIV treatment. Studies in the United States have shown that attitudes toward health care providers were significantly related to greater out-patient appointment attendance at HIV clinics (Bodenlos et al., 2007; Kempf et al., 2010). Moreover, attitudes could predict greater adherence to treatment (Godin, Cote, Naccache, Lambert, & Trottier, 2005). Regarding stigma, stigma is still a barrier to access to and retention in care because of the fear of exposure and of personal or family humiliation (Fongkaew et al., 2013). This is especially so among females (Li, Sung-Jae, Thammawijaya, Jiraphongsa, & Rotheram-Borus, 2009). Women with HIV feared negative reactions from their then current sex partner (Kumar, Waterman, Kumari, & Carter, 2006; Thanawuth & Chongsuvivatwong, 2008). Similarly, studies in several countries have suggested that HIV-related stigma may be a more salient barrier to seeking HIV-related services (Thanh, Moland, & Fylkesnes, 2012), a constraint to accessing PMTCT (Dahl, Mellhammar, Bajunirwe, & Bjorkman, 2008; Dennison et al., 2008; Matovu & Makumbi, 2007), and it may hamper successful retention in care (Johnson et al., 2009; Rajabiun, 2006; Relf, Dekker, & Mallinson, 2003).

In regard to disclosure of HIV status, disclosure of HIV status might bring more difficulties to the patients' lives and to their infants. Most mothers want to keep secrets from others, but they must expose themselves to health service providers when they gain entry to a HIV clinic (Ghimire & van Teijlingen, 2009). Therefore, if the mothers did not want to disclose their HIV status, they were non-retention in care care (Albrecht et al., 2006; Tonwe-Gold et al., 2009; Wohl, Amy Rock et al., 2011). While, the mothers who had disclosed their HIV status were more likely to visit clinics (Kumar, Waterman, Kumari, & Carter, 2006) and adhere to antiretroviral therapy programs (Charurat et al., 2010; Li et al., 2010). Regarding perceived health status, most asymptomatic patients with HIV perceived themselves as healthy (Boyles, Wilkinson, Leisegang, & Maartens, 2011; Giordano, Hartman, Gifford, Backus, & Morgan, 2009) and having a low risk for opportunistic infection (Mimiaga et al.,

2009). They might feel that retention in care after delivery is unnecessary. These patients were more likely to wait until their CD4 or viral load got worse before being retained in treatment (Johnson et al., 2009; Sinpisut & Suttharangsee, 2003; Thanawuth & Chongsuvivatwong, 2008). Therefore, perceived health status is associated with retention in care.

Relating to perception on severity of HIV/AIDS, Groenewold and colleagues (2006) define perceived severity as a person's beliefs about the seriousness of contracting the health condition and its consequences. A study in Thailand showed that the perception on severity of HIV/AIDS was a positive factor for retention in HIV/AIDS care (Chamroonsawasdi, Insri, & Pitikultang, 2011). This is similar to several studies in other countries such as Uganda (Pariyo et al., 2009), Tanzania (Roura et al., 2009; Wringe et al., 2009), South Africa (Lessells, Mutevedzi, Cooke, & Newell, 2011), and the United Stated (Brown et al., 2006). On the subject of family responsibility, according to Thai culture most family responsibilities such as housework, economic activities, child health care, and psychosocial and physical care of family members are female burdens. These responsibilities might limit the mothers' opportunities for HIV care and treatment and lead to them not keeping to their schedule of medical appointments (MacLachlan et al., 2009; Ogden, Esim, & Grown, 2006; Rajaraman, Russell, & Heymann, 2006).

Regarding social support, social support is an omnibus concept that comes in different dimensions, forms, and ways. For HIV positive patients, social support may change over time depending on their disclosure of HIV status, their situation, and/or the level of closeness of their interpersonal relationships (Kirksey, Hamilton, & Holt-Ashley, 2002). Women are more likely than men to need social support (Sherer et al., 2002). Several studies in developing countries have shown that a high level of social support of spouse, family, and friends is most important as an enabling factor in adherence to HIV care and treatment (Chinkonde, Sundby, & Martinson, 2009; Creek et al., 2009; Lifson et al., 2013; Nassali et al., 2009; Sinpisut & Suttharangsee, 2003; Tlebere et al., 2007). This is contrary to the situation in developed countries such as the United States; a study from Texas of people newly diagnosed with HIV infection reported that social support did not predict retention in HIV care because most of them

needed only tangible support (i.e. the provision of material aid and behavioral assistance) (Kelly, Hartman, Graham, Kallen, & Giordano, 2014).

In conclusion, retention in HIV care of mothers remains a major challenge in Thailand because HIV follow-up visits are crucial for health monitoring of clinical HIV progression, drug toxicity, and for the diagnosis and treatment new opportunistic infections and other concurrent diseases that may occur. As nurses and health care providers, the important goal of caring for mothers with HIV infection is not only the reduction of the HIV mother to child transmission rate; we should also value saving women's lives as an equal priority to decreasing transmission to infants. Therefore, nurses should help patients to find appropriate facilities and to overcome barriers to retention in the health service system. Those factors can reduce emergency cares and hospitalizations. The purposes of this study are to study the prevalence of retention in care and examine the predictive factors of retention in care at the first year after delivery among Thai mothers with HIV.

1.2 Conceptual Framework of the Study

From the literature review, retention in care is influenced by factors of the health service system and patients. Both the health service system and patient factors must be integrated to create or redesign a health care system to achieve optimal health outcomes for HIV conditions (World Health Organization, 2002). Therefore, the variables of health service system and patient factors that are strongly associated with retention in care in Thai health system that were selected for this study are as follows: *1) Health service system factors:* health coverage, access to health care, receiving HIV care, and referral; *2) Patient factors:* attitudes toward health care providers, stigma, disclosure of HIV status, perceived health status.

The health coverage for Thai persons with HIV includes civil servant medical benefit scheme (CSMBS), social security scheme (SSS), and universal coverage (UC). The CSMBS covers all of the laboratory and ARV drug costs (Kitajima et al., 2005). Moreover, the patients can choose government hospitals for HIV treatment by themselves (Limwattananon et al., 2011). The SSS provides health

care services with all costs covered at registered contractor hospitals according to standard treatment guidelines. Patients with HIV under the SSS can change their registered hospital only one time per year (Social Security Office, 2011). If they have a job transition or change of address, they face barriers to retention in care. At present, regarding the health benefits of UC, the patients can obtain health care services both from registered contractor hospitals and other hospitals. If the patients enroll at a hospital or health center which is not their registered contractor hospital, they must pay for other costs such as liver and renal function test, lipidemia screening, urinalysis, chest X-ray etc. by themselves (National Health Security Office, 2013). Patients with HIV still have the limitations of health service utilization from their health coverage (Limwattananon et al., 2011; Wattradul, 2002), but the advantages of health coverage are that the patients are helped with co-payments, out-of-pocket fees are reduced, and the range of services needed to keep people with HIV engaged in care and in treatment are provided (Crowley, 2013; Decroo et al., 2013; Naar-King et al., 2007; Richard, Witter, & Brouwere, 2010). Regarding access to health care, access is a critical concept in health services research. Cunningham and colleagues (1999) applied this access concepts to assess perceived problems with access by using subjective ratings with four subscales consisting of affordability (costs of services or ability to pay), availability (sufficiency of health care services and needs of health service use in emergency, hospital, and urgent care), convenience (easy reach through location convenience), and access to specialists. Several issues were found that affected the patients' health service utilization such as costs of HIV treatment (Himakalasa, Grisurapong, & Phuangsaichai, 2013; Kitajima et al., 2005; Lertpiriyasuwat et al., 2004), long distance between home and health care setting (Wattradul, 2002), a lack of HIV specialists or ID physicians especially in rural areas (Aung-Prapan et al., 2004; Pramualratana & Wibulpolprasert, 2002; Wibulpolprasert & Pengpaibon, 2003), and substandard health service provision (Scott et al., 2009; Voramongkol, 2011). Therefore, the problem of access to health care might impede retention in care

On the subject of receiving HIV care, appropriate service provision for people with HIV infection should conform to core competencies of HIV nurse. According to Songwathana (2011) proposed that HIV nurses should have 4 core competencies for caring for patients with HIV/AIDS consisting of health education

and consultation, holistic care, coordination and linkage of health services, and management skills as a care team manager and change agent. Therefore, the patients with HIV should receive: first, health education and consultation as individual health services are an important part of HIV care and treatment services; Second, caring for patients as a whole person includes the physical, emotional, mental and spiritual dimensions of health. In addition to providing ARV drugs and other medical interventions, holistic care may involve a range of complementary therapies such as nutritional support and exercise (CATIE, 2004); Third, the patients receive care from other related units through the coordinating nurse (Andersen et al., 2007; Andersen, Smereck, Hockman, Ross, & Ground, 1999). Fourth, the patients get help to their initial health care appointments, to learn how to navigate the health service system, and to establish HIV out-patient care after delivery (Bradford, Coleman, & Cunningham, 2007). Referral means a healthcare process that results in the transfer of patient care from a referring provider to a secondary service or provider, and its transfer back when and if appropriate (Esquivel, 2008). Referral is failure to establish outpatients care and retention in care for patients with HIV because of a lack of connection to HIV medical care and outreach service coordination (Cabral et al., 2007; Zittel-Palamara et al., 2005). Moreover, a systematic gap focuses on providing services only to those who have already been treated with antiretroviral drugs. Therefore, the asymptomatic or ARV-ineligible patients with HIV might drop out of care after presenting to referral (Anne et al., 2010; Otieno et al., 2010).

Several patient factors might be facilitators of and barriers to retention in care in mothers with HIV including attitudes toward health care providers (HCPs), stigma, disclosure of HIV status, and perceived health status. According to Bodenlos and colleagues (2004), attitudes toward health care providers are derived from the assessment and interpretation of patients on their environment and on their interactions with their HCPs; this assessment and interpretation is based on the individual's past experiences or expectations associated with disease specific factors. An important part of this is the stigmatization of HIV/AIDS that the patients with the disease may feel from with the entire health care team (i.e., physicians, nurses, counselors, dieticians). That may have a greater impact on attitudes toward HCPs. The concepts dealing with attitudes toward HCPs include professionalism and emotional support.

Professionalism aims to create a situation in which patients' perception as a whole of the health care team will be marked by a feeling that the team has knowledge, effort, motivation, and caring (Bodenlos et al., 2004). Attitudes toward HCPs are shaped by personal beliefs and experiences from prior health service utilization (Jang, Kim, Hansen, & Chiriboga, 2007). Negative attitudes toward the provider characteristics have acted as a barrier to the use of health services (Burke et al., 2003; Scheppers, van Dongen, Dekker, Geertzen, & Dekker, 2006) while more positive attitudes toward health care providers have been significantly related to greater out-patient appointment attendance at HIV clinics (Bodenlos et al., 2007; Kempf et al., 2010).

Stigma refers to the mothers' perception about societal attitudes toward people with HIV and their self-awareness of being infected with HIV. Stigma is undoubted with respect to overt negative attitudes, desire for social distance, and actual behavioral discrimination. Stigma has been accepted widely as a serious obstacle to the success of HIV/AIDS prevention programs such as PMTCT service (Reidpath & Chan, 2005) and leads to violations and deprivations of several rights including the right to health, treatment, information, privacy, employment, education, etc (Hanh, Rasch, Chi, & Gammeltoft, 2009; UNAIDS, 2005). Stigma plays a role in shaping the care and/or lack of care available to people living with HIV virus even in their own communities (Ogden, Esim, & Grown, 2006). Although studies in Nigeria (Adebayo et al., 2011) and Zimbabwe (Genberg et al., 2008) show trends to a more accepting attitude towards people living with HIV/AIDS (PLHA) (Adebayo et al., 2011), in Thailand stigma is still a barrier to access and retention in care because of fear of exposure and personal or family humiliation (Fongkaew et al., 2013) especially among females (Li, Sung-Jae, Thammawijaya, Jiraphongsa, & Rotheram-Borus, 2009). Therefore, it is possible that stigma might be associated with retention in care in mothers with HIV.

Disclosure is a communication approach that involves sharing information about oneself; as such it involves the risk of being rejected for saying how one feels and thinks about certain life events (Duldt & Giffin, 1985). The self-disclosure of HIV/AIDS has enormous risks because of the stigma. Disclosure of HIV status might bring more difficulties to the patients' lives and to their infants. At the same time, disclosure can help the mothers to deal with the stresses of living with HIV and they

may receive love and support from some of the people that they make the disclosure to (Medley, Garcia-Moreno, McGill, & Maman, 2004). Moreover, disclosure of HIV status may be helpful to get HIV treatment and retention in care (Charurat et al., 2010; Kumar, Waterman, Kumari, & Carter, 2006) because the mothers are not scared to expose themselves when they enter the HIV clinic (Ghimire & van Teijlingen, 2009). Perceived health status is an individual's assessment of her general health (Speake, Cowart, & Pellet, 1989). Most Thai mothers with HIV have asymptomatic infection (Chalermchockcharoenkit, Sirimai, & Chaisilwattana, 2006) and perceived good health status (Sinpisut & Suttharangsee, 2003; Thanawuth & Chongsuvivatwong, 2008). Thus, they might feel it is un-necessary to access or be retained in care after delivery.

In conclusion, many factors contribute to the retention in care after delivery among Thai mothers with HIV. Therefore, the proposed study will use a framework that is derived from the literature review of the factors as presented in Figure 1.

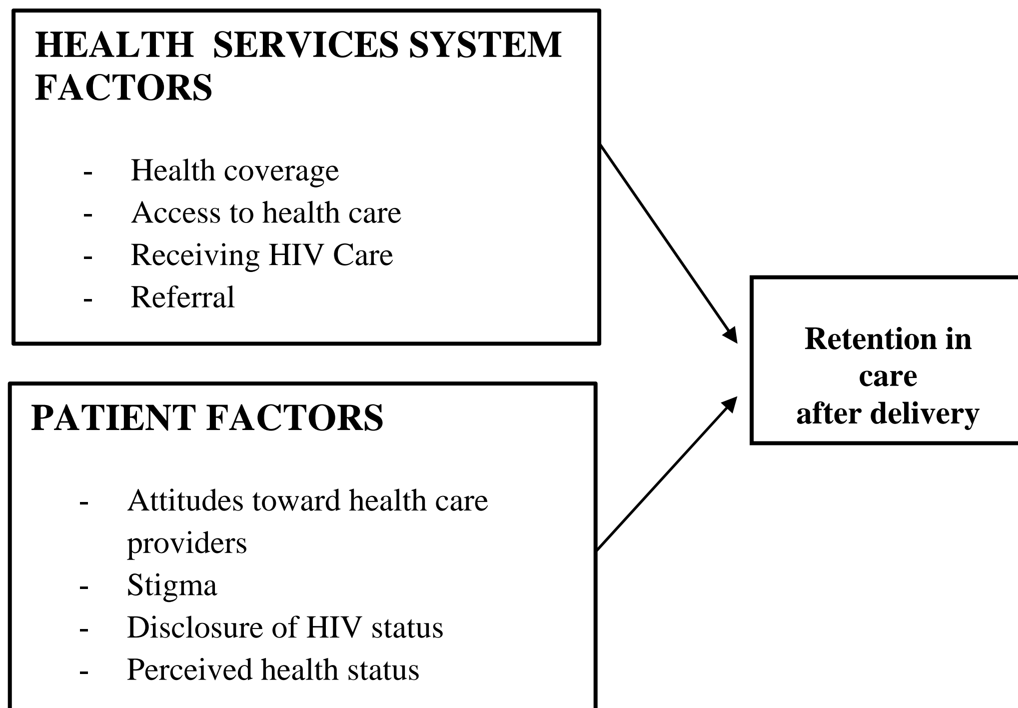

Figure 1. Research Framework of the Study

1.3 Study Aims

1. To study the prevalence of retention in care during the first year after delivery among Thai mothers with HIV.

2. To examine the predictive factors (health service system and patient factors) of retention in care during the first year after delivery among Thai mothers with HIV.

1.4 Research Questions

1. What is the percentage of retention in care during the first year after delivery among Thai mothers with HIV?

2. What are the predictive factors of retention in care during the first year after delivery among Thai mothers with HIV?

1.5 Hypothesis

The health service system (health coverage, access to health care, receiving HIV care, and referral) and patient factors (attitudes toward health care providers, stigma, disclosure of HIV status, and perceived health status) could predict retention in care during the first year after delivery among Thai mothers with HIV.

1.6 Scope of the Study

This research studied the prevalence of retention in care and predictive factors of retention in care during the first year after delivery among Thai mothers with HIV who gave birth at Siriraj Hospital from January 1, 2010 to December 31, 2012. The participants were recruited between March 1, 2014 and July 31, 2014.

1.7 Expected Outcomes and Benefits

1. The findings of this study would enable nurses or other health service providers to play a role in improving the retention in the health care system of postpartum mothers in order to monitor their health before they advance to an AIDS-related stage, to arrange appropriate interventions for HIV patients, family, and community, and to eliminate hindrances to retention in the health care system for mothers with HIV.

2. This report would give guidance to policy makers on the design of an optimal health care service to fit the needs of mothers with HIV.

1.8 Definition of Terms

1.8.1 Dependent Variables

Retention in care refers to continued attendance at any hospital to obtain care and treatment during the first year after delivery according to stated time in schedule appointment before or after no more than 4 weeks after appointment. Retention in care is divided into retention in care at HIV clinics and retention in care at OB&GYN clinics. Retention in care was evaluated as a match between the number of patients' clinic visits (During the first year after delivery, how many times did you come to hospital for scheduled medical appointments?) and the number of scheduled medical appointments (How often did your physician make an appointment with you?) by re-checking on computer database. Retention in care was categorized into 2 groups as retention in care if the patients visited the clinic according to appointment no more than 4 weeks; non-retention in care if the patients did not come for the appointment or came later than 4 weeks after the scheduled appointment time.

1.8.2. Independent Variables

1.8.2.1 Health coverage refers to mothers' reimbursement for costs of HIV care and treatment and Pap smear screening. Health coverage for HIV care and treatment was evaluated through the questionnaire part 1; item 9 that dealt

with the following 5 categories: *1)* Universal Coverage; *2)* Social Security Scheme; *3)* Civil Service Medical Benefit Scheme; *4)* Research project and; *5)* Self-payment. Health coverage for Pap smear screening was evaluated with the questionnaire part 1; item 8. They were grouped into 2 categories for analysis including health coverage and self-payment.

1.8.2.2 Access to health care refers to perceived problems with access of the mothers with HIV when they get sick during the first year after delivery in terms of affordability (costs of services or ability to pay), availability (sufficiency of health care services and needs of health service use), convenience (easy reach and save time), and access to specialists. Access to health care can be measured by a 6-item accessibility subscale devised by Cunningham and colleagues (1999). A higher score means a higher level of access to health care.

1.8.2.3 Receiving HIV care refers to mothers' perception of services provided by HIV nurses to the mothers with HIV including assessment of health problems, provision of individual counseling and health education, management of medical appointments, and coordination between clinics and other health units. Receiving HIV care can be measured by the Receiving HIV Care Questionnaire that was developed by the researcher. The 5 items of the Receiving HIV Care Questionnaire are yes/no questions that provoke the mothers' to recall their period of pregnancy.

1.8.2.4 Referral refers to the process whereby the mothers were transferred from OB&GYN out-patient clinics to HIV out-patient clinics by nurses who provided health care services in the same hospital or another hospital. It was evaluated through questionnaire part 1; item 16 that dealt with the following 4 categories *1)* Received official transfer; *2)* Received postpartum recommendation; *3)* Did not receive referral or recommendation; *4)* Other, please specify. They were grouped into 2 categories for analysis, referral and non-referral.

1.8.2.5 Attitudes toward health care providers (HCP) refer to the mothers' perceptions about knowledge, effort, motivation, caring, and social support from health care teams of HIV and OB&GYN out-patient clinics during antenatal care. Attitudes toward health care providers can be measured by the

Attitudes toward HIV Health Care Providers Scale (AHHCP) (Bodenlos et al., 2004). A higher score means a more positive attitude toward health care providers.

1.8.2.6 Stigma refers to the mothers' perception about societal attitudes toward people with HIV and their self-awareness of being infected with HIV in terms of personalized stigma, disclosure concerns, negative self-image, and concern with public attitudes about people with HIV. Stigma can be measured by Short Form 8-item Stigma Scale of Maneesriwongul (2013). A higher score means a higher perceived stigma.

1.8.2.7 Disclosure of HIV status refers to sharing information of mothers about their HIV infection to any persons such as their family members (husband, relatives), friends, or social network. It was evaluated through questionnaire part 1; item 12. It is made up of: *1)* non-disclosure and; *2)* disclosure.

1.8.2.8 Perceived health status refers to the mothers' self-rating of their current health status. It was evaluated with questionnaire part 1; item 13 as self-rated on a 100mm. visual analogue scale from unhealthy to healthy (Wewers & Lowe, 1990). A higher score means a higher level of perceived healthiness.

CHAPTER II
LITERATURE REVIEW

The review of research literature is organized into five sections.

2.1 Present Situation of Pregnant Women and Postpartum Mothers with Human Immunodeficiency Virus (HIV) or Acquired Immune Deficiency Syndrome (AIDS)

2.2 The Standard of Care for the Mothers with HIV

2.3 Adverse Effects of Antiretroviral Drug and Opportunistic Infections

2.4 Retention in Care

2.5 Factors Associated with Retention in Care

2.1 Present Situation of Pregnant Women and Postpartum Mothers with Human Immunodeficiency Virus (HIV) or Acquired Immune Deficiency Syndrome (AIDS)

By November 2012, according to the Thai Bureau of Epidemiology (BOE), the Ministry of Public Health reported that as a result of the HIV epidemic there were 276,947 people living with HIV/AIDS. Most of these people were of reproductive age. Eighty five percent of the causes of cases of HIV infection came from sexual intercourse. The HIV infection ratio of female to male equaled 1.5:1 (Bureau of Epidemiology, 2014). At present, the prevalence of new HIV-infected cases is approximately 1% of all people who have undergone HIV screening around the country. From 1995 to 2013, the seropositive rate of pregnant women slightly declined from 2.5% to 0.57% of all pregnant women having had antenatal care (ANC). Over the last three years, the average prevalence of pregnant women with HIV has stabilized at around 0.57 percent. At present, the greatest number of pregnant women with HIV is found in Bangkok in the central region, followed by Nan province in the northern region, Nakhonratchasima province in the northeast region, and Suratthani

province in the southern region at (Bureau of Epidemiology, 2014). From 2007 to 2013, the prevalence of pregnant women with HIV has followed a zigzag pattern, continually moving up and down. The highest HIV infection rate was 0.94% for pregnant women in 2012 and the lowest was 0.61% in 2008.

According to the last report of National HIV Surveillance, the greatest number of HIV detections were in pregnant women when compared with other populations having undergone HIV screening such as blood donors, injecting drug users, male and female sex workers, males with STD screening, and fishermen (Bureau of Epidemiology, 2014). The age range of pregnant women with HIV was 16-48 years and the largest group of them was between 25 and 29 years old. Most of the pregnant women with HIV had completed elementary education and had a household income less than or equal to US $100-250 per month (Kongyu, 2006). Median gestational age at the first ANC visit was 4 months gestation and median number of ANC visits was 10. Most women had a steady sexual partner and lived with their partners. Moreover, most primigravid women with HIV were high CD4 level and had not taken antiretroviral (ARV) drugs after delivery, but it was considered necessary that they be retained in health care and that their health status be regularly monitored according to the Thai National treatment guideline (Department of Health, 2011).

2.2 The Standard of Care for the Mothers with HIV

The standard treatment guideline of the Thai National Health Security Office (2013) recommended that medical services for mothers with HIV be provided by collaboration between two clinics, the HIV clinic and the Department of Medicine and Obstetrics & Gynecology (OB&GYN) out-patient clinic. HIV physicians have an important role in providing care for the mothers in terms of physical examinations, laboratory health monitoring (i.e. CD4, viral load, chest X-ray, and liver function test), and ARV drug prescription. The obstetrician and gynaecologist have an important role in providing care for the mothers in areas such as counseling and testing for pregnant women in safer sex practices, family planning, and gynecological conditions.

The standard of care for the mothers with HIV mandates the provision of a package of services making up the prevention of mother to child transmission (PMTCT) program. This program emphasizes the processes of HIV voluntary counseling and testing and antiretroviral drug prescription to prevent mother to child transmission. In 1998, Thailand was the first country to implement PMTCT as a national program. Azidothymidine (AZT) or Zidovudine (ZDV) monotherapy were the first ARV drugs that were provided for pregnant women with HIV at 34 weeks of gestation and it has been reported that these therapies could reduce HIV transmission rate to 19-25% of HIV pregnant women who enrolled in this project (Kanshana & Simonds, 2002). In 2004, the guideline recommended AZT to the pregnant women from 28 weeks of gestation and then addition of single-dose nevirapine (sd-NVP) during labor. The same regimen was also provided for their infants and it has been reported that this protocol could reduce the HIV infection rate in children to 2 percent (Lallemant et al., 2004). However, there have been reports about NVP resistance in Thailand (Chalermchockcharoenkit et al., 2009) and other countries (Eshelman et al., 2001). Therefore, to reduce NVP mutation and the HIV transmission rate after delivery, the WHO guidelines recommended highly active anti-retroviral treatment (HAART) drug administration. Since 2006, the HAART had an NVP-component (AZT + lamivudine (3TC) + NVP) that was prescribed for pregnant women with CD4 count <200 cells/mm^3 and an additional 7 days of AZT + 3TC tail therapy after delivery to reduce non-nucleoside reverse transcriptase inhibitor (NNRTI) resistance. Women with CD4 >200 cells/mm^3 were still recommended to have AZT + sd-NVP and also an additional 7-day AZT + 3TC tail therapy after delivery. Since 2011, the National Health Security Office has provided the HAART to all pregnant women with HIV because the HAART is more cost effective (lower viral mutation compared with ARV drug expense) than AZT or AZT with single-dose NVP (Phanuphak, 2011). Moreover, the HAART reduced the HIV vertical transmission rate to 0.84% in 2007 (AIDS TB and STIs Control Division, 2008); this is congruent with studies in other countries (Cooper et al., 2002; Palombi, Marazzi, Voetberg, Magid, & the DREAM Program Prevention of Mother-To-Child Transmission Team, 2007; Townsend et al., 2008). At present, the national guidelines of PMTCT program have covered

approximately 95% of the total pregnant women with HIV who attended antenatal care each year. Antiretroviral drug administration was reviewed in next topic.

2.2.1 The Standard of Antenatal Care for Mothers with HIV

Regarding the antenatal period, the main services include voluntary HIV counseling and testing and informing the pregnant women of their HIV status, recommending about disclosure or couple counseling, decision making about therapeutic abortion, advising on the taking of ARV drugs for PMTCT and their benefits and side effects, counseling on the importance of adherence to drug therapy regimes, counseling on the probability of HIV transmission to their infants, giving health education about safer sex to avoid risk behaviors for further HIV infection, and psychosocial counseling and management. A part of antenatal care and management for pregnant women with HIV is similar to that for general pregnant women such as tetanus toxoid injections, the administration of vitamin and folic acid, and prenatal blood testing (i.e. CBC, Hct, blood gr, Rh, thalassemia screening), and health education about nutrition and exercise for pregnant women. After the pregnant women have learned of their HIV status, they are assessed for health history and a physical examination of their health. Gestational age, fetal growth, ultrasound to confirm gestational age, and risk from pregnancy are estimated. To reduce the likelihood of transmission from mother to child, obstetricians have to avoid invasive procedures e.g. chorionic villus sampling, amniocentesis or cordocentesis, and penetrating scalp electrodes. Moreover, the pregnant women are additionally assessed for symptoms of HIV disease, CD4 count to disease staging, opportunistic infections (i.e. respiratory infections, urinary tract infections, oral thrush, vaginal yeast infections, lymphadenopathy, herpes zoster, and sexually transmitted diseases), and other laboratory diagnoses including liver and kidney function test. This information is used as guidance for the appropriate selection of an ARV regimen for each pregnant woman (Department of Disease Control, 2014).

In regards to recommendations for the use of ARV drugs in pregnant women with HIV, the women are grouped under their histories of ARV drug use and CD4 levels. For the first group, the women who have never received ARV treatment (the prophylactic group), the following protocols are followed: *1)* if CD4 count ≤350

cell/mm^3 initiate with AZT/3TC (300/150 mg) 1 tablet every 12 hours + lopinavir/ritonavir (LPV/r) (200/50 mg) 2 tablets every 12 hours as early as possible regardless of gestational age and prescribe cotrimoxazole 2 tablets every 24 hours if CD4 count < 200 cells/mm^3; *2)* if CD4 count ≥350 cell/mm^3 take the same ARV regimen but start as early as possible after 14 weeks of gestation and; *3)* if unknown CD4 count at ≥14 weeks of gestation also take the same regimen by starting ARV immediately. The starting of HAART during 14-24 weeks of gestational age provides an adequate period of time (at least three months) for ARV drugs to maximally suppress plasma HIV-1 RNA to the lowest level before delivery for the reduction of HIV transmission to infants. For the second group, the pregnant women who have taken HAART according to the national adult guideline (the therapeutic group) before pregnancy, *the following protocols are followed 1)* if the present HAART regimen does not contain AZT, that must be replaced by one of the NRTI (i.e. AZT, 3TC etc.) used with AZT (except if there has been previously experienced AZT resistance or severe side effects from AZT such as anemia) and; *2)* if the present HAART regimen contains efavirenz (EFV) that must be replaced by EFV with LPV/r in the first trimester (Phanuphak, Apornpong, Limpongsanurak, et al., 2007). The pregnant women are recommended to have repeat CD4 counts every 6 months and viral load (VL) testing at 36 weeks of gestational age to assess mode of delivery (Department of Health, 2011; Phanuphak et al., 2010). The use of the HAART regimen is most effective if it is started very early in pregnancy along with the provision of intrapartum ARV drugs to the pregnant women, ARV drugs to infants, and adherence support.

2.2.2 The Standard of Intrapartum Care for Mothers with HIV

In this phase, the most important care requirement is carefulness about labor pains and prolong labor because there is an approximately 65 percent expected rate of chance of HIV transmission from the mother to the child (Department of Health, 2011). Some obstetric procedures are avoided such as forceps extraction, vacuum extraction, and artificial rupture of membranes unless there are medical indications for the use of these procedures. The risk of MTCT increases with prolonged premature rupture of membrane (PROM) > 4 hours prior to delivery. The pregnant women with PROM should have an induced labor to reduce the period of

time to delivery. Moreover, episiotomy should be performed carefully at the appropriate time to reduce exposure of the neonates to maternal blood and secretions. In some cases, pregnant women should be considered for elective cesarean section at 38 weeks of gestation. For example, it should be considered for pregnant women who did not receive HAART during antepartum or received HAART for less than 4 weeks before the onset of labor or have VL (at 36 weeks of gestation) > 1000 copies/ml to reduce the risk of HIV transmission (Phanuphak et al., 2010). During the intrapartum period, health care providers do not necessarily separate the pregnant women with HIV from other patients, but should follow universal precaution techniques completely. Moreover, the pregnant women should receive emotional support because they might fear for their infants' HIV blood results, stigma from their health care providers, and having their HIV status disclosed to their husbands and families (Department of Health, 2011).

As to recommendations for the use of ARV drugs in the pregnant women with HIV during intrapartum, both the women who have never received HAART and those who have received HAART before pregnancy must continue HAART during antepartum + oral AZT (300 mg) every 3 hours until delivery or oral AZT 600 mg as a single dose at onset of labor pain. Those women with no ANC must take AZT 300 mg every 3 hours until delivery or oral AZT 600 mg as a single dose. For some mothers, if delivery is not expected within 2 hours they must take SD-NVP 200 mg also.

2.2.3 The Standard of Care for Postpartum Mothers with HIV and HIV-Exposed Neonates

Postpartum care is the entry point in the continuum of care for mothers with HIV and promotes the mothers taking care of their child by themselves. To achieve this, mothers should receive health education like other postpartum mothers in areas such as knowledge of perineal or caesarean wound care, signs of caesarean wound infections, postpartum hemorrhage, anemia, malnutrition, exercise, postpartum check up, disclosure of HIV status to spouse, health check up of HIV-exposed baby, routine vaccinations for infants, the promotion of formula feeding and prevention of breast engorgement, contraception counseling by dual methods of contraception (consistent condom use for safer sex plus other birth control options), beginning ARV

therapy or changing an ARV regimen, and monitoring ARV side effect and dealing with drug adherence (Felderman-Taylor & Valverde, 2007; Okot-Chono et al., 2009). The mothers also need continuing psychological and social supports especially the mothers with the first child because there is the occasional occurrence of postpartum depression (Ratchneewan, Wilaiphan, & Richard, 2009; Vyavaharkar et al., 2011). There needs to be comprehensive care to promote retention in care such as the provision of comprehensive health education to emphasize the importance of continuing care after HIV infection. After that, all postpartum women with HIV should be referred to HIV specialists to establish HIV out-patient care after delivery for monitoring adverse effects of ARVs, immune levels or progression of disease, and opportunistic infections. According to the standard treatment guideline of the Thai National Health Security Office (2013), the mothers with CD4 > 350 cell/mm^3 are recommended for monitoring of CD4 every 6 months, Pap smear annually, and continual monitoring for opportunistic infections (Phanuphak et al., 2010). Mothers with CD4 ≤ 350 cell/mm^3 are recommended for ARV drug prescription and monitoring every 3 to 4 months (National Health Security Office, 2011).

The National Guidelines for HIV Adult Treatment and Care sets the standard operational procedures that are determined by the collaborative working groups to provide identical treatment around the country. This practical guideline specifies the criteria of ARV treatment for adults and assessment of opportunistic infections, complications of ARV drugs use, drug resistance, and laboratory testing and screening (Ministry of Public Health, 2007). The use of ARV drugs in the postpartum mothers with HIV is recommended as follows: For the mothers with ANC and who have never received ARV before pregnancy; *1)* if CD4 count ≤350 cell/mm^3 continue HAART regimen; *2)* if CD4 count >350 cell/mm^3 stop all ARV drug after delivery and; *3)* if HAART has been received before pregnancy, there must be a change back to the previous HAART or modification of the regimen. Those mothers with no ANC have to complete a 4-week HAART regimen (AZT + 3TC + LPV/r). After that, if they have CD4 count ≤350 cell/mm^3 they have to change the ARV regimen. At present, HAART covers approximately 95% of the total pregnant women with HIV who have antenatal care each year and reduces the HIV vertical transmission rate to only 0.84% (AIDS Control Division, 2008; Department of Health, 2011).

The administration of antiviral drug therapy in HIV mutation patients is classified by three levels consisting of the first and second-line drugs as well as alternative treatments. The first-line drugs or basic regimens are prescribed for HIV-positive naive patients for whom the regimens are similar to PMTCT regimens. The second-line drugs or drug resistance regimens are prescribed for the patients who have failed treatments such as *1)* 2NRTI + Boosted PIs and *2)* 1NRTI + 1NNRTI + Boosted PIs. The alternative drugs are prescribed for the patients who have side effects or drug resistance from the first-line drugs such as *1)* 2NRTI (ddI, d4T, 3TC) + NNRTI (NVP, EFV) and *2)* 2NRTI (ddI, d4T, 3TC) + Boosted PIs (LPV/r). Drug prescriptions in the second-line and alternative treatment levels must be approved by ID physicians who have gained Infectious Disease Certification from the Medical Council of Thailand. For hospitals without ID physicians, those drugs prescriptions must be approved by the regional committee via the National Association of People Living with HIV/AIDS (NAP) online system which has 24 committee teams in 12 regions around the country such as Regional AIDS Consultants (RAC) and Networks of AIDS Consultants in Bangkok (NAC). The members of each team are 2 infectious disease physicians, an infectious disease pediatrician, a representative of the Department of Disease Control, Ministry of Public Health, and a regional representative of the National Health Security Office (Yongyoun, 2008). There are both strength and weaknesses in having medical standard guidelines and the NAP online system. The strengths of having medical standard guidelines and the NAP online system are that, firstly, general physicians (GPs) can prescribe ARV first-line drug by themselves according to medical standard guidelines (Voramongkol, 2011). Secondly, the patients can receive appropriate second-line or alternative treatments via NAP online approval by HIV/AIDS experts. However, the NAP online has weaknesses because ARV regimens must be approved by many processes. The patients might receive delayed ARV because some experts are not accessible in the online system every day. Nevertheless, there has been no evaluative research about the effectiveness, advantages or limitation of online drug approval by ID physicians.

Regarding the standard of care for HIV-exposed neonates, the newborns should be treated according to the universal precautions including clamping and cutting the umbilical cord carefully to reduce blood splash contamination, wiping the

infant's skin to reduce contamination from maternal blood or secretions, using the rubber suction bulb instead of gastric tube to avoid mucosal trauma, supporting free infant formula, giving routine vaccinations for the infants (i.e. Vit K, BCG), and starting the first dose of ARV drugs as soon as possible. After ARV feeding, if the infants vomit within a half hour, they must be fed the same dose of medication. The mothers should receive recommendations to give the infant's medication correctly to prevent HIV transmission.

The recommendations for the use of ARV drugs in the infants are divided into 2 groups according to HAART adherence in mothers during pregnancy: *1)* the mothers continuously take HAART up to 4 weeks. If infants born at >35 weeks gestation, initiate (within 1 hour of delivery) AZT syrup 4 mg/kg/dose every 12 hours for 4 weeks. If infants born at <30 weeks of gestation, initiate AZT syrup 2 mg/kg/dose every 12 hours for 4 weeks. If infants born at 30-35 weeks of gestation, initiate AZT syrup 2 mg/kg/dose every 12 hours for 2 weeks, then 3 mg/kg/dose every 12 hours for 2weeks and; *2)* the mothers who have irregularly taken HAART or taken it for less than 4 weeks: AZT syrup 4 mg/kg/dose and 3TC syrup 2 mg/kg/dose every 12 hours for 4 weeks and NVP syrup 2 mg/kg/dose every 24 hours for a week followed by NVP syrup 4 mg/kg/dose every 24 hours for a week (total NVP dose = 2 weeks). After stopping NVP, the infants should receive AZT + 3TC tail therapy for 2 weeks to reduce NNRTI resistance. For early HIV detection in infants, the HIV DNA polymerase chain reaction (PCR) test should be performed at 1-2 months and 2-4 months of age. If the first PCR is positive, a confirmatory test should be done as soon as possible. If the first PCR is negative, the test should be repeated after 4 months of age. HIV antibody test should be performed at 12-18 months of age. Infants with HIV antibody positive must be referred to infection pediatricians for appropriate care.

2.3 Adverse Effects of Antiretroviral Drug and Opportunistic Infections

2.3.1 Adverse Effects of Antiretroviral Drug Use to Prevent Mother-To-Child Transmission (PMTCT) during pregnancy

The mothers with HIV might encounter higher rates of ARVs[2] or HAART toxicity after giving birth than they are used to prevent mother-to-child transmission during pregnancy (Anastos et al., 2004; Ekouevi et al., 2007; Tungsiripat, Drechsler, & Aberg, 2007). For example, the nucleoside reverse transcriptase inhibitors (NRTIs) (i.e. Zidovudine and Lamivudine)-based HAART regimens induce mitochondrial toxicity via an interaction with DNA polymerase gamma, a key mitochondrial enzyme whose function is critical to normal cellular oxidative phosphorylation. This toxicity might be associated with other potentially severe complications of pregnancy such as lactic acidosis, pancreatitis, acute steatohepatitis[3], cardiomyopathy, the HELLP[4] syndrome, and peripheral neuropathy (Lewis, Day, & Copeland, 2003). The toxicities of non-nucleoside reverse transcriptase inhibitors NNRTIs (Nevirapine and Efavirenz)-based HAART regimens include hepatotoxicity (Phanuphak, Apornpong, Intarasuk, Teeratakulpisarn, & Phanuphak, 2005), rash, and eosinophilia (Collazos, Asensi, & Carton, 2007; Jamisse et al., 2007; Phanuphak, Apornpong, Teeratakulpisarn, et al., 2007; van Schalkwyk et al., 2008). The pregnant women with CD4 counts of greater than 350 cells/mm^3 (receiving HAART for PMTCT or prophylaxis) have a higher risk of severe symptomatic hepatotoxicity than the women with lower CD4 counts (receiving HAART for therapy) (Phanuphak, Apornpong, Teeratakulpisarn, et al., 2007). Efavirenz might increase the signs of low neutrophil levels (known medically as neutropenia), triglycerides, cholesterol, lipodystrophy (changes in the distribution of fat on the body e.g. buffalo hump) (Hittinger, Poggi, Beyssac, Chadapaud, & Lafeuillade, 2004; Monson & Schoenstadt, 2011), skin rash and hypersensitivity reaction (Manosuthi & Sungkanuparph, 2007; Monson & Schoenstadt, 2011), and

[2] Antiretroviral drugs have three groups including nucleoside reverse transcriptase inhibitors (NRTI's), non-nucleoside reverse transcriptase inhibitors (NNRTI), and protease inhibitors (PI).

[3] Steatohepatitis is a type of liver disease, characterized by inflammation of the liver with concurrent fat accumulation in liver ("steato", meaning fat, "hepatitis", meaning inflammation of the liver).

[4] HELLP syndrome is a group of symptoms that occur in pregnant women who have hemolysis (H: the breakdown of red blood cells), elevated liver enzymes (EL), and low platelet count (LP)

Central Nervous System (CNS) abnormalities. The adverse events of the protease inhibitors (PIs) (Ritonavir and Lopinavir) are gastrointestinal disturbances (e.g., diarrhea, nausea and vomiting), asthenia[5], headache, skin rash, hypertriglyceridaemia, hypercholesterolaemia (Carmen de et al., 2002; Oldfield & Plosker, 2006) and glucose intolerance or insulin resistance (Gonzalez-Tome et al., 2005; Watts et al., 2004).

2.3.2 Adverse Effects of Antiretroviral Drug during Postpartum

As regards ARV in the NNRTI group, nevirapine (NVP), several studies have shown that mothers with HIV who received NVP short-course antiretroviral prophylaxis for regimens and stopped immediately after giving birth were found to have drug resistance mutation during 4 to 8 weeks after delivery (Ekouevi et al., 2010; Rajesh, Ramesh, Hanna, Narayanan, & Swaminathan, 2010). Other studies have shown that during 4–8 weeks after cessation of ARV therapy (Gingelmaier et al., 2010) and 7 months postpartum (Souda et al., 2012), the women with PI-based or triple NRTI-based regimens for PMTCT were found to have ARV drug resistance mutations. At 90 days after delivery, the mothers who continue HAART postpartum have lower AIDS-defining events (ADEs) or death than the mothers who discontinue HAART postpartum (Melekhin et al., 2010). The cohort study of nevirapine prophylaxis for PMTCT among mothers with HIV in sub-Saharan Africa (Malawi, Zambia, and Tanzania) showed that 7.2% and 1.8% respectively of the mothers had serious adverse events (anemia, malaria, and tuberculosis) and death from serious adverse events and opportunistic infections (meningitis, pneumonia, AIDS-related complex, and Kaposi Sarcoma) after 12 months follow up (Chilongozi et al., 2008). Moreover, nevirapine induces elevations in liver-enzyme levels, rash, acute pancreatitis and renal failure (Lockman et al., 2010). In the first 12 months after giving birth, the adverse effects on mothers with HIV who have HAART or zidovudine plus single-dose nevirapine prophylaxis cessation after delivery led to death because of anemia with cardiac failure or opportunistic infection (The Kesho Bora Study Group & deVincenzi, 2011). At 18 months after cessation of ARV prophylaxis, a study in women with a CD4+ count of ≥ 350 cells/mm^3 found that for 31.8% of them with AZT/sdNVP drugs and 28.1% of them with triple ARV drugs there was progression of

[5] Asthenia means weakness, lack of energy and strength, loss of strength

the disease (to death, stage 3 or 4 disease of WHO clinical stage, or a CD4+ count of <350 cells/mm3) (The Kesho Bora Study Group & deVincenzi, 2011).

In conclusion, there are several issues about ARV toxicities that need long-term followed up in the postpartum mothers with HIV such as viral load, drug resistance, and liver function tests (Drug Information Portal, 2011). Especially, the women with high CD4 cell counts require careful clinical and laboratory monitoring because they have a high risk of HIV-1 mutation (Hamers et al., 2010). Thus, patients with HIV should be retained in the health care system to monitor the kinetics of emergence and fading of ARV drug resistance mutation in the mothers receiving ARV prophylaxis and to provide statistical significance for important information (such as mortality, cause of death, disease progression, or opportunistic infection) to improve care and treatment guidelines

2.3.3 Opportunistic Infections in Postpartum Mothers with HIV

Opportunistic infections are among the causes of death of mothers with HIV (Tonwe-Gold et al., 2009). Almost all opportunistic infections have been found at a CD4 level below $500/mm^3$, with the risk greatly increased at a CD4 level below $200/mm^3$ (Podlekareva et al., 2006). The cessation of ARV drugs for the mothers who do not meet the criteria of HIV/AIDS treatment might be risk to opportunistic disease or death (Danel et al., 2006; DART Trial Team et al., 2010; Onen et al., 2008; The Kesho Bora Study Group, 2012; The Strategies for Management of Antiretroviral Therapy (SMART) Study Group, 2006; Trignetti et al., 2009). Serious opportunistic infections include tuberculosis (TB), *Pneumocystis carinii* pneumonia (PCP), diarrhea, and cervical neoplasia (Chilongozi et al., 2008). About 8.5-17% of the Thai patients with HIV have Tuberculosis (Akksilp et al., 2007; Jittimanee et al., 2009; Soonthorndhada, 2006). However, there is no specific statistic on Thai postpartum mothers with HIV infected TB. In Kenya, TB is the first rank of opportunistic infections in the postpartum mothers with HIV follow up to 18 months postpartum (Roxby et al., 2011). Approximately 11 percent of Kenyan mothers had HIV infected TB in the first year of postpartum follow-up (Walson et al., 2007). Five percent of the Indian postpartum mothers were diagnosed with TB and 3 of 24 women with TB died (Gupta et al., 2007). Pneumonia was diagnosed in Kenyan postpartum mothers with

HIV who received zidovudine prophylaxis with an incidence of 33 cases per 100 person-years in the first year of follow-up (Walson et al., 2007). In Zimbabwe, pneumonia was the second rank of illness during the first year of postpartum follow-up among mothers with HIV (Zvandasara et al., 2006). The patients with CD4 cell counts of less than 200 cell/mm^3 have the highest risk of developing PCP (Stansell et al., 1997). Thus, patients with HIV who have CD4 counts below 300 cell/mm^3 should discuss PCP prevention with their health care provider before they face any symptoms (Parisaei, Hemelaar, & Govind, 2010). Diarrhea is faced by over 50% of AIDS patients at some time during their illness (Weber et al., 1999). A study in South Africa reported that over a quarter (26.4% or 66/250) of the postpartum mothers with HIV who were given single-dose nevirapine for PMTCT encountered bloody diarrhea (Coutsoudis et al., 2010). Walson (2007) reported that sixty-three percent of Kenyan postpartum mothers with HIV were found to have had diarrhea after follow up to 12 months postpartum. Cervical neoplasia is caused by Human Papillomavirus (HPV) infection that is related to the degree of immunosuppression as measured by CD4 level, especially CD4 lower than 500 cell/mm^3. A higher risk of cervical dysplasia is found among those with CD4 less than 200 cell/mm^3 and higher HIV-plasma viral load (Chalermchockcharoenkit, Chayachinda, Thamkhantho, & Komoltri, 2011). Cervical dysplasia is usually asymptomatic but can be detected by gynecological screening such as Pap smear. Mothers with HIV infection should have a Pap smear every 12 months and there should be repeated screening to prevent false negatives every 6 months.

In conclusion, for people without ART indications, continuous monitoring is needed to prevent the advanced stages of disease (Girardi et al., 2004). People with HIV infection benefit from counseling and other ancillary services that are provided at regular medical visits such as health education or messages to prevent them engaging in risk behaviors (Metsch et al., 2008), to help them to reduce transmission to other people (Das et al., 2010; Granich, Gilks, Dye, De Cock, & Williams, 2009; Montaner et al., 2010), and to receive mental health care, antiretroviral (ARV) drugs management, food/nutrition health education, complementary services, and child care (Bradford, Coleman, & Cunningham, 2007; Lo, MacGovern, & Bradford, 2002; Rumptz et al., 2007). For people on ART, retention in care is needed to prevent

medication interruptions (Tungsiripat, Drechsler, & Aberg, 2007), maintain immunologic levels (Naar-King et al., 2007), prevent HIV drug resistance (Auswinporn et al., 2002; Harrigan et al., 2005) and opportunistic infections (Parodi, Lechner, Osih, Vespa, & Pegues, 2003), and to monitor the effects of therapy (Lallemant et al., 2004). For the health service system, retaining the people with HIV infection has the potential to help contain health care costs by improving HIV-specific health outcomes (Tripathi, Youmans, Gibson, & Duffus, 2011) and reducing emergency department visits and hospitalizations (Cree, Bell, Johnson, & Carriere, 2006; Gill, Mainous III, & Nsereko, 2000).

2.4 Retention in Care

Retention in care refers to having completed total scheduled clinic visits or having regular visits in an observation period of interest in each time interval excluding urgent care visits, medical subspecialty appointments with 100% of appointment adherence and visit persistence or no gap in care (Mugavero, Davila, Nevin, & Giordano, 2010). Retention in care implies remaining connected to medical care once entered (Messeri, Abramson, Aidala, Lee, & Lee, 2002). Retention in care is the presence of regular care in all evaluable periods or at least one visit per six-month period (Sherer et al., 2002). For Berg and colleagues (2005), retention in care refers to the number of kept appointments over the 12-month span. Retention is defined by medical visits in consecutive 6-month periods during an interval of 6 months to 5 years (Marks, Gardner, Craw, & Crepaz, 2010). Retention in oral health care for people living with HIV/AIDS is defined as two or more dental visits at least 12 months apart (Tobias, Fox, Walter, Lemay, & Abel, 2012). Retention is defined as being alive and on ART at the facility where he/she is registered or transferred out permanently to another treatment facility (Massaquoi et al., 2009). Retention in care means having at least 1 HIV primary care provider visit in each quarter during the first year of antiretroviral treatment (range, 1–4) (Cabral et al., 2007; Giordano et al., 2007; 2009). Retention in care means patients are alive and on ART at the same facility or those formally transferred out to another ART unit are thus assumed to be in therapy

(Cheever, 2007; Massaquoi et al., 2009). Retention in care refers to the proportion of patients remaining alive and on ART at various time points after treatment initiation by excluded patients who are transferred to another facility (Fox & Rosen, 2010). Gardner et al. (2005) and Naar-King et al. (2007) defines retention in care for people with a newly diagnosed HIV infection that is self-reported as attendance at an HIV-care provider at least once in each of two consecutive 6-month periods. Retention in care means initiating HIV outpatient care across the first two years of care following HIV diagnosis. The patients have to attend at least one clinic visit during 6 months (range, 1–4) (Ulett et al., 2009). In these studies, retention is usually defined as ending at some interval of time after a scheduled appointment. An observation period of interest in each time interval has been set as 14 days (Bisson et al., 2008), 30 days (Bisson et al., 2008), 3 months (Bassett et al., 2009), 6 months (Geng, Emenyonu, Bwana, Glidden, & Martin, 2008), 1 year (Muwanga et al., 2008), or 5 years (Marks, Gardner, Craw, & Crepaz, 2010).

In conclusion, retention in care is being recognized as a crucial step in maximizing patient outcomes; there should be an emphasis on the importance of adherence to care rather than focusing solely on adherence to medications (Aberg et al., 2009). For pregnant women and mothers with HIV, the connection between antenatal and postnatal care needs to be established and developed so that the needs of mothers living with HIV can be addressed. Systematic service packages for health monitoring should be offered to mothers with HIV at six weeks postpartum and at six monthly intervals thereafter to achieve the goals of accessibility and retention in care. In this study, retention in care refers to having regular visits at HIV and OB&GYN out-patients clinics at Siriraj Hospital or registered contractor hospitals or any hospital in the first year after delivery. The frequency or regularity of health follow-up depends on patients' health conditions (CD4 level and cervical pathology).

2.4.1 Measures of Retention in Care

There is no gold standard to measure retention in care (Yehia et al., 2012). From the available published literature, Giordano and colleagues (2003) assessed retention from missed appointments that means missing more than two primary physician appointments in 6 months (Giordano et al., 2003). Robbins and colleagues

(2007) evaluated retention in care from loss to clinic follow-up that is defined as no clinic appointment or HIV RNA measurement for ≥ 6 months and no evidence of virologic failure at the last HIV RNA measurement. Ko and colleagues (2012) classified retention in care into 3 groups: 1) Retention in care is completing two or more visits a year at least 6 but less than 12 months apart with an HIV specialist over the 5-year observation period; 2) Irregular; if the patients fail to complete two or more visits a year with an HIV specialist, but complete sporadic visits over the 5 year observation period and; 3) Lost to follow-up; if the patients fail to attend the HIV clinic for more than two years or for whom there is no report of a viral load/CD4 cell count after the first HIV primary care visit. In conclusion, there are 4 performance measures of applicable retention in care including missed visits, appointment adherence, visit persistence, and gaps in care (Mugavero, Davila, Nevin, & Giordano, 2010).

2.4.1.1 Missed Visits

This measure captures the number of missed visits according to an observation period of interest. The result is simply a count of missed visits, regardless of how many visits have been scheduled. This measure has been one of the most widely used retention measures in the literature and has been applied as both a dichotomous and as a count measure (Berg et al., 2005; Mugavero et al., 2009; Park et al., 2007).

2.4.1.2 Appointment Adherence

Appointment adherence is measured as the overall proportion that captures the number of completed visits in the numerator and the number of total scheduled visits in the denominator during an observation period of interest. Therefore, appointment adherence is calculated as 80% (4/5), 33% (2/6), 100% (3/3), and 66% (2/3), respectively (Mugavero, 2008).

2.4.1.3 Visit Persistence

This measure evaluates the proportion of time intervals with at least 1 completed clinic visit during an observation period of interest. For example, treatment guidelines recommend laboratory assessments and visits for the patients every 3 - 6 months where time intervals have ranged between 3 and 6 months. A 12-month observation period is broken down into four 3-month time intervals. If patients

attended clinic visits in all four intervals, they had 100% visit persistence. Whereas if patients had completed visits in 2, 3, and 1 time interval, this, respectively, represented 50%, 75%, and 25% constancy (Cheever, 2007; Giordano et al., 2007; Ulett et al., 2009).

2.4.1.4 Gaps in Care

This measure calculates the time interval between completed clinic visits in each time that the length of the time interval exceeds a pre-determined threshold, typically ranging between 3 and 6 months. For example, a patient has made an appointment with the HIV clinic every 6 months but she has returned to the clinic at 8 months after finishing the first appointment. That means the patient has had a gap in care of over 6 months between completed visits (Arici et al., 2002; Cabral et al., 2007; Giordano et al., 2005).

2.4.2 Retention in Care in Mothers with HIV

Several studies have shown that mothers with HIV do not keep their medical schedules in the postpartum period. In Thailand, approximately 61% of the mothers with HIV who delivered at Siriraj Hospital, Bangkok engaged in postpartum clinic at 6 weeks after giving birth (Chalermpichai, Ratinthorn, Serisathien, & Boriboonhirunsarn, 2008). A study in Phetchaburi and Ratchaburi provinces reported that only 38.5% of the mothers with HIV had regular interval check-ups during the two years after delivery (Kongyu, 2006). Similar findings in developed countries has been reported such as one in Mississippi (USA) that showed that only 37% of the mothers with HIV had at least two HIV follow-up visits with a health care provider in the year after delivery (Rana, Gillani, Flanigan, Nash, & Beckwith, 2010). These studies were different from a study in Côte d'Ivoire, a developing African country, that showed approximately 77% of mothers with HIV had long-term follow up during the 36 months after delivery because most of them had previously received a ARV regimen before pregnancy (Ekouevi et al., 2010). Another retrospective study in pregnant women with HIV at the Washington University Infectious Diseases Clinic specified that total median duration of follow-up for those mothers who remained in clinic was 32.5 months (15.0-63.3 months) from the time of delivery (Onen et al., 2008). The retention in care after delivery tends to decrease as the length of time since giving birth increases (Byakika-Tusiime et al., 2009; Fox & Rosen, 2010; Guerrin-

Tran et al., 2003; Walson et al., 2007). Most patients gain entry to HIV/AIDS treatment when the disease has progressed to AIDS-related complex or when they have had opportunistic infections (Castilla et al., 2002; Girardi et al., 2004; Girardi, Sampaolesi, Gentile, Nurra, & Ippolito, 2000; Johnson et al., 2009; Thanawuth & Chongsuvivatwong, 2008; Torian, Wiewel, Liu, Sackoff, & Frieden, 2008). At that stage, there is a greater possibility of failed treatment (Ekouevi et al., 2010).

In conclusion, improving the patients' retention has shown to be linked to positive health outcomes such as increased survival, reduce morbidity and co-morbidities, reduced transmission rate, and reduced emergency department visits and hospitalizations; this leads to better patients' health and helps contain health care costs by improving HIV-specific health outcomes (Cree, Bell, Johnson, & Carriere, 2006; Gill, Mainous III, & Nsereko, 2000). A lack of retention in care after discharge from hospital increases the chance that the individual's condition will deteriorate again (Selwyn, Robinson, Dale, & McCorkle, 2007). Un-retention in care led to the late detection of opportunistic infection and progression of HIV/AIDS, shorter term survival (Giordano et al., 2007), delayed receipt of antiretroviral therapy, the emergence of antiretroviral resistance, and virologic failure (Giordano et al., 2003; Robbins et al., 2007; Sethi, Celentano, Gange, Moore, & Gallant, 2003; Ulett et al., 2009).

2.5 Factors Associated with Retention in Care

The literature review has shown several factors of the health service system and patients that are associated with retention in care among postpartum mothers with HIV infection.

2.5.1 Health Care Coverage

There are several health care coverage schemes including Universal Coverage (UC) Scheme, Social Security Scheme (SSS), and Civil Service Medical Benefit Scheme (Kleawkasakit, 2005).

2.5.1.1 The Universal Coverage (UC) Scheme

The universal health care coverage is provided for all Thai citizens without any public health coverage; this is about 76% of the Thai population. In 2009, there were 212,598 people living with HIV/AIDS and 158,521 of them had registered on the ARV project under universal health care coverage (National Health Security Office, 2010). These patients receive two benefit packages from universal health care coverage. Firstly, there is a capitation for cure and care such as general diseases, opportunistic infection, complication, health promotion and prevention, and rehabilitation. Secondly, a top-up benefit budget pays for antiretroviral treatment (basic and advanced regimens), Prevention of Mother-To-Child Transmission (PMTCT), antiretroviral therapy for Post-Exposure Prophylaxis (PEP), treatment of hyperlipidemia, and laboratory testing for monitoring heath. Patients with HIV/AIDS take the top-up benefit if they have a Thai national identification number and are registered on UC and the National AIDS Program (NAP). HIV asymptomatic patients take CD4 testing twice a year. Patients with antiretroviral regimens take basic laboratory testing such as complete blood count (CBC), fasting blood sugar (FBS), creatinine, triglyceride, cholesterol, SGPT/ALT, immunology (CD4) and virology (VL) testing. The conditions of drug resistance are that the patients have more than 2,000 copies/ml of viral load within a month of viral load testing and/or good ARV adherence. The patients are treated for hyperlipidemia after or in between taking protease inhibitors (PIs) or if they have over 240 mg/dl of total Cholesterol after controlled diet and exercise (National Health Security Office, 2011). All of these payments are not directly refundable to patients with HIV, but the AIDS funds of the National Health Security Office reimburses hospitals for the cost of HIV patient care according to the number of registered patients. The UC scheme requires the users to access public healthcare settings within their census registration area. Currently, the UC scheme provides the opportunity for patients to receive HIV treatment at any hospital apart from their directly registered hospital. The patients receive 3 items free of charge; these are ARV drugs, CD4 twice a year and VL testing once a year. The patients have to be responsible for other expenses by themselves and many patients are willing to pay for those preferential treatments. In case of emergency, the patients can

use health services at facilitated hospitals 2 times a year. The extended benefits of the UC scheme might comfort the patients with retention in care.

2.5.1.2 Social Security Scheme (SSS)

The Social Security Scheme affords sickness, disability, maternity and death benefits to employees. According to an announcement of Medical Committee, Social Security Office (2011), SSS covered HIV care and treatment such as CD4 testing at 500 baht a time or 1,000 baht per patient-year, VL at 2,500 baht a time or 5,000 baht per patient-year and drug resistance testing at 8,500 baht per patient-year. The patients are treated with ARV drugs under the following criteria: CD4 < 200 cell/mm^3; CD4 ≤ 250 cell/mm^{3}and/or chronic fever and/or longer than 14 days of chronic diarrhea and/or weight loss more than 10% within 3 months; AIDS defining illness; ARV for PMTCT; ARV for continuing treatment after registration with the SSS in both basic and advanced regimens. So that all of the treatments are approved by Infectious Disease (ID) physicians of each hospital, they are approved by the Medical Committee of the Social Security Office (Social Security Office, 2011). Patients with HIV under the SSS select a public or a private hospital as their health care provider. In a similar way to the UC scheme, the SSS allows the patients to undergo treatment free of charge only at hospitals they are registered with for. All payments are not directly refundable to the patients with HIV, but they are reimbursed through hospitals for costs of the care of patient with HIV g according to the number of registered patients. However, there are barriers to accessing these benefits. For example, some hospitals have determined prices for laboratory testing which are greater than the SSS budget allocation such as 550 baht per CD4 testing or, in cases where the patients need CD4 testing up to 2 times a year. The patients must pay the excess by themselves. If they do not have enough money, they do not receive care and treatment. Perhaps, where the costs of care exceed the allocation from the SSS, the registered hospitals must be held responsible. The consequences are that the patients might not receive the full package of care and treatment (Wattradul, 2002).

2.5.1.3 Civil Service Medical Benefit Scheme

All treatments about HIV/AIDS disease are covered by the civil service medical benefit scheme under which the patients have the right to choose a hospital by themselves. The patients can pay for treatment by 2 methods which are,

firstly, cash payments and then reimbursement from their original affiliation and, secondly, registration with a government hospital and waiting for the Comptroller General's Department, Ministry of Finance to approve the medical benefit direct reimbursement through that hospital. With the second way, the patients do not advance their money to cover costs of care. At present, most HIV patients in the civil service medical benefit scheme depend on the medical benefit direct reimbursement (Ministry of Finance, 2006).

In conclusion, although having health care coverage can reduce household out-of-pocket payments for health (Limwattananon et al., 2011; Louis, Ivers, Fawzi, Freedberg, & Castro, 2007; Otieno et al., 2010), patients with HIV still have limitations in their health care utilization for several reasons. For instance, first, some patients cannot access HIV care because they are mobile workers who live far from their registered hospital (Wattradul, 2002). Second, there are other expenses beyond health care costs covered by the health coverage allocation (Social Security Office, 2011) such as transport costs, food, patients' fees (50 baht), co-payment (30 baht), or the loss of wages due to absence from work (Hardon et al., 2007; Stevens, P. E. & Keigher, 2009). However, in Thailand, there are no research findings about the relationship between the topic of health coverage and retention in care. Therefore, the researcher will study this issue.

2.5.2 Access to Health Care

Access is a major concern in health care policy and health services research that has been given multiple meanings (Penchansky & Thomas, 1981) and changed with time as well as context (Himakalasa, Grisurapong, & Phuangsaichai, 2013). Aday and Andersen (1974) defined access as the means through which the patients gain entry to the medical care system and continue the treatment process. Penchansky and Thomas (1981) have indicated that access is a patient's ability or willingness to use the health care system. Clark (1983) defined access as entry to or use of the health care system. According to Ware and colleagues (1983), access means the respondent's personal care experiences or those of people in general with doctors and medical care services. Several problems that can occur when people gain entry to health care service can be inconvenient location of the doctor's office, long waiting

times to get an appointment, lengthy waiting time in the doctor's waiting room (Dahab et al., 2008; Muchedzi et al., 2010), and further wasted time in travelling long distances to the health center (Dahl, Mellhammar, Bajunirwe, & Bjorkman, 2008; Dennison et al., 2008; Matovu & Makumbi, 2007).

2.5.2.1 The Dimensions of Access to Health Care

Bice, Eichhorn, and Fox (1972) have identified access as affordability (client socioeconomic factors), distance traveled (accessibility), and relative lack of supply (availability). Penchansky and Thomas (1981) have determined the dimensions of access to health care as the fit between patients and the health care system which can be classified under 5 aspects as follows: (*1*) Availability is the adequacy of the match between the health care services and the needs of those using health services. (*2*) Accessibility is the ability to access the sources of health care service, taking account of patient transportation resources, travel time, distance, and cost. (*3*) Accommodation is the supply of resources that are organized to accept patients (including appointment systems, hours of operation, walk-in facilities, and telephone services) and the patients' ability to accommodate to these factors. (*4*) Affordability is the relationship of costs of services and providers' insurance or deposit requirements to the patients' income, ability to pay, and existing health insurance. (*5*) Acceptability is the patients' attitudes about the acceptability of personal and practice characteristics of providers. According to the 1982 National Study of Access by Aday and colleagues (1980) and Louis Harris Associates (1982) and the Medical Outcomes Study (MOS) by Marshall and colleagues (1993), access includes potential and realized access. Potential access are the barriers to or facilities of the health care system that influence the care obtaining of people such as having health insurance and a regular source of care, the length of time it takes to get an appointment, the length of time it takes to get to the location where care is received, the waiting times at the location of care, the availability of specialists when needed, and the cost of care. Realized access measures are indicators that people were able to use health care services such as whether or not the individual contacted a health care provider during the year, the number of doctor visits, the number of referrals to specialists, whether the individual was hospitalized, the number of hospitalizations, and the number of hospital days (Sherbourne, Hays, Burton, & RAND Corporation, 1994). In this study, the

researcher uses Cunningham and colleagues (1999) application of the concepts of access in MOS to assess perceived problems with access measured by subjective ratings under four dimensions consisting of affordability, availability, convenience, and access to specialists.

2.5.2.2 Access to Health Care and Retention in Care

Access to health care in each appointment at a HIV clinic is related to retention in care. For example, studies about health care utilization in the United States (Ding, L. et al., 2008; Solorio, Asch, Globe, & Cunningham, 2002) and free access to HIV treatment in Denmark (Helleberg et al., 2012) have reported that patients who did not have access to health care with HIV physicians or HIV medication were difficult retain in HIV care and treatment. This is unfortunate because health care service provided by HIV physicians is essential to their staying healthy and living a long life (Adedigba, Ogunbodede, Jeboda, & Naidoo, 2008; Scott et al., 2009). HIV physicians were more likely to listen, explain things well, and spend adequate time with the patients (Aspeling & Van Wyk, 2008; Jasek, Van Wye, Kerker, Thorpe, & Frieden, 2007). Moreover, the patients also depended on their providers to design and deliver health care that was specific to their needs (Cunningham, C. O. et al., 2007). In Thailand, there is no research finding about the relationship between access to care and retention in care. However, there are two researches that have studied barriers to access to health care in patients with HIV in northern Thailand. For example, a study in Chiang Mai province has shown that the patients who had access to a HIV clinic lost nearly a half day in waiting time and this caused them to be absent from their work. The patients had to borrow or seek financial assistance from their relatives for other expenses such as travel and food costs (Himakalasa, Grisurapong, & Phuangsaichai, 2013). Another study in Chiang Rai province have showed that receiving physical examination or treatment was important reasons for patients' attending HIV clinics although they have incurred travel cost and/or lost wages (Tsunekawa et al., 2004). In conclusion, the problem of access to health care might impede the retention in care (Bleich, Ozaltin, & Christopher, 2009; Hardon et al., 2007) and lead to negative health outcomes (e.g. mortality) (Prentice & Pizer, 2007)

2.5.3 Receiving HIV Care

Receiving HIV care for people with HIV infection should conform to the responsibilities and competencies of HIV nurses who provide direct care to them. Jamjuree (2006) explains 6 responsibilities of nurses who care for people living with HIV/AIDS as: 1) Preventing HIV infection in people with risk behavior; 2) Seeking new people with HIV infection; 3) Caring for people with HIV infection; 4) Caring for people with AIDS; 5) Caring for people with AIDS-late stage and; 6) Patients' family care both before and after the death of the patient. Songwathana (2011) proposed that HIV nurses should have 4 core competencies for caring for patients with HIV/AIDS including health education and consultation, holistic practice in symptom management, coordinating and referral for continuing care, and management as a care team manager and change agent.

The literature review has shown that patients with HIV should receive: first, health education and consultation as individual health services are an important part of HIV care and treatment services; second, caring for patients as a whole person which includes the physical, emotional, mental and spiritual dimensions of health. In addition to providing ARV drugs and other medical interventions, holistic care may involve a range of complementary therapies such as nutritional support and exercise (CATIE, 2004); third, the patients receive care from other related units through the coordinating nurse (Andersen et al., 2007; Andersen, Smereck, Hockman, Ross, & Ground, 1999; Shelton, Golin, Smith, Eng, & Kaplan, 2006). Fourth, the patients get help in their initial health care appointments, to learn how to navigate the health service system, and to establish HIV out-patient care after delivery (Bradford, Coleman, & Cunningham, 2007).

2.5.4 Referral

A referral is defined as a healthcare process that results in the transfer of patient care from a referring provider to a secondary service or provider, and the transfer back when and if appropriate (Esquivel, 2008). Another meaning is that a referral is a process by which a health worker/facility transfers the responsibility of care to another health worker/facility or social worker. Referral might be vertical, horizontal or diagonal ("Patient referral implementation guideline," 2012). A referral

system is a co-operative framework in which stakeholders fulfill their obligations to protect and promote the rights of people living with HIV (PLHIVs) by coordinating strategic partnerships with civil society. A relationship among all levels of stakeholders guarantees that the PLHIV receive the best possible treatment, care and support services (Department of Social Welfare and Development & United Nations Development Programme, 2010).

2.5.4.1 The Advantages of Establishing a Referral System (Department of Social Welfare and Development & United Nations Development Programme, 2010):

1. To obtain the highest quality care and treatment, assistance and protection to all PLHIV;
2. To facilitate the provision of services to meet the various needs of the PLHIV;
3. To establish a feedback mechanism between and among concerned agencies to ensure that requested services are provided;
4. To make possible the exchange of knowledge, skills, practices and experiences geared towards enhancing capacities of service providers; and
5. To achieve a more rational use of financial and human resources for more efficient and effective delivery of services.

2.5.4.2 Referral and Retention in Care

The referral to establish HIV out-patient care and retention in HIV care and treatment after delivery is necessary for the mothers to ensure that they gain entry to appropriate health facilities (Nsigaye et al., 2009). In Thailand, there is no research finding about the referral rate among mothers with HIV after delivery. Two researchers have suggested that there is a lack of collaborative work to retain the mothers after giving birth in the Thai health service system (Sirinirund et al., 2008; Voramongkol, 2011). In Kenya, only half of them were referred for long-term HIV care and treatment after the PMTCT program (National AIDS and STI Control Programme, 2005). In Tanzania, a study among mothers with HIV who were referred for monitoring and treatment at HIV Care and Treatment Centers (CTC) has shown that the largest loss among patients occurs in referral to the first attendance at CTC

(Anne et al., 2010). Another study in rural Tanzania, conducted two years after initiating the referral system, reported that approximately 22% of the patients had not registered at a HIV clinic within six months of referral and 36% were no longer attending at six months of follow-up (Wringe et al., 2009). Studies in the United States of America (Giordano et al., 2005) and Malawi (Gareta et al., 2010) have shown that the referral system failed to establish outpatients' care and retention in care for patients with HIV because of a lack of outreach on referral or connection to HIV medical care and poor outreach service coordination in areas such as education, information, communication, nutritional support and adherence counseling etc. (Cabral et al., 2007; Zittel-Palamara et al., 2005). Regarding referral information, a study in Zimbabwe revealed that the mothers with HIV who understood the referral process and had adequate referral information enrolled in and were retained in the national ARV program after delivery (Muchedzi et al., 2010). Moreover, a study in Kenya has specified that there was a systematic gap in the referral process because the health system did not facilitate for HIV care and treatment for asymptomatic or HAART-ineligible mothers with HIV. Therefore, they might drop out of care after presenting for referral (Otieno et al., 2010).

In conclusion, the main purpose of referral is the provision of an effective mechanism of ensuring access to a quality and timely delivery of services. Increasing the efficiency of referral between PMTCT and HIV care is an important opportunity to retain the mothers with HIV infection the health care system in order that their health would be closely monitored and abnormal HIV/AIDS signs and symptoms could be diagnosed quickly to delay progression to a more advanced stage of the disease and thereby improve survival rates (Kitahata et al., 2009).

2.5.5 Attitudes toward Health Care Providers (HCPs)

Attitude means a feeling or emotion toward a fact or state (Stevens, M. A., 1995). Attitude is cognition with some degree of aversion or attraction (emotional valence) that reflects the classification and evaluation of objects and events ("Attitude," 2012). Attitudes are multi-dimensional constructs that include three domains: the cognitive (referring to mental states—conscious or unconscious), the affective (referring to values, beliefs, or feelings) and the behavioral (referring to a

predisposition to certain behaviors or actions) (Altmann, 2008). An attitude might be positive or negative, favorable or unfavorable, and so might responses to a person, object, or situation (Dawson, 1992; Small, 1995). A health care provider (HCP) is an individual or an institution that provides preventive, curative, promotional or rehabilitative health care services in a systematic way to individuals, families or communities (Mosby, 2009). McGraw-Hill (2002) have defined health care provider as a person who provides any form of health care, e.g. physician, nurse, dentist, mental health worker, birth control counselor. Health care providers are considered of importance in health care and have the potential for greater influence in chronic diseases such as HIV/AIDS because the HCPs are associated with other interventions including improving client knowledge regarding therapy, management of side effects of treatment, integration of the therapeutic regimen into the client's daily life (Burke-Miller et al., 2006; Wolf et al., 2005), adherence to HIV/AIDS therapy (Godin, Cote, Naccache, Lambert, & Trottier, 2005; Heckman, Catz, Heckman, Miller, & Kalichman, 2004; Roberts, 2002), continuity of care (Sualtz, 2003), and access to and retention in HIV primary medical care (Sherer et al., 2002). Bodenlos and colleagues (2004) have proposed that attitudes toward health care providers are critical to the assessment and interpretation of patients on the environment and interactions with their HCP. These attitudes will be conditioned by experiences or expectations associated with disease specific factors.

2.5.5.1 The Dimensions of Attitudes toward HCPs

Hulka, Zyzanski, Cassel, and Thompson (1970) have determined that attitudes toward physicians and primary medical care consist of the three content areas of professional competence, personal qualities, and cost/convenience. Chenoweth and Piterman (1995) have determined the major factors of attitudes toward general practitioners (GPs) who have a special interest in HIV care as being the GPs' attitude, confidentiality and service, together with knowledge and skills. According to Bodenlos and colleagues (2004), patients with HIV are affected by stigma and deal with the entire health care team (i.e., physicians, nurses, counselors, dieticians). That may have a greater impact on attitudes toward health care providers. Bodenlos' attitudes concept included professionalism and emotional support (Bodenlos et al., 2004).

2.5.5.2 Attitudes toward HCPs and Retention in Care

Negative attitudes toward the provider characteristics have acted as a barrier to health service use (Burke et al., 2003; Scheppers, van Dongen, Dekker, Geertzen, & Dekker, 2006), while positive attitudes toward health care providers have been significantly related to greater outpatient appointment attendance at HIV clinics (Bodenlos et al., 2007; Kempf et al., 2010). Moreover, positive attitudes can predict more adherence to treatment (Godin, Cote, Naccache, Lambert, & Trottier, 2005). Therefore, having positive attitudes helps the patients to be successful in being retained in care. During the limited times of interaction between the health care providers and patients, there is hope of enhancing attitudes toward HCPs and of making effort to promote the increase of retention in care in patients with HIV.

2.5.6 Stigma

Goffman (1963) defined stigma as a powerful social label, stemming from a discrediting attribute of the individual, which radically changes their social identity. Stigmatization is an exercise of power over people (Gilmore & Somerville, 1994). The stigmatized are a category of people who are pejoratively regarded by the broader society and who are devalued, shunned or otherwise lessened in their life chances and in access to the humanizing benefits of free and unfettered social intercourse (Alonzo & Reynolds, 1995). According to Berger (2001), stigma refers to the mothers' perception about societal attitudes toward people with HIV and their self-awareness of being infected with HIV. Stigmatization is undoubtedly present with respect to overt negative attitudes, desire for social distance, and actual behavioral discrimination. Stigma is a key process of producing power relationships. It causes some groups to be devalued and others to feel that they are superior in some way. Stigma is part of a complex social struggle in relation to structures of inequality, notions of symbolic violence and hegemony (Parker & Aggleton, 2003). Moreover, Hinshaw referred to stigma as signaling an invisible, internal mark of shame which is related to membership in a deviant or castigated subgroup (Hinshaw, 2005).

2.5.6.1 The Dimensions of Stigma

According to Berger and colleagues (2001), the core dimensions of the HIV stigma scale comprise 4 domains: *1)* personalized stigma

means personal experiences of rejection for having HIV or fears of discrimination; *2)* disclosure concern means keeping their HIV status secret or controlling who knows of it; *3)* negative self-image means feeling badly about oneself because of having HIV and it produces feelings such as guilt, shame, or a feeling of uncleanness and; *4)* concern with public attitudes about people with HIV means worries about keeping a job and fear of discrimination. Genberg and colleagues (2008) divided stigma into 3 dimensions: *1)* Shame, blame, and social isolation: related to labeling, devaluing and isolation of people living with PLHA; *2)* Perceived discrimination: the manifestations of stigma and the discrimination that community members perceive that PLHA face in their communities and; *3)* Equity which focuses on the endorsement of views that PLHA should be considered equal members of society like those who are HIV/AIDS-free. According to Nguyen and colleagues (2009), stigma is divided into felt/perceived stigma and enacted stigma. Felt stigma is fear of real or imagined societal attitudes and potential discrimination arising from an undesirable attribute or disease (such as epilepsy or HIV), or association with a particular group (such as drug users). Enacted stigma refers to the real experience of discrimination, for example losing employment, health benefits, or friends.

2.5.6.2 Stigma and Retention in Care

In regards to Stigma in Thailand, a study of Genberg and colleagues (2008) has shown that stigma in Thailand had higher scores than some developing countries. Thai society has not accepted PLHA. People express their disgust through their eye contact or behavior or the way they talk about PLHA. Moreover, PLHA have been denied involvement in a peer group/other activities or rejected when applying for work. People with HIV infection can feel lonely, disappointed, and fearful of being rejected or being teased about having HIV infection. They can feel hurt and stressed when someone who knows of their HIV status expresses his or her disgust toward them (Fongkaew et al., 2013). In particular, being female is significantly correlated with perceived stigma related to HIV/AIDS (Li, Sung-Jae, Thammawijaya, Jiraphongsa, & Rotheram-Borus, 2009). The literature review has shown that women fear stigma and negative reactions from their current sex partner and also possible violence directed at them (Kumar, Waterman, Kumari, & Carter, 2006; Thanawuth & Chongsuvivatwong, 2008). Going to a public hospital has

been a common concern that makes it difficult to conceal HIV infection from the neighbors (Singhanetra-Renard, Chongsatitmun, & Aggleton, 2001) and could lead to fears about stigma (Safren et al., 2005). In Thailand, several studies have specified that stigma has been a barrier to treatment adherence (Maneesriwongul, Tulathong, Fennie, & Williams, 2006) and retention in care (Naar-King et al., 2007). This is congruent to studies in other countries such as Ethiopia (Feyissa, Abebe, Girma, & Woldie, 2012), Uganda (Nakigozi et al., 2013), Vietnam (Hanh, Rasch, Chi, & Gammeltoft, 2009; Thanh, Moland, & Fylkesnes, 2012), and the United States of America (Kinsler, Wong, Sayles, Davis, & Cunningham, 2007; Rintamaki, Davis, Skripkauskas, Bennett, & Wolf, 2006). In conclusion, the perceived stigma by people living with HIV might prevent them from seeking treatment, care and support, and exercising other rights such as working, attending school, and using antenatal care (UNAIDS, 2005).

2.5.7 Disclosure of HIV Status

The concept of HIV disclosure is derived from the ‘self-disclosure’ concept. Self-disclosure is simply understood as a communication approach that involves sharing information about oneself which can be viewed as running the risk of rejection through telling how one feels and thinks about certain life events (e.g. a diagnosis of HIV/AIDS or cancer) (Duldt & Giffin, 1985). Self-disclosure of HIV/AIDS has enormous risks because of the stigma. It might occur due to blame, shame, anger, and fear (Thorne, Newell, & Peckham, 2000; Turan, Miller, Bukusi, Sande, & Cohen, 2008). On the other hand, disclosing one’s HIV status can benefit people living with HIV infection in several ways, especially new HIV-infected mothers in need of support from their families. Disclosure to a partner or family member can help to support planning for the child’s future care. If the mother passes away or becomes ill, a partner or other family member can prepare to take care of the child (Medley, Garcia-Moreno, McGill, & Maman, 2004).

Disclosure of HIV Status and Retention in Care

Most mothers with HIV want to keep secrets from others, but they must expose themselves to health service providers when they gain entry to HIV clinics (Ghimire & van Teijlingen, 2009). As a result, mothers with HIV infection do not always utilize health care services until they have acute or AIDS-related

complexes (Ioannidis et al., 1997). Sometimes, they try to obtain other health service providers from hospitals outside their province or in places far from their home (Sangchart, Hanucharurnkul, Rujkorakarn, Euswas, & Yoddumnern-Attig, 1999). In Nigeria, patients with HIV who disclosed their HIV status to spouse/family were more likely to be adherent to HIV treatment programs (Charurat et al., 2010). Disclosure of HIV status was a predictor of access to care in Chinese people living with HIV (Ding, Y., Li, & Ji, 2011). Moreover, in Barbados, in the West Indies, postpartum women with HIV who had disclosed their HIV status were more likely to be attending the HIV clinic for follow-up and care (Kumar, Waterman, Kumari, & Carter, 2006). A study of Latino and African American men in Los Angeles has shown that disclosure of HIV status to more social network members was associated with retention in HIV care (Wohl et al., 2011).

2.5.8 Perceived Health Status

Perceived health status is the self-evaluation of health as a subjective state (Pender, Walker, Sechrist, & Frank-Stromborg, 1990). Perceived health status or self-rated health is an inclusive and accurate measure of health status and health risk factors. It captures the full array of illnesses a person has and possibly even symptoms of disease as yet undiagnosed but present in preclinical stages (Idler & Benyamini, 1997). William and Worthington-Roberts (1998) have stated that perceived health status is related to personal perception of one's own health and well-being, although perception and reality may not necessarily agree. Individuals who rated their health as excellent or good have a longer life expectancy than those who rate their health as fair or poor. Self-rating of health is a stronger predictor of life expectancy than actual physical status based on a medical examination. Positive feelings about one's health usually reflect a similar attitude toward life in general that supports positive adjustment and adaptation. Moreover, perceived health status measures behaviors because people behave largely according to what they perceive and how they feel (Lee, 1993).

Perceived Health Status and Retention in Care

Some HIV asymptomatic patients who do not have access to HIV-medical care and missed medical appointments perceive their health as good

(Arici et al., 2002; Boyles, Wilkinson, Leisegang, & Maartens, 2011; Brown et al., 2006; Giordano, Hartman, Gifford, Backus, & Morgan, 2009; McClure, Catz, & Brantley, 1999; Sinpisut & Suttharangsee, 2003; Thanawuth & Chongsuvivatwong, 2008), consider themselves at low risk for opportunistic infection (Mimiaga et al., 2009), and consider themselves as unqualified for HAART or high CD4 (Craw et al., 2008; Louis, Ivers, Fawzi, Freedberg, & Castro, 2007; Otieno et al., 2010). People living with HIV realize that they are sick when they get AIDS symptomatic symptoms. An increase in clinical symptoms has been shown to be associated with poor heath perception (Kirksey, Hamilton, & Holt-Ashley, 2002). While most mothers with HIV are newly infected cases and non-AIDS symptomatic patients (Aina et al., 2005; Chalermchockcharoenkit, Sirimai, & Chaisilwattana, 2006; Ekouevi et al., 2007; Melo et al., 2011), their perception of health status has been shown to be positive(Dao et al., 2010). Therefore, they might feel it is unnecessary to access health care or seek retention in care after delivery.

2.5.9 Perception of Severity of HIV/AIDS

The medical dictionary has defined perceived severity as a person's perception about the seriousness of the consequences of contracting a disease (Mosby, 2009). Rosenstock (1974) defined perceived severity as the perception of severity of an illness in possible consequences such as mortality, impairment, suffering, occupational impact, family life and social relations. Witte (1992) defined perceived severity as an individual’s beliefs about the seriousness or magnitude of the health threat. According to Groenewold, Bruijn, and Bilsborrow (2006), perceived severity refers to a person’s beliefs about the seriousness of contracting the health condition and its consequences. According to the U.S. National Institutes of Health (2012), perceived severity refers to how serious people believe a particular disease or condition is. It involves the negative consequences an individual associates with a health event or outcome.

Patients with different symptoms of disease and/or patients with different diseases (fatal or mild chronic) might have different responses to treatment (Gao, 1999). When one realizes the magnitude of the negative consequences of a condition, one can take the necessary actions to avoid those negative consequences (Jean-

Baptiste, 2008). For most patients with HIV, perceived severity of HIV is determined by the presence of physical symptoms, with severe illness onset often prompting clinic attendance (Wringe et al., 2009). The symptoms of HIV disease can vary greatly in frequency and severity among the patients with HIV infection. In the early stages of the disease, there may be no symptoms experienced by the patient (CDC, 2006) and the consequence is discontinued treatment and un-retention in HIV care and treatment.

Perception of Severity of HIV/AIDS and Retention in Care

Studies have shown different results in the effects of perception of severity of HIV/AIDS on retention in care. A study in American patients with HIV showed that perceived severity did not significantly affect retention in HIV treatment (Gao, 1999) while the perception of severity of HIV/AIDS in the Thai patients was a positive factor to retention in HIV/AIDS care (Chamroonsawasdi, Insri, & Pitikultang, 2011). In Uganda (Pariyo et al., 2009) and Tanzania (Roura et al., 2009; Wringe et al., 2009), perception of illness severity also influenced HIV clinic attendance and sustained attendance at treatment clinics. Studies in adults with HIV infection in rural KwaZulu-Natal, South Africa (Lessells, Mutevedzi, Cooke, & Newell, 2011) and the United Stated (Brown et al., 2006) showed that the proportion of retention in care was highest amongst the group which had perceived higher severity of HIV disease. In the same as other health problems, for instance, perceived severity of danger signs of pregnancy and labor was significantly related to utilization of maternal health services (Ebuehi, Roberts, & Inem, 2006). In diabetic patients, perceived severity was able to predict dietary control behavior in the patients with type 2 diabetes (Sawatsri, 2007). Therefore, the patients who perceive their illness to be severe then adhere better to their treatment.

2.5.10 Family Responsibility

Thai women comprise a large chunk of the blue collared workforce and they are the ones contributing financially for their family's upkeep. As mothers, women are the primary caretakers for their children and other family members (Bennetts et al., 1999; Bunting, Bevier, & Baker, 1999; Russell & Smith, 1998; Songwathana, 2001; Steinberg et al., 2002). Mothers realize the needs to take care of their children by themselves and they wish to be perfect mothers. Therefore, mothers

must carry almost all burdens on their own such as domestic chores (Sethaput & Pattaravanich, 1998), economic activities, psychosocial and physical care of family members (Ogden, Esim, & Grown, 2006; Rajaraman, Russell, & Heymann, 2006), child health care, and care for their own health status. Nobody can share some of the burden of child rearing and housework. Thai women also are under great tension from the responsibility to their families. They suffer the double burden of housework and their burden is not only the housework and taking care of members of the family, but also its financial problems (Sato, 2003).

Most HIV-infected women are more likely to be living in poverty. They have to do their household work by themselves. A study in longstanding illness of Swedish women shows that mothers experienced worse self-rated health and more fatigue than women without children. The odds of poor self-rated health and fatigue increase with the number of children (Floderus, Hagman, Aronsson, Marklund, & Wikman, 2008). Furthermore, mothers also have to take responsibility for caring for older adults in the household (Matthews & Power, 2002). If their husbands are sick due to HIV/AIDs, they have to take the double burden, especially in female-headed households (Podhisita, Havanon, Knodel, & Sittitrai, 1990). Those mothers have more burdens about family responsibilities, difficulties in obtaining time off from work (Safren et al., 2005; Tlebere et al., 2007), family caregivers or her children (Clark, H. J., Lindner, Armistead, & Austin, 2003; MacLachlan et al., 2009; Matthews & Power, 2002), especially responsibility for dependent children (Hanh, Rasch, Chi, & Gammeltoft, 2009). These causes lead to missing appointments with health care providers.

2.5.11 Social Support

Several theoretical definitions of social support were found in the literature review. Caplan (1974) describes a social system as others who: 1) help people to mobilize their psychological resources in order to deal with emotional problems (linking, loving, and empathy); 2) information (about the environment); 3) instrumental aid (providing an individual with money, material, skills, and advice in order to help them to deal with particularly stressful situations that they are exposed to). Cobb (1976) defined social support as information leading the subject to believe

he is cared for and loved, esteemed and valued, and that he belongs to a network of communication and mutual obligations. Kahn (1979) described social support as intentional human interaction that involves one or more of the following elements: (a) affect, which refers to appreciation, admiration, respect or love, as well as creating a sense of security; (b) affirmation, which includes reinforcement, feedback, and influencing the individual's way of making decisions; and (c) aid, such as objects or money, and spending tune in order to help someone. House's (1981) conceptualization of social support includes components of emotional, instrumental, informational, and appraisal support. Schwarzer & Rieckmann (2000) refers to the function and quality of social relationships, such as perceived availability of help or actually received support. It occurs through an interactive process and can be related to altruism, a sense of obligation, and the perception of reciprocity. For Finfgeld-Connett (2005), social support is an advocative interpersonal process that is centered on the reciprocal exchange of information and is context specific.

Social support is an omnibus concept that comes in different dimensions, forms, and different ways. For HIV positive patients, social support may change over time depending on their HIV status disclosure, situations, and/or level of closeness of their interpersonal relationships. A social support network may assure effective social support in some situations but may not be effective in every situation.

2.5.11.1 Forms of Social Support

Various types of social support are possible that depend on individual researchers' perspectives and characteristics of participants. House (1981) described four main categories of social support: 1) Emotional support which generally comes from family and close friends and is the most commonly recognized form of social support. It includes empathy, caring, love, and trust; 2) Appraisal support which involves transmission of information in the form of affirmation, feedback and social comparison. This information is often evaluative and can come from family, friends, co-workers, or community sources; 3) Informational support which involves advice, suggestions, or directives that assist the person to address or respond problems; 4) Instrumental support which is the most concrete direct form of social support, encompassing help in the form of money, housing, time, in-kind assistance, and other explicit interventions on the person's behalf. According to Nor

beck (1984), this might cover the 3 dimensions of affection, affirmation, and aid that are seen recurrently in the social support literature. In addition, the network properties of size, stability (duration of relationships), and accessibility (frequency of contact) are also measured, as well as changes in the convoy or support system due to losses of relationships..

2.5.11.2 Source of Social Support

There are two sources of social support that have been discussed in previous studies; these are formal and informal sources (Shippy, 2007). The first relates to community-based support, government agencies, the health care industry (e.g. doctors, nurses, and other health care providers), or self-help groups. The second refers to inter-household relationships between the household and community members, partners, family, relatives, friends, coworkers, and neighbors (Mutangadura, 2000; Spirig, 1998).

2.5.11.3 Social Support and Retention in Care

Social support has been found to be associated with several health behaviors of HIV positive people. For HIV positive pregnant women, post-test counseling is a prime time for receiving all kind of social support from health care staff (Hanh, Rasch, Chi, & Gammeltoft, 2009). Most of them are poor and ask for governmental services such as infants' nutritional benefits and health care coverage benefits (Jirapaet, 2001; National Health Security Office, 2011; Sowell et al., 1997). Meanwhile, families provide sympathy and care, as well as emotional and financial support (Singhanetra-Renard, Chongsatitmun, & Aggleton, 2001). Women are more likely than men to need social support (Sherer et al., 2002). High social support of spouse, family, and friends is most commonly highlighted as an enabling factor of adherence to the HIV counseling clinic (Chinkonde, Sundby, & Martinson, 2009; Creek et al., 2009; Sinpisut & Suttharangsee, 2003), antenatal care (Napravnik, Royce, Walter, & Lim, 2000; Tlebere et al., 2007), antiretroviral therapy and postnatal PMTCT program (PN-PMTCT) (Nassali et al., 2009) while low social support from a spouse is related to delays in seeking care during pregnancy and after delivery (Williams, A. B., Shahryarinejad, Andrews, & Alcabes, 1997) and has shown as barrier to accessing health care services (Scheppers, van Dongen, Dekker, Geertzen, & Dekker, 2006; Zhou, 2009). The adequacy of social support has been significantly

associated with regular medical appointments (Catz, McClure, Jones, & Brantley, 1999) and positive attitudes towards taking medication (Godin, Cote, Naccache, Lambert, & Trottier, 2005). Lack of social support system (Valverde et al., 2006) and cost of HIV co-infection disease i.e. TB (El-Sony, 2006; Okot-Chono et al., 2009; Stevens, P. E. & Keigher, 2009) increased health service utilization in HIV-positive patients.

In conclusion, if mothers receive adequate social support from their spouse, families, friends and community, they will be ready to fight against with HIV. This means not only keeping a strong mind, but also accepting their situation and being able to look positively toward the future to retain their health.

CHAPTER III
METHODOLOGY

This chapter provides a description of the research methodology that is used in this study. It deals with the research design, population and samples, sample size estimation, instrumentation, protection of human subjects, data collection, and data analysis.

3.1 Research Design

This retrospective study examines the predictive factors of retention in care at the first year after delivery among Thai mothers with HIV.

3.2 Populations and Participants

3.2.1 Populations

All of the mothers with HIV gave birth at Siriraj Hospital from January 1, 2010 to December 31, 2012.

3.2.2 Participants

All mothers with HIV who had given birth at Siriraj Hospital from January 1, 2010 to December 31, 2012 according to the name list of the Gynecological Infectious Diseases and Female Sexually Transmitted Disease Unit, Department of Obstetrics and Gynecology, Faculty of Medicine, Siriraj Hospital were invited through both personal contact and phone calls and asked for their voluntary participation in this study between March 1, 2014 and July 31, 2014.

The mothers who met the inclusion criteria were eligible to be selected as part of the sample group if they met the following criteria:

1. They were 18 years old or older.
2. They knew of their own HIV-positive status.
3. They were able to listen, speak, read, and write Thai
4. They were able and willing to participate.

3.3 Sample Size Estimation

This study, as social science research, was not harmful to human health. According to Murphy and colleagues (2009), the power should not be less than .50. The actual probability of a Type I error is expected to fall between .03 and .07 at the nominal level of α of .05 (Kim, 2010; Ringquist, 2013). The researcher determined that the significance level (1-α or Type I error) should equal .07 and power of testing (1-β or Type II error) should equal .70.The By the proportion of retention in care in postpartum mothers with HIV from a prior study was 38.5% (Kongyu, 2006). The sample size was calculated using the following formula (Patumanond, 1998).

$$N = \frac{Z_{\alpha}^{2} PQ}{d^{2}}$$

When N = Sample size

Z_{α} = Standardized value from Z table at α = .07 (type I error)

P = Estimated population proportion from previous study

Q = 1 – P

d = Error allowance (the product of reliability co-efficient and standard error; in this study it equals .07)

$$N = \frac{(1.96)^{2} (.385) (.615)}{(.07)^{2}}$$

$$= 185.63$$

3.4 Setting

Siriraj Hospital is a tertiary hospital that has the capacity to provide care and treatment for pregnant women and mothers with HIV infection, especially patients with HIV complications. The hospital has implemented the Prevention of Mother-to-Child Transmission (PMTCT) program for pregnant women with HIV according to the National guidelines on the Care and Treatment and it has also implemented the Promoting Maternal and Infant Survival Everywhere Project (PROMISE Project). The PROMISE Project was first implemented in 2010 and has continued until now. These care provisions are provided by collaboration between the Gynecologic Infectious Diseases and Female Sexually Transmitted Disease Unit and HIV out-patient clinics.

During antenatal care, pregnant women with HIV can access the free PMTCT program at registered hospitals according to their health coverage (i.e. universal coverage, social security scheme, and civil service medical benefit scheme). If those hospitals do not have the capability to provide HIV care and treatment, the patients are referred to potential hospitals such as Siriraj Hospital. However the universal coverage scheme is flexible about free health service use at any hospitals during the antenatal period. At the obstetric and gynecological (OB&GYN) clinics, obstetricians and gynaecologists provide fetal health monitoring and sexually transmitted disease screening for pregnant women and mothers with HIV infection. Obstetrics and Gynecological (OB&GYN) nurses provide not only routine prenatal care but also the process of HIV voluntary counseling and testing (VCT) and health education during antenatal care to postpartum period. This involve areas such as disclosure of HIV status, couple counseling, therapeutic abortion, ARV drug use and its side effects, the importance of ARV drugs adherence, probability of HIV transmission to their infants, safer sex, and family planning. Moreover, the program supports free infant formula for 12 months to replace breastfeeding and reduce the risk of transmission between mothers with HIV and their infants (National Health Security Office, 2013). Services of the Gynecologic Infectious Diseases and Female Sexually Transmitted Disease Unit are available every day from 9.00 a.m. to 12.00 p.m. at the 3rd Fl., Out-patient Building. At the HIV clinic, the infectious disease (ID) physicians provide physical examination, laboratory health monitoring (i.e. CD4, viral load, chest X-ray, liver function test), and ARV drugs prescription for pregnant women and

mothers with HIV infection (National Health Security Office, 2013). HIV nurses also provide counseling about ARV drug use and its side effects. Moreover, HIV nurses coordinate with the National Health Security Office to register the patients for health coverage. Services of the HIV clinic are available every Tuesday from 9.00 a.m. to 12.00 p.m. at the 4th Fl., Out-patient Building.

The PROMISE Project provides free antiretroviral regimens, laboratory testing, and travel costs (1,000 baht per clinic visit). After delivery, mothers who had CD4 counts more than 500 cells/mm^3 were invited to participate in the PROMISE Project. According to protocols of the project the mothers were assigned into 2 groups, mothers on antiretroviral (ARV) drugs and mothers not on ARV. First, the mothers who were on antiretroviral drugs were monitored by laboratory testing for liver and renal function, electrolytes, complete blood count, CD4, and viral load every 3 month. Every year, the mothers were monitored blood for glucose and lipid, and protein urine. Second, the mothers who were not on antiretroviral drug were similarly monitored to the first group except for viral load (Currier, 2010). The researchers of the PROMISE Project followed-up the mothers at the HIV clinic every 3 months until 5 years after delivery.

After delivery, under universal coverage mothers engaged with their registered hospital where they could receive for free all treatment related to HIV/AIDS. The mothers who did not engage with their registered hospital received only 3 items for free. These were ARV drugs, CD4 2 times a year, and viral load testing one time per year. This excluded other screening such as liver and renal function test, blood for lipid tests, electrolyte and glucose tests, urinalysis, chest X-ray etc. (National Health Security Office, 2013). Regarding the social security scheme, the patients who were in the social security scheme used the health care service for free after giving birth at their registered hospital only. Therefore, the patients had to be referred to their registered hospital for postpartum check-ups or long-term health monitoring (Social Security Office, 2011). However, under universal coverage and the social security scheme, mothers who had health service utilization at public hospitals also received free cervical cancer screening and treatment. In regard to the civil service medical benefit scheme, patients who under this scheme could use care service

at any hospitals according to the announcement of the Comptroller General's Department (CGD), Ministry of Finance.

3.5 Instruments

In this study, the researcher used five self-reported questionnaires. The questionnaires were the Personal Information Questionnaire, Access to Care Questionnaire, Receiving HIV Care Questionnaire, Attitudes toward HIV Health Care Providers Scale (AHHCP), and Short Form Stigma Scale.

3.5.1 The Personal Information Questionnaire

The Personal Information Questionnaire (see Appendix A) was developed by the researcher in order to collect the demographic data and other factors including age, marital status, educational level, occupation, family income, number of family members, health coverage, average cost per visit, disclosure of HIV status, referral, and retention in care.

3.5.2 Access to Health Care Questionnaire

Cunningham and colleagues (1999) applied the concept of access from the 1982 National Study by Louis Harris Associates and the MOS by Marshall and colleagues (Cunningham et al., 1995). The measurement of access to health care is the assessment of perceived problems with access measured by subjective ratings through four subscales comprising affordability (costs of services or ability to pay), availability (sufficiency of health care services and needs for health service use in emergency, hospital, and urgent care), convenience (convenience and closeness of location), and access to specialists. Cunningham and colleagues (1999) chose six items including affordability (1 item), availability (3 items), convenience (1 item), and access to specialists (1 item). The Access to Care Questionnaire in the Thai version was translated and modified by the researcher (see Appendix B).

The Translation Process of the Access to Care Questionnaire

Since the Access to Care Questionnaire has never been used in Thailand before, the researcher utilized the back translation method to investigate the equivalence of meaning between English and Thai languages. Using this guideline has been recommended by several researchers (Maneesriwongul & Dixon, 2004; White & Elander, 1992). The original English version was translated into Thai by a Thai person who had studied in the United States for 5 years. The Thai translated version was then back translated into the English language by the bilingual translator who was fluent in both languages. The back-translated version of the instrument was compared with the meanings of the original version by an American English native speaker who did not know the Thai language. Three HIV experts (see Appendix C) were given the objectives and items and were asked to independently rate the relevance of each item to the objectives using a 4-point rating scale: (1) not relevant, (2) somewhat relevant, (3) quite relevant, and (4) very relevant (Waltz, Strickland, & Lenz, 2005). Any discrepant item were discussed and revised till there was agreement between at least 2 of the 3 HIV experts or 66 percent agreement.

Validity and Reliability

The Access to Care Questionnaire was reported to have acceptable internal consistency among persons living with HIV with Cronbach's alpha coefficient equal to 0.75 (Kinsler, Wong, Sayles, Davis, & Cunningham, 2007; Sayles, Wong, Kinsler, Martins, & Cunningham, 2009) and 0.74 (Cunningham et al., 1999; Cunningham et al., 1995). In this study, the alpha Cronbach’s coefficient obtained for the pilot group was 0.50 and that for all mothers was 0.62.

Criteria for the Access to Care Scoring

There was a set of six questions with each item measured on a 5-point Likert-type scale from strongly agree to strongly disagree.

The scoring system for Access to Care scale was determined as follows:

Response Options	**Score for positive items**	**Score for negative items**
Strongly disagree	1	5
Disagree	2	4
Not Sure	3	3
Agree	4	2
Strongly agree	5	1

Scale of each item was determined for positive items (3, 4, 5, and 6) and negative items (1 and 2). Scores were ranged between 6-30 points with higher scores indicating better access to care.

3.5.3 Receiving HIV Care Questionnaire

The Receiving HIV Care Questionnaire (RHCQ) was developed by the researcher based on the literature review, observation, and interviews with HIV nurses at OB&GYN and HIV out-patient clinics. The RHCQ was generated from reviewing articles regarding receiving HIV care. In field work, the researcher interviewed a nurse with at least 5 years experience in HIV patients care to explore the process of care for the mothers with HIV during pregnancy and the postpartum period. The interview focused on retention in health care for mothers with HIV. The RHCQ consists of each set of 5 questions, namely mothers' perception of services provided by HIV nurses at HIV and OB&GYN out-patients clinics to the mothers with HIV including assessment of health problems, provision of individual counseling and health education, management of medical appointments, and coordination between clinics and other health units.

Validity

For this study, the RHCQ was not performed as a field test and item analysis had not been conducted because of limitations of time. However, it was evaluated for content validity by a panel of three HIV experts (See Appendix C). They were given the objectives and items and were asked to independently rate the relevance of each item to the objectives using a 4-point rating scale: (1) not relevant, (2) somewhat relevant, (3) quite relevant, and (4) very relevant (Waltz, Strickland, &

Lenz, 2005). Any discrepant items were discussed and revised until there was agreement between at least 2 of the 3 HIV experts or 66 percent agreement.

Reliability

In the pilot phase of the study, the RHCQ was tested for internal consistency among 20 mothers with HIV who had inclusion criteria similar to the participants. In this study, the Kuder-Richardson method obtained for the pilot group was 0.74 and that for all mothers was 0.92.

Criteria for the RHCQ Scoring

The RHCQ consisted of yes or no question (Answer: Yes = 1, No = 0). The 5th item of the RHCQ could be waived for the mothers who had never missed appointment during antenatal care. Thus, the mean RHC scores of each mother were calculated as follows:

$$\text{The mean RHC scores} = \left(\frac{\text{Sum of yes answers}}{\text{The number of answered items}}\right) \times \text{The total number of items in RHCQ}$$

A higher score indicated a higher level of mothers' perception of services provided by HIV nurses.

3.5.4 Attitudes toward HIV Health Care Providers Scale (AHHCP)

Bodenlos and colleagues (2004) developed an initial set of 19 items that was generated from topics discussed in review articles examining patients' relationships with HCPs. Items were constructed by two researchers based on these reviews and anecdotal information from interactions with HIV-positive patients. Item sets were independently generated and then reviewed by various staff at the HIV clinic for feedback and suggestions. Discussions were held about the items and redundant or ambiguous items were eliminated. The initial item pool assessed the extent of agreement with different attitudes toward the medical team. Individual items from the AHHCP were scored using a 6-point Likert style rating system (ranging from strongly agree to strongly disagree) (Bodenlos et al., 2004).

The Translation Process of the Attitudes toward HIV Health Care Providers Scale (AHHCP)

Since the AHHCP scale had never been used in Thailand before, the researcher utilized the back translation method to investigate the equivalence of meaning between English and Thai languages. Using this guideline has been recommended by several researchers (Maneesriwongul & Dixon, 2004; White & Elander, 1992). The original English version was translated into Thai by a Thai person who had studied in the United Stated for 5 years. The Thai translated version was then back translated into the English language by the bilingual translator who was fluent in both languages (see Appendix B). The back-translated version of the instrument was compared for its meanings to the original version by American native speaker who did not know the Thai language. Three HIV experts (see Appendix C) were given the objectives and items and were asked to independently rate the relevance of each item to the objectives using a 4-point rating scale: (1) not relevant, (2) somewhat relevant, (3) quite relevant, and (4) very relevant (Waltz, Strickland, & Lenz, 2005). Any discrepant items were discussed and revised till at least 2 of the 3 HIV experts agreed on the content or 66 percent agreement.

Validity and Reliability

The AHHCP was reported to have excellent internal consistency (Cronbach's alpha coefficient = 0.92) and convergent validity with the Patient Satisfaction scale (r = .59) (Bodenlos et al., 2004). In this study, the alpha Cronbach’s coefficient obtained for the pilot group was 0.92 and that for all mothers was 0.95.

Criteria for the AHHCP Scoring

Individual items of the AHHCP were scored using a 6-point Likert-style rating system (ranging from strongly agree to strongly disagree) that best described how they felt about it. Items were both positively and negatively worded. Higher scores indicated a more positive attitude toward HIV health care providers. The AHHCP is a brief self-report scale requiring 5 minutes to administer that can be easily used in health care settings.

The scoring system for AHHCP was determined as follows:

Response Options	Score for positive items	Score for negative items
Strongly disagree	1	6
Somewhat disagree	2	5
Disagree	3	4
Agree	4	3
Somewhat agree	5	2
Strongly agree	6	1

Scale of each item was determined for positive items (1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 14, 15, and 17) and negative items (7, 16, 18, and 19). Scores were ranged between 19-114 points with the higher scores indicating more positive attitudes toward HIV health care providers.

3.5.5 Short form-HIV Stigma Scale

The Short form 8-items HIV Stigma Scale of Maneesriwongul (2013) was modified from the 40-items of the HIV Stigma scale Thai version. The original version of HIV Stigma Scale was developed by Berger and colleagues (2001) based on the literature on stigma and psychosocial aspects of HIV infection. The perceived stigma of HIV occurs in the context of two factors: the individual's perception of societal attitudes toward people with HIV and his or her personal knowledge of being infected with HIV. The core dimensions of HIV Stigma scale consisted of 4 domains: *1)* personalized stigma meant personal experiences of rejection for having HIV or fears of discrimination; *2)* disclosure concerns meant keeping their HIV status secret or controlling who knew; *3)* negative self-image meant feeling badly about oneself because of having HIV such as having feelings of guilt, shame, or being unclean and; *4)* concern with public attitudes about people with HIV meant worries about keeping a job and a fear of discrimination. The Short form HIV stigma Scale still had 4 domains and 8 items. Maneesriwongul (2013) chose two items from each domain that the participants of the previous study rated at a high frequency in the range of 1 to 2.

Validity and reliability

The Short form Stigma Scale was evaluated for content validity, appropriateness of language and possibility of recording by a panel comprised

of 3 experts. The Short form Stigma Scale was tested for internal consistency with two pilot studies that were conducted at hospitals in northern and northeast Thailand among 40 patients with HIV for each study. The patients had the same characteristics as specified in the inclusion criteria. In the first pilot study, the Cronbach's alpha coefficients obtained for the pilot group were 0.63, 0.76, 0.48, and 0.65 for subscales and 0.78 for the total scale. In the second pilot study, the Cronbach's alpha coefficients obtained for the pilot group were 0.86, 0.62, 0.74, and 0.66 for subscales and 0.86 for the total scale. In the study of Maneesriwongul (2013), the Cronbach's alpha coefficient were 0.86, 0.56, 0.68, and 0.60 for subscales and 0.80 for the total scale. The Cronbach's alpha coefficient obtained for both the pilot group and all mothers was 0.86.

Criteria for the HIV Stigma Scale

For each of the 8 items, patients would rate the level of perceived stigma from strongly disagree (1) to strongly agree (4). The total scores ranged from 8 to 32. A higher score meant a higher level of perceived stigma.

3.5.6 Perceived Health Status Rating

Health State rating is on a 100 millimeter (mm) horizontal line or graphic rating scale (GRS)−a kind of visual analogue scale (VAS)−with end-point of 100 (best imaginable health state) and 0 (worst imaginable health state) (Wewers & Lowe, 1990). The mothers would identify a point on the scale at a position which best represented their current perceived health status. It took fewer than 10 minutes to explain and administer GRS (Lara et al., 2008).

Validity and Reliability

The visual analogue scale of the Health State rating was reported to have good reliability (the Spearman's rank correlation coefficients = 0.83) and convergent validity with time trade-off (TTO[1]) (r = 0.45) and standard gamble

[1] In time trade-off, participants state the number of life years at which living in the best attainable health state would be equivalent to living a given number of years in the deteriorated health state; the ratio of the former to the latter is the TTO utility value

(SG[2]) (r = 0.26) in Ugandan people with HIV who were recruited to a project of development of Antiretroviral Therapy in Africa (Lara et al., 2008).

Criteria for the Health State Rating

The visual analogue scale of the Health State was rated between healthy and unhealthy. A higher score meant a higher level of perceived health.

3.6 Protection of Human Subjects

The research proposal was reviewed by the Ethical Committee of the Faculty of Medicine, Siriraj Hospital, Mahidol University. This study had the protection of human subjects as follows. The researcher was concerned about maintaining the confidentiality of the participants; therefore the researcher selected the research assistants from staff volunteers at HIV clinic and a registered nurse at OB&GYN clinic. These research assistants had at least 5 years of HIV/AIDS patient care experience and were also familiar with patients with HIV and could access personal data, counseling forms, and the computer database of HIV or OB&GYN clinics. The research assistants first approached the patients who came to the clinic and called them for interview according to the collected name list. The research assistants accessed and collected the name list of the mothers, approached the mothers at the clinics, explained the research project to the mothers, asked for their voluntary participation in the study and self-disclosure to the researcher before data collection, and introduced the researcher to the participants. The research assistants or researcher informed the patients of their right to refuse to participate in or to withdraw from the study at any time (see Appendix F). The denial of participation did not affect care and treatment of the mothers and their child.

Personal information and identity such as names, hospital numbers (HN) or any other information that could be linked to the mothers would be recorded

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[2] Standard gamble requires participant to determine the rate of risk of a treatment option with two possible outcomes, immediate painless death and an improved health state, that would make it equivalent to remaining in the deteriorated health state; the respective probability of success is the SG utility value

separately from the questionnaires. The mothers' names were treated confidentially. A code number would be used on the questionnaires. The connected data to the mothers were not attached to the questionnaires and data files. The name list of patients and questionnaires was kept and locked separately in a document cabinet. A protected password was entered into computer database with only the researcher who could access the data files. The results of the study were summarized by group. All documents were destroyed after the study was completed.

3.7 Data Collection Procedures

This study was approved by the ethical committee of Faculty of Medicine, Siriraj Hospital. The researcher asked for permission to meet the Head of Department of Obstetrics and Gynaecology, Department of Preventive and Social Medicine, and Department of Pediatrics and also the Head Nurses of these clinics. The researcher introduced herself, explained the objectives and data collection procedures. The researcher asked for collaboration from OB&GYN physicians to screen the mothers who needed postpartum check-ups for cervical cancer. The researcher also asked for collaboration from nurses or staff who provided direct care to the mothers with HIV to be research assistant. The researcher explained to the research assistants' the objectives of the study, the procedures of data collection, the roles of research assistants, and the clarification of questionnaires.

After that, the data collections were as follows:

1. The researcher consulted research assistants at Gynecologic Infectious Diseases and Female Sexually Transmitted Disease Unit (OB&GYN clinic) about collecting the name list of the mothers who had given birth from January 1, 2010 - December 31, 2012.

2. The research assistant checked the status of the mothers' medical visits at OB&GYN and HIV-outpatient clinics and then the researcher split the mothers into two groups: the mothers who had attended HIV and/or OB&GYN clinics, Siriraj Hospital and the mothers who had not attended HIV and/or OB&GYN clinics, Siriraj Hospital.

3. The process of data collection.

3.1 The data collection for the mothers who attended at HIV and/or OB&GYN clinics, Siriraj Hospital was as follows.

The research assistant approached the mothers who attended at the clinics according to the name list and inclusion criteria of the study. The research assistant explained whatever was in the participant information sheet and asked for their voluntary participation in the study and self-disclosure to the researcher. The research assistant marked a "√" on a box in front of the phrase "willing to participate" on the right-hand corner of the questionnaire.

3.1.1 The mothers did volunteer to participate in the study but they did not volunteer for self-disclosure to the researcher. The research assistant asked the participants to complete the first part of questionnaire (The Personal Information Questionnaire). Then, the participants completed the remaining questions by themselves and returned the questionnaire into the box at the clinic by themselves. The research assistant gave the clinic's address and s telephone number to the participants to call back to her if they had doubts or wanted to consult about health problems after completed questionnaire.

3.1.2 The mothers did volunteer to participate in the study and did volunteer for self-disclosure to the researcher. The research assistant introduced the researcher to the participants. After that, the researcher then collected data by herself.

3.1.3 The mothers did volunteer to participate in the study but were inconvenient to answer question at the clinic. They gave the research assistant their phone number and available time to call back to them. After that, the research assistant then followed on the process of telephone interview to item no. 3.2.3

3.1.4 The mothers did not volunteer to participate in the study. The research assistant said "*Thank you*". The research assistant reassured that their denial of participation would be without prejudice to them or their child's continuing medical treatment.

In case the mothers came to the clinics with their relatives who did not know the HIV status of the participants, the research assistants and researcher's dialogue would be as follows:

"Hello, I'm (nurse's name) who provides direct care to the mothers. Are you relatives of (mothers' name). I'd like to take her to assess health problems, just a moment, please."

3.2 The data collection for the mothers who did not attend at HIV and/or OB&GYN clinics, Siriraj Hospital was as follows:

3.2.1 The research assistant mailed a follow-up postcard to the mothers who did not attend at either OB&GYN or HIV clinics, Siriraj Hospital, according to the address list on the counseling form with the following message:

The message in a follow-up postcard

To...................

Now is the time that you should attend OB&GYN clinic to screen for cervical cancer. If you want to come to Siriraj Hospital, please call to nurse (nurse's name) at the clinic to make an appointment for ease of service access with no charge. Tel. 02-4197377

or

If you have received cervical cancer screening from other health centers or hospitals, please contact us at Tel. 02-419XXXX to update your treatment history on the counseling form.

Signed (nurse's name)

Two weeks after mail the postcard, if the mothers had not called the nurse at the OB&GYN clinic, the research assistant called back and talked to them via telephone.

3.2.3 Data collection via telephone interview

The research assistant introduced herself and explained about research project as in the participant information sheet. The research assistant asked for their voluntary participation in the study and self-disclosure to the researcher. The research assistant asked the participants' convenient time for interview as following dialogue.

The research assistants and researcher's dialogue

"Hello! I'm calling from Siriraj Hospital. Could you please, give me your name? (the participant's name) and surname? (the participant's surname)"

"I'm (the research assistant's name). I'm a nurse at (309) clinic, Siriraj Hospital. Is it convenient for you talk with me?"

"Khun (the participant's name) How are you? How about your child? Did you have your health check-up after delivery?

"If you have checked up at other health centers or hospitals, when do you have an appointment at the clinic? Don't forget it."

"If you did not attend any clinic, is it convenient for you to come to check-up at Siriraj Hospital? If it is convenient, you can arrange an appointment now. If not, you can call me later at Tel. 02-419XXXX from 8 A.M. to 2 P.M."

"Now, at (309) clinic, we have a research study to follow-up the health care of mothers after delivery. I'd like to ask (the participant's name) to participate in this study. You only answer 62 items of questionnaire via a phone call interview that take approximately 35-50 minutes. If you volunteer to participate in this study, you can choose an option out of 3 questionnaire answer methods, self-administration at HIV or OB&GYN clinics, mail questionnaire, or interview by phone call. Which option do you choose?"

"The telephone interview also takes approximately 35-50 minutes. Khun (the participant's name) can interrupt the interview if desired."

"If you choose a mail questionnaire, please confirm your address."

"If Khun (the participant's name) does volunteer to participate in this study, I (the research assistant's name) will invite the researcher to talk to you. Is that convenient? If it is not convenient, the researcher will call you later. Could you please, give me your available time?"

"If you did not volunteer to self-disclose to the researcher, I will interview you by myself."

"If you do not have health coverage, the research project will pay for Pap smear screening. The total amount is 340 baht. You only pay for the cost of travel and/or food. Do you have health coverage?"

*"Do you have any question*s? *If not, see you on (day)."*

After the first contact with the participants, the research assistant arranged an appointment with the participants to later contact them and reassure herself of the identification of the participants by using secret code as follows:

The researcher: *"Hello! I'm calling from Siriraj Hospital. Could you please, give me your name?*
The participants: *(the participant's name)*
The researcher: *and surname?*
The participants: *(the participant's surname)"*
The researcher: *"Wall"*
The participants: *"Windows"*

3.2.3.1 The mothers did volunteer to participate in the study but they did not volunteer for self-disclosure to the researcher. The research assistant marked a "√" on a box in front of the phrase "willing to participate" on the right-hand corner of the questionnaire. The research assistant asked the participants to answer the questions in the questionnaire. The research assistant gave the clinic's address and s telephone number to the participants to call back to her if they had doubts or wanted to consult about health problems after completed questionnaire.

3.2.3.2 The mothers did volunteer to participate in the study and did volunteer for self-disclosure to the researcher. The research assistant introduced the researcher to the participants. After that, the researcher then continuously asked the participants to answer the questions in the questionnaire and completed the process of data collection.

3.2.3.3 The mothers did not volunteer to participate in the study, the research assistant said "*Thank you*". The research assistant reassured that the denial of participation would not affect their treatment or their child's treatment.

4. The data collection from the participants in this study had the following details. There were two hundred and eighty three names on the lists of the mothers with HIV who had given birth at Siriraj Hospital from January 1, 2010 to December 31, 2012. Data were collected by 2 methods: the participants' self-administered questionnaire at the clinics and telephone interview. Seventy seven out of 283 mothers attended HIV and/or OB&GYN clinics; 71 mothers used self-administered questionnaires at HIV or OB&GYN clinics and for 6 mothers it was inconvenient to answer question at the clinic because they had to hurry to go back to work. They gave their telephone number and an available time for the researcher to call back. The

research assistant called 206 mothers who did not attend HIV and/or OB&GYN clinics; 108 mothers with HIV were interviewed via phone. Ninety eight mothers did not participate in this study; 90 mothers had lost contact by phone number; 5 mothers did not volunteer to participate in this study; and 3 mothers had died, as show in Figure 2.

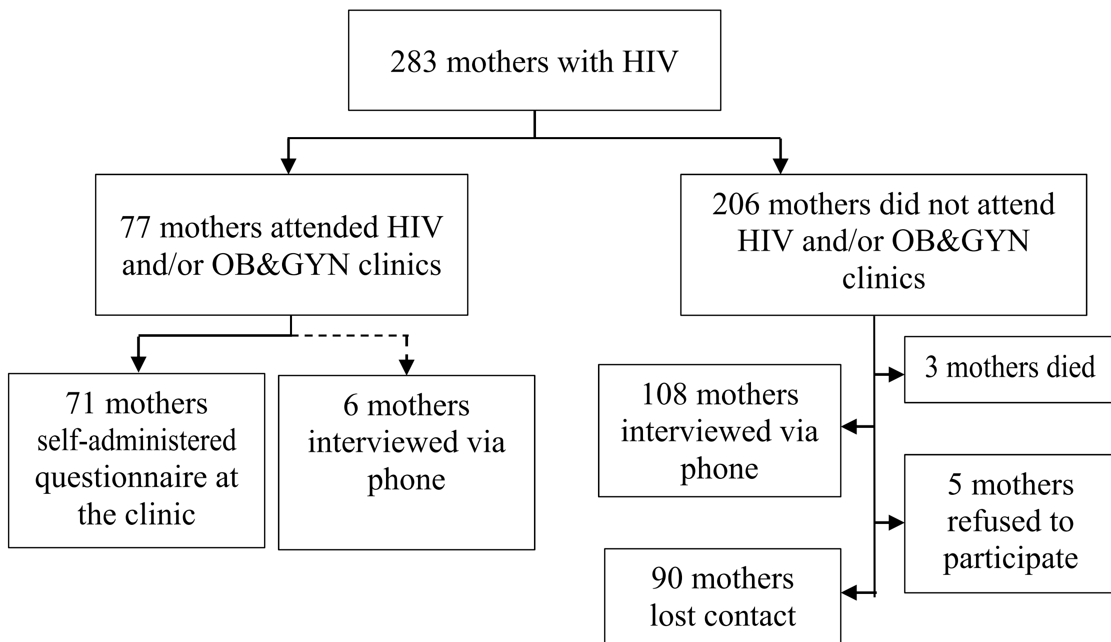

Figure 2. The Data Collection from the Participants in this Study

3.8 Data Analysis

Data analysis was conducted by using the Predictive Analytics SoftWare (PASW) version 18 by setting the statistical level of significance at 0.05. The details of the statistical methods for data analysis are as follows:

3.8.1 The Descriptive Analysis

Descriptive statistics were used to describe the characteristics of mothers such as frequencies and percentages (age, marital status, educational level, occupation, family income, number of family members, health coverage, average cost spent per visit) and means (age, family income, number of family members, cost per visit).

3.8.2 The Predictive Analysis

Univariate and multivariate logistic regression analysis was used for predicting retention in care at the first year after delivery among Thai mothers with HIV. Prior to the univariate logistic regression, the data of three variables were coded as follows:

- *Health coverage* was categorized into 2 groups: 0 (Self-payment) and 1 (able to be reimbursed for costs of HIV care and treatment or Pap smear screening).
- *Referral* was categorized into 2 groups: 0 (non-referral: not referred and received postpartum recommendation) and 1 (referral: receiving official transfer or referral slip, receiving care before pregnancy from registered hospital, and entry via PROMISE project
- *Disclosure of HIV status* was categorized into 2 groups: 0 (non-disclosure) and 1 (disclosure).

Univariate logistic regression analysis was used to examine the association between the eight potential predictors and retention in care and multivariate logistic regression analysis was used to determine the predictors of retention in care.

CHAPTER IV
RESULTS

The results of this study are presented in 3 parts.

4.1 Demographic Characteristics of the Participants

4.2 Descriptive Statistics of the Study Variables

4.3 The Predicting Factors of Retention in Care during the First Year after Delivery among Thai Mothers with HIV

4.1 Demographic Characteristics of the Participants

The total sample consists of 185 mothers with HIV infection who delivered at Siriraj Hospital from January 1, 2010 to December 31, 2012. The ages of the mothers ranged from 18 to 44 years with the mean age of 31.30 years (S.D. = 6.07). More than half (52.4%) of the mothers were aged between 31-40 years old. The majority of mothers (80%) cohabited with their partners. The others were divorced/separated (18.9%), and widowed (1.1%). In terms of educational level, about 34.1 percent of the mothers completed junior high school, whereas 21.6 percent graduated from senior high school. Twenty-nine point seven percent of the mothers were housewives and a similar number were laborers (27.6%). Twenty-seven percent of the mothers had family income of between 9,001 - 15,000 baht. Finally, the majority of mothers (66.5%) were part of a nuclear family, whereas 33.5% of them lived with their parents, as shown in Table 4.1.

Table 4.1 Frequencies and Percentages of the Participants Classified by Demographic Characteristics (N=185)

Demographic Characteristics	Number	Percent
Age (Range= 18-44, Mean±SD=31.30±6.07)		
≤ 20	8	4.3
21-30	72	38.9
31-40	97	52.4
≥ 41	8	4.3
Marital status		
Married or cohabiting	148	80.0
Divorced/Separated	35	18.9
Widowed	2	1.1
Educational level		
Uneducated	3	1.6
Elementary	28	15.1
Lower secondary school	63	34.1
Upper secondary school	40	21.6
Diploma	28	15.1
Bachelor or higher	23	12.4
Occupation		
Housewife/Unemployed	55	29.7
Laborer	51	27.6
Businesses owner/Trader	25	13.5
Office staff	25	13.5
Government officer	12	6.5
Freelance (e.g. beautician, seamstress, craftsperson)	11	5.9
Agriculture	3	1.6
Student	3	1.6
Family income (Mean±SD=23,486.49±40,202.73)		
No income	16	8.6
< 9,000	23	12.4
9,001 - 15,000	50	27.0
15,001 - 21,000	39	21.1
21,001 - 27,000	13	7.0
> 27,001	44	23.8
Family members (persons)		
1	12	6.5
2- 4	111	60.0
> 5	62	33.5

4.2 Descriptive Statistics of the Study Variables

4.2.1 The Details of Participants on Health Coverage, Referral, Disclosure of HIV Status, and Retention in Care during the First Year after Delivery

The results showed that most participants (92.9%) had health coverage, categorized into universal coverage (UC) (48.1%) followed by social security scheme (37.8%), and civil servant medical benefit scheme (7.0%). Nearby half (48.1%) of the participants took benefits from their health coverage for HIV care and treatment that were categorized by social security scheme (21.6%), universal coverage (21.1%), and civil servant medical benefit scheme (5.4%). The remainder, more than one fourth (26.5%) of the participants, enrolled in the Promoting Maternal and Infant Survival Everywhere (PROMISE) Project followed by non-retention at HIV clinics (22.7%), and self-payment (2.7%). In regards to health coverage at OB&GYN clinics, more than half (53.5%) were categorized as non-retention in care at OB&GYN clinics. About 20% of the participants paid in cash for Pap smears. Only 10.3% of the participants used the social security scheme (SSS) and, again 10.3% used universal coverage (UC). These were followed by use of the civil servant medical benefit scheme (5.9%). The participants might have to have paid for direct and indirect costs (baht) that were not covered by their health coverage for hospital visits. Direct costs included laboratory testing (ranging from 40 to 9,000 baht per patient-time) and other costs of testing (ranging from 30 to 2,770 baht per patient time) such as doctor's fees or service charges, Pap smears medication and X-rays. Indirect cost included travel (ranging from 16 to 11,000 baht per patient-time) and food cost (ranging from 30 to 1,000 baht per patient-time). Moreover, some participants may have lost income each day (ranging from 150 to 1,500 baht per patient-time) that they went to hospital.

Most participants were referred (85.9%) from postpartum clinics to HIV clinics by several means such as to the HIV clinic via PROMISE project (26.5%), receiving care before pregnancy (25.9%), and receiving official transfer or referral slip (20.0%). The mothers with non-referral included 14.1% of those not receiving referral and 13.5% of those receiving a recommendation during the postpartum period. More than three quarters (82.2%) of the participants had disclosed their HIV status. More than three quarters (77.3%) of the participants had retention in care at HIV clinics

while only 46.5% had retention in care at OB&GYN clinics. The top five reasons for non-retention in care included inconvenience (38.01%) (e.g. far from home, busy, parenting, no money), no ANC or ANC at other hospitals and/or no postpartum examination (21.49%), a lack of knowledge about the benefits of their health coverage (10.74%), no appointment from physician (9.92%), and non-disclosure of their HIV status (7.44%), as shown in Table 4.2.

Table 4.2 Frequency and Percentage of Health Coverage, Referral, Disclosure of HIV Status, and Retention in Care (N=185)

Demographic Characteristics	Number	Percent
Have HC		
Universal coverage (UC)	89	48.1
Social security scheme (SSS)	70	37.8
Civil servant medical benefit scheme (CSMBS)	13	7.0
Cash or no registered UC	13	7.0
Use HC ***at HIV clinics***		
Non-retention	42	22.7
Research project (PROMISE)	49	26.5
Social security scheme (SSS)	40	21.6
Universal coverage (UC)	39	21.1
Civil servant medical benefit scheme (CSMBS)	10	5.4
Cash	5	2.7
Use HC ***at OB&GYN clinics***		
Non-retention	99	53.5
Social security scheme (SSS)	19	10.3
Universal coverage (UC)	19	10.3
Civil servant medical benefit scheme (CSMBS)	11	5.9
Cash	37	20
Direct cost uncovered by HC (per person-time)		
Laboratory cost (30 baht: 1USD)	**147**	**79.5**
- No lab cost	118	63.8
- Lab testing (ranging from 40 to 9,000 baht)	29	15.7
Other cost (ranging from 30 to 2,770 baht)	**147**	**79.5**
- Without cost	113	61.1
- Doctor's fees or service charges	16	8.6
- Pap smear	13	7.0
- Medication	4	2.2
- CXR	1	0.5
Indirect cost (choose more than one answer)		
Travel costs (ranging from 16 to 11,000 baht)	147	79.5
Food costs	**147**	**79.5**
- Without food costs	63	34.1
- Food costs (ranging from 30 to 1,000 baht)	84	45.4
Lost income	**147**	**79.5**
- Without lost income	116	62.7
- Lost income (ranging from 150 to 1,500 baht)	31	16.8

Table 4.2 Frequency and Percentage of Health Coverage, Referral, Disclosure of HIV Status, and Retention in Care (cont.) (N=185)

Demographic Characteristics	Number	Percent
Referral		
Entry via PROMISE project	49	26.5
Receiving care before pregnancy from registered hospital	48	25.9
Received official transfer	37	20.0
Not received referral or recommendation	26	14.1
Received postpartum recommendation	25	13.5
Disclosed their HIV status		
Non-disclosure	33	17.8
Disclosure	152	82.2
Disclosed their HIV status to (more than one answer)		
- Current partner	123	66.5
- Her cousins	60	32.4
- Her parents	56	30.3
- Partner's cousins	8	4.3
- Social networks	3	1.6
Retention in care ***at HIV clinics***		
Retention	**143**	**77.3**
- At Siriraj Hospital	77	41.62
- At other Hospitals	66	35.67
Non-retention	**42**	**22.7**
Retention in care ***at OB&GYN clinics***		
Retention	**86**	**46.5**
- At Siriraj Hospital	57	66.3
- At other Hospitals	29	33.7
Non-retention	**99**	**53.5**
Reason for non-retention in care (more than one answer)		
Inconvenience (e.g. far from home, busy, parenting, no money)	46	38.01
No ANC/ANC other hospitals or no postpartum examination.	26	21.49
A lack of knowledge about benefits of their HC	17	14.04
No medical appointment	12	9.92
Non-disclosure	9	7.44
A lack of health education	4	3.30
A lack of social support (*Kum Lung Jai*)	3	2.48
Being healthy	3	2.48
Unspecified	3	2.48
Side effect of ARV	1	0.83
Forgetting the medical appointment	1	0.83

4.2.2 Access to Health Care, Receiving HIV Care, Attitudes toward Health Care Providers, Stigma, and Perceived Health Status among Thai Mothers with HIV Classified by Retention in Care at HIV and OB&GYN Clinics

The findings on access to health care, receiving HIV care, attitudes toward health care providers, stigma, and perceived health status among Thai mothers with HIV are shown in Table 4.3. Among the total sample of Thai mothers with HIV, the mean scores for access to health care (possible scores ranging from 6 to 30 points), receiving HIV care (possible scores ranging from 0 to 10 points), attitudes toward health care providers (possible scores ranging from 46 to 114 points), stigma (possible scores ranging from 8 to 32 points), and perceived health status (possible scores ranging from 2 to 10 points) were 21.72 (SD = 4.06), 8.26 (SD = 2.92), 99.63 (SD = 14.10), 24.71 (SD = 5.39), 8.20 (SD = 1.63), respectively.

Table 4.3 Mean and Standard Deviation of Access to Health Care (ATC), Receiving HIV Care (RHC), Attitudes toward Health Care Providers (AHHCP), Stigma (SM), and Perceived Health Status (PHS) Classified by Retention in Care at HIV and OB&GYN Clinics (N=185)

Variables	$\bar{X}$	SD	Retention at HIV clinics				Retention at OB&GYN clinics			
			Retention		Non-retention		Retention		Non-retention	
			$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
ATC	21.72	4.06	22.29	4.02	19.76	3.59	22.28	4.14	21.23	3.94
RHC	8.26	2.92	8.68	2.38	6.83	3.98	8.70	2.41	7.88	3.26
AHHCP	99.63	14.10	99.66	14.11	99.50	14.25	100.47	13.26	98.90	14.83
SM	24.71	5.39	24.48	5.38	25.48	5.44	24.57	5.45	24.83	5.38
PHS	8.20	1.63	8.34	1.50	7.71	1.97	8.20	1.44	8.20	1.79

The Characteristics of the Access to Health Care (ATC), Receiving HIV Care (RHC), Attitudes toward Health Care Providers (AHHCP), Stigma (SM), and Perceived Health Status (PHS) Classified by Retention in Care at HIV and OB&GYN Clinics (N=185)

At HIV Clinics

Access to Health Care

The mean score for access to health care among the participants who were classified as having retention had retention in care was 22.29 (SD = 4.02). The mean score for access to health care among the participants who classified as non-retention in care was 19.76 (SD = 3.59). The result showed that the participants who had retention at HIV clinics had higher scores than those with non-retention in care.

Receiving HIV Care

The mean score for receiving HIV care among the participants who had retention in care was 8.68 (SD = 2.38). The mean score for receiving HIV care among the participants who had non-retention in care was 6.83 (SD = 3.98). The result showed that the participants who had retention at HIV clinics had higher scores than those with non-retention in care.

Attitudes toward Health Care Providers

The mean scores for attitudes toward health care providers among the participants who had retention in care was 99.66 (SD = 14.11). The mean scores for attitudes toward health care providers among the participants who had non-retention in care was 99.50 (SD = 14.25). The result showed that the participants who had retention at HIV clinics had slightly higher scores than those with non-retention in care.

Stigma

The mean score for stigma among the participants who had retention in care was 24.48 (SD = 5.38). The mean score for stigma among the participants who had non-retention in care was 25.48 (SD = 5.44). The result showed that the participants who were not retained in care at HIV clinics had higher perceived stigma than those with retention in care.

Perceived Health Status

The mean score for perceived health status among the participants who had retention in care was 8.34 (SD = 1.50). The mean score for perceived health status among the participants who had non-retention in care was 7.71 (SD = 1.97). The result showed that the participants who had retention at HIV clinics had higher scores than those with non-retention in care.

At OB&GYN Clinics

Access to Health Care

The mean score for access to health care among the participants who had retention in care was 22.28 (SD = 4.14). The mean score for access to health care among the participants who had non-retention in care was of 21.23 (SD = 3.94). The result showed that the participants who had retention at OB&GYN clinics had higher scores than those with non-retention in care.

Receiving HIV Care

The mean score for receiving HIV care among the participants who had retention in care was 8.70 (SD = 2.41). The mean score for receiving HIV care among the participants who had non-retention in care was 7.88 (SD = 3.26). The result showed that the participants who had retention at OB&GYN clinics had higher scores than those with non-retention in care.

Attitudes toward Health Care Providers

The mean score for attitudes toward health care providers among the participants who had retention in care was 100.47 (SD = 13.26). The mean score for attitudes toward health care providers among the participants who had non-retention in care was 98.90 (SD = 14.83). The result showed that the participants who had retention at OB&GYN clinics had higher scores than those with non-retention in care.

Stigma

The mean score for stigma among the participants who had retention in care was 24.57 (SD = 5.45). The mean score for stigma among the participants who had non-retention in care was 24.83 (SD = 5.38). The result showed that the participants who were not retained in care at OB&GYN clinics had higher perceived stigma than those with retention in care.

Perceived Health Status

The mean score for perceived health status among the participants who had retention in care was 8.20 (SD = 1.44). The mean score for perceived health status among the participants who had non-retention in care was 8.20 (SD = 1.79). The result showed that the participants who had retention at HIV clinics had equal scores with those who had non-retention in care.

4.3 The Predictors of Retention in Care during the First Year after Delivery among Thai Mothers with HIV

Binary logistic regression analysis was used to identify the strongest predictive factors of retention in care at HIV and OB&GYN clinics during the first year after delivery among Thai mothers with HIV (N=185).

To test multicollinearity, the relationship among independent variables of retention in care at HIV clinics showed that those independent variables were not significantly associated with each other (Table 4.4). Therefore, in this study, there was no interrelatedness of the independent variables or no multicollinearity (Munro, 2005).

Table 4.4 The Correlation Matrix among Independent Variables of Retention in Care at HIV Clinics (N=185)

Variables	1	2	3	4	5	6	7	8
1. Health coverage	1.00							
2. Referral	-.20	1.00						
3. Disclosure	.02	.001	1.00					
4. Access to health care	-.20	.059	.058	1.00				
5. Receiving HIV care	-.22	.10	-.14	-.36	1.00			
6. Attitudes	-.13	-.21	-.11	-.25	-.23	1.00		
7. Stigma	-.20	-.08	-.16	-.12	.01	-.34	1.00	
8. Perceived health status	.38	.10	-.09	-.31	.21	-.59	-.09	1.00

The relationship among independent variables of retention in care at OB&GYN clinics showed that those independent variables were not significantly associated with each other (Table 4.5). Therefore, in this study, there was no interrelatedness of the independent variables or no multicollinearity (Munro, 2005).

Table 4.5 The Correlation Matrix among Independent Variables of Retention in Care at OB&GYN Clinics (N=185)

Variables	1	2	3	4	5	6	7	8
1. Health coverage	1.00							
2. Referral	-.09	1.00						
3. Disclosure	-.05	-.01	1.00					
4. Access to health care	-.14	-.03	.07	1.00				
5. Receiving HIV care	-.23	-.12	-.02	-.26	1.00			
6. Attitudes	-.03	.04	-.15	-.28	-.30	1.00		
7. Stigma	-.21	-.10	-.16	-.21	.12	-.36	1.00	
8. Perceived health status	-.15	-.14	-.14	-.34	.13	-.42	.11	1.00

Univariate logistic regression analysis was used to examine the association between eight predictive variables and retention in care at HIV and OB&GYN clinics. The Wald statistic of each variable is examined to evaluate its contribution to a model that each variable were expected to be statistically significant at <.05 (Tabachnick & Fidell, 2007). The results of univariate logistic regression analysis of independent variables and retention in care at HIV and OB&GYN clinics are described as follows.

4.3.1 Univariate Logistic Regression Analysis of Independent Variables and Retention in Care

Retention in Care at HIV Clinics

Health coverage was significantly associated with retention in care at HIV clinics (OR=117.30, 95%CI = 36.10-381.24, p<.001). The result indicated that the mothers who had reimbursement of health coverage were 117.30 times more likely to

have retention in care. Referral was significantly associated with retention in care at HIV clinics (OR=39.69, 95%CI = 15.14-104.04, p<.001). The result indicated that the mothers who were referred to another HIV clinic were 39.69 times more likely to have retention in care. Disclosure of HIV status was significantly associated with retention in care at HIV clinics (OR=2.76, 95%CI = 1.23-6.18, p<.05). The result indicated that the mothers who had disclosed HIV status were 2.76 times more likely to have retention in care at HIV clinics. Access to health care was significantly associated with retention in care at HIV clinics (OR=1.17, 95%CI = 1.07-1.28, p<.05). The result indicated that there was a 17% increase in the odds of having retention in care at HIV clinics for every one unit of increased access to health care. Receiving HIV care was significantly associated with retention in care at HIV clinics (OR=1.17, 95%CI = 1.12-1.22, p<.001). The result indicated that there was a 17% increase in the odds of retention in care at HIV clinics for every one unit of increased receiving HIV care. Perceived health status was significantly associated with retention in care at HIV clinics (OR=1.25, 95%CI = 1.02-1.53, p<.05). The result indicated that there was a 25% increase in the odds of retention in care at HIV clinics for every one unit of increased perceived health status. Attitudes toward HIV health care providers and stigma was not significantly associated with retention in care at HIV clinics (p >.05), as shown in Table 4.6.

Table 4.6 Univariate Logistic Regression Analysis of Each Variable and Retention in Care at HIV Clinics (N=185)

Factors	b	S.E.	Wald	*p*	Exp(B)	95%CI
Health coverage	4.76	0.60	62.77	<.001	117.30	36.10-381.24
Referral	3.68	0.49	56.04	<.001	39.69	15.14-104.04
Disclosure of HIV status	1.01	0.41	6.07	<.05	2.76	1.23-6.18
Access to health care	0.16	0.05	11.58	<.05	1.17	1.07-1.28
Receiving HIV care	0.16	0.02	53.22	<.001	1.17	1.12-1.22
AHHCP	0.001	0.01	0.004	>0.05	1.001	0.97-1.03
Stigma	-0.04	0.03	1.10	>0.05	0.96	0.90-1.03
Perceived health status	0.22	0.10	4.63	<0.05	1.25	1.02-1.53

Retention in Care at OB&GYN Clinics

Referral was significantly associated with retention in care at OB&GYN clinics (OR=4.01, 95%CI = 1.93-8.33, p<.01). The result indicated that the mothers who were referred to another OB&GYN clinic were 4.01 times more likely to be retained in health care. Disclosure of HIV status was significantly associated with retention in care at OB&GYN clinics (OR=2.74, 95%CI = 1.19-6.27, p<.05). The result indicated that the mothers who had disclosed their HIV status were 2.74 times more likely to have retention in care at OB&GYN clinics than those who had non-retention in care. Health coverage, access to health care, receiving HIV care, attitudes toward HIV health care provider, stigma, and perceived health status were not significantly associated with retention in care at OB&GYN clinics (p >.05), as shown in Table 4.7.

Table 4.7 Univariate Logistic Regression Analysis of Each Variable of Retention in Care at OB&GYN Clinics (N=185)

Factors	b	S.E.	Wald	*p*	Exp(B)	95%CI
Health coverage	1.13	0.68	2.82	>.05	3.11	0.83-11.69
Referral	1.39	0.37	13.85	<.01	4.01	1.93-8.33
Disclosure of HIV status	1.01	0.42	5.66	<.05	2.74	1.19-6.27
Access to health care	0.06	0.04	3.02	>.05	1.07	0.99-1.15
Receiving HIV care	.101	0.05	3.49	>.05	1.11	0.99-1.23
AHHCP	0.01	0.01	0.57	>.05	1.01	0.99-1.03
Stigma	-0.01	0.03	0.11	>.05	0.99	0.94-1.04
Perceived health status	-0.002	0.09	0.00	>.05	0.99	0.85-1.18

4.3.2 Multivariate Logistic Regression Analysis of Selected Variables and Retention in Care

Retention in Care at HIV Clinics

All six variables from univariate logistic regression analysis were selected for the multivariate logistic regression model; these were health coverage, referral, disclosure of HIV status, access to health care, receiving HIV care, and perceived health status. The Hosmer and Lemeshow goodness of fit test of a full model indicated no significance in the distribution of observed and predicted dependence values (χ^2 = 8.58, p = 0.38). This means that the model was representative and fit the data reasonably (Hosmer, Lemeshow, & Sturdivant, 2013; Munro, 2005). The variables in this model (health coverage, referral, and perceived health status) could present the variance of retention in care at HIV clinics during the first year after delivery at 80% (Nagelkerke's R^2 = 0.80). This means that there was 93% overall predictive accuracy. After controlling for the effect of other variables, the study suggested that the odds of retention in care at HIV clinics for mothers who had reimbursement of health coverage as a ratio to the odds for the mothers with self-payment equaled 46.32 (OR=46.32, 95%CI = 9.86-217.71, p<.001). Regarding referral, the odds of retention in care at HIV clinics for mothers who were referred to another HIV clinic as a ratio to the odds

for the mothers who were not referred equaled 8.90 (OR=8.90, 95%CI = 2.44-32.44, p<.01). In regard to perceived health status, the finding indicated that every one unit of increased perceived health status increased the odds of retention in care at HIV clinics by 50% (OR = 1.50, 95% CI = 1.04-2.17, p<.05). However, disclosure of HIV status, access to health care, receiving HIV care could not predict retention in care at OB&GYN clinics (p >.05), as shown in Table 4.8.

The formula of this predictive model was

Y_1 = -6.97 + 3.84 (Health coverage) + 2.19 (Referral) + 0.40 (Perceived Health Status)

Table 4.8 Multivariate Logistic Regression Analysis of Predictive Model of Retention in Care at HIV Clinics (N=185)

Factors	b	S.E.	Wald	*p*	Exp(B)	95%CI
Health coverage	3.84	0.79	23.60	<.001	46.32	9.86-217.71
Referral	2.19	0.66	10.99	<.01	8.90	2.44-32.44
Disclosure of HIV status	0.74	0.76	0.93	>.05	2.09	0.47-9.35
Access to health care	0.03	0.08	0.14	>.05	1.03	0.88-1.21
Receiving HIV care	-.008	0.11	0.005	>.05	0.99	0.80-1.23
Perceived health status	0.40	0.19	4.62	<.05	1.50	1.04-2.17
Constant	-6.97	2.23				

-2LL = 85.94, Nagelkerke's R^2 = 0.80

Retention in Care at OB&GYN Clinics

Two variables from the univariate logistic regression analysis were selected for the multivariate logistic regression model; these were referral and disclosure of HIV status. The Hosmer and Lemeshow goodness of fit test of a full model indicated no significance in the distribution of observed and predicted dependence values (χ^2 = .53, p = 0.77) that represented the model to fit the data reasonably (Hosmer, Lemeshow, & Sturdivant, 2013; Munro, 2005). The variables in this model (referral and disclosure of HIV status) could present the variance of retention in care at OB&GYN clinics during the first year after delivery at equal to

14% (Nagelkerke's R^2 = 0.14), giving 63.2% of overall predictive accuracy. After controlling for the effect of other variables, the study suggested that the odds of retention in care at OB&GYN clinics for mothers who were referred to another OB&GYN clinic according to their registered hospital as a ratio to the odds for the mothers who were not referred was equal to 3.80 (OR=3.80, 95%CI = 1.81-7.95, p<.001). In regard to disclosure of HIV status, the finding indicated that the odds of retention in care at OB&GYN clinic for mothers who had disclosed their HIV status as a ratio to the odds for the mothers who had not was equal 2 to 46 (OR=2.46, 95%CI = 1.04-5.80, p<.05), as shown in Table 4.9.

The formula of this predictive model was

Y_2 = -1.89 + 1.33 (Referral) + 0.90 (Disclosure)

Table 4.9 Multivariate Logistic Regression Analysis of Predictive Model of Retention in Care at OB&GYN Clinics

Factors	b	S.E.	Wald	*p*	Exp(B)	95%CI
Referral	1.33	0.38	12.51	<.001	3.80	1.81-7.95
Disclosure of HIV status	0.90	0.44	4.21	<.05	2.46	1.04-5.80
Constant	-1.89	0.49				

-2LL = 235.46, Nagelkerke's R^2 = 0.14

CHAPTER V
DISCUSSION

The objectives of this study were to study the prevalence of retention in care and examine the predictive factors of retention in care during the first year after delivery among Thai mothers with HIV. In this section, the two hypotheses of this study will be discussed as follows:

5.1 The Prevalence of Retention in Care during the First Year after Delivery among Thai Mothers with HIV

For the period from 2010 to 2012, the subjects in this study of retention in care during the first year after delivery among Thai mothers with HIV (N=185) were divided into groups, those who were retained HIV clinics and those who were retained at OB&GYN clinics. More than three quarters (77.3%) of the participants were retained at HIV clinics. Only 46.5% of the participants were retained at OB&GYN clinics. Retention in care was higher at HIV clinics than at OB&GYN clinics, especially retention in care at HIV clinic, Siriraj Hospital. Because the proportion of patients who used their health coverage and participated in the Promoting Maternal and Infant Survival Everywhere Project (PROMISE), retention in care at HIV clinics was rather high at 26.5% of those participating in PROMISE Project were retained, compared to those with other health coverage such as 21.6% in social security scheme, 21.1% with universal coverage, and 5.4% with civil servant medical benefit scheme (Table 4.2). On the other hand, although, most patients (92.9%) had health coverage including 48.1% with universal health coverage, 37.8% in social security scheme, and 7% with civil servant medical benefit scheme, those health coverage schemes did not cover the cost of Pap smear screening, especially for those who registered at private hospitals. Forty-three percent of the mothers who were retained at OB&GYN clinics

had to make self-payments for Pap smear screening (see Appendix G). Another factor that facilitated retention in care was referral. This study showed that 88.9% of the patients who were officially referred to HIV clinics according to their registered hospital were retained at HIV clinics, categorized into those referred via the PROMISE Project (34.3%) followed by those who had received HIV care before pregnancy from a registered hospital (33.6%), and those who had received an official transfer (21%) (see Appendix G). Eighty six percent of the patients who were officially referred to another OB&GYN clinic were retained at OB&GYN clinics; this was categorized into those who received HIV care before pregnancy from a registered hospital (36%), followed by those who were referred via the PROMISE Project (30.2%), and those who received an official transfer (19.8%). Therefore, the referral process was necessary for the patients because most patients who were not retained in care had health coverage at other hospitals. Although retention in care after delivery tends to decrease as the length of time since giving birth increases (Byakika-Tusiime et al., 2009; Fox & Rosen, 2010; Guerrin-Tran et al., 2003; Walson et al., 2007), in this study, the prevalence rate of retention in care was higher than for previous studies. A study has shown that 61.3% of mothers with HIV had received postnatal care (Chalermpichai, Ratinthorn, Serisathien, & Boriboonhirunsarn, 2008); 38.5% of the mothers had completed health check-ups throughout the 9 months after delivery (Kongyu, 2006). Moreover, it was slightly higher than the prevalence rate of retention in care found a study among low income HIV-infected women in Texas, USA (61%) (Robaab, Tanvir, Sangi-Haghpeykar, Charles, & Judy, 2014).

Several reasons given by mothers for not being retained in health care included inconvenience, no antenatal care at Siriraj Hospital or that they had attended antenatal care at other hospitals and/or lost postpartum follow-up, a lack of knowledge about benefits of their health coverage and health education, no appointments from their physician, non-disclosure of their HIV status, a lack of social support (*Kum Lung Jai*), the perception that they were still healthy, and that they had experienced side effects from ARV. Regarding inconvenience, the women indicated that the registered hospital according to their health coverage was located far from their home. Sometimes, they had no money to pay for travel, food, and/or lab costs. Some mothers might have had to care for their child or could not have been absent their work because

there was nobody that could replace them, and they might also have been concerned about losing their daily wage. This is similar to studies in Nepal (Wasti, Simkhada, Randall, Freeman, & Teijlingen, 2012a), Uganda (Nakigozi et al., 2013), and North West England (Cook et al., 2009) which showed that financial difficulties and long distances to health center or hospital were most frequently discussed as barriers to retention in care. Regarding the lack of antenatal care at Siriraj Hospital or their attendance at antenatal care at other hospitals, several mothers had been referred to delivery at Siriraj Hospital due to complications of pregnancy. Those attending antenatal clinic in hospitals did not have HIV specialists, and the mothers lost the opportunity to receive the complete process of voluntary HIV counseling and testing or other services related to HIV/AIDS. The mothers might not have been familiar with health care providers because they had too short a period to make contact with counselors or nurses (Lifson et al., 2013). This is consistent with several studies. Many pregnant women have little time to attend antenatal clinics that are not adequately prepared to retain them in health care (Bii, Otieno-Nyunya, Siika, & Rotich, 2007; Kaplan, Orrell, Zwane, Bekker, & Wood, 2008). Moreover, it has resulted in a lack of knowledge about the benefits of their health coverage and opportunity to receive information about health check-ups and the importance of retention in care (Sprague & Simon, 2014). A study of Ferguson and colleagues (2011) in Tanzania and Kenya found that most mothers who were lost to postpartum follow-up were not retained at clinics. A study in Cape Town, South Africa showed that most patients who were not retained at clinics did not use antiretroviral drugs (du Toit et al., 2014).

The mothers who did not have appointment with physicians mostly had high CD4 counts. This is inconsistent with the Thai national guidelines for health services and treatment in HIV/AIDS and TB patients that recommends at least one visit every 6 months for the HIV asymptomatic persons in order to monitor for optimal health outcomes (National Health Security Office, 2013). This problem was found at health centers or hospitals which did not have a HIV specialist, especially at the primary care level (Tambon Health Promoting Hospital). Regarding non-disclosure of HIV infection, mothers with HIV who had not disclosed their HIV status feared asking for help from health care staff and/or via consultation with parents or relatives. Studies in Ethiopia about HIV disclosure have found that women who had not

disclosed their HIV status feared their partner's reaction (fear of abandonment, rejection and accusations of infidelity). However, some studies have reported positive reactions from partners. In these cases, most women with disclosure had had prior discussions about HIV and HIV testing with their partners (Deribe, Woldemichael, Wondafrash, Haile, & Amberbir, 2008; Kassaye, Lingerh, & Dejene, 2005). They learned and adapted to live with HIV. These results were also consistent with retention of HIV positive Ugandan persons in antiretroviral therapy programs (Mugisha et al., 2009). Regarding a lack of social support, some mothers suffered a lack of social support or "*Kum Lung Jai*" because their husbands had died after they got pregnant. Some mothers were second wives so they were neglected by their husband. A study in Uganda has shown that a lack of support from male partners was a barrier to HIV care service use (Nakigozi et al., 2013). Finally, some mothers faced the side effects of antiretroviral drugs such as dizziness, nausea, and vomit but the physicians did not solve the problem for her. Consequently, they did not want to go to HIV clinics again (Fumaz et al., 2008; Mugisha et al., 2009; Nakigozi et al., 2013)

5.2 The Predictive Factors of Retention in Care during the First Year after Delivery among Thai Mothers with HIV

After controlling for the effect of other variables, the predictive factors of retention in care at HIV clinics for mothers with HIV infection were found to be health coverage, referral, and perceived health status. The predictive factors of retention in care at OB&GYN clinics were referral and disclosure of HIV status. From the multivariate logistic regression models, the predictive factors of retention in care at HIV and OB&GYN clinics during the first year after delivery could be divided into four groups. Firstly, the factors that could significantly predict retention in care at both HIV and OB&GYN clinics, including referral. Secondly, the factors that could significantly predict retention in care at HIV clinics but could not significantly predict retention in care at OB&GYN clinics i.e., health coverage and perceived health status. Thirdly, the factors that could not significantly predict retention in care at HIV clinics but could significantly predict retention in care at OB&GYN clinics i.e., disclosure.

Finally, the factors that could not significantly predict retention in care at either HIV or OB&GYN clinics; these were access to health care, receiving HIV care, attitudes toward health care providers, and stigma.

5.2.1 The Factors that could Significantly Predict Retention in Care at both HIV and OB&GYN Clinics

Referral

Referral could significantly predict retention in care at HIV and OB&GYN clinics. This finding is congruent with studies in Kenya (Braitstein et al., 2012) and Mozambique (Ciampa et al., 2011). A study of Ciampa and colleagues (2011) has shown that enhanced referral by maternity nurses before discharge was associated with higher odds of follow-up. A study of Braitstein and colleagues (2012) has specified that direct referral from clinic-to-clinic by a clinical officer or physician increased clinical retention among high-risk HIV-infected patients. Studies about improving patient retention in the United States (Cabral et al., 2007) and Taiwan (Tsai, Shi, Yu, & Lebrun, 2010) have found that failure or achievement of referral depended on outreach of referral or connection to HIV medical care and other services. Studies in several countries also have shown that a lack of capability to manage complicated cases of HIV and side effects of ARV drugs, refusal to refer the patients to a higher capacity hospital, and focus on providing services for ARV-eligible patients were barriers to retention in care (Anne et al., 2010; Ferguson et al., 2011; Lambdin et al., 2011; Otieno et al., 2010; Weigel et al., 2011; Zittel-Palamara et al., 2005) .

In this study, it is interesting to note that the mothers who were referred to another clinic according to their health coverage were not retained in health care. For example, some mothers were referred to a health facility near their home and they were afraid that this may have disclosed their HIV status to other people. Some mothers had to waste more time in long distance traveling to health center sites, had no appointments with a physician, stopped ARV when they had a high CD4 count, faced a lack of concern about the side effects of ARV from physicians, or faced the complexity of referral among health settings from primary to secondary care after having engaged with those hospitals. Moreover, the health service system still emphasizes referral for patients who are eligible for ARV drugs regimens.

In conclusion, referral significantly predicted retention in care at HIV and OB&GYN clinics. However, the official transfer in the health service system requires cooperation, coordination, and exchange of information between the primary health facility and the referred hospital.

5.2.2 The Factors that could Significantly Predict Retention in Care at HIV Clinics, but could not Significantly Predict Retention in Care at OB&GYN Clinics

Health Coverage

Health coverage could significantly predict retention in care at HIV clinics, but could not predict retention in care at OB&GYN clinics during the first year after delivery. In regard to health coverage and retention in care at HIV clinics, this finding is congruent with several studies. For example, studies in northern Thailand (Kunstadtera, 2013) and Tanzania (Tomori et al., 2014) have shown that health coverage, with its socioeconomic barriers, inhibited retention in HIV care and treatment services. HIV care and treatment costs more than pap-smear screening; health coverage is then necessary for them to receive HIV treatment (Blair et al., 2014). The available health coverage for HIV treatment also covers free laboratory tests and antiretroviral drugs. At present, the National Health Security Office (NHSO) extends the universal health coverage. Patients with HIV infection can transfer their universal health coverage to any hospital for HIV care and treatment only by consent of the transferring hospital**;** this makes the patients more comfortable. Therefore, the mothers with HIV infection are also able to transfer their universal health coverage to the same hospital with prenatal care to retention and continuum care. In this case, the universal health coverage would cover free ARVs, CD4 2 times a year, and VL 2 times a year only. However, several mothers are willing to pay by themselves for some medical expenses because they could visit HIV clinics after office hours (which was more convenient for them This finding is consistent with studies about poor retention rates at a HIV treatment program in rural Tanzania (Wringe et al., 2009), barriers to access to care in Colombia (Vargas, Vazquez, Mogollon-Perez, & Unger, 2010) and patient retention in antiretroviral therapy programs in sub-Saharan Africa (Rosen, Fox, & Gill, 2007). It has also been shown that the provision of a free service system contributed to higher patient retention rates (Magnus et al., 2013). Similarly, most

mothers who were retained at HIV clinics in this study received free HIV care and treatment from their health coverage.

Twenty seven percent of the participants had family incomes of 9,001-15,000 and approximately 21 percent had family incomes of 15,001-21,000 baht per month. The Thailand Living Standard Income Level Guideline has determined the wage rates of unskilled workers at 300 baht/day (30 baht = 1 USD) or about 9,000 baht/month and the minimum wage for those with a bachelor degree is 15,000 baht/month (Ministry of labour, 2014). Therefore, these mothers with HIV are less likely to have deposits or reserve money for health care or treatment. They have to depend on public health coverage. Low-income levels may make an individual rely on free care (Agency for Healthcare Research and Quality, 2003).

The findings also showed that almost three quarters (74.6%) of the participants took benefits from their health coverage and available resources such as the social security scheme (21.6%), universal coverage (21.1%), the civil servant medical benefit scheme (5.4%), and the PROMISE Project (26.5%). Two point seven percent of the participants paid in cash for HIV treatment and 22.7 percent were not retained at HIV clinics. A study in the United States has found that patients who entered with Medicare were more likely than those who used private coverage to have greater retention in care (Yehia et al., 2012).

At OB&GYN clinics, most mothers could not take advantage of their health coverage for Pap smear screening, to the Thailand national guidelines on HIV/AIDS treatment and prevention 2014 recommended Pap smear testing 2 times a year during the first year after delivery (Department of Disease Control, 2014). Moreover, the PROMISE Project did not cover Pap smear screening. Generally, the patients gained entry to Pap smear screening by their health coverage reimbursement. Only 26.5 percent of the participants took benefits from their health coverage to pay for pap-smear screening. Twenty percent of the participants were willing to pay by themselves to facilitate retention in care at OB&GYN clinic, Siriraj Hospital. Several patients claimed that their registered hospitals charged for Pap smear because they were younger (age < 40 years). Some hospitals offered a 50% discount for Pap smear so that the resultant price was 650 baht. Many mothers could not pay this cost, so they were not retained in health care at OB&GYN clinics.

Perceived Health Status

Perceived health status could significantly predict retention in care at HIV clinics but could not predict retention in care at OB&GYN clinics. In regard to perceived health status and retention in care at HIV clinics, the result of this study is different from that of several previous studies. Most mothers perceived that they were healthy thus, they were more likely to wait until they perceived poor health before being retained in HIV care and treatment (Gourlay, Birdthistle, Mburu, Iorpenda, & Wringe, 2013; Johnson et al., 2009; Musheke, 2013; Sinpisut & Suttharangsee, 2003; Thanawuth & Chongsuvivatwong, 2008). Perceived good health has been a barrier to retention in care in patients with HIV (Boyles, Wilkinson, Leisegang, & Maartens, 2011; Brown et al., 2006; Giordano, Hartman, Gifford, Backus, & Morgan, 2009; Smith, Fisher, Cunningham, & Amico, 2012). In this study, free HIV care and service was more important for mothers who perceived good health status to be retained in health care. Most mothers who were retained at HIV clinics had health care reimbursement under the PROMISE project or their health coverage.

Regarding retention at OB&GYN clinics, pathological changes in the cervix could not be directly perceived by the patients themselves because cervical cancer in the early stages is asymptomatic (Ibekwe, Hoque, & Ntuli-Ngcobo, 2010; Leung & Leung, 2010). Lesions to invasive cancer are detected by cervical screening only. Therefore, if the patients considered themselves at low risk for this disease (Mimiaga et al., 2009), they would not screen for cervical cancer or were not retained in health care. These reasons are congruent with several studies in Lao PDR (Sichanh et al., 2014), Malawi (Landes et al., 2012), and Uganda (Duff, Kipp, Wild, Rubaale, & Okech-Ojony, 2010; Nakigozi et al., 2013) which also found that mothers were not undergoing pap-smear or HIV treatment because of a lack of symptoms. Moreover, the same study in Lao PDR additionally found that the absence of information and ignorance of the usefulness of screening for disease control were barriers to attending an HIV treatment center.

5.2.3 The Factors that could not Significantly Predict Retention in Care at HIV Clinics but could Significantly Predict Retention in Care at OB&GYN Clinics

Disclosure of HIV Status

Disclosure of HIV status could not significantly predict retention in care at HIV clinics but could significantly predict retention in care at OB&GYN clinics. In regard to disclosure of HIV status and retention in care at HIV clinics, this finding is inconsistent with several studies in which the probability of retention was higher for those who had disclosed compared to those who had not (Arici et al., 2002; Boyles, Wilkinson, Leisegang, & Maartens, 2011; Brown et al., 2006; Giordano, Hartman, Gifford, Backus, & Morgan, 2009; Thanawuth & Chongsuvivatwong, 2008). There were mothers who experienced both positive and negative consequences. Most of the mothers with positive experiences thought through all the pros and cons very carefully and planned ahead before disclosing their HIV-positive status. After that, they chose the person who they wanted to disclose it to. It must be someone who is accepting, mature, empathic and supportive (Norval, 2012; van Dyk, 2008). In this group, disclosure of HIV status facilitated the mothers to engage in HIV care and treatment and better retention in care (Arrive et al., 2012; Ding, Li, & Ji, 2011; Halperin, Pathmanathan, Van Sickels, Seal, & Richey, 2012; Kadowa & Nuwaha, 2009; Ngugi et al., 2013) because they received more high quality social support, stronger family cohesion and relationships, reductions in anxiety and depression, and improvements in physical health (Law, Gogolishvili, Globerman, & Rueda, 2013). A study in Ethiopian people living with HIV has confirmed that although it is difficult to initiate HIV disclosure, it typically resulted in greater support (Lifson et al., 2013).

On the other hand, several mothers had negative experience of HIV disclosure. Most partners knew that their wives were HIV-positive, especially those partners who were viewed as the source of HIV transmission to their wife. Most mothers expected help and support from their partners. In fact, several partners were found to be HIV-negative after blood testing. The mothers were neglected and discriminated against and the result of this was divorce from their partners and

feelings of despair about living on or retention in care to maintain health (Mburu et al., 2014; Mucheto et al., 2011).

However, some mothers still had not disclosed their HIV status because they were fearful of their partner's reactions such as accusations of infidelity, abandonment, rejection, discrimination, and violence. These reasons are consistent with studies in Abidjan, Cote d'Ivoire (Mugisha et al., 2009) and Nepal (Wasti, Simkhada, Randall, Freeman, & Teijlingen, 2012b). HIV patients who had not disclosed frequently asked why they would be on long-term follow-up or treatment if they went to hospital (Mugisha et al., 2009). Additionally, non-disclosure led to patients hiding all of their ARV drugs, finding secret places to take their pills, and then eventual non-retention in care (Hardon et al., 2007). In this group, non-disclosure was also a barrier to retention in care (Albrecht et al., 2006; Tonwe-Gold et al., 2009; Wohl et al., 2011). In conclusion, although most mothers had disclosed their HIV status, its negative consequences resulted in non-retention in care in mothers with HIV infection.

Regarding disclosure of HIV status and retention in care at OB&GYN clinics, most mothers had disclosed their HIV status to nursing staff who provided health care at OB&GYN clinics. The mothers were familiar with nurses at OB&GYN clinics and they could consult their health care providers on personal issues when they came to hospital to screen for cervical cancer. Therefore, disclosure of HIV status facilitated retention in care at OB&GYN clinics for the mothers, although they had to pay for the cost of the Pap smear by themselves.

Another issue was found in this study. Disclosure of HIV status in the mothers with HIV tended to increase. In this study, about 82.2% of the mothers had disclosed their HIV status. A previous study in Thailand has shown that 54.6% of pregnant disclosed their HIV status (Chalermpichai, Ratinthorn, Serisathien, & Boriboonhirunsarn, 2008). Two main reasons might be possible. Firstly, the motivation for HIV disclosure has been found to be the seeking for supportive relationships because the mothers need to consult and ask for help in term of information regarding treatment (Sung-Jae, Li, Iamsirithaworn, & Khumtong, 2013), emotional or financial support, and responsibility to inform (Stutterheim et al., 2011). The second reason may be the progress our society has made in accepting HIV-

infected individuals as people infected by an immune-system's destroying virus. When the patients strongly desire to be accepted by their family and society, they learned more one and increased HIV disclosure. This could be the starting point of changes in the treatment of those with HIV infection in Thailand.

5.2.4 The Factors that could not Significantly Predict Retention in Care at either HIV or OB&GYN Clinics

Access to health care

Access to health care could not predict retention in care at both HIV and OB&GYN clinics. This finding is different from that of a study in sub-Saharan Africa; access to health facilities was barriers to linkage to and retention in care (Wachira et al., 2014). In this study, access to health care measured perceived problems with access of the mothers with HIV when they got sick during the first year after delivery. Most mothers were never sick or had only minor illness such as headache, abdominal pain, rash, and diarrhea, etc. (Viera, Pathman, & Garrett, 2006). Thus, they used health service at clinics near their home via self-payment or treated those symptoms by themselves till they were more comfortable. If the mothers were unsure whether those symptoms were related to AIDS or not, they then went to hospital (Smith, Fisher, Cunningham, & Amico, 2012). In conclusion, although the mothers had rather high scores of perceived problems with access during the first year after delivery, it could not predict retention in care at both HIV and OB&GYN clinics.

Another thing to say about the instrument of access to health care is that this instrument was developed to use for those AIDS-advanced stage patients who were in urgent need of care. Therefore, it might not have been appropriate for use in this study (most patients with HIV were asymptomatic).

Receiving HIV care

Receiving HIV care could not predict retention in care at either HIV or OB&GYN clinics. In regard to receiving HIV care and retention in care at HIV clinics, this result is not congruent with studies in several countries such as Kenya (Braitstein et al., 2012), the United States (Andersen et al., 2007), Taiwan (Chen et al., 2014; Ko et al., 2012), and Japan (Tominari et al., 2013) in which it has been shown that receiving HIV care could significantly increase retention in care and reduce mortality among patients with HIV. These researches provided comprehensive care by

several health care providers who worked together as a multidisciplinary team. Every patient could access all health care providers at HIV health centers all the time. Each center had an express care room and comprehensive care to monitor the patients by phone call or frequent home visits. Moreover, there were outreach of referral or connection to HIV medical care and other services. In this study, nurses at HIV and OB&GYN clinics work in office hours and don't conduct home visits. Most HIV patients received reminder calls from nurses during office hours. At that time, most patients had to work and could not answer the phone because they were laborers.

Moreover, health service provisions for mothers with HIV were different among hospitals. Siriraj Hospital has HIV special clinics affiliated with Department of Obstetrics and Gynecology and Department of Preventive and Social Medicine. At OB&GYN clinic Department of Obstetrics and Gynecology, OB&GYN nurses had important roles to provide HIV care for individual patients including counseling processes, conversation, health education, and recommendations. Other hospitals (primary, secondary, or private hospitals) did not have HIV specialists or HIV special clinic. The mothers received services from the same health care team throughout pregnancy until maintain health after delivery. The patients only had contact with the registered nurses who worked as health care providers at out-patient clinics regardless of whether or not they had experience in caring for HIV-pregnant women. Therefore, the mothers who attended antenatal clinic and continued receiving HIV care at Siriraj Hospital had more opportunities to receive information about health check-ups and the importance of retention in care. The mothers attended antenatal clinic at other hospitals and were referred to Siriraj Hospital to delivery only. During postpartum follow-up, they were referred to registered hospital according to their health coverage to receive HIV treatment. They received discontinuous HIV care in postpartum period from HIV nurse at Siriraj Hospital. The mothers who did not attend antenatal clinic at any hospital had a short period of time at the postpartum ward to receive HIV care. Therefore, levels of comprehensive HIV care were different among patients and did not affect to retention in care after delivery.

Another issue, the periods of time were different between receiving HIV care and measuring retention in care in mothers with HIV. Other studies outside Thailand, retention in care were measured in the same period with

receiving HIV care or throughout antenatal until postnatal period. Receiving HIV care for Thai pregnant women and mother with HIV divided into pre- and post-natal care. The comprehensive HIV services emphasized prenatal period. In this study, receiving HIV care was measured during antenatal care, while retention in care was assessed during the first year after delivery. Therefore, influence of receiving HIV care during antenatal care did not have long term affect to retention in care during the first year after delivery.

Regarding receiving HIV care and retention in care at OB&GYN clinics, 25.9% of the mothers did not fully receive antenatal care at Siriraj Hospital, but they were referred to delivery only. During postpartum follow-up, some mothers were referred to registered hospital according to their health coverage to receive HIV treatment. These patients met a nurse only for a short period of time at the postpartum ward before being discharged. It was not enough time to receive health education to increase retention in care after delivery (Lifson et al., 2013).

Another issue on the difference between receiving HIV care from nurses at HIV and OB&GYN clinics is that during pregnancy most pregnant women had more contact with OB&GYN nurses than they did with nurses at HIV clinics. Most patients learned that they were HIV-positive from OB&GYN nurses and were more familiar with OB&GYN staff. At HIV clinics, the patients received antiretroviral drugs that they were less likely to talk about with HIV nurses at HIV clinics. Most of the work of HIV nurses at HIV clinics was coordination between the unit and the National Health Security Office on matters such as patients' health coverage registration. Moreover, they have a greater workload in work such as the mobile unit to community service. In this study, the researcher performed data analysis by using the total scores of receiving HIV care from nurses at HIV and OBGYN clinics. It could not specify the difference between receiving HIV care from nurses at HIV clinics and receiving HIV care from nurses at OB&GYN clinics.

Attitudes toward HIV health care providers

Attitudes toward HIV health care providers could not predict retention in care at both HIV and OB&GYN clinics. The finding of this study is inconsistent with several studies that have reported significant prediction from attitudes toward HIV health care providers and retention in care (Beach, Keruly, &

Moore, 2006; Duff, Kipp, Wild, Rubaale, & Okech-Ojony, 2010; Lifson et al., 2013; Maluleke, Manganye, & Lebese, 2012; Smith, Fisher, Cunningham, & Amico, 2012). On the reasons for this, those studies reported that health workers disliked caring for HIV-infected people (Magnus et al., 2013) and manifested negative attitudes towards people with HIV infection, especially those who did not work as HIV specialists (Mugisha et al., 2009). In the Thai health service system, the mothers have to be in contact with several health care teams among hospitals during antenatal to postpartum care. Some mothers changed from one hospital to another hospital. For example, mothers attended antenatal care at a registered hospital, but delivered at Siriraj Hospital. Mothers received antenatal care and delivered at Siriraj Hospital. Mothers found a new health care team. Attitudes in this study were derived from the experience of the women that contacted health care providers during antenatal to postpartum care. It did not influence the postpartum mothers to be retained in health care after delivery. Several mothers reflected that those hospitals had a lack of HIV-specific clinics, infectious disease physicians and nurses. The mothers also claimed to be disgusted by and discriminated against by those health care providers who did not want to serve them (Audet, McGowan, Wallston, & Kipp, 2013; Li et al., 2007). However, it was necessary that the mothers have their HIV infection treated.

Although the mothers had more positive attitudes toward HIV health care providers during antenatal care, this did not affect retention in long-term care after gave birth. Therefore, they were retained in health care. In conclusion, in this study, the assessment of attitudes emphasized the mothers' perception of previous experience that might have induced the patients to be retained in health care. When the patients changed health care settings, they saw a new health care team. Patients' perception to their health care providers might also have changed. The measurement of attitudes should also have been launched in the new health care teams.

Stigma

Stigma could not predict retention in care at HIV and OB&GYN clinics. This finding is inconsistent with several studies that have reported significant prediction of stigma and retention in care (Beer, Fagan, Valverde, & Bertolli, 2009; Duff, Rubaale, & Kipp, 2012; Kalembo & Zgambo, 2012; Lifson et al., 2013; Lyimo et al., 2014; Magnus et al., 2013; Murray et al., 2009; Wachira et al.,

2014; Winestone et al., 2012). In this study, stigma was measured from mothers' perceptions about societal attitudes toward people living with HIV. However, most patients did not perceive stigma from health care providers. The HIV/AIDS stigma model of Holzemer et al., (2007) has found that anticipated stigma related to HIV disclosure in the community may motivate individuals to seek support from HIV professionals.

The complexity of HIV/AIDS related stigma is often cited as a primary reason for the limitation of retention in care. Several studies have shown that health care providers might be more likely to provide discriminatory care to patients with AIDS (Feyissa, Abebe, Girma, & Woldie, 2012; Kinsler, Wong, Sayles, Davis, & Cunningham, 2007; Li et al., 2007). In this study, it could be described in two situations. Firstly, the mothers with retention at Siriraj Hospital said that most hospital staff served them with understanding. Most mothers were more afraid of stigma from their peers or neighbors than from hospital staff. They gave as further reasons that health care staffs would help them with hiding from their neighbors at the clinics. Secondly, as regards mothers with retention at other, although the mothers perceived stigma from health care providers of those hospitals, they had no choice and needed to continue treatment. Similarly, on the reasons about attitudes in the previous paragraph, the assessment of stigma emphasized the mothers' perception on previous experience that might have induced the patients to be retained in health care. When the patients changed health care settings, they saw a new health care team. The measurement of stigma might have been launched in the new health care team also.

CHAPTER VI
CONCLUSION

This chapter presents a summary of this study, followed by the limitations, and recommendations of the study. The details of each are provided below. The objectives of this retrospective descriptive study were to study the prevalence of retention in care and to examine the predictive factors of retention in care at the first year after delivery among Thai mothers with HIV. The research framework of the study was derived from the literature review. The researcher collected data by patients' self-report questionnaire and telephone interviews for the mothers who were not attending the HIV or OB&GYN clinics at Siriraj Hospital. Participants in this study were all mothers with HIV who had given birth at Siriraj Hospital during January 2010 – December 2012 according to the name list of the Gynecological Infectious Diseases and Female Sexually Transmitted Disease Unit, Department of Obstetrics and Gynecology, Faculty of Medicine, Siriraj Hospital. Women on that list were invited to participate in this study. Each mother was recruited from one of 2 clinics between March 1, 2014 and July 31, 2014. These clinics were the Gynecological Infectious Diseases and Female Sexually Transmitted Disease Unit, Department of Obstetrics and Gynecology and the HIV clinic at the Department of Preventive and Social Medicine. Personal information was analyzed using frequencies, percentages, means, and standard deviation. Univariate logistic regression analysis was used to examine the association between the eight potential predictors and retention in care and multivariate logistic regression analysis was used to examine the predictors of retention in care at HIV and OB&GYN clinics at the first year after delivery among Thai mothers with HIV.

6.1 Summary of the Study

6.1.1 From 2010 to 2012, at the first year after delivery, the prevalence of retention in care was divided into retention in care at HIV clinics and at OB&GYN clinics. The prevalence rate of mothers with HIV infection who were retained at HIV clinics was 77.3 percent and at OB&GYN clinics it was 46.5 percent. The reasons for non-retention in care included inconvenience (far from home, busy, parenting, no money), non-antenatal care attendance, a lack of knowledge about benefits of their health coverage, no appointment from physician, non-disclosure of HIV status, a lack of health education, a lack of social support (*Kum Lung Jai*), health, side effects of ARV, and forgetting the medical appointment.

6.1.2 The binary logistic regression analysis

6.1.2.1 The univariate logistic regression analysis of independent variables and the retention in care

The six factors significantly associated with retention in care at HIV clinics were health coverage (OR=117.30, 95%CI = 36.10-381.24, $p<.001$), referral (OR=39.69, 95%CI = 15.14-104.04, $p<.001$), disclosure (OR=2.76, 95%CI = 1.23-6.18, $p<.05$), access to health care (OR=1.17, 95%CI = 1.07-1.28, $p<.05$), receiving HIV care (OR=1.17, 95%CI = 1.12-1.22, $p<.001$), and perceived health status (OR=1.25, 95%CI = 1.02-1.53, $p<.05$). The two factors not associated with retention in care at HIV clinics were attitudes toward HIV health care provider (OR=1.001, 95%CI = 0.97-1.03, $p>.05$) and stigma (OR=0.96, 95%CI = 0.90-1.03, $p>.05$).

The two factors significantly associated with retention in care at OB&GYN clinics were referral (OR=4.01, 95%CI = 1.93-8.33, $p<.01$) and disclosure of HIV status (OR=2.74, 95%CI = 1.19-6.27, $p<.05$). The six factors not associated with the retention in care at OB&GYN clinics were health coverage (OR=3.11, 95%CI = 0.83-11.69, $p>.05$), access to health care (OR=1.07, 95%CI = 0.99-1.15, $p>.05$), receiving HIV care (OR=1.11, 95%CI = 0.99-1.23, $p>.05$), attitudes toward HIV health care providers (OR=1.01, 95%CI = 0.99-1.03, $p>.05$), stigma (OR=0.99, 95%CI = 0.94-1.04, $p>.05$), and perceived health status (OR=0.99, 95%CI = 0.85-1.18, $p>.05$).

6.1.2.2 The multivariate logistic regression analysis of independent variables and the retention in care

After controlling for the effect of other variables, the predictive factors of retention in care at HIV clinics were health coverage, referral, and perceived health status. The study showed that the odds of retention in care at HIV clinics for mothers who had reimbursement of health coverage as a ratio to the odds for the mothers with self-payment equaled 46.32 (OR=46.32, 95%CI = 9.86-217.71, p<.001). Regarding referral, the odds of retention in care at HIV clinics for mothers who were referred to another HIV clinic according to their registered hospital as a ratio to the odds for the mothers without referral equaled 8.90 (OR=8.90, 95%CI = 2.44-32.44, p<.01). In regard to perceived health status, the finding indicated that every one unit of increased perceived health status increased the odds of retention in care at HIV clinics by 50% (OR = 1.50, 95% CI = 1.04-2.17, p<.05). The result presented the variance of retention in care at HIV clinics during the first year after delivery as equal to 80% (Nagelkerke's R^2 = 0.80) giving 93% overall predictive accuracy.

The predictive factors of retention in care at OB&GYN clinics were referral and disclosure of HIV status. The odds of retention in care at OB&GYN clinics for mothers who were referred to another OB&GYN clinic according to their registered hospital as a ratio to the odds for the mothers without referral were equal to 3.80 (OR=3.80, 95%CI = 1.81-7.95, p<.001). In regard to disclosure of HIV status, the finding indicated that the odds of retention in care at OB&GYN clinics for mothers who had disclosed their HIV status as a ratio to the odds for the mothers who had not equal 2.46 (OR=2.46, 95%CI = 1.04-5.80, p<.05). The result presented the variance of retention in care at OB&GYN clinics during the first year after delivery as equal to 14% (Nagelkerke's R^2 = 0.14), giving 63.2% overall predictive accuracy

6.2 Strengths of the Study

The strengths are presented as follows: Firstly, this research was the first study to examine predictive factors of retention in care in the Thai health service system and it can illustrate how facilitators of and barriers to retention in care for these

patients operate. Secondly, the researcher was able to gain an overview of the problems of HIV care and treatment in the health service system, although the data were collected only at Siriraj Hospital. This was because the researcher had a chance to interview many patients who received treatment from several hospitals among tertiary, regional, provincial, community, and private hospitals. Lastly, the researcher had the opportunity to give direct recommendation to the patients who had missed follow-up appointments at HIV and/or OB&GYN clinics after delivery through which they could establish HIV care again.

6.3 Limitations of the Study

The limitations of this study related to data collection and might have led to 3 types of bias as follows. Firstly, there is recall bias. Several mothers had given birth in the past two or three years, so they could not recall the situation in that period. Their answers might have deviated from the actual circumstances through recall bias. Secondly, there is response bias. The registered nurses or health care providers of the clinics who were familiar with the patients introduced them to the research project and the researcher. This might have resulted in overestimated scores of receiving HIV care and attitudes toward HIV health care provider cause by response bias (Mazor, Clauser, Field, Yood, & Gurwitz, 2002). Moreover, during data collection at HIV and OB&GYN clinics, Siriraj Hospital had the research project (PROMISE) in which the patients were retained at the HIV clinic to monitor regularly their CD4 level. This might have affected the number of patients who were retained at Siriraj Hospital. Therefore, the prevalence rate of retention in care is more likely to have been overestimated. Finally, there is non-response bias. This research was based on *convenience sampling. Many patients were not included in this study for various reasons such as* having lost contact with clinics (31.8%), having refused to cooperate (1.76%), and having died (1.06%). Most non-respondents generally were different from those who responded and their exclusion could have led to nonresponse bias (Indrayan, 2012; Pannucci & Wilkins, 2010).

6.4 Recommendations

Based on the findings of this study, the researcher has recommendations for health care policy, nursing practices and health care service, nursing education, and nursing researches as follows:

6.4.1 Recommendations for Health Care Policy

Policy makers should pay greater attention to many issues as follows: Firstly, policy makers should be concerned about having a roadmap to construct an effective referral system and linkage to HIV health service for enhancement of retention in HIV care. Secondly, patients who use social security scheme or universal coverage should have a chance to determine their registered hospital by themselves so they can have ease of access, which would reduce indirect costs of health service utilization and encourage the patients to be retained in health care. Moreover, policy makers might consider the possibility of improving health benefits of health coverage to be more relevant to patients' needs. Thirdly, the policy makers should have national practice guidelines to train patients in self-disclosure learning and reduce discrimination in their communities and in society in general. Fourthly, policy makers should encourage both patients who perceive themselves as healthy and those who perceive themselves as unhealthy to monitor their health equally. Lastly, the health care policy should determine a framework for monitoring the operational management of health care facilities in accordance with the HIV treatment guidelines to reduce barriers to patients' health service utilization, especially in private hospital affiliated with the social security scheme and universal coverage funds. For example, patients were charged a fee for specimen shipping to CD4 testing (200 baht or 6.66 USD) or Pap smear test (650 baht or 21.66 USD). Perhaps, the charges are not high, but they affect mostly the poor, un-employed, and low-income groups, particularly mothers with HIV. Some patients were refused the Pap test from those hospitals that claimed that Pap smears were free only for patients aged 40 years and older.

6.4.2 Recommendations for Nursing Practices

6.4.2.1 Establishing an Effective Referral System

Each clinic should have dedicated staff for cooperation between health settings to transfer or follow-up directly on patients and their information in HIV proactive service to reduce the complexity of the referral process and increase retention in care.

6.4.2.2 Integrating the Issue of Disclosure into Practice

Disclosure of HIV infection is another important issue that nurses should be concerned about. At present, nurses and the health service system promote the uptake of *HIV couple counseling* and testing services, but nurses should be aware about the impacts of disclosing the infection status of mothers with HIV. In counseling process, nurses should help the individual mothers plan for their disclosure. This should include discussing and thinking about what needs to be considered prior to disclosure, developing communication and language skills applicable to disclosure, and preparing for potential reactions and outcomes to disclosure. Then, nurses should respect mothers' decisions. Among mothers who do not intend to disclose their HIV status, nurses and mothers should look for appropriate strategies for maintaining mothers' status and help eliminate factors that may influence non-retention in care in the future.

6.4.2.3 Emphasizing Retention in Care

During postpartum, mothers should receive comprehensive health education to emphasize the importance of retention in care after delivery. Furthermore, nurses should discuss with patients the following topics: their registered hospital according to their census registration; the travel plans for mobile workers who have their registered hospital in a rural area; the possibility of retention in care at registered hospitals under their health coverage or other health facilities; asking for permission to provide a formal transfer letter to another health facility. Regarding call reminders of the Gynecologic Infectious Diseases and Female Sexually Transmitted Disease Unit, Department of Obstetrics and Gynecology, Faculty of Medicine Siriraj Hospital, nurses should extend the period of scheduled appointment call reminders to patients to outside of office hours because most patients cannot be phoned during office hours. Additional service should include a message reminder at least 2 weeks

before medical appointment. Moreover, newly graduated registered nurses and general physicians who provide direct care to patients with HIV should be continuingly trained for health service provision, especially those at clinics without a HIV specialist to reduce mistakes in HIV care and treatment

6.4.3 Recommendations for Nursing Education

Training courses and key contents provided in the courses should be based on the following concepts:

6.4.3.1 Disclosure of HIV status is one of the predictive factors of retention in care in the mother with HIV. HIV disclosure to others might result in stigma and discriminations from their parents, relatives, or community. Fear of HIV disclosure or its consequences might be major reasons for the mother to refuse HIV treatment. Therefore, nurses should be aware of the HIV disclosure issue because it can disrupt retention in care and appropriate self-care behaviors.

6.4.3.2 Short course training or advanced practice nursing (APN) focusing on HIV care should be provided to greater numbers and in higher quality. Based on the statistics from the Thailand Nursing and Midwifery Council (2012), only 70 nurses received the certificate of HIV specialty area in addition to course training included in the training course for infectious control in hospitals. HIV short course training should include knowledge and counseling skills as well as other areas that integrate issues of caring for mothers with HIV infection such as disclosure of HIV infection, ARV drug administration, and retention in care.

6.4.3.3 All training courses should value not only core nursing practices but also ethical responsibilities by providing safe, compassionate, competent and ethical care; promoting health and well-being; respecting informed decision-making; preserving dignity; maintaining privacy and confidentiality; promoting justice and; being accountable. Nurses or health care workers should concern themselves with these issues to reduce discrimination from health care providers when the patient gains entry to the clinic.

6.4.4 Recommendations for Nursing Researches

6.4.4.1 HIV disclosure is a key stressor among patients with HIV and their families and the effect of HIV disclosure to patients is long-lasting. Research should be directed t the development of a pilot study examining the strength of the community, the elimination of stigma and discrimination by community support groups (friends helping friends and to finding community network connection to manage and care for patients with HIV.

6.4.4.2 More qualitative studies should be done to find the causes of non-retention in care in mothers with HIV infection. Such studies might focus on the health service system, social and individual dimensions and reactions to disclosure of HIV infection.

6.4.4.3 The retention in care concept should be clearly defined and developed for the easy measurement and construction of retention strategies that are appropriate for the mothers with HIV.

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APPENDICES

APPENDIX A
QUESTIONNAIRE
(THAI VERSION)

แบบสอบถาม เลขที่_______

☐ ยินยอมเข้าร่วมการวิจัย

ส่วนที่ 1: ข้อมูลส่วนบุคคล

กรุณาทำเครื่องหมาย √ ลงใน ( ) หน้าข้อความที่สอดคล้องกับตัวท่านมากที่สุด

1. อายุ..........................ปี.....................เดือน

2. สถานภาพสมรส

( ) 1. โสด ( ) 2. สมรสหรืออยู่ด้วยกัน

( ) 3. สมรสแต่แยกกันอยู่ ( ) 4. หม้าย/หย่าร้าง

3. ท่านสำเร็จการศึกษาในระดับใด?

( ) 1. ไม่ได้ศึกษา ( ) 2. ประถมศึกษา

( ) 3. มัธยมศึกษาตอนต้น ( ) 4. มัธยมศึกษาตอนปลาย

( ) 5. อนุปริญญา/ประกาศนียบัตร ( ) 6. ปริญญาตรี

( ) 7. อื่นๆ ระบุ..

4. อาชีพของท่านคือ?

( ) 1. แม่บ้าน ( ) 2. รับจ้าง

( ) 3. เกษตรกร ( ) 4. ข้าราชการ/พนักงานรัฐวิสาหกิจ

( ) 5. ค้าขาย/ธุรกิจส่วนตัว ( ) 6. พนักงานโรงงาน (เข้ากะตามเวลา)

( ) 7. พนักงานบริษัท/สำนักงาน (เช่น งานประชาสัมพันธ์ ธุรการ บัญชี)

( ) 8. งานอิสระ (เช่น เสริมสวย ตัดเย็บเสื้อผ้า งานฝีมือแบบจ้างเหมา)

( ) 9. อื่นๆ โปรดระบุ..

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18. **ในช่วง** 1 **ปี หลังจากที่ท่านคลอดบุตร <u>ท่าน</u>**มารับการตรวจสุขภาพตามแพทย์นัดกี่ครั้ง **(รวมถึงการไปตรวจที่โรงพยาบาลอื่นๆ ไม่เฉพาะที่โรงพยาบาลศิริราช)**

1. ที่คลินิคเอชไอวี มาตามแพทย์นัด จำนวน.......................ครั้ง

2. ที่คลินิคสูติศาสตร์-นรีเวชวิทยา มาตามแพทย์นัด จำนวน.......................ครั้ง

กรุณาระบุเหตุผลที่ท่านไม่สามารถมาตรวจตามแพทย์นัด...

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ส่วนที่ 2 การเข้าถึงการดูแลสุขภาพ

คำชี้แจง: กรุณาทำเครื่องหมาย √ ในช่องที่ตรงกับความเห็นของท่านมากที่สุด โดยมีเกณฑ์การตอบ

คือ เห็นด้วยอย่างยิ่ง หมายถึง ท่านรู้สึกว่าข้อความนั้นตรงกับความเห็นของท่านมากที่สุด

เห็นด้วย หมายถึง ท่านรู้สึกว่าข้อความนั้นตรงกับความเห็นของท่านเป็นส่วนใหญ่

ไม่แน่ใจ หมายถึง ท่านไม่แน่ใจว่าข้อความนั้นตรงกับความเห็นของท่าน

ไม่เห็นด้วย หมายถึง ท่านรู้สึกว่าข้อความนั้นไม่ตรงกับความเห็นของท่าน

ไม่เห็นด้วยอย่างยิ่ง หมายถึง ท่านรู้สึกว่าข้อความนั้นไม่ตรงกับความเห็นของท่านมากที่สุด

ข้อความ	เห็นด้วยอย่างยิ่ง	เห็นด้วย	ไม่แน่ใจ	ไม่เห็นด้วย	ไม่เห็นด้วยอย่างยิ่ง
1. บางครั้งฉันก็ไม่ได้เข้ารับการรักษาที่ต้องการเนื่องจากมีค่าใช้จ่ายสูง					
2. เป็นการยากสำหรับฉันที่จะเข้ารับการรักษาในสถานการณ์เร่งด่วนฉุกเฉิน					
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6. ฉันสามารถพบผู้เชี่ยวชาญการรักษาเฉพาะด้านได้ง่ายเมื่อจำเป็น					

ส่วนที่ 3 การได้รับการดูแลทางด้านเอชไอวี (Receiving HIV Care)

คำชี้แจง กรุณาเขียนเครื่องหมาย √ ลงในช่องคำตอบที่สอดคล้องกับความเห็นของท่านมากที่สุด เกี่ยวกับการมีพยาบาลด้านเอชไอวี ในคลินิกที่ท่านเข้ารับบริการ ได้แก่ สูติ-นรีเวชคลินิก และเอชไอวีคลินิก

สูติ-นรีเวชคลินิก หมายถึง หน่วยตรวจผู้ป่วยนอกสูติ-นรีเวชวิทยา ที่ท่านเข้ารับการตรวจรักษาใน**ระหว่างฝากครรภ์จนถึงหลังคลอด**

เอชไอวีคลินิก หมายถึง หน่วยตรวจผู้ป่วยนอกเพื่อรักษาและติดตามภาวะสุขภาพของผู้ป่วยที่ติดเชื้อเอชไอวี

ใช่ หมายถึง ในแต่ละคลินิกดังกล่าว**มี**การจัดการดูแลตามข้อความที่ระบุให้แก่ผู้มารับบริการ

ไม่ใช่ หมายถึง ในแต่ละคลินิกดังกล่าว**ไม่มี**การจัดการดูแลตามข้อความที่ระบุให้แก่ผู้มารับบริการ

ข้อความ	**สูตินรีเวชคลินิก**		**เอชไอวีคลินิก**	
	ใช่	**ไม่ใช่**	**ใช่**	**ไม่ใช่**
1. พยาบาลให้บริการปรึกษา จนท่านสามารถเข้าใจตนเอง ปัญหาที่เกิดขึ้นเพื่อหาแนวทางแก้ไข				
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*** ถ้าท่านไม่เคยผิดนัดการมาตรวจ ให้ท่านข้ามไปตอบในหน้าถัดไป *** 5. เมื่อท่านไม่มาตรวจตามนัด พยาบาลติดตามสอบถามถึงสาเหตุของการไม่สามารถมาตรวจตามนัด และนัดหมายวันตรวจใหม่				

ส่วนที่ 4 แบบสอบถามทัศนคติของผู้ติดเชื้อเอชไอวีที่มีต่อผู้ให้การดูแลสุขภาพ

คำชี้แจง: ข้อความต่อไปนี้ บางท่านอาจจะเห็นด้วย บางท่านอาจจะไม่เห็นด้วย โปรดอ่านข้อความในแต่ละข้อและวงกลมในข้อที่ท่านเห็นว่าเป็นข้อความที่ตรงกับความคิดเห็นของท่านมากที่สุด ไม่มีคำตอบที่ถูกหรือผิด

เมื่อ “*ทีมผู้ให้การรักษา หมายถึง แพทย์ พยาบาล และผู้ให้การปรึกษา ที่ให้บริการดูแลสุขภาพต่อท่าน เมื่อท่านเข้ารับบริการที่หน่วยตรวจโรคผู้ป่วยนอกสูติศาสตร์-นรีเวชวิทยาและคลินิกเอชไอวีในช่วงที่ท่านเข้ารับการฝากครรภ์*”

เกณฑ์การตอบ: 1 หมายถึงว่า ไม่เห็นด้วยอย่างยิ่ง
2 หมายถึงว่า ค่อนข้างไม่เห็นด้วย
3 หมายถึงว่า ไม่เห็นด้วย
4 หมายถึงว่า เห็นด้วย
5 หมายถึงว่า ค่อนข้างเห็นด้วย
6 หมายถึงว่า เห็นด้วยอย่างยิ่ง

1. ฉันเชื่อว่าทีมผู้ให้การรักษามีความรู้ดีเกี่ยวกับโรคเอชไอวี/เอดส์	1	2	3	4	5	6	[ ]
2. ทีมผู้ให้การรักษาตั้งใจในการให้การรักษาฉัน	1	2	3	4	5	6	[ ]
3. ฉันเชื่อว่าทีมผู้ให้การรักษากระตือรือร้นที่จะช่วยเหลือฉัน	1	2	3	4	5	6	[ ]

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18. ฉันเชื่อว่าทีมผู้ให้การรักษามองว่าฉันเป็นคนโง่	1	2	3	4	5	6	[ ]
19. ทีมผู้ให้การรักษาตัดสินฉันจากสิ่งที่เห็นภายนอก	1	2	3	4	5	6	[ ]

ส่วนที่ 5 แบบประเมินการรับรู้ตราบาป

คำชี้แจง ผลกระทบจากการเจ็บป่วยที่ผู้ติดเชื้อเอชไอวี/ผู้ป่วยโรคเอดส์ได้รับ มักก่อให้เกิดความรู้สึกและรับรู้ต่อตนเองว่าเป็นโรคที่ร้ายแรง อันเกิดจากการประพฤติผิดจากบรรทัดฐานของสังคมและเป็นสิ่งไม่ดี โดยได้รับปฏิกิริยาจากสังคมที่แสดงถึงการรังเกียจในรูปแบบต่างๆ ข้อความต่อไปนี้จะแสดงถึงการรับรู้ตราบาปของการติดเชื้อเอชไอวีและจากสังคมของท่าน

โปรดอ่านข้อความแต่ละข้อและทำเครื่องหมาย √ ในช่องท้ายข้อความที่ตรงกับความรู้สึกหรือความคิดเห็นของท่านมากที่สุด คำตอบที่ได้จะไม่มีถูกหรือผิด โดยมีเกณฑ์ในการตอบคำถามดังนี้

ไม่เห็นด้วยอย่างยิ่ง หมายถึง มีความรู้สึกหรือความเห็นตรงกับข้อความนั้นมากที่สุด
ไม่เห็นด้วย หมายถึง มีความรู้สึกหรือความเห็นตรงกับข้อความนั้นน้อยกว่าส่วนที่ไม่ตรง
เห็นด้วย หมายถึง มีความรู้สึกหรือความเห็นตรงกับข้อความนั้นมากกว่าส่วนที่ไม่ตรง
เห็นด้วยอย่างยิ่ง หมายถึง มีความรู้สึกหรือความเห็นตรงกับข้อความนั้นมากที่สุด

ข้อความ	**ไม่เห็นด้วยอย่างยิ่ง**	**ไม่เห็นด้วย**	**เห็นด้วย**	**เห็นด้วยอย่างยิ่ง**
1. ท่านระมัดระวังเป็นอย่างมากในการเลือกคนที่จะบอกว่าท่านติดเชื้อเอชไอวี				
2. ท่านกังวลว่าคนที่ทราบว่าท่านติดเชื้อเอชไอวีจะบอกคนอื่นๆต่อ				
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8. ทัศนคติของคนทั่วไปเกี่ยวกับเอชไอวี ทำให้ท่านรู้สึกว่าตัวเองแย่				

APPENDIX B
BACK TRANSLATE OF INSTRUMENT
ACCESS TO CARE QUESTIONNAIRE

Original	Back Translate
1. Sometimes, I go without the medical care I need because it is too expensive บางครั้งฉันก็ไม่ได้เข้ารับการรักษาที่ต้องการเนื่องจากมีค่าใช้จ่ายสูง	1. Because high cost of care, I cannot get the treatment I need sometime.
2. It is hard for me to get medical care in an emergency เป็นการยากสำหรับฉันที่จะเข้ารับการรักษาในสถานการณ์เร่งด่วนฉุกเฉิน	2. It is difficult for me to get treatment in case of emergency.
3. If I need hospital care I can get admitted without any trouble ถ้าฉันจำเป็นต้องเข้ารับการรักษาในโรงพยาบาลฉันก็ทำได้โดยไม่มีความยุ่งยาก	3. If I need to be treated in the hospital, I can do without any difficultly
4. I am able to get medical care whenever I need it ฉันสามารถเข้ารับการดูแลรักษาเมื่อใดก็ตามที่มีความจำเป็น	4. I can get the continuing treatment when I need.
5. Places where I can get medical care are very conveniently located สถานที่ที่ฉันเข้ารับการดูแลรักษา ตั้งอยู่ในที่เดินทางไป-มาสะดวกมาก	5. The hospital that I receive treatment is easy to commute
6. I have easy access to the medical specialists I need ฉันสามารถพบผู้เชี่ยวชาญการรักษาเฉพาะด้านได้ง่ายเมื่อจำเป็น	6. I can see the special care easily if I need.

BACK TRANSLATE OF INSTRUMENT (cont.)

ATTITUDES TOWARD HIV HEALTH CARE PROVIDERS

Original	Back Translate
1. I believe that my medical team is knowledgeable about HIV/AIDS. ฉันเชื่อว่าทีมผู้ให้การรักษามีความรู้เต็มเปี่ยมเกี่ยวกับโรคเอชไอวี/เอดส์	1. I believe that my medical team is fully knowledgeable of the HIV/AIDS.
2. My medical team puts an effort into my treatment. ทีมผู้ให้การรักษาใช้ความพยายามในการให้การรักษาฉัน	2. My medical team has the best effort to treat me.
3. I believe my medical team is motivated to help me. ฉันเชื่อว่าทีมผู้ให้การรักษากระตือรือร้นที่จะช่วยเหลือฉัน	3. I believe that my medical team is enthusiastic about my treatment.
4. My medical team cares about my health. ทีมผู้ให้การรักษาห่วงใยในสุขภาพของฉัน	4. My medical team cares about my health.
5. I believe that my medical team knows a lot about HIV drugs. ฉันเชื่อว่าทีมผู้ให้การรักษามีความรู้มากมายเกี่ยวกับยาที่รักษาเอชไอวี	5. I believe that my medical team is very knowledgeable of AIDS medicine**.**
6. I believe I receive the best available health care. ฉันเชื่อว่าฉันได้รับการดูแลทางด้านสุขภาพที่ดีที่สุดแล้ว	6. I believe I received the best treatment as I can possibly have.
7. My medical team is lazy. ทีมผู้ให้การรักษาไม่สนใจดูแลฉัน	7. My medical team is not attentive enough
8. My medical team is knowledgeable about new HIV treatments**.** ทีมผู้ให้การรักษามีความรู้เต็มเปี่ยมเกี่ยวกับแนวทางการรักษาใหม่ๆ ของเอชไอวี	8. My medical team is fully knowledgeable about advance HIV treatment.

Original	Back Translate
9. I believe that my medical team cares about me. ฉันเชื่อว่าทีมผู้ให้การรักษาห่วงใยในตัวฉัน	9. I believe that my medical team is really care about me.
10. My medical team supports me. ทีมผู้ให้การรักษาให้การสนับสนุนช่วยเหลือฉัน	10. My medical team is very helpful for me.
11. My medical team encourages me. ทีมผู้ให้การรักษาให้กำลังใจฉัน	11. To me, my medical team is supportive.
12. My medical team is helpful. ทีมผู้ให้การรักษาให้ความช่วยเหลือที่มีประโยชน์	12. My medical team is willing to help me.
13. My medical team makes me feel comfortable. ทีมผู้ให้การรักษาทำให้ฉันรู้สึกสบายใจ	13. My medical team makes me feel warm.
14. My medical team spends enough time with me. ทีมผู้ให้การรักษาให้เวลากับฉันอย่างเพียงพอ	14. My medical team give my enough time.
15. My medical team is sensitive to how I feel. ทีมผู้ให้การรักษามีความละเอียดอ่อนต่อความรู้สึกของฉัน	15. My medical team understands how I feel.
16. My medical team thinks I am a bad person because I have HIV. ทีมผู้ให้การรักษาคิดว่าฉันเป็นคนไม่ดีเนื่องจากฉันติดเชื้อเอชไอวี	16. My medical team thinks that I am not a good person because I have HIV infection.
17. My medical team cares about my opinion. ทีมผู้ให้การรักษาสนใจความคิดเห็นของฉัน	17. My medical team concerns how I am thinking.
18. I believe that my medical team sees me as stupid. ฉันเชื่อว่าทีมผู้ให้การรักษามองว่าฉันเป็นคนโง่	18. I believe that my medical team considers I am stupid.
19. My medical team judges me. ทีมผู้ให้การรักษาตัดสินฉันจากสิ่งที่เห็นภายนอก	19. My medical team judges me.

APPENDIX C
LIST OF EXPERTS FOR VALIDATING OF QUESTIONNAIRE

1. Assoc. Prof. Dr. Pimpawun Boonmongkon
   Faculty of Social Science and Humanities, Mahidol University
2. Assist. Prof. Dr. Penpaktr Uthis
   Faculty of Nursing, Chulalongkorn University
3. Assist. Prof. Dr. Watana Maneesriwongul
   Nursing Department, Ramathibodi Hospital Faculty of Medicine,
   Mahidol University

APPENDIX D
ASK FOR PERMISSION TO USE THE INSTRUMENT
ACCESS TO CARE

To: "kukkaew@yahoo.com" <kukkaew@yahoo.com>
Sent: Tuesday, December 4, 2012 11:18 PM
Subject: Re: Ask for permission to use questionnaire "Access to care"

Yes

From: Thiwarphorn Chalermpichai [mailto:kukkaew@yahoo.com]
Sent: Tuesday, December 04, 2012 06:58 AM
To: Cunningham, William
Subject: Ask for permission to use questionnaire "Access to care"

December 4, 2012
William E. Cunningham, MD, MPH
UCLA School of Public Health
Department of Health Services
Box 951736
911 Broxton Plaza Suite 101
Los Angeles, CA 90095-1736
Dear Prof. Dr. Cunningham:

My name is Thiwarphorn Chalermpichai, a doctoral student at Faculty of Nursing, Mahidol University, Bangkok, Thailand. The purpose of this letter is to ask for permission to use in my dissertation the instrument "Access to care" that you and your colleagues developed to measure access to care in

"Cunningham, W. E., Hays, R. D., & Williams, K. (1995). Access to medical care and health-related quality of life for low-income persons with symptomatic human immunodeficiency virus. *Medical Care, 33*, 739-754."
My dissertation topic is "Factors of health care components that affect the retention in care after delivery among Thai mothers with HIV in Bangkok, Thailand." I would translate the English version of your instrument into Thai if you allow me to use it.
Assoc. Prof. Dr. Fongcum Tilokskulchai is my dissertation chair. Her email is nsfti@mahidol.ac.th. I would be most grateful if you could give me the permission to use the instrument to collect dissertation data in Thailand.
Thank you very much for your consideration.
Sincerely,

Thiwarphorn Chalermpichai

ASK FOR PERMISSION TO USE THE INSTRUMENT (cont.)
ATTITUDES TOWARD HIV HEALTH CARE PROVIDERS

From: "Bodenlos, Jamie" <BODENLOS@hws.edu<mailto:BODENLOS@hws.edu>>
To: Thiwarphorn Chalermpichai <kukkaew@yahoo.com<mailto:kukkaew@yahoo.com>>
Sent: Tuesday, April 10, 2012 8:11 PM
Subject: RE: Ask for permission to use your instrument "AHHCP"

Hello Thiwarphorn,

You have my permission to use the AHHCP scale for your research. I'll be very interested to see what you find. Good luck with your dissertation!

Best,

Jamie

Jamie S. Bodenlos, Ph.D.
Assistant Professor
Department of Psychology
217 Gulick Hall
Hobart and William Smith Colleges
Geneva, NY 14456
Phone- 315-781-3481

ASK FOR PERMISSION TO USE THE INSTRUMENT (cont.)

STIGMA

บัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล
๒๕/๒๕ ถ.พุทธมณฑลสาย ๔ ศาลายา นครปฐม ๗๓๑๗๐
โทร. ๐๒๔๔๑-๔๑๒๕ ต่อ ๑๐๙-๑๑๑ โทรสาร ๐๒-๔๔๑๙๘๓๔

ที่ ศธ ๐๕๑๗.๐๒ /๐๙๕๕๔
วันที่ ๒๕ ตุลาคม ๒๕๕๖
เรื่อง อนุญาตให้ใช้เครื่องมือวิจัย
เรียน คณบดี คณะพยาบาลศาสตร์

อ้างถึงหนังสือที่ ศธ ๐๕๑๗.๐๖๗/ปร.ด. ๓๔๒ ลงวันที่ ๒๓ กันยายน ๒๕๕๖ คณะฯ แจ้งว่า นางทิวาภรณ์ เฉลิมพิชัย นักศึกษาหลักสูตรปรัชญาดุษฎีบัณฑิต สาขาวิชาการพยาบาล (หลักสูตรนานาชาติ และหลักสูตรร่วมกับมหาวิทยาลัยในต่างประเทศ) โครงการร่วมระหว่างคณะแพทยศาสตร์โรงพยาบาลรามาธิบดี และคณะพยาบาลศาสตร์ ได้รับอนุมัติให้ทำวิจัยเพื่อวิทยานิพนธ์ เรื่อง “ FACTORS ASSOCIATED WITH THE RETENTION IN CARE AFTER DELIVERY AMONG THAI MOTHERS WITH HIV” โดยมี ผศ.ดร.เอมพร รตินธร เป็นอาจารย์ที่ปรึกษาวิทยานิพนธ์หลัก และนักศึกษามีความประสงค์จะขออนุญาตใช้เครื่องมือวิจัย คือ HIV Stigma Scale ที่พัฒนาโดย ผศ.ดร. วันทนา มณีศรีวงศ์กูล โรงเรียนพยาบาลรามาธิบดี คณะแพทยศาสตร์โรงพยาบาลรามาธิบดี

บัดนี้บัณฑิตวิทยาลัย ได้รับแจ้งจาก หลักสูตรพยาบาลศาสตรมหาบัณฑิต โรงเรียนพยาบาลรามาธิบดี คณะแพทยศาสตร์โรงพยาบาลรามาธิบดี ว่าไม่ขัดข้องยินดีอนุญาตให้ นางทิวาภรณ์ เฉลิมพิชัย ใช้เครื่องมือวิจัยดังกล่าวได้ ดังรายละเอียดตามเอกสารที่แนบ

จึงเรียนมาเพื่อโปรดทราบ และดำเนินการต่อไปด้วย จักขอบพระคุณยิ่ง

(ผู้ช่วยศาสตราจารย์ ดร.เอื้อมพร มัชฌิมวงศ์)
รองคณบดีฝ่ายการคลังและพัสดุ
รักษาการแทน คณบดีบัณฑิตวิทยาลัย

เรียน คณบดี
Ø เพื่อโปรดทราบ
○ สำเนาเรื่อง เรียน
Ø เรื่องส่ง หลักสูตร ป.เอก
29 ต.ค. 56

(นางอริยา ธัญญพืช)
เลขานุการคณะฯ

ทราบและดำเนินการได้
(รองศาสตราจารย์ ดร.ฟองคำ ติลกสกุลชัย)
คณบดีคณะพยาบาลศาสตร์
29 ต.ค. 2556

เรื่องส่ง ○ สารบรรณหอบ/เก็บ Ø หลักสูตรป.เอก
สำเนา - ภาควิชา............และอาจารย์............
- งาน............

APPENDIX E
ETHICAL APPROVAL

2 WAN LANG Rd. BANGKOKNOI
BANGKOK 10700

Tel. +66 2419 2667-72
Fax. +66 2411 0162

FACULTY OF MEDICINE SIRIRAJ HOSPITAL MAHIDOL UNIVERSITY

Siriraj Institutional Review Board
Certificate of Approval

COA no. Si 009/2014

Protocol Title : Factors associated with the retention in care after delivery among Thai mothers with HIV

Protocol number : 727/2556(EC1)

Principal Investigator/Affiliation : Mrs. Thiwarphorn Chalermpichai /Faculty of Nursing, Mahidol University

Research site : Faculty of Medicine Siriraj Hospital

Approval includes :

1. SIRB submission form
2. Proposal
3. Participant Information Sheet
4. Questionnaire
5. Telephone script
6. Principle Investigator's curriculum vitae

Approval date : Jaunary 9, 2014

Expired date : Jaunary 8, 2015

This is to certify that Siriraj Institutional Review Board is in full Compliance with international guidelines for human research protection such as the Declaration of Helsinki, the Belmont Report, CIOMS Guidelines and the International Conference on Harmonization in Good Clinical Practice (ICH-GCP).

(Prof. Jarupim Soongswang, M.D.)
Chairperson

15 JAN 2014
date

(Clin. Prof. Udom Kachintorn, M.D.)
Dean of Faculty of Medicine Siriraj Hospital

16 JAN 2014
date

Page 1 of 2

มติพิมพ์โรงพยาบาลศิริราช 2341 / 3,000 แผ่น / พ.ธ.56 / M / 2667 / Mat. 10023252

APPENDIX F
PARTICIPANT INFORMATION SHEET

เอกสารหมายเลข 3ก

เอกสารชี้แจงผู้เข้าร่วมการวิจัย/อาสาสมัคร

(Participant Information Sheet)

ในเอกสารนี้อาจมีข้อความที่ท่านอ่านแล้วยังไม่เข้าใจ โปรดสอบถามหัวหน้าโครงการวิจัย หรือผู้แทนให้ช่วยอธิบายจนกว่าจะเข้าใจดี ท่านอาจจะขอเอกสารนี้กลับไปอ่านที่บ้านเพื่อปรึกษาหารือกับญาติพี่น้อง เพื่อนสนิท แพทย์ประจำตัวของท่าน หรือแพทย์ท่านอื่น เพื่อช่วยในการตัดสินใจเข้าร่วมการวิจัย

ชื่อโครงการวิจัย "ปัจจัยที่เกี่ยวข้องกับการคงอยู่ในการดูแลสุขภาพของมารดาหลังคลอด"

ชื่อหัวหน้าโครงการวิจัย ทิวาภรณ์ เฉลิมพิชัย นักศึกษาหลักสูตรปริญญาเอก คณะพยาบาลศาสตร์ ม. มหิดล

สถานที่วิจัย คลินิกโรคติดเชื้อทางนรีเวชและโรคติดต่อทางเพศสัมพันธ์สตรี ตึกผู้ป่วยนอกชั้น 3

สถานที่ทำงานและหมายเลขโทรศัพท์ของหัวหน้าโครงการวิจัยที่ติดต่อได้ทั้งในและนอกเวลาราชการ หลักสูตรปริญญาเอก คณะพยาบาลศาสตร์ ม.มหิดล อาคารพระศรีฯ ชั้น 4 โทรศัพท์ 081-8145757

ผู้สนับสนุนทุนวิจัย ไม่มี

ระยะเวลาในการวิจัย 1 ปี หลังได้รับการรับรองจากคณะกรรมการจริยธรรมการวิจัยในคน

โครงการวิจัยนี้ทำขึ้นเพื่อ ศึกษาติดตามการตรวจสุขภาพหลังคลอดบุตร 1 ปีแรก ของมารดา

ท่านได้รับเชิญให้เข้าร่วมการวิจัยนี้เนื่องจาก ท่านเป็นมารดาหลังคลอดบุตรที่ควรได้รับการตรวจและติดตามภาวะสุขภาพอย่างใกล้ชิดและต่อเนื่อง

จะมีผู้ร่วมวิจัย/อาสาสมัครนี้ทั้งสิ้นประมาณ 200 คน

หากท่านตัดสินใจเข้าร่วมการวิจัยแล้ว จะมีขั้นตอนการวิจัยดังต่อไปนี้คือ

- ท่านจะถูกถามความยินยอมในการเข้าร่วมการวิจัย และทำเครื่องหมาย √ ลงใน ☐ หน้าข้อความยินยอมเข้าร่วมการวิจัยลงในแบบสอบถามและท่านจะได้รับคำอธิบายเกี่ยวกับลักษณะของการวิจัย ข้อกำหนดและข้อจำกัดต่างๆ ของการวิจัย พร้อมทั้งได้รับการตอบข้อสงสัยจากผู้วิจัย หรือผู้ช่วยวิจัย
- ในการศึกษาครั้งนี้ ท่านจะตอบแบบสอบถามเพียงครั้งเดียว โดยใช้เวลาประมาณ 35-50 นาที โดยมีข้อคำถามทั้งสิ้น 56 ข้อ ดังนี้

ส่วนที่ 1 แบบสอบถามข้อมูลส่วนบุคคล เป็นข้อคำถามเกี่ยวกับ อายุ สถานภาพสมรส อาชีพ ระดับการศึกษา การเลี้ยงดูบุตร ค่าใช้จ่ายที่เกิดขึ้นเมื่อต้องมา ร.พ. เป็นต้น จำนวน 18 ข้อ

ส่วนที่ 2 แบบสอบถามการเข้าถึงการดูแลสุขภาพ เพื่อทราบถึงความสามารถในการเข้าถึงบริการ ความสะดวก และความพอเพียงของบริการที่จัดให้กับท่าน จำนวน 6 ข้อ

ส่วนที่ 3 แบบสอบถามการมีพยาบาลดูแลผู้ป่วย เพื่อประเมินบริการทางการพยาบาลที่ทางหน่วยโรคติดเชื้อทางนรีเวชฯ และหน่วยโรคติดเชื้อฯ จัดให้ตามการรับรู้ของท่าน จำนวน 5 ข้อ

ส่วนที่ 4 แบบสอบถามทัศนคติที่ท่านมีต่อผู้ให้การดูแลสุขภาพ ในด้านความเป็นผู้เชี่ยวชาญในการทำงานและการช่วยเหลือสนับสนุนทางด้านอารมณ์กับท่าน จำนวน 19 ข้อ

ส่วนที่ 5 แบบประเมินการรับรู้ตราบาป ที่ท่านรับรู้ได้จากสังคมและคนรอบข้างที่แสดงออกต่อท่าน จำนวน 8 ข้อ

ความเสี่ยงที่อาจจะเกิดขึ้นเมื่อเข้าร่วมการวิจัย เนื่องจากการเข้าร่วมการวิจัยในครั้งนี้เป็นการตอบแบบสอบถามซึ่งอาจทำให้เกิดความไม่สะดวก อึดอัด ไม่สบายใจ และจะต้องเสียสละเวลาประมาณ 35-50 นาที

หากท่านไม่เข้าร่วมในโครงการวิจัยนี้ ท่านก็จะได้รับการตรวจเพื่อการวินิจฉัยและรักษาโรคของท่านตามวิธีการที่เป็นมาตรฐาน ท่านยังคงได้รับการบริการทางการแพทย์ ที่หน่วยโรคติดเชื้อทางนรีเวชและโรคติดต่อทางเพศสัมพันธ์สตรี โรงพยาบาลศิริราช โดยไม่มีผลกระทบใดๆ ต่อท่าน ในการรับบริการและการรักษาที่สมควรจะได้รับตามมาตรฐานแต่ประการใด

หากมีข้อสงสัยที่จะสอบถามเกี่ยวข้องกับการวิจัย หรือหากเกิดผลข้างเคียงที่ไม่พึงประสงค์จากการวิจัย ท่านสามารถติดต่อ สอบถามข้อสงสัยของท่านได้ตลอดเวลาที่ นางทิวาภรณ์ เฉลิมพิชัย โทรศัพท์ 081-8145757

ประโยชน์ที่คาดว่าจะได้รับจากการวิจัย การวิจัยในครั้งนี้อาสาสมัครอาจไม่ได้รับประโยชน์โดยตรง แต่เพื่อให้ทราบถึงปัจจัยที่เป็นอุปสรรคของการคงอยู่ในการดูแลสุขภาพตั้งแต่หลังคลอดบุตร เพื่อช่วยมารดาในการขจัดอุปสรรคและสร้างแนวทางในการจัดบริการที่เหมาะสมสอดคล้องกับความต้องการของมารดาหลังคลอด ซึ่งจะเป็นประโยชน์ต่อส่วนรวมในอนาคต

ค่าตอบแทนที่ผู้ร่วมวิจัย/อาสาสมัครจะได้รับ จะไม่มีค่าตอบแทนในการวิจัยนี้

ค่าใช้จ่ายที่ผู้ร่วมวิจัย/อาสาสมัครจะต้องรับผิดชอบเอง ไม่มีค่าใช้จ่ายเพิ่มขึ้นจากการเข้าร่วมวิจัยที่เป็นการตอบแบบสอบถามนี้ นอกเหนือจากค่าใช้จ่ายอื่นๆ ที่ท่านต้องรับผิดชอบเอง

หากมีข้อมูลเพิ่มเติมทั้งด้านประโยชน์และโทษที่เกี่ยวข้องกับการวิจัยนี้ ผู้วิจัยจะแจ้งให้ทราบโดยรวดเร็วและไม่ปิดบัง

ข้อมูลส่วนตัวของผู้ร่วมวิจัย/อาสาสมัคร จะถูกเก็บรักษาไว้เป็นความลับและจะไม่เปิดเผยต่อสาธารณะเป็นรายบุคคล แต่จะรายงานผลการวิจัยเป็นข้อมูลส่วนรวมโดยไม่สามารถระบุข้อมูลรายบุคคลได้ ข้อมูลของผู้ร่วมวิจัย/อาสาสมัครเป็นรายบุคคลอาจมีคณะบุคคลบางกลุ่มเข้ามาตรวจสอบได้ เช่น ผู้ให้ทุนวิจัย ผู้กำกับดูแลการวิจัย สถาบันหรือองค์กรของรัฐที่มีหน้าที่ตรวจสอบ รวมถึงคณะกรรมการจริยธรรมการวิจัยในคน เป็นต้น โดยไม่ละเมิดสิทธิของผู้ร่วมวิจัย/อาสาสมัครในการรักษาความลับเกินขอบเขตที่กฎหมายอนุญาตไว้

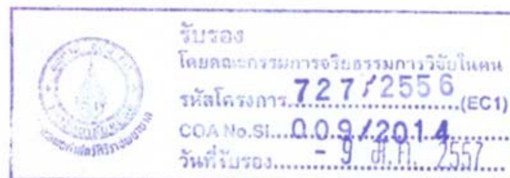
ผู้ร่วมวิจัย/อาสาสมัครมีสิทธิ์ถอนตัวออกจากโครงการวิจัยเมื่อใดก็ได้ โดยไม่ต้องแจ้งให้ทราบล่วงหน้า และการไม่เข้าร่วมการวิจัยหรือถอนตัวออกจากโครงการวิจัยนี้ จะไม่มีผลกระทบต่อการบริการและการรักษาที่สมควรจะได้รับตามมาตรฐานแต่ประการใด

หากท่านได้รับการปฏิบัติที่ไม่ตรงตามที่ได้ระบุไว้ในเอกสารชี้แจงนี้ ท่านสามารถร้องเรียนไปยังประธานคณะกรรมการจริยธรรมการวิจัยในคนได้ที่ สำนักงานคณะกรรมการจริยธรรมการวิจัยในคน อาคารเฉลิมพระเกียรติ ๘๐ พรรษา ๕ ธันวาคม ๒๕๕๐ ชั้น 2 โทร.0 2419 2667-72 โทรสาร 0 2411 0162

ลงชื่อ.. ผู้ร่วมวิจัย/อาสาสมัคร

(..)

วันที่..



คณะแพทยศาสตร์ศิริราชพยาบาล
สำนักงานรองคณบดีฝ่ายวิจัย
บางกอกน้อย กรุงเทพฯ 10700
โทร. 0 2419 2680

ที่ ศธ 0517.07/ 2848
วันที่ ๒๖ กุมภาพันธ์ 2557
เรื่อง ยินดีให้ความอนุเคราะห์ข้อมูลประกอบการทำวิทยานิพนธ์

เรียน คณบดีคณะพยาบาลศาสตร์ มหาวิทยาลัยมหิดล
อ้างถึง หนังสือ หลักสูตรปรัชญาดุษฎีบัณฑิต สาขาการพยาบาล คณะพยาบาลศาสตร์ มหาวิทยาลัยมหิดล
ที่ ศธ 0517.05/04094 ลงวันที่ 30 ตุลาคม 2556

ตามที่ หลักสูตรปรัชญาดุษฎีบัณฑิต สาขาการพยาบาล คณะพยาบาลศาสตร์ มหาวิทยาลัยมหิดล ได้ขอความอนุเคราะห์ให้ นางทิวาภรณ์ เฉลิมพิชัย นักศึกษาหลักสูตรปรัชญาดุษฎีบัณฑิต สาขาการพยาบาล (หลักสูตรนานาชาติ และหลักสูตรร่วมกับมหาวิทยาลัยในต่างประเทศ) เป็นหลักสูตรร่วมกันระหว่างคณะพยาบาลศาสตร์ และโรงเรียนพยาบาลรามาธิบดี คณะแพทยศาสตร์โรงพยาบาลรามาธิบดี มหาวิทยาลัยมหิดล เข้าเก็บข้อมูลด้วยวิธีการตอบแบบสอบถามกับมารดาที่ติดเชื้อเอชไอวีซึ่งเคยคลอดบุตรที่ รพ.ศิริราช ในช่วงวันที่ 1 มกราคม 2554 – 31 ธันวาคม 2555 ที่หน่วยโรคติดเชื้อทางนรีเวชและโรคติดต่อทางเพศสัมพันธ์สตรี ภาควิชาสูติศาสตร์-นรีเวชวิทยา คณะแพทยศาสตร์ศิริราชพยาบาล เพื่อเป็นข้อมูลประกอบการทำวิทยานิพนธ์ เรื่อง “ปัจจัยที่เกี่ยวข้องกับการคงอยู่ในการดูแลสุขภาพหลังคลอดของมารดาที่ติดเชื้อเอชไอวี” ความละเอียดดังแจ้งแล้วนั้น

คณะแพทยศาสตร์ศิริราชพยาบาล มหาวิทยาลัยมหิดล พิจารณาแล้วยินดีอนุมัติให้ นางทิวาภรณ์ เฉลิมพิชัย เข้าเก็บข้อมูลได้ตามที่ขอความอนุเคราะห์มา ทั้งนี้ได้ผ่านการรับรองโครงการวิจัยจากคณะกรรมการ-จริยธรรมการวิจัยในคน คณะแพทยศาสตร์ศิริราชพยาบาล เมื่อวันที่ 9 มกราคม 2557

จึงเรียนมาเพื่อโปรดทราบ

ขอแสดงความนับถือ

(ศาสตราจารย์ นายแพทย์ประสิทธิ์ วัฒนาภา)
รองคณบดี ปฏิบัติงานแทน
คณบดีคณะแพทยศาสตร์ศิริราชพยาบาล

สำเนาเรียน รองคณบดีฝ่ายวิจัย, ผู้อำนวยการโรงพยาบาล, หัวหน้าภาควิชาสูติศาสตร์-นรีเวชวิทยา, หัวหน้าฝ่ายการพยาบาล

APPENDIX G
DESCRIPTIVE DATA

Table 4.10 Frequencies and Percentages of Health Coverage, Referral, and Disclosure of HIV Status among Thai Mothers with HIV Classified by Retention in Care at HIV and OB&GYN Clinics

Variables	Retention at HIV clinic				Retention at OB&GYN clinic			
	Retention (n=143)		Non-retention (n=42)		Retention (n=86)		Non-retention (n=99)	
	N	%	N	%	N	%	N	%
Health coverage								
- Research project (PROMISE)	49	34.3	0	0.0	-	-	-	-
- Social security scheme	40	28.0	15	35.7	19	22.1	43	43.4
- Universal coverage	39	27.3	20	47.6	19	22.1	49	49.5
- Cevil servant medical benefit scheme	10	7.7	1	2.4	11	12.8	0	0.0
- Self-payment	5	2.8	6	14.3	37	43.0	7	7.1
Referral								
- Entry via PROMISE project	49	34.3	0	0.0	26	30.2	23	23.2
- Receiving care before pregnancy from registered hospital	48	33.6	0	0.0	31	36.0	17	17.2
- Received official transfer	30	21.0	7	16.7	17	19.8	20	20.2
- Received postpartum recommendation	15	10.5	10	23.8	9	10.5	16	16.2
- Not received referral or recommendation	1	0.7	25	59.5	3	3.5	23	23.2
Disclosed their HIV status to								
Current partner								
- disclosure	58	40.6	12	28.6	34	39.5	36	36.4
- non-disclosure	85	59.4	30	71.4	52	60.5	63	63.6
Father & Mother								
- disclosure	10	7.0	5	11.9	27	31.4	28	28.3
- non-disclosure	133	93.0	37	88.1	59	68.6	71	71.7
Partner&Father&Mother&counsin								
- disclosure	37	25.9	13	31.0	29	33.7	21	21.2
- non-disclosure	106	74.1	29	69.0	57	66.3	78	78.8

Table 4.11 Frequencies and Percentages of Health Coverage, Referral, and Disclosure of HIV Status among Thai Mothers with HIV Classified by Retention in Care at HIV and OB&GYN Clinics

Variables	Retention at HIV clinic				Retention at OB&GYN clinic			
	Retention (n=143)		Non-retention (n=42)		Retention (n=86)		Non-retention (n=99)	
	N	%	N	%	N	%	N	%
Health coverage								
- Health coverage	138	96.5	36	85.7	49	57.0	92	92.9
- Self-payment	5	3.5	6	14.3	37	43.0	7	7.1
Referral								
- Referral	127	88.8	7	16.7	74	86.0	60	60.6
- Non-referral	16	11.2	35	83.3	12	14.0	39	39.4
Disclosure of HIV status								
- disclosure	123	86.0	29	69.0	77	89.5	75	75.8
- non-disclosure	20	14.0	13	31.0	9	10.5	24	24.2

BIOGRAPHY

NAME	Mrs. Thiwarphorn Chalermpichai
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	Master of Nursing Science
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