

Prevention of Mother-to-Child Transmission of HIV

Issues for South East Asia

Technical Update No. 2
April 2001



Copyright of the UN Regional Task Force on Prevention of Mother-to-Child Transmission of HIV. All rights reserved. This publication may be quoted, reproduced or translated, in part or in full, provided the source is acknowledged. It may not be reproduced for any commercial use without the prior written approval of the UN Regional Task Force on Prevention of Mother-to-Child Transmission of HIV.

Prepared by: Jintanat Ananworanich, M.D., Phongpan Vannakit, R.N., Usa Thisyakorn, M.D., Praphan Phanuphak, M.D., Ph.D., Thai Red Cross AIDS Research Center, Bangkok, Thailand

Contact information: Robert Bennoun/Thazin Oo, Convenor of the UN Regional Task Force on Prevention of Mother-to-Child Transmission of HIV

The views expressed in documents by named authors are solely the responsibility of those authors.

The designations employed and presentation of the material in this work do not imply the expression of any opinion whatsoever on the part of the UN Regional Task Force on Prevention of Mother-to-Child Transmission of HIV concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers and boundaries.

The mention of specific companies or of certain manufacturers' products does not imply that they are endorsed or recommended by the UN Regional Task force on Prevention of Mother-to-Child Transmission of HIV in preference to others of a similar nature that are not mentioned. Errors and omissions excepted, the names of proprietary products are distinguished by initial capital letters.

Jointly Developed by:

UNAIDS South East Asia and Pacific Intercountry Team
UNICEF East Asia and Pacific Regional Office
UNFPA Country Technical Services Team
WHO Thailand
Thai Red Cross AIDS Research Center

For

UN Regional Task Force
On Prevention of Mother-to-Child Transmission of HIV

Prevention of Mother-to-Child Transmission of HIV Issues for South East Asia

Introduction

As reported by the Joint United Nations Program on HIV/AIDS (UNAIDS) and the World Health Organization (WHO) in December 2000, threatening rates of transmission of HIV are being seen in much of Africa as well as in Asia.²²

HIV has already killed more than 20 million people worldwide since the beginning of the epidemic. It has infected more than 36 million people; almost half of them were women (Table 1).

Table 1: Regional HIV/AIDS Statistics in Persons Living with HIV/AIDS, End of 2000

Region	Total ¹ Number	New Cases ²	Adult ³ Prevalence Rate	% Women	Main Modes of Transmission
South & South East Asia	5.8 million	780,000	0.56%	35%	Heterosexual, IDU ⁴
East Asia & Pacific	640,000	130,000	0.07%	13%	Heterosexual, MSM ⁵ , IDU
Sub-Saharan Africa	25.3 million	3.8 million	8.8%	55%	Heterosexual
North Africa & Middle East	400,000	80,000	0.2%	40%	Heterosexual, IDU
Latin America	1.4 million	150,000	0.5%	25%	Heterosexual, MSM, IDU
Caribbean	390,000	60,000	2.3%	35%	Heterosexual, MSM
Eastern Europe & Central Asia	700,000	250,000	0.35%	25%	IDU
Western Europe	540,000	30,000	0.24%	25%	MSM, IDU
North America	920,000	45,000	0.6%	20%	Heterosexual, MSM, IDU
Australia & New Zealand	15,000	500	0.13%	10%	MSM
Total	36.1 million	5.3 million	1.1%	47%	

¹including both adults and children, ²newly-documented HIV infection in year 2000, ³ages 15-49 years, ⁴intravenous drug user, ⁵men who have sex with men (From UNAIDS/WHO. AIDS Epidemic Update. December 2000)

Over one million children are HIV-infected. It is estimated that in the year 2000 alone, 600,000 children have acquired HIV infection (Table 2). Over 90 % of all HIV-infected children acquire HIV via mother-to-child transmission (MTCT). Such transmission can occur in the antepartum, intrapartum or postpartum periods. Approximately 30% of MTCT of HIV occur

during the antepartum period. These infants generally have a positive HIV DNA PCR prior to 48 hours of age. The majority of infants acquire HIV infection during the intrapartum period. Almost all of these infants can be identified by HIV DNA PCR positivity before 1 month of age.¹ Breastfeeding accounts for 5-15% of perinatal transmission in populations with this infant feeding practice.

Table 2: Statistics of HIV/AIDS in Children, End of 2000

Category of Children	Number
Newly infected with HIV in 2000	0.6 million
Living with HIV/AIDS	1.4 million
Died in 2000	0.5 million
Died since the beginning of the epidemic	4.3 million

(From UNAIDS/WHO. AIDS Epidemic Update. December 2000)

More than 11 million children have lost one or both of their parents to HIV/AIDS. Due to the lack of health care infrastructure and access to health care services, South East Asia has recently experienced an increase in the number of children who are orphaned as a result of HIV/AIDS. Stigmatization and discrimination from society affects both HIV-infected children and uninfected children who have family members with HIV. The statistics in Table 2 illustrated the seriousness of the epidemic of HIV among children. It is generally agreed upon that failing to address the issues of PMTCT (prevention of mother-to-child transmission)

dramatically increases the morbidity and mortality among children affected by HIV/AIDS. Thus, PMTCT has become the priority worldwide for reducing the numbers of HIV-infected children.

In the South East Asia region, a survey performed at year-end 1999 showed that a significant number of women and children have HIV infection (Table 3). The prevalence rates shown in the table may underestimate actual rates since many HIV-infected persons remain undetected or unreported. The current numbers of HIV-infected children are likely much higher.

Table 3: Epidemiology of HIV/AIDS in South East Asia, End of 1999

Country	Total Number of Cases	Adult ¹ Prevalence Rate (%)	Total Number of HIV-infected Women ²	Total Number of HIV-infected Children ³
Thailand	755,000	2.15	305,000	13,900
Cambodia	220,000	4.04	71,000	5,400
Myanmar	530,000	1.99	180,000	14,000
Lao PDR	1,400	0.05	650	<100
Vietnam	100,000	0.24	20,000	2,500

^{1,2}ages 15-49 years, ³ages 0-14 years

(From UNAIDS Joint United Nations Program on HIV/AIDS. Report on the global HIV/AIDS epidemic. June 2000)

Epidemiology of HIV/AIDS in South East Asia

HIV/AIDS situation in Thailand

Over the past decade, the HIV/AIDS epidemic in Thailand has grown from a handful of HIV-infected persons to a major public health problem with tremendous medical, psychosocial and economic consequences for the country. The infection initially spread among homosexual men and intravenous drug users (IDU) before it gained a foothold among commercial sex workers (CSW). It then swiftly spread from these workers to their clients, and subsequently to the clients' spouses or girlfriends and finally to their children. Heterosexual transmission remains the most frequent mode of HIV transmission.

A large number of people who have the virus do not have any symptoms for a long period of time and are, therefore, not aware of their infected status. Hence, while intervention efforts may have slowed down the spread of HIV in Thailand, the virus remains in the community, and the epidemic spread of HIV continues. It has been estimated that, nationwide, approximately 755,000 Thais are infected with HIV.²² The number of AIDS cases is around 300,000 with 110,000 reported cases. Reported pediatric cases at year-end 1999 were 13,900. Experts estimate that 25,000 – 50,000 children are currently living with HIV/AIDS.

HIV/AIDS situation in Cambodia

The Kingdom of Cambodia is currently experiencing the fastest growing HIV/AIDS epidemic in Asia, with an estimated prevalence of 4% among adults. Heterosexual intercourse is the dominant mode of transmission.

HIV was first detected in Cambodia in the early 1990s, with the first case of AIDS reported in 1993. At year-end 1999, the Ministry of Health (MoH) reported 170,000 adults with HIV infection (prevalence rate 3.2%). The epidemiology of HIV/AIDS in 1998 and 1999 was reported by WHO and

UNAIDS as well (Table 4). In this report, it is estimated that there were 220,000 persons (4.04% adults) living with HIV/AIDS at the end of 1999. The marked increases in the numbers of HIV-infected individuals in all categories from year 1998 to 1999 signify an alarming epidemic. These data suggest that without appropriate interventions, a considerable numbers of people are going to become ill and die of AIDS, and HIV infection is going to spread more widely into the population in the coming years. At year-end 1999, 5,400 HIV-infected children were reported.

Table 4: Epidemiology of HIV/AIDS in Cambodia

Category of HIV-infected Persons	1998 ¹	1999 ²
Prevalence rate in adults (15-49 years)	2.4%	4.04%
HIV+ adults	140,000	210,000
HIV+ children	2,418	5,400
Women (15-49 years)	63,238	71,000
Cumulative number of AIDS cases	24,238	NA
Cumulative number of AIDS deaths	20,082	NA
Deaths	8,222	14,000
Cumulative number of AIDS orphans	6,664	13,000

NA: data not available

(From: ¹UNICEF Cambodia HIV/AIDS/STD Prevention and Care for 2000-2003. MekPartDoc, July 1999, ²UNAIDS Joint United Nations Program on HIV/AIDS. Report on the global HIV/AIDS epidemic. June 2000).

Currently there are approximately 7,000-10,000 CSW with HIV infection in Cambodia. In 19 of the country's 24 provinces, the prevalence of HIV infection among CSW is over 20%. More alarming, in 6 of these 19 provinces, over half of the CSW are HIV-infected. In addition, there are 50,000-100,000 indirect sex workers, among whom prevalence rates of HIV may vary from 6-

30%.^{2,3} Women in Cambodia face an enormous challenge from HIV. Growing numbers of women are being infected by their partners, who have visited CSW. Although most commercial sex is concentrated in urban areas, rural housewives are still at risk as husbands often travel or migrate to cities.

HIV/AIDS situation in Myanmar

In Myanmar, the HIV/AIDS epidemic is still on the rise. The first cases of HIV and AIDS were reported in 1988 and 1991 respectively. Between 1988 and 2000, the National AIDS Program (NAP) recorded 31,066 HIV-positive cases among blood donors and high-risk hospital patients and 4,258 AIDS cases among the total population. AIDS deaths have been reported in 1,712 patients. The majority of HIV-infected persons are 20-40 year old males.

Heterosexual intercourse is the most common mode of transmission (60-70%) followed by IDU (20-30%). In June 2000, a report prepared by the WHO/UNAIDS estimated that 530,000 people are currently living with HIV (1.99% of all adults) and approximately 100,000 with AIDS.¹² The discrepancy of these statistics may be due to the limited surveillance in Myanmar. At the end of year 1999, 14,000 children with HIV infection were reported.

HIV/AIDS situation in Lao People's Democratic Republic (Lao PDR)

HIV and AIDS were first reported in Lao PDR in 1989 and 1992 respectively. As of December 2000, the cumulative number of persons living with HIV was 717 (prevalence rate of 0.04%), of these, 213 were new cases (155 men and 58 women). In the first HIV sentinel surveillance (HSS) program launched by the National Committee for the Control of AIDS (NCCA), a very low prevalence rate among high-risk individuals, specifically bar workers and transport workers, were documented. In addition, no HIV positivity was noted in 465 pregnant

women tested.⁹ However, a report prepared by UNAIDS in June 2000 estimated that 1,400 persons are infected with HIV with the majority being adults (1,300). There are similar numbers of women and men infected. Heterosexual intercourse tends to be the main route of transmission. It is believed that the number of HIV-infected individuals in Lao PDR is increasing rapidly including the pediatric population. At the end of year 1999, there were fewer than 100 HIV-infected children reported.

HIV/AIDS situation in Vietnam

The first case of HIV infection was detected in Ho Chi Minh City in 1990. Since then, the number of HIV-positive cases in Vietnam has steadily risen. As of December 31, 2000, a cumulative total of 28,661 people have been diagnosed with HIV infection; of these, 4,728 people are living with AIDS and 2,510 have already died of AIDS.²⁵

These numbers may seem small when compared to those of neighboring countries,

but they are only the reported cases. The government projects that by year 2005, there will be about 197,500 HIV-infected and 51,200 AIDS cases in Vietnam.

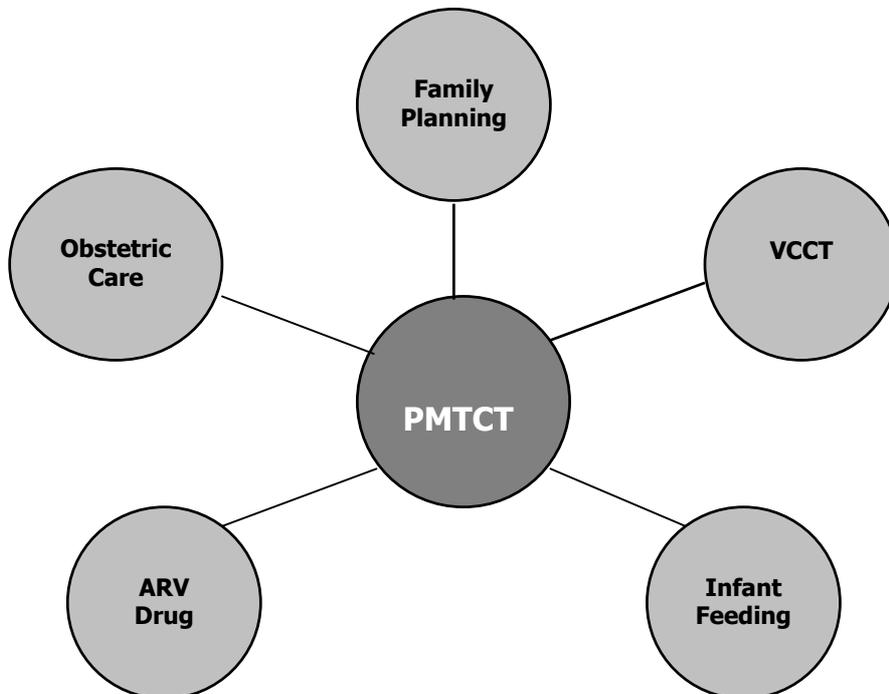
HIV infection in Vietnam is still somewhat confined to the IDU population. The prevalence rate in IDU is 21.39% while it is < 1% in CSW and sexually transmitted disease (STD) patients. Spreading of HIV to the general population is expected.

Strategies for Successful PMTCT

To prevent transmission of HIV from mothers to their offspring, many important components of PMTCT need to be

addressed. These components are illustrated in Fig 1.

Figure 1: Important Components for Successful Prevention of Mother-to-Child HIV Transmission



(PMTCT: prevention of mother-to-child transmission, VCCT: voluntary and confidential counseling and testing, ARV: antiretrovirals)

Voluntary and confidential counseling and testing (VCCT)

VCCT provides an opportunity for a person to learn and to accept his or her serostatus in a confidential environment and benefit from appropriate medical care and ongoing emotional support. VCCT opens many venues for women of childbearing potential should they become HIV-positive. Such venues include PMTCT, access to family planning and early medical care, peer and community support, provision for maternity services and planning for future needs, such as care of orphans, dependents and family. It has been shown that VCCT results in more people returning for their test results and for repeat testing and counseling.¹⁵

Strategies for VCCT in different communities may depend upon the HIV prevalence rates and the available resources. In limited resources communities, targeting VCCT services towards higher risk groups may be sufficient. However, if the prevalence rate is high, targeting the general population would be more appropriate. VCCT must be developed in conjunction with adequate support services.

The American College of Obstetrics and Gynecology advocates that all women of childbearing age should receive preconceptional counseling as part of their routine primary care. This preconceptional counseling is aimed to provide education and counseling targeted at individual needs and to identify risk factors that may adversely

affect maternal and fetal outcome. One of the very important risk factors is HIV infection. Unintended pregnancies occur in at least 40% of all pregnancies, thus preconceptional counseling and testing for HIV will directly affect MTCT of HIV. An HIV-infected woman who has been identified should receive the following preconceptional counseling: selection of appropriate contraceptive methods, education about the perinatal transmission risks and ways to reduce the risks, evaluation and initiation of prophylaxis for opportunistic infections, optimization of maternal nutritional status, screening for STD, and initiation or modification of Antiretrovirals (ARV), if available.²⁰

The importance of preconceptional counseling and testing is further illustrated in a report from Cote d'Ivoire on women who received VCCT during pregnancy and were subsequently diagnosed with HIV. In this study, the majority of women did not receive HIV results or care before delivery.¹³

In women who are already pregnant, VCCT can help provide an opportunity to discuss the different strategies to minimize the risk of perinatal transmission of HIV and to receive ongoing emotional support and medical care.

Obstetric practice

Obstetric care begins with providing early and quality antepartum care. Rupture of membrane for more than 4 hours and invasive obstetric procedures such as amniocentesis and infant monitoring have been associated with increased risk of transmission. A metaanalysis study showed that scheduled cesarean section (performed before the onset of labor and rupture of membrane) resulted in a 55-80% reduction in perinatal HIV transmission rates compared to non-scheduled cesarean section and to vaginal delivery regardless of ZDV use.¹⁹ In women who were on ZDV as a single

prophylaxis, the transmission rate was 2% if scheduled cesarean section was performed compared to 7.3% when other modes of delivery were used. However, the value of scheduled cesarean section in preventing perinatal HIV transmission in women who have low or undetectable viral load is unknown. Cesarean section is associated with higher rates of complication including endometritis, wound infection and pneumonia. HIV-infected women should be informed of the risks and benefits of cesarean section for PMTCT.²⁰

Antiretrovirals (ARV)

The recommendation of ARV therapy for PMTCT depends upon the policy and resources of an individual country. Different ARV drug regimens showing efficacy in reducing the transmission risk of HIV from mothers to infants have been published. Some of the clinical trials addressing the use of ARV for PMTCT are illustrated in Table 5.

The "three-part" zidovudine (ZDV) regimen used in PACTG 076 was the first evidence that reduction of MTCT of HIV is possible.¹⁷ Although an impressive 67% reduction of perinatal HIV transmission risk was documented, a search for more affordable and efficacious ARV drug regimens gave birth to many other trials.

In the collaborative study between the Thai Ministry of Public Health (MoPH) and the US

Centers of Disease Control and Prevention (CDC), a shorter course of ZDV was found to reduce the MTCT of HIV by 50% while significantly reducing the cost.¹⁶

Lallemant M and colleagues illustrated that all of the antepartum, intrapartum and postpartum parts of ARV drug prophylaxis are important. For those women who begin ARV drug late in their pregnancy (35 weeks gestation), longer use of prophylaxis in infants seems mandatory in order to prevent HIV transmission. For women who begin ARV early in the pregnancy (at 28 weeks gestation), the neonatal prophylaxis period can be shortened.⁸ The critical antepartum period when ARV needs to be initiated is not known.

Table 5: Antiretroviral Regimens for the Prevention of Perinatal HIV Transmission in Certain Clinical Trials

Regimen	Breast feeding	Antepartum	Intrapartum	Postpartum (Infant)	Transmission Rate (%)
PACTG 076 ¹	No	ZDV PO begin at 14-34 wks GA	ZDV continuous IV	ZDV PO for 6 weeks	7.6% (22.6% for placebo)
Thai short course ZDV ²	No	ZDV PO begin at 36 wks GA	ZDV PO	None	9.4% (18.9% for placebo)
Thai Long(L)-short (S)* ZDV ³	No	ZDV PO begin at 28 wks GA (Long) versus begin at 35 wks GA (Short)	ZDV PO	ZDV PO for 3 days (Short) versus for 6 weeks (Long)	4.7% for L-S (6.5% for L-L) (8.6% for S-L) (10.5% for S-S)
HIV NET 012 ⁴	Yes	None	NVP single dose PO versus ZDV PO	NVP single dose before 72 hours of life versus ZDV PO for 1 wk	13.1% (25.1% for ZDV)

PO: per oral, IV: intravenous, GA: gestational age, ZDV: zidovudine, NVP: nevirapine

*L-S: long antepartum treatment-short postpartum treatment, L-L: long antepartum treatment-long postpartum treatment, S-L: short antepartum treatment-long postpartum treatment, S-S: short antepartum treatment-short postpartum treatment

(From ¹Sperling RS, et al. N Engl J Med 354:1621-9, 1996; ²Shaffer N, et al. Lancet 353:773-80,1999; ³ Lallemand M, et al. N Engl J Med 354:982-91, 2000; ⁴Guay LA, et al. Lancet 354:795-802, 1999)

In a study by Thisyakorn U, et al. there was no statistically significant difference in the transmission rates in women who started ZDV before 30 weeks (5.7%) and at or after 30 weeks gestation (3.3%).²¹

HIV NET 012 study opened a new era of simple measure in PMTCT of HIV, which

transformed perceptions of what is possible in resource poor settings. A reduction of 47% in the numbers of HIV-infected infants who were breastfed was documented using only a single dose of Nevirapine (NVP) given to mothers and their offspring.⁵

Breastfeeding

Five to 15% of perinatal HIV transmissions occur via breastfeeding. The amount of HIV RNA in breast milk appears to be higher in women with inflammatory breast abnormalities, higher HIV viremia and lower CD4+ cells.⁶ Thus, ideally formula feeding rather than breastfeeding is preferable. However, in countries where such practice is not affordable and may pose more harm, modified breastfeeding is an acceptable practice.

There are several modifications of the breastfeeding process that can reduce the risk

of HIV transmission, including early cessation of breastfeeding and expressing and heat-treated breast milk. Early cessation of breastfeeding is aimed at reducing the risk of transmission by shortening the length of time the infant is exposed to HIV through breastmilk.⁷ However, it has been suggested that exclusive breastfeeding for 3 months or more may actually carry a lower risk of HIV transmission compared to mixed breast/formula feeding.⁴ Breast milk can be heat-treated by pasteurizing it to 62.5 degree Celsius for 30 minutes or by bringing the milk to boil in an attempt to kill the virus.¹⁰

A Stepwise Approach to PMTCT

“Building Block Framework” is a stepwise approach to achieve the desired standard of care based on available resources. For each country, standards can be defined as the minimum and the optimum acceptable levels of care by taking into account the resources and skills available, the ease of access, and the affordability.¹⁴

There are a wide range of services that can aid in the reduction of the transmission risk of HIV

from mother-to-child. However, many countries are limited by a lack of available resources and infrastructure to implement such services. A stepwise approach enables each community to evaluate its capacity, and prioritize and categorize the different services into steps of actions. Achievement of the first step will help build a firm ground for the more complex and sophisticated steps.

An example of a stepwise approach for PMTCT is illustrated in Figure 2.

Figure 2: An Example of a Stepwise Approach to the Prevention of Mother-to-Child HIV Transmission



PMTCT: prevention of mother-to-child transmission of HIV, VCCT: voluntary and confidential counseling and testing, ARV: antiretrovirals

¹target women in the premarital, preconception and pregnancy periods, and men.

(Modified from Building Blocks: Proceedings of the consultations on standards of care for persons living with HIV/AIDS in the Americas, PAHO/WHO, 2000).

The Specific Information on PMTCT in Some Countries in the South East Asia Region and Their National Responses to PMTCT

PMTCT in Thailand

A survey in 1998 by the Thai MoPH found that approximately 1.5 percent of pregnant women attending antenatal care (ANC) clinics were infected with HIV. Based on this finding, it is predicted that 15,000–20,000 HIV-infected women will give birth every year. Since the transmission rate from HIV-infected pregnant Thai women to their infants is between 19% and 25%, about 3,000–5,000 HIV-infected Thai children will be born annually if no interventions are implemented. With the use of different regimens of short course ZDV, the

transmission rates have ranged between 4.7% and 9.2%.^{8,16} In June 2000, The Thai Red Cross (TRC) began a donation program of ZDV and NVP for HIV-infected pregnant mothers and their children to prevent MTCT (Table 6). The transmission rate with this regimen is not yet known. HIV prevalence among pregnant women is highest in the upper north and central regions, and in the Bangkok metropolitan area.

Table 6: The Thai Red Cross Antiretroviral Regimen for the Prevention of Mother-to-Child HIV Transmission in HIV-infected Pregnant Women

Antepartum	Intrapartum	Postpartum
ZDV 200 mg orally (morning) and 300 mg orally (evening) from 32 wks gestation until labor	Mothers: ZDV 300 mg orally every 3 hrs from onset of labor until delivery AND NVP 200 mg orally at onset of labor	Infants: ZDV 2 mg/kg orally every 6 hrs for 6 wks AND NVP 2 mg/kg orally within the first 72 hrs after birth

ZDV: Zidovudine, NVP: Nevirapine

The National Responses

- In the early 1990s, the MoPH made recommendations for VCCT and infant formula feeding for HIV-infected women.
- In 1996, the TRC began to provide ZDV to pregnant women through a public donation campaign.
- Between 1997-1998, a short-course ZDV regimen was implemented in pilot projects in two regions of the country.
- In 2000, MoPH initiated recommendation and support for comprehensive programs of antenatal VCCT, short course ZDV and infant formula for all HIV-infected pregnant women.
- In October 2000, the MoPH published the "Update of the National Guidelines for the Clinical Management of HIV Infection in Children and Adult" in which the national guidelines on PMTCT were discussed (Table 7).¹¹

Table 7: Thai National Strategies on the Prevention of Mother-to-Child HIV Transmission in HIV-infected Pregnant Women

Antepartum	Intrapartum	Postpartum
<ul style="list-style-type: none"> • VCCT • Initiate ARV if HIV infected <p>ZDV 300 mg orally every 12 hrs from 34 weeks gestation until labor</p>	<ul style="list-style-type: none"> • Minimize delivery trauma • Give ARV <p>Mothers: ZDV 300 mg orally every 3 hrs from onset of labor until delivery</p> <p>Infants: ZDV 2 mg/kg orally every 6 hrs for 1 week (maternal ZDV ≥ 4 wks) or for 6 weeks (maternal ZDV < 4 wks)</p>	<ul style="list-style-type: none"> • Counseling mothers about formula feeding, ARV for infants, and schedule for follow up • Offer family planning options • No breastfeeding • Testing for HIV-exposed infants

VCCT: voluntary and confidential counseling and testing, ARV: antiretrovirals, ZDV: zidovudine
 (From National guidelines for the clinical management of HIV infection in children and adult, 6th Ed, Ministry of Public Health, Thailand, 2000)

PMTCT in Cambodia

The transmission of HIV through unprotected heterosexual intercourse among young adults promotes spreading of HIV from mothers to children. The prevalence rates of at least 3-4% have been reported in pregnant women in 6 provinces.² The MoH has predicted that there will be at least 1000 new pediatric cases every year by 2005.

The Royal Government of Cambodia has given high priority to the perinatal HIV transmission problem and has designated the National Maternal and Child Health Center (NMCHC) as the primary player in PMTCT. In the last few years, Cambodia has received support from other governments and from International non-governmental organizations (INGOs) in

securing funds and in transferring expertise for the development of programs in PMTCT. Some of the initiatives to reduce perinatal HIV transmission are as follows:

- Development of comprehensive strategies in the prevention of HIV infection by targeting young women
- Prevention of pregnancy among HIV-infected women
- Development of intervention programs to reduce transmission in HIV-infected women
- Development of programs to encourage community understanding and support of HIV-infected persons

The National Responses

- In 1993, NAP was established by the MoH to develop policy and to implement strategies on PMTCT.
- In 1999, the National Center for HIV/AIDS and NMCHC formulated the national prevention of mother-to-child transmission HIV policy (Table 8).
- In 2000, PMTCT programs including establishing VCCT centers were piloted in Battambang, NMCHC, and Calmette hospitals
- Programs to provide experiences in PMTCT for Cambodian officials were set up with UNICEF assistance. As a result, senior Cambodian officials have visited PMTCT centers in Thailand.
- Plans have been made to continue with programs to prevent father-to-mother-to-child transmission.

Table 8: Cambodian National Strategies on Prevention of Mother-to-Child Transmission of HIV

Strategies ¹	Intervention
Primary Prevention	<ul style="list-style-type: none"> • Improve health education programs • Premarital and antenatal counseling for young women • Family planning and counseling for both men and women
Antenatal Care	<ul style="list-style-type: none"> • VCCT² • Access to high quality antenatal and obstetric care
ARV Prophylaxis	<ul style="list-style-type: none"> • Nevirapine 200 mg at onset of labor to mothers and 2 mg/kg to infants within 72 hours after birth
Infant Feeding	<ul style="list-style-type: none"> • Advocate uninterrupted infant feeding with breastmilk substitutes
Community Support	<ul style="list-style-type: none"> • Build the understanding and capacity to provide care and support services • Encourage peer-specific community activities and peer support groups for family and children living with HIV/AIDS

¹target all males and females regardless of their HIV status, ² voluntary and confidential counseling and testing

PMTCT in Myanmar

HIV infection in Myanmar is largely seen in males. As heterosexual transmission is the most common mode of transmission, women of childbearing age are at high risk for acquiring the infection. The prevalence of perinatal HIV transmission although unknown is likely to be high. By the end of 1999, at least 14,000 children were reported to be infected with HIV. The National AIDS Committee (NAC) has laid out plans for National AIDS/STD programs, many of which are in the pilot phase. Some of the activities related to PMTCT are as follows:

- Provide HIV education, including programs for women, CSW, youths,

migrant workers and IDU, and incorporate HIV/AIDS/STD preventive education in the curriculum for school children

- Emphasize the importance of PMTCT to the AIDS/STD teams and the Maternal and Child Health Centers
- Promote access to quality reproductive care and provide AIDS education targeting women of childbearing age
- Initiate pilot programs on ARV for PMTCT by using NVP in 7 centers
- Initiate a cross-border PMTCT program between Thailand and Myanmar

The National Responses

- In 1985, a technical committee to monitor potential transmission and hazards of HIV/AIDS was set up by the MoH.
- In 1989, the NAC was formed with the MoH as the chairman. Members of NAC included representatives from other ministries and from non-governmental organizations (NGOs). The NAC defined the National AIDS/STD programs.
- In 1992, HSS system began collecting data on HIV prevalence and drug use behavior.

PMTCT in Lao PDR

The current prevalence of HIV in Laotian pregnant women is unknown. Although no HIV positivity was noted in 465 pregnant women tested as part of the first HSS program in 1997⁹, it is likely that there are a considerable number of pregnant women with HIV infection who have not been identified or reported. This is based on the increasing number of men and women infected with HIV/AIDS and on the fact that heterosexual transmission is the most common mode of

transmission. A recent study conducted in Vientiane raised concerns regarding the misperception of low personal risk and the lack of knowledge on HIV/AIDS among Laotians. When asked about the transmission of HIV, over half of the participants did not know that HIV could be transmitted from mother-to-child during pregnancy and breastfeeding.²⁴ Programs on PMTCT are lacking and need to be scaled up.

The National Responses

- In 1998, the Lao NCCA was established, well before there was direct evidence of HIV/AIDS in Laos
- NCCA set plans to strengthen existing services and develop/establish/expand VCCT services in collaboration with UNICEF, WHO and UNAIDS
- In July 1998, the national policy on STD was promulgated
- An integrated community approach to safe motherhood project at the community and district levels was promoted

PMTCT in Vietnam

Based on current reports, MTCT accounts for less than 1% of all HIV transmission in Vietnam.¹⁸ HIV prevalence rate in the ANC population was 0.1%.²⁵ Lack of sufficient surveillance may partly contribute to such a

low prevalence rate. Although the current predominant population of HIV-infected persons is IDU, it is expected that the problem will soon spread to the general population, putting women of childbearing age at risk.

The National Responses

- In 1990, the Vietnam government established the NAC. NAC is currently under the National Committee for AIDS prevention and Drug, Prostitutional control
- In 1994, sentinel surveillance for HIV infection was established in four provinces, and in 1996 it was expanded to include twenty provinces
- The MoH mandated that all HIV and AIDS cases are to be reported to the All National Institute of Hygiene and Epidemiology
- Strategic plans on providing HIV/AIDS education to the general public and medical interventions to HIV-infected individuals including PMTCT have been made

Conclusions

There are at least 6 million people living with HIV/AIDS in the Asia Pacific region. The numbers of HIV-infected women and children are increasing at an alarming rate. Important components that need to be addressed in order to successfully prevent and reduce perinatal HIV transmission include VCCT, family planning, obstetric care, ARV use and

infant feeding. There are many services that can aid in the PMTCT of HIV and the care of HIV-infected mothers and their children (Table 9). Each country needs to take into account its HIV/AIDS epidemiology, its infrastructure and the available resources. Providing services in a stepwise manner can aid in the achievement of PMTCT.

Table 9: Programs for the Prevention of Mother-to-Child HIV Transmission and for the Care of HIV-infected Mothers and their Children

Time Period	Interventions
Before Pregnancy	<ul style="list-style-type: none"> • Provide VCCT¹ to women of childbearing age, including women in the premarital, preconception and pregnancy periods, and to men. • Premarital counseling including family planning and methods to PMTCT² to both men and women
Antepartum	<ul style="list-style-type: none"> • Provide quality obstetric care • Counsel women on the risk of MTCT³ of HIV and the methods to reduce such risk including ARV⁴ use, modes of delivery and infant feeding • Provide ARV
Intrapartum	<ul style="list-style-type: none"> • Provide ARV • Provide appropriate obstetric care
Postpartum	<ul style="list-style-type: none"> • Counsel mothers on infant feeding and ARV for infants, and offer family planning options • For infants: provide ARV, infant feeding with modified/substitute breastmilk, PCP⁵ prophylaxis and HIV testing • Provide social services for HIV-infected and -uninfected orphans

¹voluntary and confidential counseling and testing, ²prevention of mother-to-child transmission, ³mother-to-child transmission, ⁴antiretrovirals, ⁵*Pneumocystis carinii* pneumonia

Lists of Abbreviations and Acronyms:

AIDS	Acquired immune deficiency syndrome
ANC	Antenatal care
ARV	Antiretrovirals
CDC	Centers for Disease Control and Prevention
CSW	Commercial sex worker
DNA	Deoxyribonucleic acid
GA	Gestational age
HIV	Human immunodeficiency virus
HSS	HIV sentinel surveillance
IDU	Intravenous drug user
INGO	International non-governmental organization
Lao PDR	Lao People's Democratic Republic
MCH	Mother and child health
MoH	Ministry of Health
MoPH	Ministry of Public Health
MTCT	Mother-to-child transmission
NAC	National AIDS Committee
NAP	National AIDS program
NCCA	National Committee for the control of AIDS
NGO	Non-governmental organization
NMCHC	National Maternal and Child Health Center
NVP	Nevirapine
PACTG	Pediatric AIDS Clinical Trials Group
PAHO	Pan American Health Organization
PCR	Polymerase chain reaction
PMTCT	Prevention of mother-to-child transmission
PO	Per oral
RNA	Ribonucleic acid
STD	Sexually transmitted disease
UNAIDS	Joint United Nations Program on HIV/AIDS
UNICEF	United Nations Children's Fund
VCCT	Voluntary and confidential counseling and testing
WHO	World Health Organization
ZDV	Zidovudine

References

1. American Academy of Pediatrics. Human Immunodeficiency virus infection. In: Pickering LK, ed. 2000 Red Book: Report of the Committee on Infectious Diseases. 25th ed. Elk Grove Village, IL: American Academy of Pediatrics: 325-530, 2000.
2. Cambodia and HIV/AIDS. Proceedings of the 2001 Bangkok Symposium on HIV Medicine, Queen Sirikit National Convention Center, Bangkok, Thailand, January 10-12, 2001.
3. Cambodia HIV/AIDS Country Profile. Proceedings of the 5th Asian Workshop: Going to Scale: From Pilot Projects to National Responses, Bangkok, Thailand. February 12-16, 2001.
4. Coutsooudis A, Kubendran P, Spooner E, et al. Influence of infant-feeding patterns on early mother-to-child transmission of HIV-1 in Durban, South Africa: a prospective cohort study. *Lancet* 354:471-476, 1999.
5. Guay LA, Musoke P, Fleming T, Bagenda D, Allen M, Nakabiito C, Sherman J, Bakaki P, Ducar C, Deseyve M, Emel L, Mirochnick M, Fowler MG, Mofenson L, Miotti P, Dransfield K, Bray D, Mmiro F, Jackson JB. Intrapartum and neonatal single-dose nevirapine compared with zidovudine for prevention of mother-to-child transmission of HIV-1 in Kampala, Uganda: HIVNET 012 randomized trial. *Lancet* 354:795-802, 1999.
6. Hoffman IF, Martinson EFA, Fiscus SA, Sohoni P, Komoltri C, Chilangozi DA, Kazembe PN, Stewart P and Cohen MS. Factors affecting the detection of HIV-1 RNA in breast milk. Proceedings of the 8th Conference on Retroviruses and Opportunistic Infections (Abstract 714), Chicago, February 4-8, 2001.
7. Lala S, Sanne I. Recent Developments. Vertical Transmission of HIV. Proceedings of the XIII International AIDS Conference, Durban, South Africa, July 9-14, 2000.
8. Lallemand M, Jourdain G, Le Coeur S, Kim S, Koetsawang S, Comeau AM, Phoolcharoen W, Essex M, McIntosh K, Vithayasai V. A trial of shortened zidovudine regimens to prevent mother-to-child transmission of human immunodeficiency virus type 1. Perinatal HIV Prevention Trial (Thailand) Investigators. *N Engl J Med* 343:982-91, 2000.
9. Lao PDR HIV/AIDS Country Profile. Proceedings of the 5th Asian Workshop: Going to Scale: From Pilot Projects to National Responses, Bangkok, Thailand. February 12-16, 2001.
10. Latham MC, Preble EA. Appropriate feedings methods for infants of HIV infected mothers in sub-Saharan Africa, Education and debate. *BMJ* 320:1656-60, 2000.
11. Ministry of Public Health, Thailand. National guidelines for the clinical management of HIV infection in children and adult, Sixth edition, 2000.
12. Myanmar HIV/AIDS Country Profile. Proceedings of the 5th Asian Workshop: Going to Scale: From Pilot Projects to National Responses, Bangkok, Thailand, February 12-16, 2001.

- 13 Noba V, Sidibe K, Kaba F and Malkin JE. Voluntary screening and prevention of mother-to-child transmission of HIV among pregnant women in Cote d'Ivoire: A public health program of the international therapeutic solidarity fund (ITSF). Proceedings of the 8th Conference on Retroviruses and Opportunistic Infections (Abstract 704), Chicago, February 4-8, 2001.
- 14 PAHO/WHO in Collaboration with UNAIDS and IAPAC. Building Blocks: Comprehensive Care Guidelines for Persons Living with HIV/AIDS in the Americas. February 2000.
- 15 Phanuphak P. Voluntary Counseling and Testing. Proceedings of the UNAIDS Regional Task Force Meeting, Phnom Penh, Cambodia, May 10-12, 2000.
- 16 Shaffer N, Chuachoowong R, Mock PA, Bhadrakom C, Siriwasin W, Young NL, Chotpitayasunondh T, Chearskul S, Roongpisuthipong A, Chinayon P, Karon J, Mastro TD, Simonds RJ. Short-course zidovudine for perinatal HIV-1 transmission in Bangkok, Thailand: a randomized controlled trial. Bangkok Collaborative Perinatal HIV Transmission Study Group. Lancet 353:773-80, 1999.
- 17 Sperling RS, Shapiro DE, Coombs RW, Todd JA, Herman SA, McSherry GD, O'Sullivan MJ, VanDyke RB, Jimenez E, Rouzioux C, Flynn PM, Sullivan JL. Maternal viral load, zidovudine treatment, and the risk of transmission of human immunodeficiency virus type 1 from mother to infant. Pediatric AIDS Clinical Trials Group Protocol 076 Study Group. N Engl J Med 335:1621-9, 1996.
- 18 STI/HIV, Status and Trends of STI, HIV and AIDS at the end of the Millenium, Western Asia Pacific 1999. World Health Organization, Regional Office for the Western Pacific, 1999.
- 19 The International Perinatal Group. The mode of delivery and the risk of vertical transmission of human immunodeficiency virus type 1 – a metaanalysis of 15 prospective cohort studies. N Engl J Med 340:977-987, 1999.
- 20 The Perinatal HIV Guidelines Working Group. Public health service task force recommendations for use of antiretroviral drugs in pregnant HIV-1 infected women for maternal health and interventions to reduce perinatal HIV-1 transmission in the United States. January 24, 2001 (published online: www.hivatis.org).
- 21 Thisyakorn U, Khongphatthanayothin M, Sivichayakul S, Rongkavilit C, Poolcharoen W, Kuanusont C, Bien DD, Phanuphak P. Thai Red Cross zidovudine donation program to prevent vertical transmission of HIV: the effect of the modified ACTG 076 regimen. AIDS 14:2921-7, 2000.
- 22 UNAIDS Joint United Nations Program on HIV/AIDS. Report on the global HIV/AIDS epidemic. June 2000.
23. UNAIDS Joint United Nations Program on HIV/AIDS/WHO. AIDS epidemic update. December 2000.

24. UNICEF Cambodia. HIV/AIDS/STD Prevention and Care 2000-2003. MakPartDes.Doc. July 1999.
25. Vietnam HIV/AIDS Country Profile. Proceedings of the 5th Asian Workshop: Going to Scale: From Pilot Projects to National Responses, Bangkok, Thailand. February 12-16, 2001.