

Roles of the Royal Thai Army Medical Department in Supporting the Country to Fight Against HIV/AIDS: 18 Years of Experience and Success

Boonterm Saengdidtha MD, PhD*,
Ram Rangsin MD, DrPH**

**Royal Thai Army Medical Department*

***Department of Military and Community Medicine, Phramongkutklo College of Medicine*

Human immunodeficiency virus (HIV) infection and acquired immunodeficiency syndrome (AIDS) are global major public health problems and have a major impact on social and economic development. Thailand has been affected from HIV/AIDS epidemic since the first AIDS case was reported in 1984, making the cumulative number of reported AIDS cases more than 160,000 and estimated HIV-infected people more than 1,000,000 by the end of 2004 and more than 300,000 of them are dead. There has been a strong national response to this scourge by multi-sectoral cooperation and many evidences show Thailand's success in HIV/AIDS control. The Royal Thai Army Medical Department has played an important role in supporting the country to fight against HIV/AIDS since 1987 by providing HIV/AIDS education to army personnel, families and civilians. It has established the sero-surveillance system in young Thai men entering the army since 1989 and behavioral surveillance system since 1991. The other important activities have been training of personnel, care and research, especially for an HIV vaccine. It facilitates the research that the army conscripts which represent young Thai men are used as samples. The experience of the RTA Medical Department and the civil-military alliance against HIV/AIDS of Thailand are good lessons for other developing countries to learn and adopt the strategies in the battle against HIV/AIDS.

Keywords: HIV/AIDS, Prevention, Control, Army, Military, Thailand, Conscripts, Success

J Med Assoc Thai 2005; 88(Suppl 3): S378-87

Full text. e-Journal: <http://www.medassocthai.org/journal>

Human immunodeficiency virus (HIV) infection and acquired immunodeficiency syndrome (AIDS) are major global public health problems. AIDS is caused by HIV with three main routes of transmission, i.e., blood, mostly found in injecting drug users (IDUs), sexual contacts and perinatal spread. When someone gets HIV, it is usually asymptomatic in the early period of infection. The virus will destroy the immune function which makes it easy to develop opportunistic infections (OIs), such as tuberculosis, *Pneumocystis pneumonia* (PCP), etc. and some malignancies. The presence of these diseases usually leads to death. The

time interval between infection and onset of clinical symptoms varies among individuals. The asymptomatic phase ranges from a few months to greater than 12 years. The virus can spread from the infected persons to others whether they have symptoms or not⁽¹⁾. The use of highly active antiretroviral therapy (HAART) has led to a reduction in the incidence of OIs and mortality. For patients who respond and can tolerate lifelong therapy, HIV infection may become a chronic disease requiring long-term follow-up, but the cost of treatment is expensive and there are problems of side effects, drug resistance and patient compliance⁽²⁻³⁾.

It has been over two decades since the AIDS epidemic was first recognized in 1981⁽⁴⁻⁶⁾. Although, tremendous efforts have been made to learn more about

Correspondence to: Saengdidtha B, Royal Thai Army Medical Department, Ratchathewi, Bangkok 10400, Thailand. Phone/Fax: 0-2644-6736, E-mail address: boonterms@yahoo.com

the virus, the human host, and the pathogenesis of the disease, a cure for AIDS has not yet been developed. The long incubation period of HIV infection was one of the unique characters that has allowed the virus to spread extensively throughout the world. The effects of this chronic disease in human populations are not only medical problems. The adverse social impacts caused by this epidemic include stigmatization and increased morbidity and mortality of young adults, which will have substantial secondary effects in society in the future⁽⁷⁻⁸⁾.

Global Situation of HIV/AIDS

By the end of 2004 Joint United Nations Programme on HIV/AIDS (UNAIDS) estimated that there were 39.4 million people living with HIV in the world and 3.1 million died in the past year. The new HIV infections in 2004 were 4.9 million⁽⁹⁾. Available UNAIDS estimation shows that more than 90% of adults with HIV infection live in developing countries, especially in sub-Saharan Africa, the Caribbean, South and South-East Asia. Worldwide, between 75 % and 85 % of adult HIV infections have been transmitted through unprotected sexual intercourse and heterosexual intercourse accounts for more than 70 % of all adult HIV infections. The number of reported AIDS case in the world has increased rapidly⁽¹⁰⁾.

HIV/AIDS is having a major impact on social and economic development. Over the past two decades, more than 4 million children have died and more than 13 million orphaned. Life expectancy and child survival rates have plummeted in some of the worst affected countries⁽⁹⁾. The discounted lifetime cost of treating an HIV-infected French patient was estimated at 214,000 euros. The undiscounted costs were 309,000 euros over a projected life expectancy of 16.4 years⁽¹¹⁾. In Africa, the most affected continent, the spread of HIV/AIDS threatens to negate decades of development efforts. The loss of trained and experienced personnel, both military and civilian, the deflection of scarce resources, the strain of public health systems, the losses in the work force and the consequent reduction of economic productivity are making the global HIV/AIDS pandemic a significant international issue, especially in Africa and Asia^(12,13). It is such a crisis that the United Nations (UN) called the delegates from the country members and related agencies to attend a special session of the UN General Assembly to set strategies to solve this global catastrophe in June 2001⁽¹⁴⁾.

Situation of HIV/AIDS in Asia

In Asia, latest estimates show some 8.2 million people were living with HIV at the end of 2004, including the 1.2 million people who became newly infected in 2003⁽⁹⁾. HIV epidemics in Asia show great diversity, both in severity and timing. But epidemics in Asia are far from over and several countries including China, Indonesia, and Vietnam have growing epidemics. Several factors affect the rate and magnitude of growth of HIV prevalence, but two of the most important are the size of the sex worker population and the frequency with which commercial sex occurs⁽¹⁵⁾. Asian countries that have introduced large-scale prevention programmes addressing sexual transmission of HIV, notably Cambodia and Thailand, have seen significant reductions in risk behavior, and have recorded declining levels of new HIV and other sexually transmitted diseases (STDs)⁽⁹⁾.

Situation of HIV/AIDS in Thailand

The first AIDS case in Thailand was diagnosed in a homosexual man in 1984⁽¹⁶⁾. Thus, it is more than 2 decades since HIV/AIDS has emerged and spread in this country. The early cases of HIV/AIDS were detected in homosexual men. After three years of first AIDS cases being detected, the importance of male to male sex as a risk factor was quickly overshadowed by the rapid increase in infection among IDUs, the first evidence of HIV spread, and immediately followed by an increase in seroprevalence among female sex workers (SWs). Subsequently, the third wave of infection spreading appeared in clients of SWs as reflected in the upsurge of seroprevalence among men attending STD clinics. The fourth wave indicated spreading to the wives and girl friends of men who visited SWs, as the seropositive rate of women attending antenatal clinics continued to increase⁽¹⁷⁻¹⁹⁾. The recent data showed that there were 364,162 reported AIDS cases at the end of July, 2005. By 2003, UNAIDS estimated that there were approximately 570,000 people infected with HIV in Thailand⁽⁹⁾. The Thai Working group on AIDS Projections estimates that 18,172 people in this country are newly infected with HIV in the year 2005 alone.

The major route of HIV transmission in Thailand has been changed. In the early years of the epidemic IDUs played a principal role in the upsurge, but over the course of the epidemic, sexual behavior patterns within Thai society have been the most important contributions to the disease transmission⁽²⁰⁻²²⁾.

Evolution in the solution of HIV/AIDS problems in Thailand

The Ministry of Public Health (MOPH) of Thailand played the initial role in the prevention and control of HIV/AIDS in Thailand after the diagnosis of the first case. The sero-surveillance system was implemented in homosexual men, then developed to sentinel seroprevalence survey in IDUs, prisoners, CSWs, male STD patients and pregnant women, respectively. The national HIV sentinel sero-surveillance system began in June 1989. The bi-annual sentinel surveillance program has been conducted among high risk population nationwide including injection drug users, blood donors, pregnant women, and sex workers (SWs)⁽²³⁾. New high risk groups of male SWs and sea farers have been added since 1997 and 1998, respectively⁽²⁴⁾. The epidemic among the general population of Thailand has been demonstrated by the rising of HIV prevalence in pregnant women. The HIV prevalence in pregnant women has shown an increasing trend, from the national median of zero percent in 1990 to 2.3 % in June 1995⁽²⁵⁾. After that period, the trend declined to a steady level. The new round of the surveillance showed that HIV prevalence among pregnant women was 1 %. The prevalence among IDUs in June 2004 reached 42.2%⁽¹⁹⁾. From the surveillance data, the most affected geographic region by HIV-1 epidemic was the upper northern region of the country. The HIV/AIDS education campaign was also started in cooperation with the education and health authorities of other ministries and non-governmental organizations (NGOs)⁽²⁶⁾.

Since 1991, The Royal Thai Government has set the National AIDS Committee in which every ministry took parts and the Prime Minister was the chairman. There has also been a provincial AIDS committee for each province, under the direction of the provincial governor. The government started to allocate a budget for the prevention and control of HIV/AIDS to every ministry in 1992. There has been cooperations between governmental and non-governmental organizations to fight against this scourge and the National Plan and strategies for the prevention and control of HIV/AIDS have also been established⁽²⁶⁾.

The Ministry of Defense (MOD) of Thailand, consists of the Office of the Permanent Secretary, the Armed Forces, the Royal Thai Army (RTA), the Royal Thai Navy (RTN), and the Royal Thai Air Force (RTAF), has set its AIDS control committee to serve the government policy in 1991. The main task is the HIV/AIDS education for military population and their families. The medical departments of each component

of the ministry have played the most important roles in the committees and the Preventive Medicine Division of each department has worked as the secretary part of the committees. The MOD also ordered all military units equal or above the battalion level to organize its own AIDS committee or working group for HIV/AIDS education among its personnel and families⁽²⁷⁾.

Roles of the RTA Medical Department in HIV/AIDS control

The RTA Medical Department consists of Phramongkutklo Medical Center, composed of Phramongkutklo Hospital and College of Medicine, Army Nurse College and Army Institute of Pathology, Armed Forces Research Institute of Medical Science, other 36 army hospitals, lots of medical battalions and small medical units established in all of the regions of the country. It is responsible for health services including the prevention and control of diseases for all of the army population and their families, around 1,000,000 people. It also cooperates with the MOPH to give health services to the people living near army camps. It has started to respond to HIV/AIDS situation in the army since 1987 by means of health education and set the AIDS Control Committee of the RTA Medical Department since 1989, after the first HIV-infected army personnel, an IDU conscript from the central part of the country, was reported in 1988. The committee decided to start HIV testing for all army conscripts in the first month of their entry since 1989 for readiness of the strong troops and appropriate work for HIV positive persons^(27,28), using the principle similar to the US Army⁽²⁹⁾. A group of army medical personnel set guidelines for AIDS prevention in army personnel and organized a training course for AIDS educators⁽³⁰⁾ which has educated not only the army personnel but also civilians. Then, the Preventive Medicine Division of the RTA Medical Department initiated HIV sexual risk behavioral surveillance for army conscripts in Bangkok in 1991 and for the country in 1992^(26,27), and extended to army students⁽³¹⁾ and officers. There were also training courses for HIV/AIDS counselors for counseling service in the 37 RTA hospitals⁽³²⁾. The RTA AIDS Control Committee also set guidelines for HIV-infected army personnel and established a curriculum for HIV/AIDS education for army personnel in every level of all of the army schools^(27,28).

After receiving a special budget from the government for HIV/AIDS control in 1992, the roles

of the RTA Medical Department on the prevention and control of HIV/AIDS may be divided into 3 parts:

1. HIV/AIDS education and training of personnel. Preventive Medicine Division of the RTA Medical Department has played a principal role in organizing the training courses for AIDS educators, counselors and physicians who take care of AIDS patients.

2. Counseling and treatment. There has been counseling service and HIV/AIDS care in 37 RTA hospitals in every region of the country⁽³²⁾.

3. Research. The Army Institute of Pathology and the Armed Forces Research Institute of Medical Science (AFRIMS) have played a principal role in the studies for the prevalence rate of HIV infection in every group of conscripts⁽²⁸⁾. The other important research projects are:

3.1 HIV/AIDS vaccine research. In 1991, AFRIMS entered into a collaboration with HIV researchers from the US Army to develop HIV vaccine⁽³³⁾, conduct surveillance of HIV prevalence and incidence and develop a comprehensive prevention program both behavioral interventions and vaccine development.

3.2 Peer education. Some army hospitals performed this program⁽²⁸⁾.

3.3 HIV risk assessment scale. Preventive Medicine Division of the RTA Medical Department initiated this project to develop an instrument for

identification of conscripts at high-risk for effective preventive intervention⁽³⁴⁾.

3.4 Research for appropriate antiretroviral drugs for prevention of perinatal transmission of HIV. Phramongkutklao Hospital and College of Medicine and some army hospitals are the places where this research has been performed in cooperation with other health authorities.

The amount of the budget used for HIV/AIDS prevention and control programs are shown in Table 1.

The other important activities are HIV/AIDS surveillance systems: reported AIDS cases from army hospitals, sexual behaviors of army conscripts, prevalence rate of HIV infection of army conscripts and other surveillance data from army conscripts. The RTA Medical Department also facilitates HIV/AIDS research, especially in the group of army conscripts.

Roles of Thai army conscripts on HIV/AIDS prevention and control

Thai army conscripts are young Thai men aged 21-22 years and may be the representatives of this group with low socioeconomic status. They are selected by a lottery system according to Thai laws to work in the military service, mostly in the army. Approximately one in 10 men who participate in the lottery are randomly chosen in April each year. The total number of participants is about 60,000 new conscripts per year. Enroll-

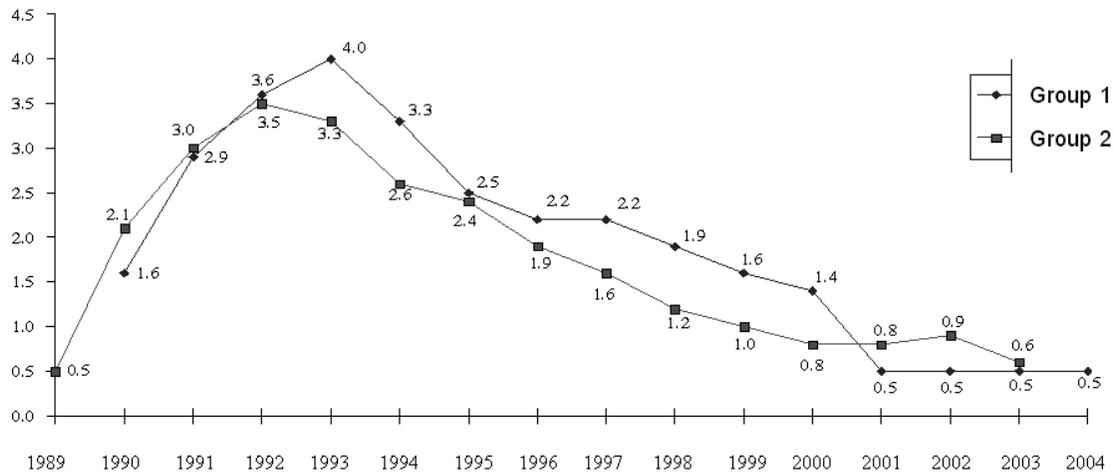
Table 1. Comparison the budget of the country and the RTA for the prevention and control of HIV/AIDS (fiscal year 1992-2004)

Fiscal Year	Thailand (million Baht)	RTA (million Baht)	HIV seroprevalence in conscripts (%)
1992	637.4	3.0	3.5
1993	1,121.5	2.0	4.0
1994	1,142.5	3.6	2.6
1995	1,558.3	11.5	2.4
1996	2,127.3	32.2	2.0
1997	2,196.8	19.7	1.8
1998	1,372.3	- *	1.6
1999	1,439.1	11.5	1.3
2000	1,460.3	10.0	1.1
2001	1,486.9	12.5	0.7
2002	1,472.9	9.2	0.7
2003	1,188.3	9.2	0.6
2004	1,629.8	9.2	0.5

* No budget for HIV/AIDS control in the RTA because of economic crisis of the country, but the RTA used its budget for medical services and education for this work.

Source: Preventive Medicine Division, the RTA Medical Department

percent



Source : Armed Forces Research Institute of Medical Science
Army Institute of Pathology

Fig. 1 Prevalence of HIV infection of Thai army conscripts

ment occurs either in May (Group 1) or November (Group 2) of each year for a duration of 2 years service⁽³⁵⁾. Since 2001, the RTA began inducting volunteers aged 18-20 years old into the service. To date about 57% of the total conscripts are younger than 21 years old. Therefore, the military conscripts aged 21 years old are an ideal population for epidemiological study because of the random selection method used, the data obtained can be generalized to the young male population of Thailand⁽³⁶⁾. All of them were tested for HIV in the first month of entry (Fig. 1). After 2-years service, some of them will be enrolled as army students, army volunteers but most of them will be army reserves who can be called to work in case of war.

The HIV infection rate in army conscripts have reflected the infection rate of young Thai men, since such information are derived from the HIV testing in the cohort of Thai men at the age of 21-22 years⁽³⁷⁾. The infection rate have tended to increase from 0.5 % in 1989 to peak at 3.7 % in 1993, then declined to 1.9 % in 1996 and 0.5 % in 2003^(35,38) (Fig. 1). The prevalence in a relatively young population is believed to be more close to the incidence of the infection, since the short duration of acquiring the infection. These figures show the result of Thai efforts, both governmental and non-governmental organizations in the

prevention and control of HIV infection. It was the same as the other studies that showed the success of Thailand in HIV/AIDS control⁽³⁹⁻⁴³⁾.

Although the HIV-1 sero-surveillance among military conscripts does not incorporated the risk behavioral information into the system, Thai military conscripts have been studied related to the HIV-1 risk behavior extensively by other separated studies from 1991 to 1998. Those HIV risk factor studies were conducted by the collaboration of The Royal Thai Army and other research institutions including Chiang Mai University, AFRIMS and the Johns Hopkins University. There were eight cohorts of men who were studied cross-sectionally to evaluate the relationship of risk behavior and HIV-1 infection from 1991 to 1998⁽⁴⁴⁾. It was found that the prevalence of HIV-1 in men inducted in 1991 and 1993 were 11.4% and 11.9%, respectively. The HIV-1 prevalence decreased significantly in 1995 to 6.8%. In the subsequent cohorts the prevalence were found at 4.8 and 5.4% in 1996 and 1997, respectively. In 1998, the prevalence declined to 2.4%. The reported risk behavior of sex worker visits decreased from 80% in 1991 to 38% in 1998. As the prevalence declined, the proportion of men reporting a history of injecting drugs increased from 1% in 1991 and 25% in 1997-1998. The evidence of decreasing trend of other sexual risk behaviors were

found. The percentage of those who reported having had sexual experience, decreased from 92.3% in 1991 to 63.9% in 1998. The proportion of those who reported sexually transmitted disease at any time decreased from 42.2% in 1991 to 6.6% in 1998. As well as the proportion of reported condoms used on the most recent visit among those who reported any sexual relation with SWs, increased over time from 61% in 1991 to 95.8% in 1998. However, the trend of sexual activity with girl friends has increased over time.

The RTA Medical Department has cooperated with a lot of organizations in research studies concerning with HIV/AIDS and sexually transmitted diseases (STDs) that used the army conscripts as samples, for example, the studies of risk behaviors⁽⁴⁵⁻⁵³⁾, risk factors^(36,54-56), prevalence^(35,38,41,57), incidence^(39,58,59), co-infections^(60,61) and natural history⁽⁶²⁾ of HIV infection, the effectiveness of preventive programs^(63,64) and AIDS vaccine research^(65,66). The data from the conscripts are useful for the HIV/AIDS surveillance system of the country because they reflect the image of young Thai men which are the most vulnerable group for HIV infection. Additionally, interms of health education provided to the military conscripts during their services in the RTA, an effective peer education programme was demonstrated in order to reduce the incidence of HIV infections⁽⁶³⁾.

Experience and success

Many evidences demonstrated that Thailand has been successful in the prevention and control of HIV/AIDS. The trends of sexual behaviors, STDs, incidence and prevalence rate of HIV infection among Thai army conscripts (Fig. 1) which the RTA medical personnel have played the principal role in these works are important indicators for monitoring the success of the country in this difficult work.

The important lessons learned from the experience of Thailand to the success are the following key strategies⁽²⁶⁾:

1. Strong political and financial commitments.
2. Responses involving all sectors of the society in addressing the underlying socioeconomic and behavioral roots of HIV transmission.
3. Ongoing epidemiological, social, and behavioral research and monitoring and uses of the information to develop policies and programs under changing conditions.

4. Early and pragmatic actions, especially where there are substantial economic, social, or cultural barriers to the prevention programmes.

The RTA Medical Department has played a significant role in initiating and developing preventive measures for HIV. The success has occurred through the foresight and commitment of the RTA leadership, and close collaboration with other public health and academic sectors both in national and international levels. It has followed the national policy and supported the country to success by the following strategies⁽²⁸⁾.

1. Community participation, especially from the commanders of the army units and camps.
2. Cooperation from inside and outside organizations.
3. Education and counseling with effective and accessible method, e.g. peer education and mobile health education teams.
4. Surveillance with multiple systems, e.g. behaviors (sexual, addictive), STDs, prevalence and incidence of HIV and number of patients.
5. Targeting for the most vulnerable groups and management according to timetables.
6. Strong organizational structure and management.

The RTA s HIV/AIDS prevention and impact-alleviationn programs have also met the following criteria, i.e., effectiveness, efficiency, relevance, sustainability and ethical soundness.

Developing countries could learn from the experience of Thailand, especially using the military sectors incorporated with the national HIV/AIDS prevention programs. The RTA Medical Department maintains cooperation with both military and civilian organizations to combat the HIV/AIDS scourge. It has gone along with the strategy of the civil-military alliance against HIV/AIDS. It is believed to be one of the strong components of Thailand in the success of HIV/AIDS control.

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บทบาทของกรมแพทยทหารบกในการสนับสนุนประเทศในการต่อสู้กับโรคเอดส์: ประสบการณ์ 18 ปี และความสำเ็จ

บุญเต็ม แสงดิษฐ, ราม รังสินธุ์

การติดเชื้อเอชไอวีและโรคเอดส์เป็นปัญหาสาธารณสุขที่สำคัญของโลกและมีผลกระทบอย่างมากต่อการพัฒนาเศรษฐกิจและสังคม ประเทศไทยได้รับผลกระทบจากการระบาดของโรคเอดส์ตั้งแต่มีการรายงานผู้ป่วยโรคเอดส์รายแรกเมื่อ พ.ศ.2527 จนถึงสิ้นปี พ.ศ. 2547 มีผู้ป่วยเอดส์สะสมมากกว่า 160,000 ราย และคาดว่า มีผู้ติดเชื้อเอดส์มากกว่า 1,000,000 ราย ซึ่งในจำนวนนี้คาดว่าเสียชีวิตแล้วมากกว่า 300,000 ราย มีความร่วมมือของ หลายภาค/ส่วนของประเทศในการป้องกันและแก้ไขปัญหาเอดส์ และมีหลักฐานมากมายที่แสดงถึงความสำเร็จ กรมแพทยทหารบกได้มีบทบาทสำคัญในการสนับสนุนประเทศในการต่อสู้กับโรคเอดส์ตั้งแต่ พ.ศ.2530 โดยการ ให้การศึกษาแก่บุคลากรของกองทัพ ครอบครัว รวมทั้งพลเรือนทั่วไป มีการจัดระบบการเฝ้าระวังการติดเชื้อโดยการ ตรวจเลือดในชายไทยที่เข้าเป็นพลทหารกองประจำการของกองทัพบกตั้งแต่ พ.ศ.2532 และมีระบบเฝ้าระวังพฤติกรรม เสี่ยงต่อการติดเชื้อเอดส์ตั้งแต่ พ.ศ.2534 กิจกรรมอื่นๆ ได้แก่ การฝึกอบรมบุคลากร การให้คำปรึกษา การดูแลรักษา ผู้ติดเชื้อ/ผู้ป่วยเอดส์ และการวิจัยต่างๆ โดยเฉพาะการวิจัยและพัฒนาวัคซีนโรคเอดส์ มีการใช้พลทหารซึ่ง เปรียบเสมือนตัวแทนของชายหนุ่มไทยในการวิจัยต่างๆ ประสบการณ์ของกรมแพทยทหารบกและความร่วมมือระหว่าง ทหารและพลเรือนในการต่อสู้กับโรคเอดส์ของประเทศไทยเป็นบทเรียนที่มีค่าสำหรับประเทศกำลังพัฒนาในการประยุกต์ ใช้ในยุทธศาสตร์ป้องกันและแก้ไขปัญหาเอดส์ของแต่ละประเทศ
