Case 2

Preventing HIV/AIDS and Sexually Transmitted Infections in Thailand

Geographic area: Thailand

Health condition: Between 1989 and 1990, the proportion of direct sex workers in Thailand infected with HIV tripled, from 3.5 percent to 9.3 percent and a year later reached 21.6 percent. Over the same period, the proportion of male conscripts already infected with HIV when tested on entry to the army at age 21 rose sixfold, from 0.5 percent in 1989 to 3 percent in 1991.

Global importance of the health condition today: HIV/AIDS is one of the greatest threats to human health worldwide, with an estimated 38.6 million people infected with the virus in 2005. The vast majority of people with HIV are in sub-Saharan Africa, where **life expectancy** today is just 47 years; without AIDS, it is estimated that life expectancy would be 15 years longer. The number of children who have lost a parent to AIDS is now estimated at 20 million.

Intervention or program: In 1991, the National AIDS Committee led by Thailand's prime minister implemented the "100 percent condom program," in which all sex workers in sex establishments were required to use condoms with clients. Health officials provided boxes of condoms free of charge, and local police held meetings with sex establishment owners and sex workers, despite the illegality of prostitution. Men seeking treatment for sexually transmitted infections (STIs) were asked to name the sex establishment they had used, and health officials would then visit the establishment to provide more information.

Cost and cost-effectiveness: Total government expenditure on the national AIDS program remained steady at approximately $375 million from 1998 to 2001, with the majority spent on treatment and care (65 percent); this investment represents 1.9 percent of the nation's overall health budget.

Impact: Condom use in sex work nationwide increased from 14 percent in early 1989 to more than 90 percent by June 1992. An estimated 200,000 new infections were averted between 1993 and 2000. The number of new STI cases fell from 200,000 in 1989 to 15,000 in 2001; the rate of new HIV infections fell fivefold between 1991 and 1995.

Acquired immunodeficiency syndrome (AIDS), caused by the human immunodeficiency virus (HIV), is among the greatest threats to health worldwide. In 2005, an estimated 38.6 million people were living with HIV. During 2005 alone, about 4.1 million people became infected and another 2.8 million lost their lives.[1] Although the vast majority of people with HIV are in sub-Saharan Africa, the epidemic is becoming increasingly serious in Asian countries. Of an estimated 8.3 million infected persons in Asia, more than two thirds are in India.[1] Approximately 572,500 people in Thailand are infected with the

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virus, with national prevalence rates the second highest of all countries in the Asia and Pacific region.[2]

The negative social and economic impacts of HIV/AIDS are profound. In Africa, the average life expectancy at birth is 47 years; without AIDS it would be 62 years. Household incomes in societies that lack social support mechanisms are declining dramatically, and the number of children orphaned by AIDS is now estimated at 20 million, with 75,000 of those orphans living in Thailand.[2,3]

Well-documented stories of large-scale success in HIV prevention are few and far between, although many small programs have been shown to be effective among specific populations. Changing the behaviors associated with increased risk of HIV, including sexual practices and intravenous drug use, has proven to be a formidable challenge, and technological advances such as a vaccine against HIV or microbicides that can kill the virus are years, maybe decades, away. As the Thai experience illustrates, creating more prevention successes will take sustained and high-level leadership and the development of programs appropriate to local circumstances.

Thailand's Awakening to HIV/AIDS

Thai authorities initially recognized the severity of the situation in 1988, when the first wave of HIV infections spread among injecting drug users. A National Advisory Committee on AIDS was established, which developed an initial plan that included surveillance of "sentinel" groups, such as sex workers, male patients with sexually transmitted infections (STIs), and blood donors. This surveillance revealed that the virus was now also spreading swiftly through sex. Between 1989 and 1990, the proportion of direct sex workers infected with the virus tripled, from 3.5 percent to 9.3 percent, and a year later it had reached 21.6 percent.[4] Over the same period, the proportion of male conscripts already infected with HIV when tested on entry to the army at age 21 rose sixfold—from 0.5 percent in 1989 to 3 percent in 1991.[5] Researchers found that visits to sex establishments were common among these young men.[6]

Some health officials had already begun to take action on their own. Dr. Wiwat Rojanapithayakorn, an epidemiologist and expert in STI control, who was then director of the Regional Office in Communicable Disease Control in Thailand's Ratchaburi province, argued for a pragmatic approach. As he explains it, "It is not possible to stop people from having sex with sex workers, so the most important thing is to make sure that sex is safe." However, Rojanapithayakorn knew that such an approach would require political leadership. Prostitution is illegal in Thailand, and the government's intervention could imply that it tolerated or even condoned it. Fortunately, the provincial governor agreed that preventing HIV from spreading further was the priority.

No Condom, No Sex: The 100 Percent Condom Program

In 1989, the Ratchaburi province pioneered a program whose aim was to reduce the vulnerability of individual sex workers by creating a "monopoly environment" across the province's sex establishments with one straightforward rule: no condom, no sex. Until this pilot study, sex establishment owners and individual sex workers had been reluctant to insist that their clients use condoms because most clients preferred unprotected sex and would just go elsewhere to find it. But by requiring universal condom use in all sex establishments, the provincial government removed the competitive disincentive to individual workers or sex establishments.

Health officials held meetings with sex establishment owners and sex workers, provided them with information about HIV and proper condom use, and convinced them of the plan's benefits. The police helped organize the early meetings, which pressured sex establishment owners to cooperate. Boxes of 100 condoms were supplied, free of charge, directly to sex workers at their regular health checks in government-run clinics, and health officials distributed boxes of condoms to sex establishments.

Tracing contacts supplemented this strategy. Men seeking treatment in government clinics for any STI were asked to name the commercial sex establishment they had used. The presence of infection was regarded as evidence of failure to use a condom. Similarly, infection in a sex worker was taken as evidence that she had engaged in unprotected sex. Provincial health officers would then visit the establishment and provide more information and advice to owners and workers about condom use. In

principle, the police could shut down any sex establishment that failed to adopt the policy. While this sanction was used a few times early on, authorities generally preferred to cooperate with the sex establishments rather than alienate them.[5]

The results were rapid. The incidence of STIs such as gonorrhea in sex workers and their clients in Ratchaburi fell steeply within just months.[5] "Sexually transmitted infections became rare diseases in sex workers: that was very convincing," says Rojanapithayakorn. Through meetings and lectures, the health officials in Ratchaburi persuaded 13 other provinces to adopt the program in 1989 and 1990.

Going National After Early Success

The Thai government first implemented its National AIDS Programme and Centre for Prevention and Control of AIDS in 1987, with the goals of raising awareness about the dangers of the disease, reducing risky behavior, and providing care to people suffering from it. The major strategy behind the campaign was to encourage men to use condoms with sex workers.[6] The government strategy included mass advertising and education campaigns. Television and radio advertisements aimed at men explicitly warned them of the dangers of not using condoms when visiting a sex worker. Health workers in government clinics and community workers from nongovernmental organizations (NGOs) trained sex workers in the proper use of condoms and in negotiating their use with clients.[5] In some cases, experienced sex workers were trained to educate their less experienced colleagues.[7]

It was not until August 1991 that the National AIDS Committee, chaired by Prime Minister Anand Panyarachun, resolved to implement the 100 percent condom program as part of the national campaign.[5] Health officials had initially feared that the committee would reject the idea, but a series of preparatory meetings with members of the National AIDS Committee and others achieved the necessary support. The resolution stated:

> The governor, the provincial chief of police, and the provincial health officer of each province will work together to enforce a condom-use-only policy that requires all sex workers to use condoms with every customer. All concerned ministries will issue directives that comply with this policy.

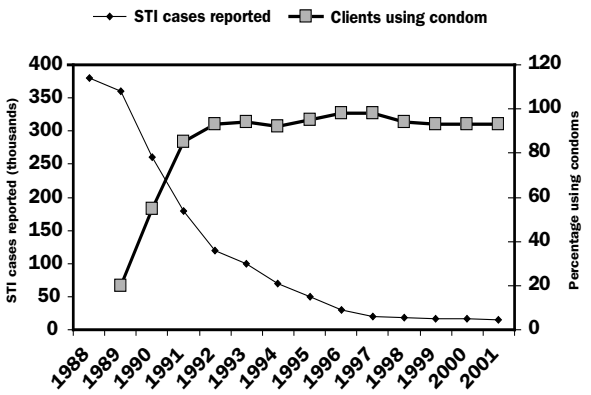
By mid-1992, all provinces had implemented the program because of the decisive leadership at the highest level. With this increased support, the overall budget for HIV control rose from $2.63 million in 1991 to $82 million by 1996, 96 percent of which was financed by the Thai government,[8] and some 60 million condoms were distributed annually.[9]

Dramatic Results in Behavior Change and Health Outcome

Condom use in sex establishments nationwide increased from 14 percent in early 1989 to more than 90 percent by June 1992.[6] These data are based on surveys with sex workers and young men conducted by the epidemiology division of the Ministry of Public Health. According to estimates by the Thai Working Group on HIV/AIDS Projection for the Ministry of Public Health, the number of new HIV cases decreased by more than 80 percent from 1991 to 2001.[9] The incidence of reported STIs (gonorrhea, nongonococcal infection,

Figure 2–1

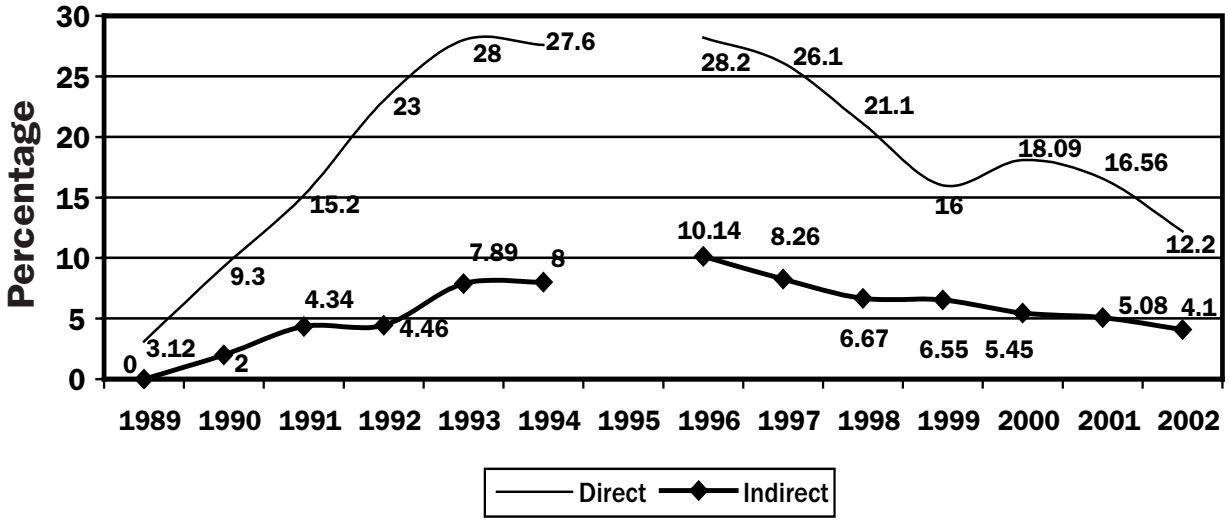
STI cases reported compared with condom use rates in Thailand, 1988–2001.



Source: From Dr. Wiwat Rojanapithayakorn. Compiled with data from STI Section, Bureau of AIDS, TB and STI, Department of Disease Control, Ministry of Public Health, Thailand.

Figure 2–2

Prevalence of HIV among direct and indirect sex workers and men attending public STI clinics in Thailand, 1989–2001.



Source: Data from Bureau of Epidemiology, Ministry of Public Health, Thailand originally compiled by Sombat Thanprasertsuk, Cheewanan Lertpiriyasuwat and Sanchai Chasombat.

chlamydia, syphilis, and others) fell even more steeply. In total, for men, the annual number of new cases of STIs fell from almost 200,000 in 1989 to 27,597 in 1994.[6] By 2001 the total number of new cases of STIs in both men and women was around 15,000 (see Figure 2–1). The decline in new cases of infection closely tracked the increase in rates of reported condom use.[5]

Similarly, HIV surveillance of sentinel groups showed dramatic changes. In 1993, up to 4 percent of military conscripts were HIV positive. By December 1994, the figure was 2.7 percent,[6] and by 2001, only 0.5 percent of new conscripts were infected. The prevalence of HIV in people attending STI clinics almost halved between the mid-1990s and 2002[9] (see Figure 2–2).

Rigorous prospective studies in the northern areas of the country, which are most severely affected by HIV/AIDS, support these national data. Researchers followed successive cohorts of army conscripts, totaling some 4,000 men, and checked their HIV and STI status every six months. The rate of new HIV infections fell fivefold between 1991 and 1995, while the rate of new STIs fell tenfold.[10]

Evaluating the Program: Lessons, Questions, Answers—and More Questions

The data are so dramatic that skeptics might question their accuracy or ask whether the declining infections can truly be attributed to a government program. Independent studies, however, suggest that the strategy was genuinely effective. The Institute for Population and Social Research at Mahidol University in Thailand, supported by the Joint United Nations Programme on HIV/AIDS (UNAIDS) and the Thai Ministry of Public Health, conducted a study to assess the program's effectiveness. The study concluded that the 100 percent condom program had contributed significantly to large-scale reduction of HIV transmission throughout the country.[5,11] Meanwhile a separate World Bank review concluded that Thailand's success is "an accomplishment that few other countries, if any, have been able to

replicate." The review suggests that the program may have prevented some 200,000 HIV infections during the 1990s alone.[12]

Because the program was implemented in a real-life setting rather than in the artificially controlled conditions of a clinical trial, it is difficult to tease out exactly which components of the program were most effective: the 100 percent condom program, the education that went with it, the media warnings, or other factors. Notably, the public information campaigns may simply have scared many men away from sex establishments in the early 1990s. STI incidence began to fall rapidly in 1990, before all provinces had implemented the 100 percent condom program.[6] Between 1990 and 1993, the proportion of men visiting commercial sex workers halved, from 22 percent to 10 percent.[13] Some researchers believe, therefore, that mass advertising played an important role. However, as Rojanapithayakorn points out, countries that have simply provided education about condoms, without also insisting on 100 percent condom use in the sex industry, have not been so successful in limiting the spread of HIV. He and others argue that the 100 percent condom program and the information campaign should be seen as complementary components of the same strategy: Neither would have been wholly effective without the other.

Several questions have been asked about the findings. First, was the reported decline in STI incidence genuine, or did some people simply shift away from government clinics to private clinics? In interviews with sex workers, Mahidol University researchers found that the proportion receiving their treatment from government clinics had not changed since the program was implemented. In addition, the researchers interviewed pharmacists. More than 80 percent reported a 5-year decline in the sale of antibiotics used to treat STIs, casting doubt on any suggestion that patients had simply switched to the private sector.[5]

Another question is whether the reported rates of condom use are inflated. Mahidol University researchers interviewed more than 2,000 sex workers and more than 4,000 clients. There was some regional variation, but overall reported rates of condom use were strikingly high. When sex workers were asked if they would have sex without a condom for more money, only 3.5 percent said they would, although almost three quarters told the researchers that clients had repeatedly asked them to do so.[5] Among sex workers, 97 percent reported that they always used condoms with one-time clients, and 93 percent reported that they did so with regular clients.[6] Other studies indicated that condom use among sex workers may be declining: a 2003 study found a 51 percent overall condom utilization rate among female sex workers in three Thai cities, and a 2003 cross-sectional survey found that less than half of participants who reported having sex with commercial partners in the past year used condoms consistently.[14,15]

There is also separate evidence that most sex workers have become extremely resistant to demands for condom-free sex. For example, in small studies, male volunteers posing as clients approached sex workers to assess the effectiveness of peer training by sex workers to help each other with the skills needed to insist on condom use. The volunteers asked for sex without a condom, and if they were refused, offered to pay more. In one small study, 72 of 78 sex workers refused sex without a condom even when offered three times the usual fee.[7]

A related question is how effectively the program could reach "indirect" sex workers, whom clients would typically find in bars or restaurants. Such establishments often deny that they offer sex, and some have refused to cooperate with the program or distribute condoms to their workers. The relative inaccessibility of these establishments also made them difficult to study in independent evaluations, so estimates of the program's success may be biased if this group is underrepresented. This is important, particularly as clients appear to have been shifting from direct sex establishments to indirect workers during the 1990s.[16] However, some studies suggested that most indirect sex workers, like their counterparts in direct sex establishments, insist on condoms with clients. The lowest rates of condom use were reported in hotels, at around 85 percent; in bars and restaurants the proportion was around 90 percent, and in massage parlors it was 98 percent.[5]

What the Program Did Not Achieve

The success of the strategy in slowing HIV transmission is due, at least in part, to the sheer scale and level of organization of the sex industry in Thailand, and

Box 2–1

Replicating Thailand's Success in Cambodia

With its large commercial sex industry and the highest HIV rates in Asia, neighboring Cambodia offers a strikingly similar setting for replicating Thailand's successful 100 percent condom program. As in Thailand, Cambodia's 100,000 commercial sex workers constitute a particularly high-risk group for transmitting HIV; reported infection rates of sex workers range from 15 to 29 percent, the highest of any group in the country.[17,18]

Inspired by Thailand's successful experience, Cambodia implemented a pilot 100 percent condom campaign in 1998 targeting sex establishment-based workers in the high prevalence Sihanoukville province. A survey of sex workers in the region found an increase of consistent condom use from 43 percent before the program to 93 percent after the program was fully implemented.[19] This is due in part to the establishment of an effective monitoring system that was able to identify uncooperative establishments through the use of "mystery clients," regular STI checkups, and monitoring of condom stock. The system relied crucially on owners of sex establishments, who actively collaborated with the program to maintain and report condom sale records. The owners also supported outreach activities to popular clientele, such as military police.[19]

With the financial support of external donors, Cambodia's National AIDS Authority and National Center for HIV/AIDS, Dermatology and STI scaled up the pilot 100 percent condom use program nationally in 1999. In 2004 alone, more than 20 million condoms were distributed, largely through social marketing channels. The program has delivered impressive results: According to a recent study, consistent condom use among formal sex workers nearly doubled between 1997 and 2003, from 53 percent to an estimated 96 percent.[20] Overall, Cambodia's 2005 adult national HIV prevalence rate of 1.6 percent was 30 percent lower than prevalence in the late 1990s.[1]

the popularity of commercial sex among a wide cross-section of Thai men in the early years of the epidemic. (See Box 2–1 for a discussion of Cambodia's success in a similar setting.) However, Thailand's public health officials acknowledge that the program has done little to encourage men and women in Thailand to use condoms in casual but noncommercial sex.[9] Among the population as a whole, casual sex without condoms is widespread, particularly among young people, who do not remember the height of the crises in the early 1990s.[12] This suggests that there is still a substantial risk that HIV will continue to spread through heterosexual sex in Thailand. In addition, because the program has focused mainly on sexually transmitted HIV, the most common transmission route, interventions among injecting drug users, such as methadone treatment and needle and syringe exchange programs, have not expanded to reach the national scale. In this group, the prevalence of HIV continues to rise and is now as high as 50 percent.[9]

What Made It Work?

Several important factors enabled the program. First, the sex industry is relatively structured. There are few "freelance" workers; most operate from an establishment. Since the late 1960s, the Thai government has maintained lists of both "direct" and "indirect" sex establishments, which enabled officials to reach the owners of the establishments and seek their cooperation. Second, the nation already had a good network of STI services, both for treatment and surveillance, within a well-functioning health system. As well as providing essential treatment and advice to sex workers and their clients, the health system supplied decision makers with crucial data both at the baseline and when the program took effect. This could not have happened without an adequate number of trained health workers, epidemiologists, and statisticians. Third, different sectors—health authorities, provincial governors, and police—collaborated well.

This multisectoral approach by the national government raised the profile of HIV/AIDS and engaged a variety of stakeholders and others in the policy dialogue to set national priorities.[8] Fourth, strong leadership from the prime minister, backed with significant financial resources, made it possible to act swiftly.

Guessing the Cost

Surprisingly, given the widespread interest in the Thai government's program, no estimates appear to have been made on the cost-effectiveness of the 100 percent condom program. Rojanapithayakorn points out that most of the program's cost is human resources: It relies on trained staff in STI clinics and epidemiologists. Because this infrastructure already existed, the costs of implementing the program were very small. Expenditure on the condoms themselves has usually been around $1.2 million per year and has never risen above $2.2 million per year.[9] In addition, the government invested in education and information campaigns. However, the private sector offered financial and in-kind assistance, including an estimated $48 million in donated commercial airtime for HIV/AIDS messages.[21] Total government expenditure on the national HIV/AIDS program has remained steady at approximately $375 million from 1998 to 2001, with the majority of the money spent on treatment and care (65 percent); this investment represents 1.9 percent of the government's overall health budget. In return, some 200,000 individuals avoided HIV infection between 1993 and 2000, enabling them to remain productive members of society.

Program Under Threat

The cost of treating AIDS with antiretroviral drugs—as well as less costly drugs to treat opportunistic infections—has posed a major challenge to Thailand in recent years. Some are concerned that these costs may threaten HIV prevention activities. Between 1997 and 2004, the HIV prevention budget declined by two thirds.[22] Although condom use reportedly remains high among sex workers, there are also concerns about new sex workers, trafficked into Thailand from nearby countries. For these women, access to health care, information, training, and even condoms may be limited. Thailand's success in slowing its HIV/AIDS epidemic to date will continue to require vigorous support.

The Thai experience in preventing the spread of HIV provides no blueprint for other countries, particularly those where the starting conditions may be very different. But it does suggest that major changes in deeply entrenched behaviors can be effected through targeted strategies, and it highlights the courage of political leaders who take risks to improve the public's health.

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