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IMPACT OF THAILAND'S HIV-CONTROL PROGRAMME AS INDICATED BY THE DECLINE OF SEXUALLY TRANSMITTED DISEASES

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[Save](#)

[Cite](#)

[Export](#)

[Create Note](#)

Contents

- [Summary](#)
- [Introduction](#)
- [Methods](#)
- [Results](#)
- [Discussion](#)
- [References](#)

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[Bookmark](#)

Section: Public health

Summary

The Thai government began an HIV-control programme in 1989. The programme had the following parts: the government bought and distributed sufficient condoms to protect much of the commercial sex in the country; sanctions were brought against commercial sex establishments where condoms were not used

consistently; and a media campaign bluntly advised men to use condoms with prostitutes.

Between 1989 and 1993 the use of condoms in commercial sex in Thailand increased from 14 to 94%, according to surveys of prostitutes, and the number of cases of the five major sexually transmitted diseases declined by 79% in men. We estimate that sex acts with prostitutes where there was a risk of HIV transmission declined from about 2.6% in June, 1989, to about 1.6% in June, 1993.

If condom use in commercial sex stays high, future cohorts of young men and women may experience lower HIV incidence rates than those of the recent past. However, although condom use is high, there are many more infected prostitutes than before and many infected men who will pass HIV to their wives,

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Introduction

From negligible prevalence in 1988, HIV spread through the Thai population in a very short time. By mid-1993, 4.0% of men drafted into the army and 14% of urban women presenting for antenatal care tested positive for HIV (table 1). As soon as the epidemic spread of HIV was detected, the government reacted with a programme to enforce condom use in commercial sex, which was the main

Result List **Refine Search** **16 of 46**

government sexually transmitted disease [STD] clinics said they had contracted their STD from a prostitute). In 1989 the government piloted a project in Ratchaburi province to ensure that men could not obtain commercial sex without using a condom. The approach was copied in many other provinces. In August 1991, it became the official policy of the National AIDS Committee.[1, 2]

It was understood that if sex establishments adhered strictly to the condom policy, the authorities would not intensify sanctions against prostitution. But any evidence of the transmission of STDs to men in a sex establishment was taken to mean that condoms were not being used there, and resulted in sanctions by the police. Men soon learned that they could not obtain sex in a commercial sex establishment without condoms. Therefore, neither prostitutes nor brothel owners lost income, and neither group opposed the programme. The programme relied on the STD treatment system, which had been in place for over 25 years. Before the HIV epidemic, men presenting for treatment for an STD were asked where they contracted it. This procedure was adapted to identify establishments that were not co-operating with the government's policy on condoms. The second part of the programme was to provide free condoms for commercial sex. The government bought enough condoms to supply most of the commercial sex industry, and distributed them to prostitutes during their periodic STD examinations. The third part of the programme was mass advertising. Television and radio spots stressed that men should use condoms with prostitutes.

We describe several independent sources of data that, taken together, suggest strongly that the HIV-control programme has been a success.

Methods

Every 6 months since 1989, samples of blood have been taken from six groups in each Thai province: intravenous drug abusers, blood donors, pregnant women, male STD patients, and direct and indirect prostitutes (defined in the loomore to table 1).[3, 4] Every prostitute whose blood is tested is asked the following questions: "How many customers did you have the last night you worked?" and "Of these, how many used condoms?" In addition, since November, 1989, the army has screened new conscripts twice a year (table 1). Statistics on numbers of prostitutes have been collected by the Venereal Disease Division of the Ministry of Public Health (MOPH) since 1971.[5] These statistics are based on continuously updated lists of sex establishments, compiled from reports from STD patients about where they contracted their infection, and supplemented by field surveys, annually since 1971 and semi-annually since 1983. There is no significant prostitution outside of commercial sex establishments. About 40% of prostitutes are direct prostitutes.

Government STD statistics come from the MOPH Division of Epidemiology, which collects data from the outpatient departments of government hospitals plus certain STD clinics, and the MOPH Venereal Disease Division, whose statistics incorporate data from additional STD clinics. The AIDS Division of the MOPH records numbers of condoms procured by the government and distributed to end-users. The Food and Drug Administration records numbers of condoms sold to retail outlets.

Results

From 1989 to 1993, condom use increased from 14 to 94% of commercial sex acts (table 1). Using estimates of the numbers of prostitutes (around 100 000), the number of clients they had per night (around 1.9), and the number of nights worked each month (around 25), we calculate that in 1992 there were about 57 million commercial sex acts in Thailand. During that year the government supplied 45 million condoms to sex establishments, and the private sector supplied 26.5 million to retail outlets (exclusive of condoms used for family planning). Thus, the government supplied enough condoms to protect 79% of commercial sex acts and the private sector sold enough condoms to protect 47%. Therefore, in theory, enough condoms were available to protect 126% of commercial sex acts. In 1993 both the government and the private sector reduced the numbers of condoms shipped, because it was evident that enough

were available. The government supplied enough condoms to protect 60% of commercial sex acts, and the private sector 35%, a total of 95%.

Data in the figure came from the Venereal Disease Division and show the number of visits to STD clinics and the number of new cases of five classic STDs (syphilis, gonorrhoea, non-gonococcal urethritis, lymphogranuloma venereum, and chancroid) for 1967-1993.

In men, STDs increased continuously from the late 1960s to late 1970s. The dip in 1981-1982 was due to a departmental reorganisation that disrupted the reporting system. After that the number of cases and visits began to climb again until 1985. Beginning in 1986 until the condom programme in 1989, there was a modest decline, and from 1989, a steep drop. The reason for the decline in cases and visits in 1986, before the condom programme started in 1989, may have been because gonorrhoea and chancroid were declining slowly. These two STDs were susceptible to the quinolone antibiotics that were introduced in Thailand in 1986. Quinolones are not effective, however, against the other classic STDs, which declined hardly at all before 1989 (table 2). From 1989 the number of cases of gonorrhoea and chancroid declined much faster than before, and the other three STDs also began a rapid decline. Between 1989 and 1993 the number of male cases of the five classic STDs declined by 79%. A small part of this decline may have happened without the condom programme because of the use of quinolones. Between 1989 and 1993 gonorrhoea and chancroid declined by 85%, and the other STDs by 74%. These declines would have been even sharper if new STD clinics had not opened. 40 such clinics were opened in 1992, and 100 in 1993, which probably explains why visits increased in 1993, whereas new cases continued to decline.

Prostitutes accounted for most female STD clinic visits. The steady increase in visits and cases over the period shown in the figure was due to expanded coverage of the sex industry. Prostitutes were given free weekly tests, which included pelvic examinations, gram stains of cervical swabs, gonorrhoea cultures, and serological tests for syphilis. Testing procedures have remained uniform in recent years. Although visits to government clinics by women remained high after the condom promotion programme, STDs fell substantially. The number of visits declined slightly (11%) in 1990-1992, but the number of new cases fell by 54%. As with men, the decline would have been even sharper without the opening of new STD facilities. In 1993, visits by women increased, but new cases continued to fall.

Unpublished data for 1992 for both sexes show that without the 40 new clinics that opened in 1992, the decline in cases would have been 85%, whereas the actual decline was only 69%.

Discussion

Our data have several limitations. First, prostitutes may have exaggerated condom use to please the interviewers. However, other independent surveys have confirmed the increase in condom use. Second, although we know how many condoms were shipped, we cannot document how many were actually used. All we can say is that the supply of condoms was more than sufficient to protect all commercial sex acts in the country. Finally, private clinics and pharmacies do not report STD cases. However, most anecdotal data suggest that the number of STD cases declined greatly in the private as well as in the public sector.

Despite these limitations, the data suggest that the condom programme has been successful in controlling bacterial STDs. In addition, since STDs are an important cofactor, HIV transmission is reduced when STD prevalence is reduced, even during unprotected sex. Without the high level of condom use reported here, HIV would undoubtedly have spread more quickly and widely. However, it is difficult to determine whether the incidence of HIV infection has decreased absolutely. Table 1 shows that from June, 1989, to December, 1993, the prevalence of HIV increased in all sentinel groups: to 29.5% of direct prostitutes (May, 1993), 7.7% of indirect prostitutes, 4.0% of army conscripts, and 1.5% of pregnant women.

Among clients of prostitutes such as army conscripts, 90% condom use should greatly decrease HIV incidence. However, incidence may remain high because the prevalence of infection among prostitutes is much higher now than previously. For example, in June, 1989, when prevalence in direct prostitutes was 3.5% and condom use 25%, 2.6% of sex acts were at-risk for HIV transmission. The highest risk of transmission from prostitutes to clients was probably in 1990 and 1991, when about 4% of sex acts were at risk. In June, 1993, with prevalence at 27% and condom use at 94%, at-risk sex acts were down to 1.6%. Thus, risk of HIV transmission to clients has probably been greatly reduced from what it was in 1990 and 1991.

Condom use may not be so protective for prostitutes, for three reasons. First, prostitutes are less likely to use condoms with boyfriends or regular clients, who may have a relatively high prevalence of HIV infection. Second, HIV-positive clients, mostly unaware of their status, are probably less likely to use condoms than HIV-negative clients. Third, given the sheer number of exposures, the cumulative prevalence among prostitutes may continue to increase unless condoms are used during every sex act (which is unlikely), or until equilibrium is reached between the rate of new infections and the rate that women leave prostitution. Among non-prostitute women, condom use in commercial sex will have a delayed effect on risk of HIV infection. Many unmarried men have recently become infected, and they are likely to infect their wives after they get married. An equilibrium may eventually be reached, but unless more women have their fiances tested before marriage, it is likely that prevalence of infection among non-prostitute women will continue to increase slowly for several years as infected men marry uninfected women.

If this analysis is correct, and if the condom programme has actually succeeded in lowering the rate of HIV transmission in commercial sex, then the evidence of decreasing infection levels is likely to become apparent first among military conscripts. Assuming that future conscripts get infected at an average age of 18, then it should take about 3 years for a decrease in HIV incidence to become apparent in decreased HIV prevalence among 21-year-old conscripts. In that case, one might hope to see a decrease in HIV prevalence among conscripts by 1995. However, the continued increase in HIV prevalence among prostitutes might delay or even nullify such a decrease.

Whether or not the Thai condom programme reduced HIV transmission absolutely, it certainly prevented a far worse epidemic. The programme succeeded by recognising that the epidemic was generated by core group prostitution and by concentrating on that target. It did not try to change sexual behaviour or enforce the laws on prostitution (which is technically illegal), but only to ensure that condoms were used in commercial sex. Officials worked through the commercial sex system not against it. Not only did the government supply free condoms directly to prostitutes, it broadcast explicit television and radio messages telling men to use condoms in commercial sex. The success of the programme depended on the cooperation of numerous government agencies in addition to the MOPH including the police. The coordination of these agencies was made possible by strong commitment at the top level of government, in particular from the Prime Minister's office.

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Table 1: HIV prevalence and condom use among direct prostitutes

Legend for Chart:

- A - Date
- B - HIV prevalence (%), Prostitutes[a,b], Direct
- C - HIV prevalence (%), Prostitutes[a,b], Indirect
- D - HIV prevalence (%), Prostitutes[a,b], Pregnant women[a,b]
- E - HIV prevalence (%), Prostitutes[a,b], Army conscripts[c]
- F - Commercial sex acts where condoms were used (%)[a,d]

	A	B	C	D	E	F
1982-January 1989	--	--	--	--	--	14 (about)
June, 1989	3.5	0.0	0.0	--	--	25
December, 1989	6.3	1.2	0.0	0.5	--	50
June, 1990	9.3	1.2	0.0	1.6	--	56
December, 1990	12.2	2.7	0.3	2.1	--	65
June, 1991	15.2	4.0	0.8	2.9	--	72
December, 1991	21.6	5.4	0.7	3.0	--	84
June, 1992	23.8	4.7	1.0	3.6	--	90
December, 1992	23.9	6.5	1.0	3.5	--	93
June, 1993	27.1	7.5	1.4	4.0	--	94
December, 1993	29.5	7.7	1.5	--	--	

Pregnant women were those presenting for antenatal care in government hospitals in urban areas. Direct prostitutes are those who sell sex directly, as opposed to indirect prostitutes who may provide a service like massage or dancing, followed by sex at a separately negotiated price.

a From June, 1989, numbers are median values of the distributions of provincial means.

b For June, 1989, data were based on the sentinel surveillance of 14 provinces; for December, 1989, 31 provinces; thereafter on all 73 provinces.

c Data for army conscripts refer to May and November rather than June and December. Since the conscripts in May and November tend to come from different regions, the May rounds cannot be compared with the November rounds.

d Based on four local area studies from 1982 (14%), 1985 (7%), 1988 (14%), and January, 1989 (14%); and based on 12 provinces for June, 1989, 31 provinces in June, 1990, and 73 provinces thereafter.

Table 2: Number of male STD cases at government clinics

Year	Syphilis	Gonorrhoea	Chancrokl	Lympho- granuloma venereum	Non- gono- coccal ureth- ritis	Total
1987	11855	109289	38754	17353	599862	37237
1988	11179	98731	33350	17807	56199	217266
1989	11487	84675	29675	16020	57191	199048
1990	8330	50344	16133	8816	41756	125379
1991	5714	35541	10053	5935	31995	89238
1992	4233	22052	4272	2339	21137	54203
1993	3645	14750	1990	1027	17423	38835

Data are from annual reports of the Venereal Disease Division of the MOPH and refer to fiscal year. A case is the diagnosis of a new STD.

GRAPH: Figure: Number of STD clinic visits and cases of five major STDs

Data from annual report of the Venereal Disease Division of the MOPH. A case is the diagnosis of a new STD; a visit is either a case or an initial follow-up patient encounter where a new STD was not diagnosed.

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