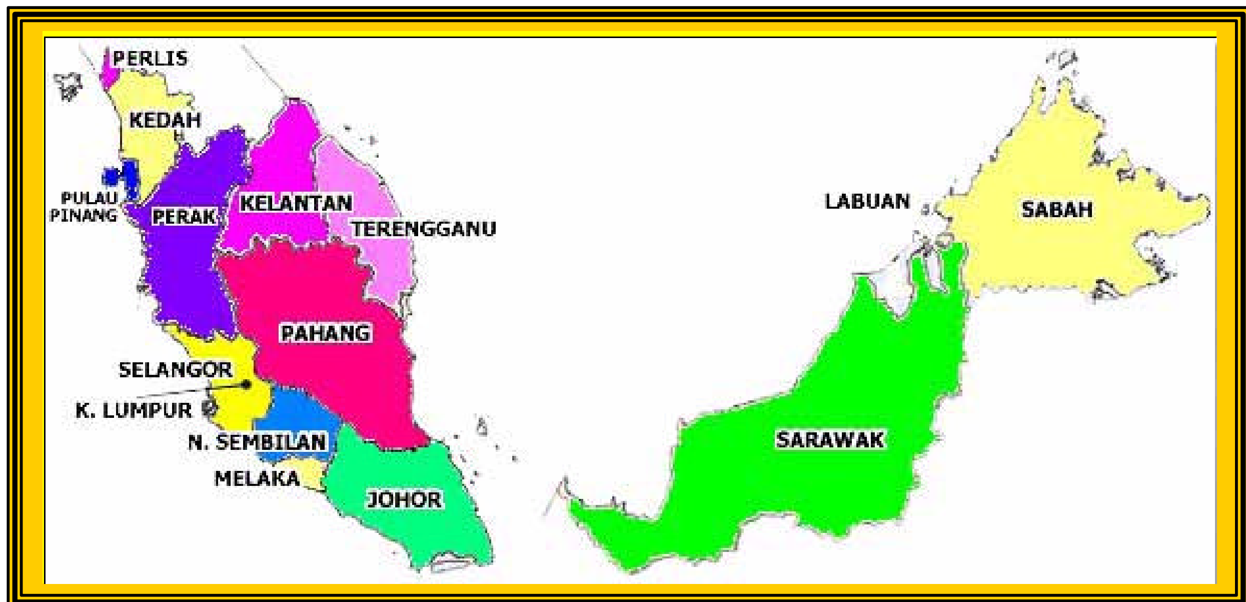
Ministry of Health World Health Organization

CONSENSUS REPORT ON HIV AND AIDS

EPIDEMIOLOGY IN 2004: MALAYSIA



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Executive Summary

The Ministry of Health, Malaysia, initiated national HIV/AIDS case notification in 1985. The HIV/AIDS surveillance system is based on the HIV/AIDS case-reporting system, a national routine HIV screening programme among drug users in drug rehabilitation centres and prisons, tuberculosis and sexually transmitted infection (STI) patients, women attending antenatal clinics, and blood donors.

Malaysia is among those countries with a concentrated HIV epidemic, based on the current WHO/UNAIDS classification: the average HIV prevalence has been less than 0.1% among women attending antenatal clinics, and consistently higher than 5% among injecting drug users (IDU) in the last 10 years. According to annual HIV/AIDS case reports, there has been a significant increase in the number of reported HIV/AIDS cases. Concomitantly, while there is a low prevalence rate nationally, there is a high level of prevalence in specific populations and in certain regions. The main transmission route is through intravenous drug use, which accounted for 76.2% of the cumulative number of reported HIV infections by the end of 2002. However, the proportion of reported HIV infections transmitted through homo/bisexual and heterosexual contacts increased from 7.4% in 1995 to 17.4% in 2002, and an increase of 46% was found in 2002, compared with 2001. Data from a special survey indicated that the HIV prevalence rate among sex workers was as high as more than 10% in some areas of Kuala Lumpur in 2000. Based on intensive data collection, a two-day consensus workshop and the workbook methodology developed by WHO/UNAIDS, the number of HIV infections for 2003 has been estimated to be 52 329, giving an overall national prevalence of 0.4% among adults aged 15-49 years, an increase of 25% from the 42 000 estimated infections in 2000.

In addition to the current nationwide case-reporting system and HIV screening programme among antenatal women, drug users in drug rehabilitation centres and prisoners, repeated HIV serosurveys need to be conducted among selected subpopulations, such as commercial sex workers (CSW) in entertainment establishments, men who have sex with men (MSM), drug users in the community, and other hidden subpopulations, in addition to sustaining and strengthening the current seroprevalence surveys among drug users in drug rehabilitation centres, male clients at STI clinics, women attending antenatal clinics, etc. Further data should be collected from various sources, such as information from military recruit and migrant population checks; there should be further analysis of the HIV prevalence data from existing surveys; and additional surveys to estimate the size of high-risk populations, such as IDUs, CSWs and MSM, should be conducted in order to develop reliable HIV prevalence estimates.

INTRODUCTION

Malaysia, with a total estimated population of 24 526 500 in 2002 (*Monthly Statistical Bulletin*, Department of Statistics, Malaysia, July 2003), comprises 14 administrative states (2 on the island of Borneo and 12, including Kuala Lumpur Federal Territory, in Peninsular Malaysia) and 131 health districts. The estimated population of 15-49 year-olds was 13 058 100 (53.2%) in 2002. Approximately 57.0% of the population live in urban areas.

The Malaysian Government initiated its national efforts to combat the epidemic of HIV/AIDS in 1985, and the first case of HIV was detected in the country in 1986. HIV infections have been notifiable in Malaysia since 1985. Systematic HIV/AIDS surveillance was started in the country in 1987 and further strengthened in 1998 by introducing the Plan of Action for Prevention and Control of HIV in Malaysia and passing of the Prevention and Control of Infectious Diseases Act, 1998 (Act 342). In addition to passive HIV/AIDS surveillance (case-reporting system for HIV/AIDS cases), active HIV surveillance through HIV sentinel surveillance (HSS) was established in 1994 and integrated into routine screening activities in 1998. HIV/AIDS behavioural surveillance in Malaysia was initiated in July 2003, and is still in the preparation phase. There are, therefore, very few data on behaviour related to HIV/AIDS and STIs as yet. In order to assess the HIV/AIDS situation, the Ministry of Health of Malaysia, with support from WHO, have organized biennial national consensus meetings on HIV epidemiology in recent years. A consensus meeting, held in 2001, estimated the average HIV prevalence in Malaysia in 2000 to be 42 000. Two regional training workshops in Asia on standardized methods for HIV/AIDS estimates and projection, jointly organized by WHO, UNAIDS and other partners, were conducted in Bangkok, Thailand, in June 2003. A country worplan for producing 2003 HIV estimates was drafted and a national preparatory meeting to introduce the new methods and discuss initial estimates and data gaps was conducted in Malaysia after these regional workshops.

In December 2003, a consensus workshop was held in Kuala Lumpur, with the following specific objectives:

- to review available data on HIV/AIDS, STIs and relevant behavioural factors in Malaysia;
- to identify the STI/HIV/AIDS trend;
- to make estimates for 2003, based on existing data;
- to reach a consensus on the HIV/AIDS epidemic situation and latest HIV estimates; and
- to recommend future improvements to the HIV/AIDS surveillance system and estimation/projection.

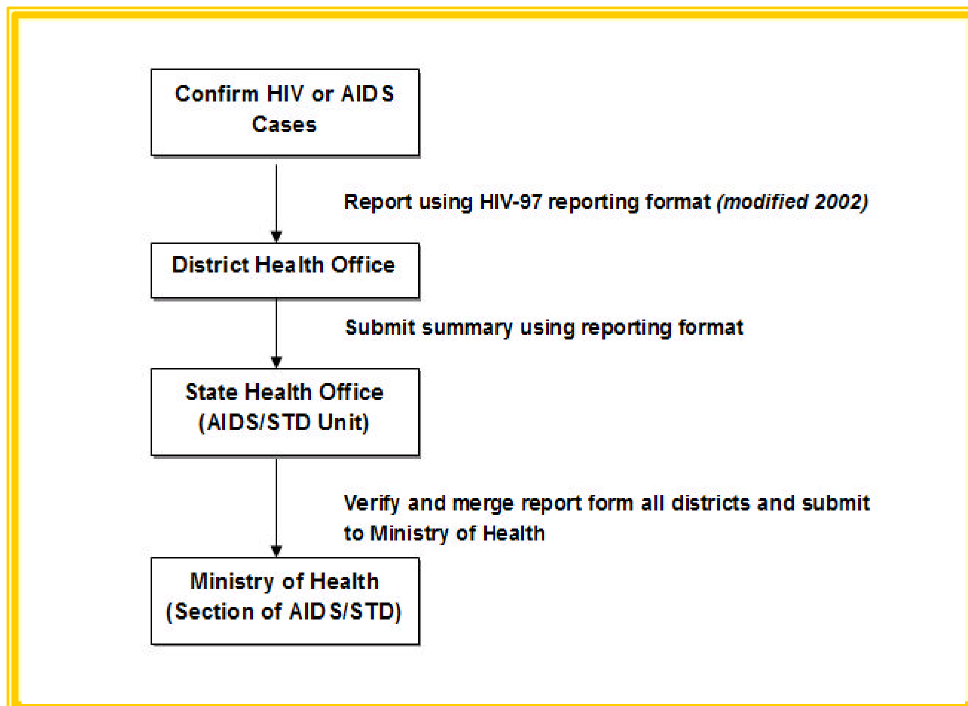
DESCRIPTION OF SURVEILLANCE SYSTEM

HIV/AIDS AND STI CASE-REPORTING SYSTEM

The Malaysian Ministry of Health initiated national HIV/AIDS case notification in 1985. All HIV/AIDS cases diagnosed by registered medical practitioners are required by law to be reported to the Ministry. Currently, HIV/AIDS is reportable through two separate Ministry of Health surveillance systems. The first is the specific HIV/AIDS reporting system, coordinated by the AIDS/STI Section of the Disease Control Division, under the Department of Public Health, Ministry of Health (Figure 1). The second is the communicable diseases reporting system, coordinated by the Communicable Disease Surveillance Section under the same division of Ministry of Health and collecting data on 24 infectious diseases including HIV, syphilis, gonococcal infections and chancroid. In these two systems, case reports flow from the health facilities or clinics to the local district, and a summary of reported cases is submitted to the state AIDS/STI units and then to the respective sections (AIDS/STI Section or Communicable Disease Surveillance Section) within the Ministry of Health.

FIGURE 1

Flow chart of HIV/AIDS case reporting



Data collection in the HIV/AIDS case reporting system begins with the laboratory test. For individuals with positive HIV results, additional information concerning demographics (name, identity number, address, age, gender, occupation) and risk factors are collected by registered medical practitioners at district level. All these data are entered manually into a logbook or computer for local use, and a summary of reported cases is submitted to higher jurisdictional levels monthly in hard copy. Tracing of partners of people identified with HIV/AIDS is carried out through passive contact tracing (i.e. the index case is advised to inform his/her partners) or active contact tracing (the health officer is notified to trace patient's partners). However, the success rate in contact tracing is estimated to be less than 20%.

For the communicable disease reporting system, persons identified as HIV-positive through testing strategies are reported to the Communicable Disease Surveillance Section of the Ministry of Health. This system is established in health care facilities nationwide to conduct reporting of 24 notifiable diseases. Information on reported cases of STI is based on this reporting system, but the number of reported cases of HIV/AIDS collected through this system is much lower than in the specific reporting system.

HIV SENTINEL SURVEILLANCE (HSS)

The HIV/AIDS sentinel surveillance (HSS) programme was piloted in 1993 and scaled up throughout the country in 1994 among new mothers attending antenatal clinics, new STI patients and newly diagnosed tuberculosis patients. Blood specimens obtained from the eligible subjects for other purposes were used for anonymous testing for HIV antibodies after the identity information was removed. HSS was conducted in one antenatal clinic, one STI clinic and one TB clinic in each state annually from September to December, and the surveillance results were compiled locally and submitted to the Ministry of Health by January of the subsequent year. However, this serosentinel surveillance system was discontinued at the end of 1997. HIV screening of some subpopulation groups (e.g. antenatal women, IDU, TB patients) has been included in the national HIV screening system since it was set up in 1998.

Based on the HSS, the mean rates of HIV prevalence among sentinel sites from 1994 to 1996 ranged from 0.14% to 0.28% among antenatal women, and from 0.67% to 1.98% among STI patients.

ROUTINE HIV SCREENING PROGRAMMES

The facilities for HIV screening in Malaysia were set up in 1986. Throughout the country, as of the end of 2002, there were 62 HIV screening centres, with at least one centre per state. HIV screening is conducted among both high-risk groups, such as IDUs and prisoners identified as involved with injecting drugs, and low-risk groups, such as mothers attending antenatal clinics and blood donors. It is believed that almost all mothers in both urban and rural areas are covered by government clinics and hospitals.

Some of the persons screened for HIV infection are tested voluntarily, such as all inmates in the drug rehabilitation centres and prisons, sex workers, TB and STI patients, and antenatal mothers attending government clinics. However, for others, such as blood donors and migrant foreign workers, HIV testing is compulsory. All the results of supplementary and confirmatory tests are sent back to the requesting officers at the screening centres. HIV testing is also done by private medical practitioners, private laboratories and hospitals.

As a general principal throughout the country, except in West Malaysia where there are usually not enough samples to run an enzyme-linked immuno-sorbrnt assay (ELISA) test, the first test is ELISA, the second test is particle agglutination (PA) and the third test is immunoblot (Line Immuno Assay – LIA). Serum specimens for HIV testing are collected and sent to

any of the laboratories designated for screening by ELISA or PA. Currently there are 32 centres for ELISA and 31 centres for PA (including 19 in Sarawak and 12 in Sabah). Current guidelines in Malaysia require all specimens testing positive with with the ELISA test to be tested with another screening antibody test, namely PA. If both these tests are positive, the patient is regarded as "reactive", and another fresh specimen is required for confirmation, using supplementary immunoblot (LIA) in a low prevalence population, or polymerase chain reaction (PCR) testing, mostly for pediatric cases less than 18 months old, at the Institute for Medical Research (IMR) in Kuala Lumpur. Rapid HIV tests are mostly used for screening of antenatal mothers, inmates of drug rehabilitation centers and prisoners, and are also used by private health facilities in the country. If rapid testing is reactive in an antenatal woman, a second blood specimen is taken for confirmatory testing using LIA. Currently, only drug users, due to a prevalence of more than 10%, are considered as a high-risk group and are diagnosed using the two-test strategy, i.e. repeat ELISA and PA tests are required for confirmation. Pre-test and post-test counseling is required during the screening practice.

An anonymous voluntary HIV screening programme was piloted in 2001 in Johor to provide anonymous HIV testing at local health clinics. This programme will be scaled up to all other states in the country in 2003.

BEHAVIOURAL SURVEILLANCE SURVEY (BSS)

The behavioural surveillance survey (BSS) of HIV/AIDS was initiated in July 2003 and is still under preparation, including development of protocols and selection of target populations and geographic areas. There are currently very few data on behaviour related to HIV/AIDS and STIs. The BSS will be conducted among IDUs and sex workers and will start in five states: Wilayah Persekutuan, Johor Baharu, Penang, Kota Bharu and Kuching. Training courses and workshops will be organized for these areas and data collection through the BSS will be implemented in February 2004. It is expected that there will be more information regarding HIV risk behaviours for the next consensus meeting.

SPECIAL SURVEYS

In addition to the routine HIV/AIDS case-reporting and HIV screening systems, a few special prevalence surveys have been carried out by different programmes or organizations, e.g. in 1999-2000, the Division of Disease Control of the Ministry of Health conducted a prevalence and behavioural survey of STIs among 208 sex workers and 1070 mothers attending antenatal clinics in Kuala Lumpur.

EPIDEMIOLOGICAL SITUATION

REPORTED HIV/AIDS CASES

Time trends of reported HIV/AIDS cases

As of December 2002, a total of 51 256 cumulative cases of HIV infection had been reported to the national HIV/AIDS case-reporting system, of which 7218 were AIDS cases and 5424 AIDS deaths. There were 6978 cases of reported HIV infection in 2002, a 17% increase compared with the 5938 in 2001 (Figure 2), while the number of AIDS cases fell by 8.4% from 1302 in 2001 to 1193 in 2002 (Figure 3). The increase in reported HIV infections is partially due to the active HIV screening programmes in the target populations.

FIGURE 2

Number of reported HIV infections by year in Malaysia, 1986-2002

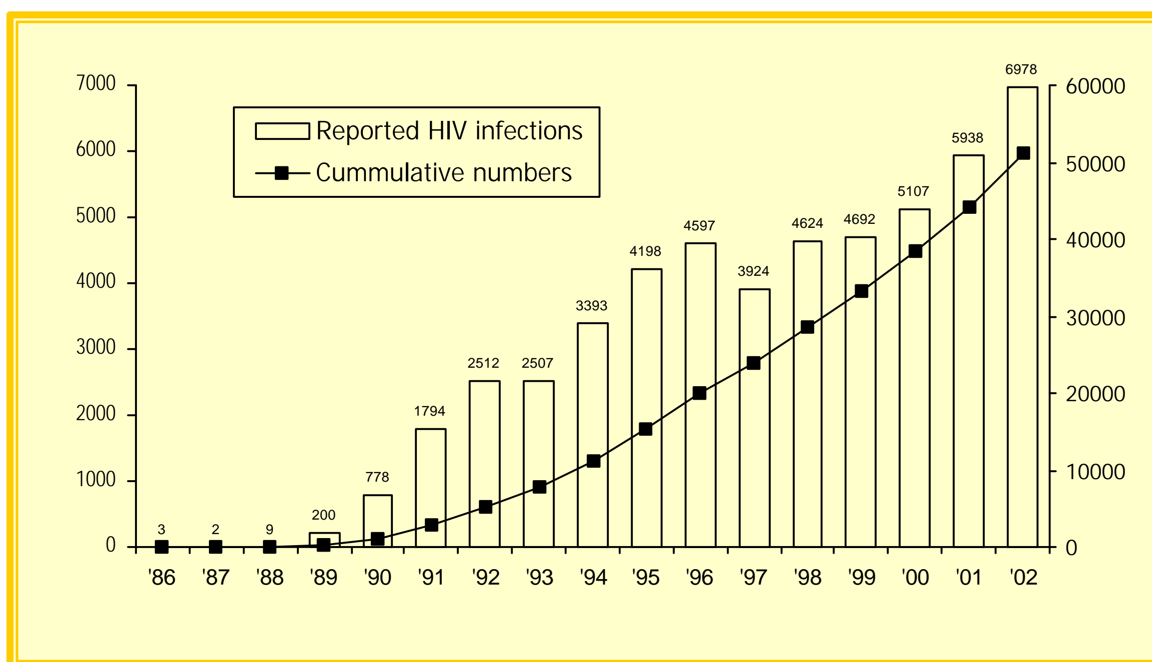
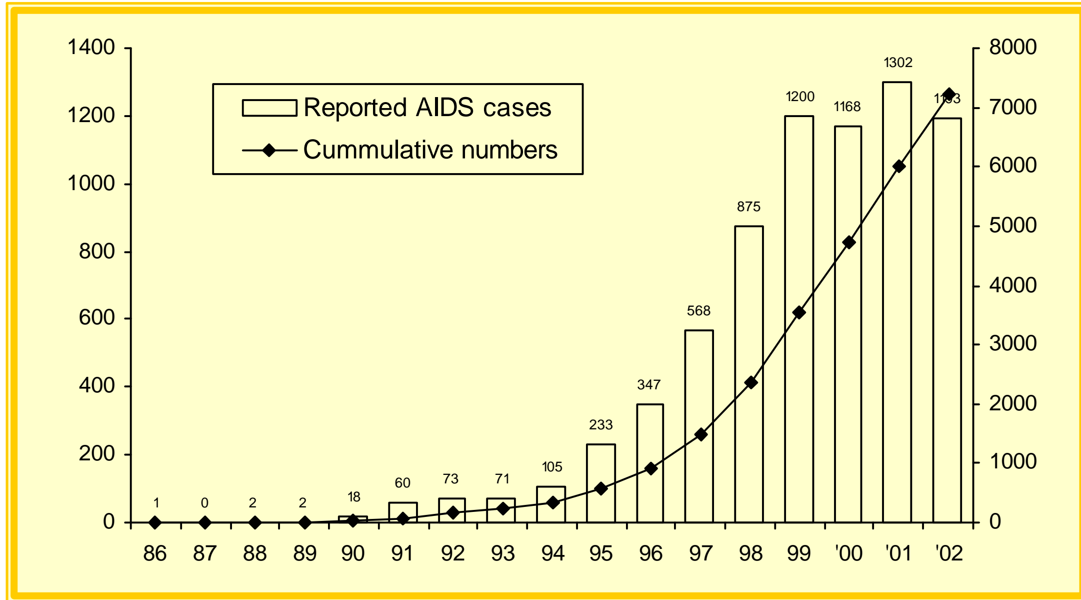


FIGURE 3

Number of reported AIDS cases by year in Malaysia, 1986-2000

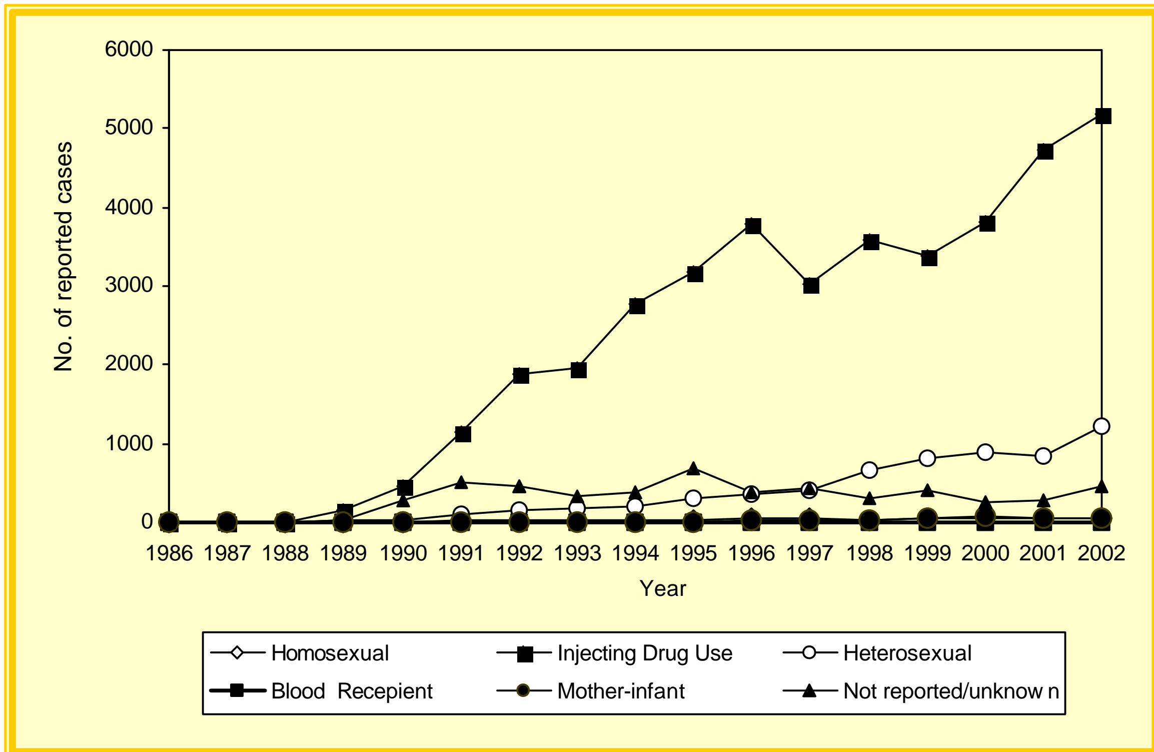


Demographic and risk categories of reported HIV/AIDS cases

The majority of reported HIV infections (93.9%) and reported AIDS cases (92.2%) are males, and within the age groups of 20-29 years (37.3%) and 30-39 years (42.9%). Of the total reported HIV-infected cases, 72.6% are Malay, followed by Chinese (15.1%), Indian (8.6%) and foreigners (2.6%). By risk category, most of the reported HIV infections have occurred in injecting drug users (76.2%). HIV infections through heterosexual contact account for 17.5%, but have increased by 46.0% compared with 2001 (Figure 4). By the end of 2002, the cumulative numbers of HIV infections transmitted through injecting drug use, heterosexual contact and homo/bisexual contact were 39 092, 6190 and 442, respectively.

FIGURE 4

Reported HIV infections by risk category in Malaysia, 1986-2002

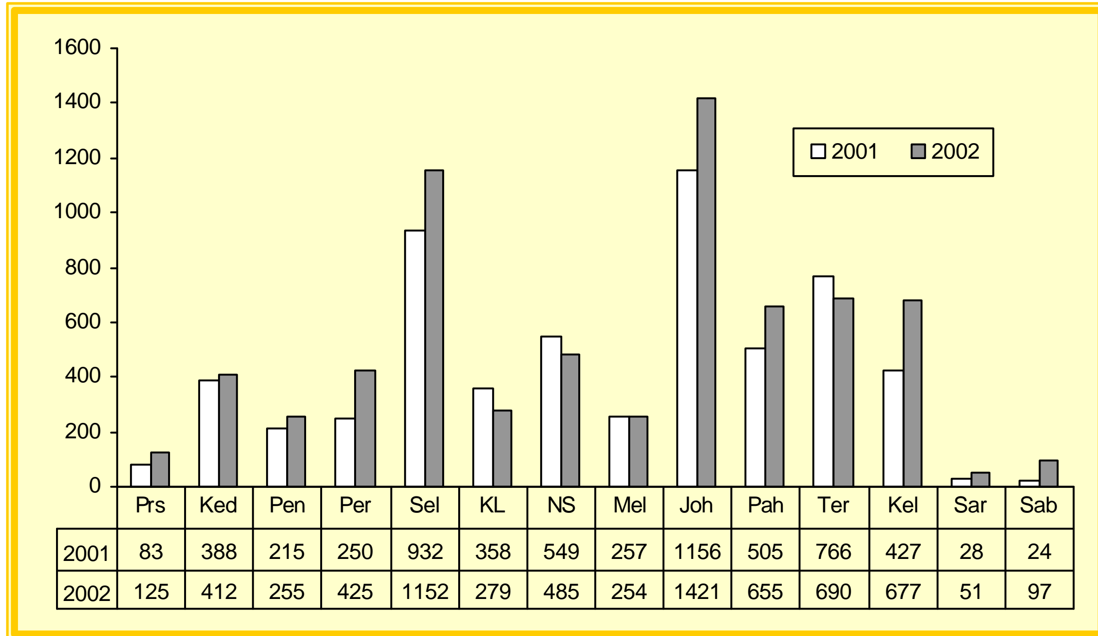


Reported HIV/AIDS cases by state

As shown in Figure 5, the state of Johor reports the highest number of HIV infections (1421, accounting for 20.3% of those reported in the whole country), followed by Selangor (1152, 16.5%), where the majority of HIV cases have been detected among drug users in prisons and drug rehabilitation centres. The two states on the island of Borneo have reported only a few HIV infections, but the numbers have increased significantly compared with the previous year, mainly due to an increase in heterosexual transmission.

FIGURE 5

Number of reported HIV infections by State in Malaysia, 2001-2002



	Prs	Ked	Pen	Per	Sel	KL	NS	Mel	Joh	Pah	Ter	Kel	Sar	Sab
2001	83	388	215	250	932	358	549	257	1156	505	766	427	28	24
2002	125	412	255	425	1152	279	485	254	1421	655	690	677	51	97

REPORTED STI CASES

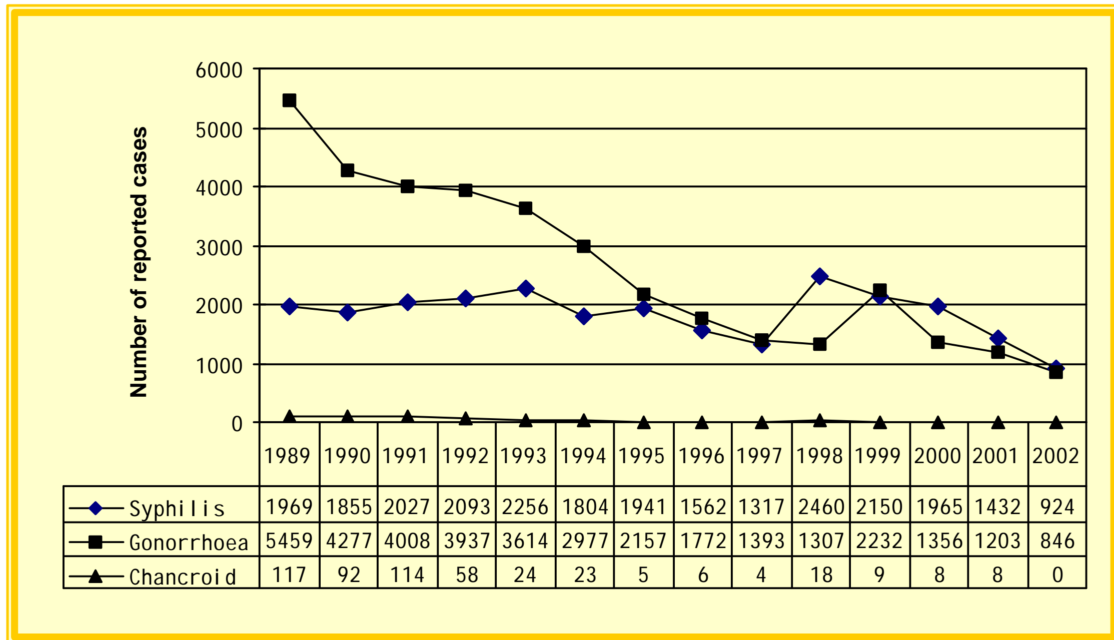
Three specific STIs, chancroid, gonorrhoea and syphilis, are included in the national communicable surveillance system and are coordinated at national level by the Communicable Disease Surveillance Section of the Ministry of Health.

The syphilis screening programme has been implemented among blood donors and women attending government antenatal clinics since 1985. Syphilis diagnosis is performed by venereal disease research laboratory (VDRL) screening and *Treponema palladium* haemagglutination (TPHA) confirmation, while diagnosis of gonococcal infection is based on urine examination. Laboratory-confirmed STIs are reported to the system.

Trends of the three specific STIs over the years are illustrated in Figure 6, which shows that the numbers of reported cases of gonorrhoea and syphilis have decreased in recent years. It is difficult to conclude if the STI epidemic has actually decreased, and some potential reasons for the apparent decline should be considered, including the fact that more and more STI patients are going to private doctors for more confidential treatment or are buying drugs for self-treatment, and that the modified syndromic approach (MSA) has been carried out nationwide since 1999. In 2002, a total of 1183 STI patients were diagnosed at health clinics at the primary health care level and were treated following MSA guidelines. However, it is known that there is huge underreporting of STI cases in the country.

FIGURE 6

Number of reported STI cases by year in Malaysia, 1989-2002



	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Syphilis	1969	1855	2027	2093	2256	1804	1941	1562	1317	2460	2150	1965	1432	924
Gonorrhoea	5459	4277	4008	3937	3614	2977	2157	1772	1393	1307	2232	1356	1203	846
Chancroid	117	92	114	58	24	23	5	6	4	18	9	8	8	0

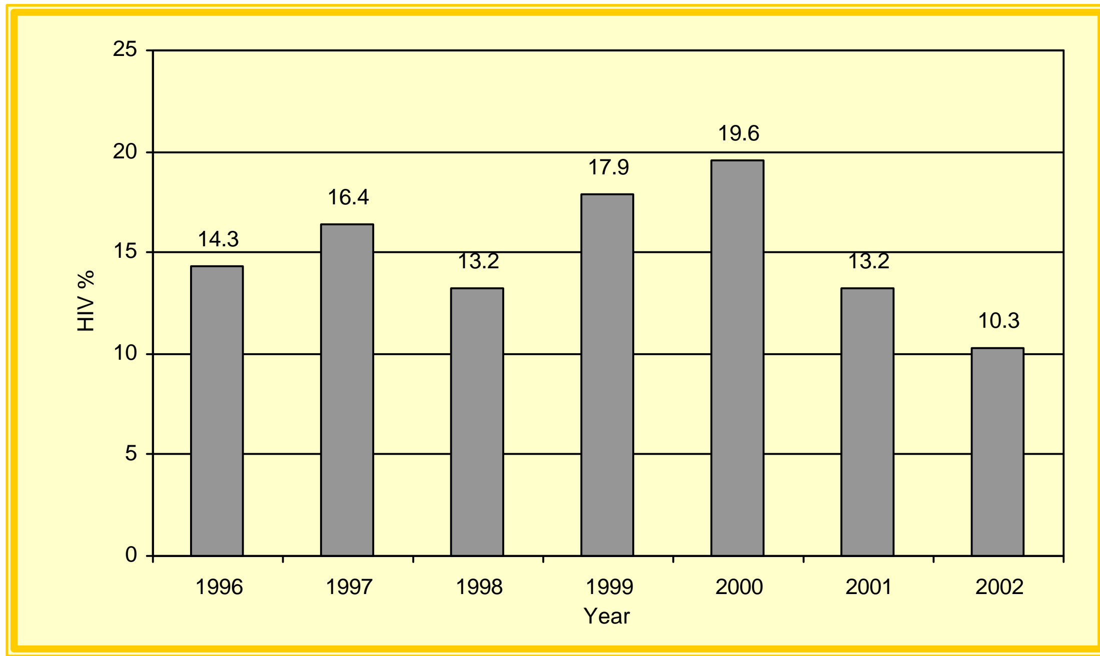
HIV PREVALENCE AMONG DIFFERENT POPULATIONS

Drug users

Although the number of reported HIV cases among IDUs is still increasing, the average HIV prevalence among both drug users and prisoners in the national HIV screening programme at 27 drug rehabilitation centres and 33 prisons has decreased in recent years (Figure 7). It is difficult to interpret the trend, but it may be due to the increase in screening coverage among these populations. The number of drug users and prisoners screened increased from 19 500 in 2000 to 35 763 in 2001 and 50 351 in 2002.

FIGURE 7

Average HIV prevalence among drug users and prisoners in Malaysia, 1996-2002



HIV prevalence rates among drug users from the HIV screening programme at drug rehabilitation centres in 11 states in 2002 are shown in Table 1. It is known that not all drug users are injecting drug users. A study carried out by the National Drugs Agency in 1998 among drug users in 16 drug rehabilitation centres revealed that 67% of drug users were IDUs.

About 80% of HIV infections among IDUs are estimated to be transmitted through sharing of needles; the rest may be attributed to sexual transmision. Taking this into consideration, the estimated HIV prevalence rates among drug users were adjusted by multiplying by a factor of 0.8/0.67. The adjusted HIV prevalence rates are listed in Table 1.

TABLE I

HIV prevalence among drug users and IDUs in 11 states

(National HIV screening programme, 2002)

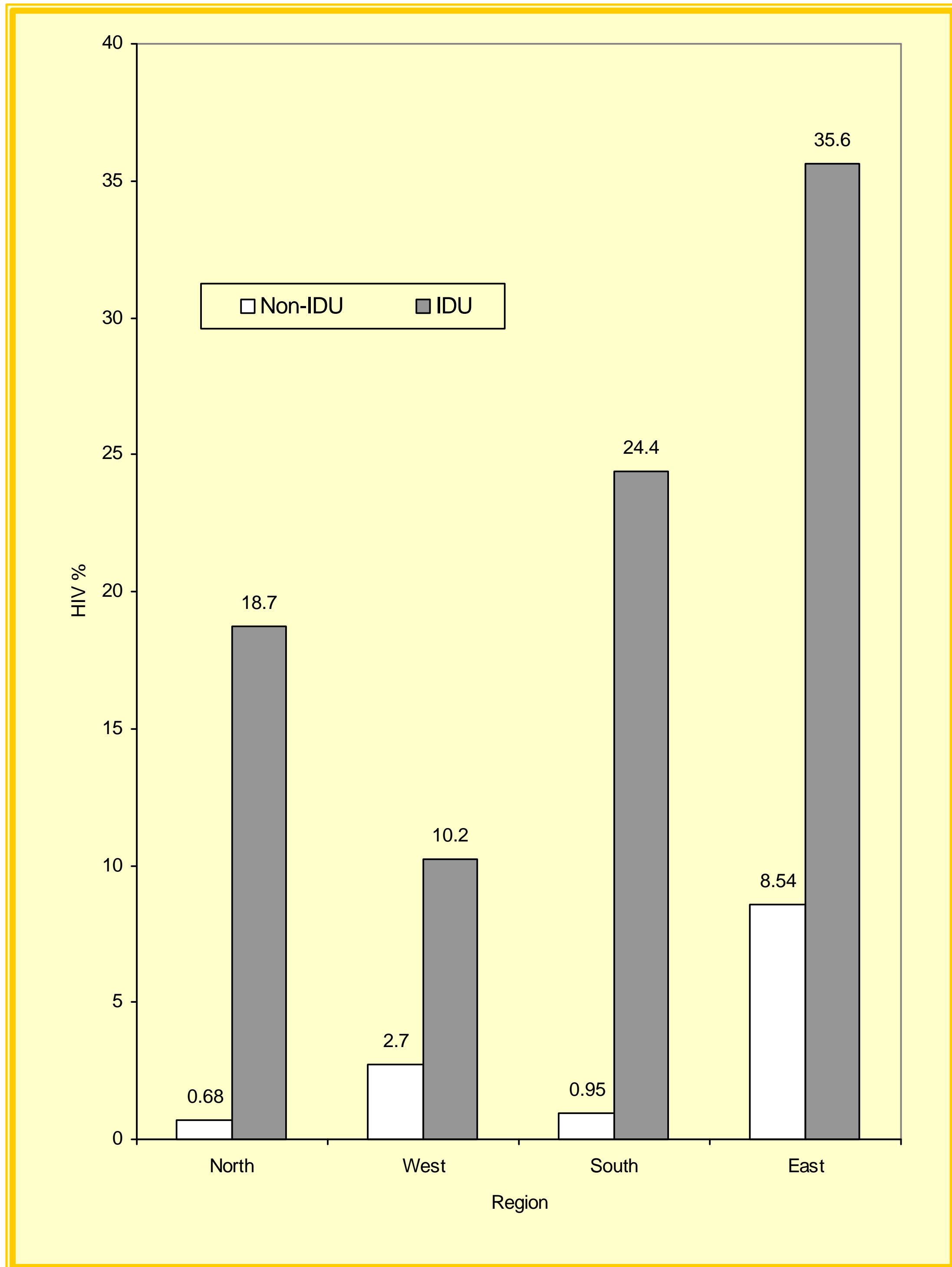
State	No. of drug users screened	No. of drug users with HIV infection	HIV prevalence in drug users (%)	HIV prevalence in IDUs(%)*
Perlis	426	56	13.1	15.64
Kedah	1302	235	18.0	21.49
Perak	1010	124	12.3	14.69
P Pinang	1439	179	12.4	14.81
Selangor	1525	124	8.1	9.67
N Sembilan	981	203	20.7	24.72
Melaka	590	137	23.2	27.70
Johor	1082	279	25.8	30.81
Pahang	2817	350	12.4	14.81
Terengganu	513	122	23.8	28.42
Keleantan	847	292	34.5	41.19
Total	**12532**	**2101**	**16.8**	**20.06**

** Adjusted by multiplying the HIV prevalence rates by 0.8/0.67*

HIV prevalence rates are quite different between injecting drug users and non-injecting drug users, and also between geographic regions. In Peninsula Malaysia, HIV prevalence among injecting drug users is higher in the East Region than the West, and higher in the South Region than the North (Figure 8).

FIGURE 8

HIV prevalence among injecting and non-injecting drug users by region in Peninsular Malaysia, 1998.

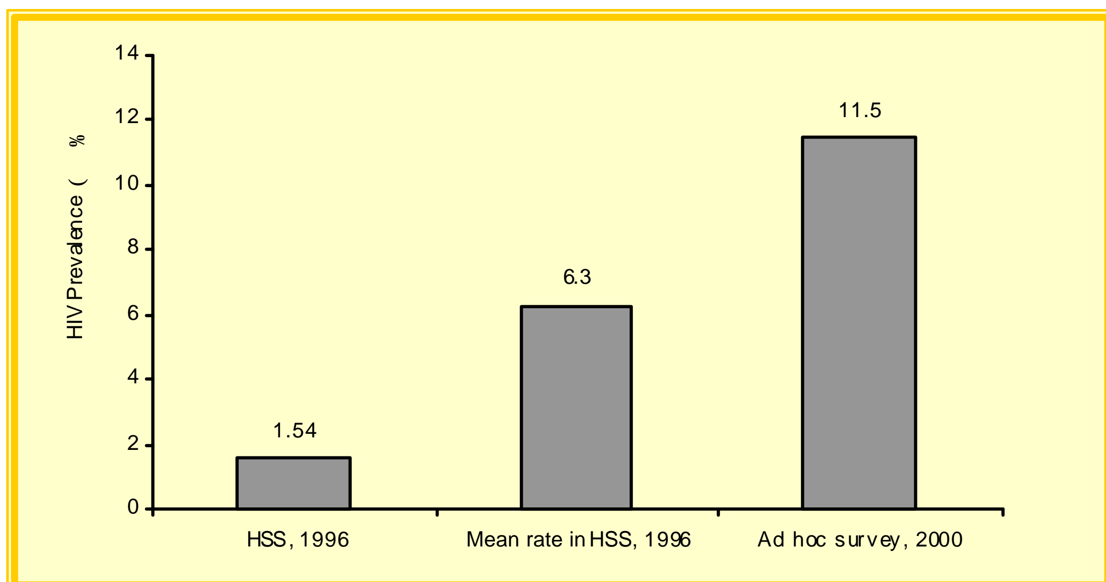


Sex workers

Because of the difficulty in accessing sex workers, there is no up-to-date information on HIV infection and its related risk behaviours in that population. Sex workers are not included in the routine screening programme. Data from the HIV sentinel surveillance survey in 1996 and results from a special survey among 208 sex workers in Kuala Lumpur are shown in Figure 9. Among the 208 sex workers, 65.4% (n = 136) were transsexuals, and the HIV prevalence in transsexual men (14.0%) was higher than among female sex workers (6.9%). However, this survey was conducted in a special area in Kuala Lumpur, where high-risk behaviour is more prevalent than in other areas. It is, therefore, believed that HIV prevalence in this area may be somewhat higher than in other areas of the country.

FIGURE 9

HIV prevalence among sex workers in Malaysia
(National HSS and ad hoc survey in Kuala Lumpur)



Men who have sex with men (MSM)

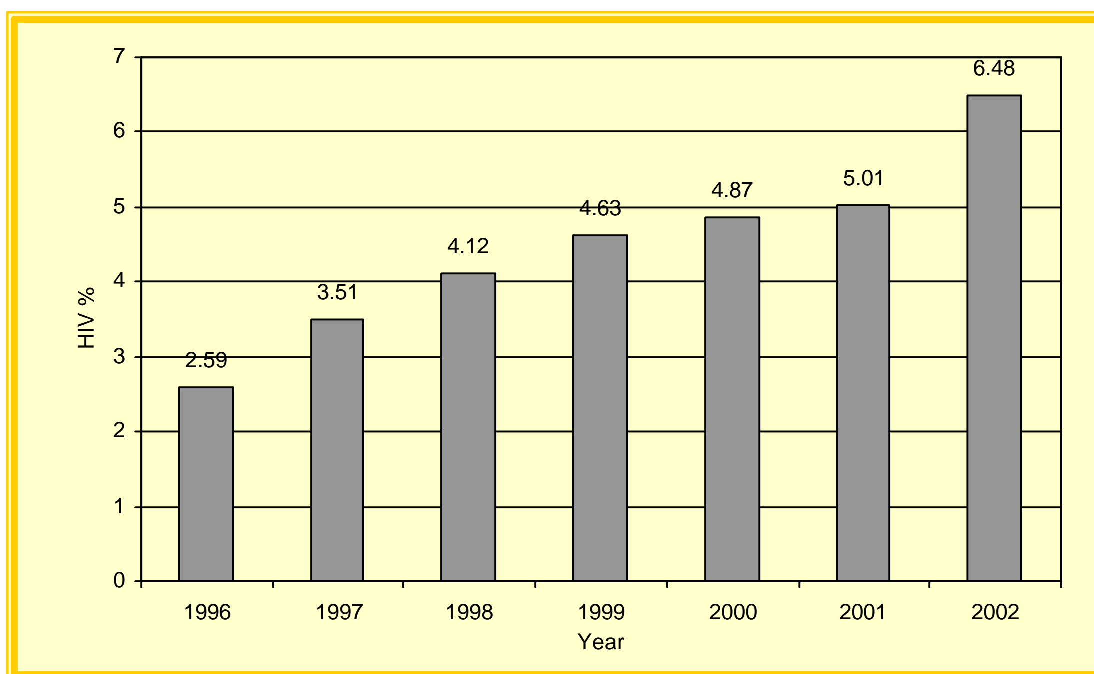
There are no plans to carry out any special surveys on HIV prevalence among men who have sex with men (MSM) in Malaysia.

Tuberculosis patients

The HIV prevalence rate among total tuberculosis cases in the country has increased in recent years, particularly in 2002, when it reached 6.48% (Figure 10).

FIGURE 10

Percentage of tuberculosis cases reactive for HIV, by year in Malaysia, 1996-2002



STI patients, fishermen and long-distance truck drivers

In 2002, among the 1183 STI patients diagnosed at health clinics at the primary health care level or referred from antenatal clinics and family planning centres, 72 (6.09%) were detected as being HIV-positive. In 1999, 1.7% of HIV infections were detected among fishermen, and in 2002, 2.7% of HIV infections were detected among long-distance truck drivers. There is little information on the risk behaviours of these populations, but it is known from the experiences of medical and social workers in the field that many long-distance drivers visit commercial sex workers and that some are also drug users, and even injecting drug users. Therefore, HIV infections among this population could be transmitted by sexual contact with sex workers or through injecting drug use.

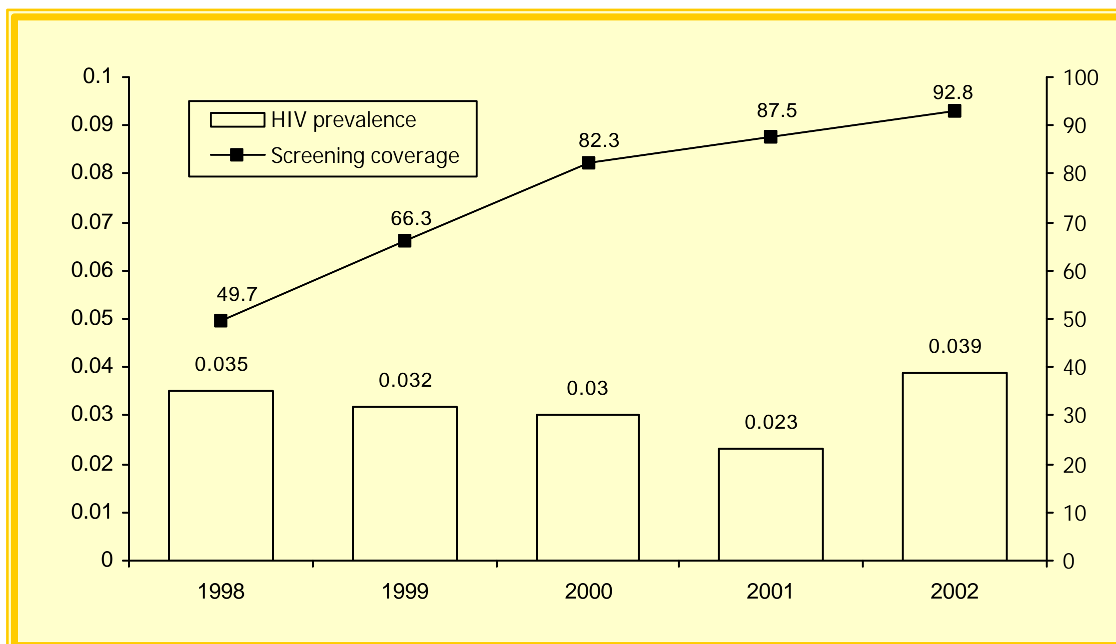
Women attending antenatal clinics

Through the national Prevention of Mother-to-Child Transmission (MTCT) programme, antenatal mothers can receive a free voluntary confidential HIV screening service at government antenatal clinics. Screening coverage reached 88% in 2001 and 93% in 2002 (ranging from 77% to 100% depending on the state) among mothers attending the government

It is estimated that more than 70% of antenatal mothers seek medical care at the government clinics. Screening coverage of antenatal women ranged from 50% in 1998 to 93% in 2002, and HIV prevalence rates ranged 0.02% to 0.04% during the period from 1998 to 2002 (Figure 11).

FIGURE 11

HIV screening coverage and HIV prevalence among antenatal women in Malaysia, 1998-2002



HIV prevalence among antenatal women differs between the 14 states. In 2002, Perlis had the highest HIV prevalence, at 0.231%, but the smallest number of antenatal women screened (Table 2).

TABLE 2

HIV prevalence among antenatal women in 14 states (National HIV screening programme, 2002)

State	No. of new antenatal attendees	No. of attendees screened	Screening coverage (%)	No women with HIV infection	HIV prevalence (%)
Perlis	3897	3892	99.9	9	0.231
Kedah	31 543	29 951	95.0	19	0.063
Perak	29 024	22 805	78.6	4	0.018
P Pinang	19 305	18 507	95.9	3	0.016
Selangor	56 127	52 873	94.2	13	0.025
WPKL	9505	9271	97.5	4	0.043
N Sembilan	15 460	14 379	93.0	12	0.083
Melaka	11 100	11 100	100.0	0	0.000
Johor	48 313	48 220	99.8	29	0.060
Pahang	22 203	22 043	99.3	3	0.014
Terengganu	23 089	20 352	88.1	8	0.039
Keleantan	27 794	25 656	92.3	34	0.133
Sabah	53 271	52 053	97.7	0	0.000
Sarawak	36 577	28 309	77.4	1	0.004
Total	**387 208**	**359 411**	**92.8**	**139**	**0.039**

Blood donors

A mandatory confidential HIV screening programme among blood donors is implemented nationwide. In 2002, a total of 418 118 blood donors were screened for HIV, 145 of whom were discovered to be HIV-positive, giving a prevalence of 0.034%, predominantly in males.

BEHAVIOURAL DATA

Information on risk behaviours related to HIV and STI infection is very limited in Malaysia because, as of July 2003, the national HIV/AIDS and STI behavioural surveillance survey (BSS) is still in the preparation phase (e.g. development of protocols) and the systematic collection of relevant data has not yet been conducted. Only limited data from a few special surveys are available.

ESTIMATION OF HIV INFECTIONS BY THE END OF 2003

METHODOLOGY

The process of estimating the population sizes and HIV prevalence rates for each subpopulation, and the calculation of the overall prevalence of HIV infections for the country was based on the following steps.

Preparation process

Based on the regional training workshop on HIV/AIDS, held in Bangkok, Thailand, in June 2003, the new standardized methods developed by UNAIDS/WHO for HIV estimation and projection, including the workbook method, were introduced. A meeting for preparation of a country draft plan of action for producing 2003 country estimates was held in Kuala Lumpur in September, 2003, followed by initial practice with the workbook method (spreadsheet) in country and identification of data gaps. Intensive data collection and preliminary preparation of the spreadsheet, with new data included, was organized prior to the consensus meeting.

Consensus meeting

A two-day consensus workshop was organized in December 2003 by the Ministry of Health, with technical assistance from WHO. Participants included representatives from the Ministry of Health, academic institutions, and nongovernmental organizations (participants are listed in Annex). During the workshop, existing data and information were presented, and two group discussions were held to identify high-risk and low-risk populations in the country, to comment on the existing data, and to propose new information for estimating population size and HIV prevalence for each population. The two groups presented the group work results for plenary discussion. Finally, the panel worked with all participants to reach consensus on the final estimates of population sizes and HIV prevalence rates (see Table 3).

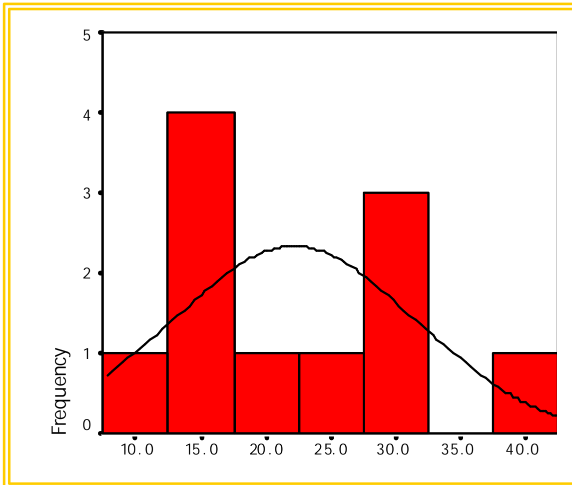
Workbook methodology

The workbook method, a UNAIDS/WHO approach to estimating and projecting national HIV/AIDS epidemics (The UNAIDS Reference Group on Estimates, Models and Projections, June 2003), was used for the estimation.

Data on highest and lowest estimated population sizes, and the lowest and highest prevalence rates of groups at higher and lower risk, i.e. antenatal clinic women (see Table 3), were entered into the spreadsheet to formulate the estimates of current HIV infection in each group. The total estimated number is the sum of the numbers of all groups at higher and lower risk.

FIGURE 12

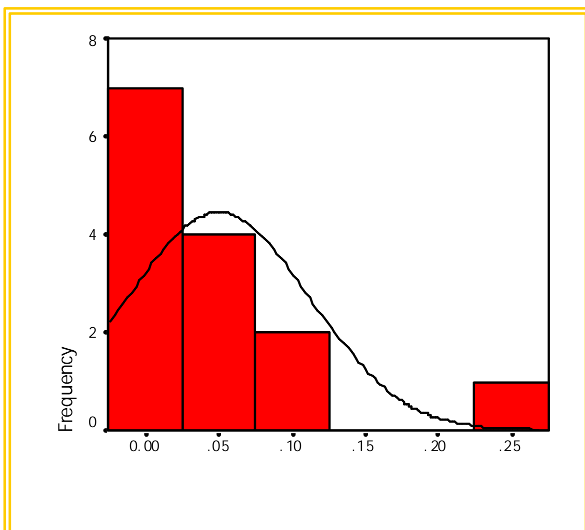
Frequency of states with different HIV prevalence among injecting drug users (2002)



Number of states =		11
Mean =		22.2%
Median =		21.49%
Minimum =		9.67%
Maximum =		41.19%
Percentiles	25 =	14.81%
	50 =	21.49%
	75 =	28.42%

FIGURE 13

Frequency of states with different HIV prevalence among women attending antenatal clinics (2002)



Number of states =		14
Mean =		0.05%
Median =		0.03%
Minimum =		0.0%
Maximum =		0.2%
Percentiles	25 =	0.01%
	50 =	0.03%
	75 =	0.06%

TABLE 3

Estimates of population sizes and prevalence rates, by population groups (Malaysia, 2002)

Population	Estimates: Population Size		Estimates: Prevalence Rate		Assumptions/Justifications
	Low	High	Low	High	
Injecting drug users (IDUs)	133 000	255 000	13.3%	25.6%	1. Based on the national HIV screening programme among IDUs in 11 states (see Table 1 and Figure 12), 25 percentiles =14.8%; and 75 percentiles =28.4%; considering that the duplicate testing among the HIV-positive IDUs is estimated to be 10%, these two rates should be multiplied by 0.9 *[unadjusted rate = A/B, then the adjusted one should be (A-0.1A)/B=0.9A/B; if duplication is 10% for IDUs, including both HIV-positive and HIV-negative individuals, these rates need to be adjusted by multiplying 0.9, (A-0.1A)/(B-0.1B)=0.9A/0.9B=A/B]*, giving 13.3% and 25.6%, considered as low and high estimates of HIV prevalence rates, respectively (some existing surveys on HIV prevalence in IDU also suggested a similar range from 14% to 25%) 2. Based on the national HIV/AIDS case-reporting system, the cumulative number of HIV infections transmitted through IDU by the end of 2002 was 39 092. Assuming 5000 deaths, the number of living, IDU-transmitted HIV cases was around 34 000. 3. If we assume that the underreporting rate is compensated by duplication of testing among IDUs, 34 000 can be considered as the rough HIV estimate in IDUs, population sizes can therefore be estimated as: (a) 34 000/13.3 = 255 000 (high estimate) and (b) 34 000/25.6 = 133 000 (low estimate). 4. It is estimated that 2.6% of IDUs are females in Malaysia.
Men who have sex with men (MSM)	61 000	184 000	0.8%	2.4%	1. Based on the UNAIDS report, the estimated MSM population sizes are 61 000 (low estimate) and 184 000 (high estimate). 2. Based on the national HIV/AIDS case-reporting system, the cumulative number of HIV infections transmitted through homo/bisexual transmission by the end of 2002 was 455. Considering only 20% cases were reported to the system, the estimated prevalence rates should be: (a) (442×5)/61 000 = 2.4% (high estimate) and (b) (442×5)/184 000 = 0.8% (low estimate).

Commercial sex workers (CSWs)	40 000	60 000	5.1%	7.6%	1. Based on the UNAIDS report, the estimated number of CSW is from 40 000 to 60 000 (in 2001, it was estimated at 50 00,0 based on personal communication, the Welfare Department and Anti-Vice Unit, Ministry of Home Affairs in 1999-2000). 2. Based on the National HIV/AIDS Case- reporting System, the number of HIV-infected prostitutes was 305. Considering only 10% coverage, the prevalence should be estimated as: (a) (305×10)/60 000 = 5.1% (low estimate) and (b) (305×10)/40 000 = 7.6% (high estimate). 3. Seroprevalence among female CSW in 2000 was 6.94% in special areas of Kuala Lumpur (where HIV prevalence is considered to be a little bit higher than the average level of the country). 4. It is estimated that more than 70% of CSWs are female in Malaysia.
Clients of CSWs	400 000	600 000	1.0%	1.5%	1. There are no data from existing surveys on either the number of clients or the number of clients per CSW. It is roughly estimated that the number of clients of CSW is 10 times the number of CSWs in a year, giving a client estimate of: (a) 40 000×10 =400 000 (low estimate) and (b) 60 000×10 = 600 000 (high estimate); 2. Based on the national HIV/AIDS case-reporting system, the number of HIV cases infected through heterosexual transmission by the end of 2002 was 6190. Assuming 50% of heterosexuals are clients of female CSW, and considering 50% coverage of the case-reporting system, the prevalence rate estimates should be: 6190/600 000=1.0% and 6 190/400 000 = 1.5%; 3. HIV prevalence was reported to be 3.7% among long-distance drivers (LDDs) in 2001 and 6.1% among STI patients in 2002. However, it is believed that there is a big overlap between LDDs or STI patients and IDUs, and, therefore, using the same rates as for clients of CSW will lead to overestimation.
Antenatal clinic women			0.01%	0.06%	1. Based on the data from national HIV screening programme in 14 states in 2002, the 25th percentile of prevalence rates was 0.01% and 75th percentile was 0.06% (see Table 2 and Figure 13); 2. It is believed that almost all mothers in both urban and rural areas are covered by government clinics and hospitals.

TABLE 4 - Estimates of current HIV infections among adults aged 15-49 years in 2002 in Malaysia

2002	Population sizes estimates		Prevalence estimates (%)		Estimates of people living with HIV/AIDS (PLWHA)					Optional information		
Malaysia	Low (a)	High (b)	Low (c)	High (d)	(a) x (c)	(a) x (d)	(b) x (c)	(b) x (d)	Average PLWHA	Percent (%) female in group	Number of women infected	Percent (%) of infected who are women
Total adult population 15-49	13,058,100											
1. Populations at higher risk (PHR)												
IDU	133 000	255 000	13.30%	25.60%	17 689	34 048	33 915	65 280	**37 733**	2.6%	996	
MSM	61 000	184 000	1.20%	3.60%	732	2196	2208	6624	**2940**	0	0	
Sex workers	40 000	60 000	5.10%	7.60%	2040	3040	3060	4560	**3175**	70.0%	2223	
Clients of sex workers	400 000	600 000	1.00%	1.50%	4000	6000	6000	9000	**6250**	0.5%	31	
Sub-total PHR	**634 000**	**1 099 000**							**50 098**		**3250**	**6.5%**
2. Populations at lower risk (PLR) who are not already included in PHR												
a. Partners of high-risk populations												
Sub-total partners of high-risk	**0**	**0**							**0**		0	**0.0%**
b. ANC data applied to low-risk women												
Urban female low-risk pop	3, 687 359	3 698 759	0.01%	0.06%	406	2212	407	2,219	1311			
Rural female low-risk pop	2 549 492	2 635 492	0.01%	0.06%	280	1530	290	1581	920			
Sub-total of low-risk women	**6 236 850**	**6 334 250**							**2231**		2231	**100.0%**
Sub-total PLR									**2231**		**2231**	**100.0%**
No-risk population – NA	5 624 850	6 187 250										
TOTAL	**6 821 250**	**6 723 850**							**52 329**		**5481**	**10.5%**
National estimates for year:	**2003**											
Number of adults (15-49) LWHA =		**52 329**	**Adult prevalence (15-49)=**			**0.40%**	**Number of women (15-49) LWHA =**				**5484**	

RESULTS

The estimated number of current HIV infections among people aged 15-49 years of age in Malaysia in 2002 is 52 329, giving an overall prevalence rate of 0.40% (see Table 4 for detailed spreadsheet results).

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

(1) Malaysia is a country with a concentrated HIV epidemic, based on the current WHO/UNAIDS classification: the average HIV prevalence has been less than 0.1% among women attending antenatal clinics, and consistently higher than 5% among IDU in the past 10 years.

(2) According to annual case reports on HIV/AIDS, there has been a significant increase in the number of reported HIV/AIDS cases. In the 12 years from 1986 to 1997, the cumulative number of reported AIDS cases was 1480, while the number of AIDS cases in the five-year period from 1998 to 2002 was 5738.

(3) Based on the limited available data and relevant assumptions, the number of HIV infections for 2003 is estimated to be 52 329, giving an overall national prevalence of 0.4% among adults aged 15-49, an increase of 25% compared with 42 000 in 2000.

(4) Concomitantly, while there is a low prevalence rate nationally, there is a high level of prevalence in specific populations and in certain regions. The main transmission route is through intravenous drug use, which accounted for 76.2% of the cumulative number of reported HIV infections by the end of 2002. However, the proportion of reported HIV infections transmitted through homo/bisexual and heterosexual contacts increased from 7.4% in 1995 to 17.4% in 2002, and an increase of 46% was found in 2002, compared with 2001. Data from a special survey indicate that the HIV prevalence rate among sex workers was as high as more than 10% in some areas of Kuala Lumpur in 2000.

(5) There is very limited information on population sizes, risk behaviours, and representative HIV prevalence rates for high-risk subpopulations at national or regional levels.

Recommendations

Based on the critical review of the current national surveillance system and HIV screening programme, urgent action should be taken to further improve the systems. The specific recommendations are:

(1) A technical group on HIV surveillance should be established at national level, such as a national technical advisory group for the HIV/AIDS surveillance system. This group should assign tasks concerning technical support and supervision of the surveillance system, periodically meet to review and evaluate surveillance activities and all the available data, and make recommendations for improving the system.

(2) In addition to the current nationwide case-reporting system and the HIV screening programme among antenatal women, drug users in drug rehabilitation centres and prisoners, repeated HIV serosurveys need to be conducted among representative

selected subpopulations to obtain more reliable data on HIV prevalence among essential high-risk populations such as commercial sex workers, MSM and drug users in communities, in addition to sustaining and strengthening the current seroprevalence surveys among drug users in drug rehabilitation centres, male clients at STI clinics, women attending antenatal clinics, etc.

(3) Efforts should be made to collect further data from various sources, such as information from military recruit and migrant population checks, further analysis of the HIV prevalence data from existing surveys should be conducted, and a valid way should be developed to adjust these data.

(4) Concerning the national HIV screening programme, surveys should be conducted to estimate the proportion of people who have received duplicate testing: this rate will be helpful in calculating HIV prevalence among the affected subpopulations.

(5) A working group on HIV/AIDS estimation and projection should be set up some time before each consensus workshop to prepare the necessary data, make assumptions and adjustments, and prepare preliminary estimates and projections for presentation at the workshop for further plenary discussion and ultimate approval.

(6) Definitions for each of the subpopulations for which an estimate and projection will be made should be further developed. Population(s) used as a surrogate for clients of commercial sex workers should be specified.

(7) Additional surveys on the estimated size of high-risk populations, such as IDUs, CSWs and MSM, are needed to develop reliable HIV prevalence estimates.

(8) HIV projection needs to be further developed as an exercise, with more and better quality data made available.

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