Report of the 2008 survey

HIV Sentinel Sero-Surveillance Survey in Sri Lanka

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Contents

Abbreviations used in this report

AIDS	Acquired immunodeficency syndrome
CP	Central province
DTCO	District tuberculosis control officer
DU	Drug User
ELISA	Enzyme-linked immunosorbent assasy
FSW	Female sex worker
HIV	Human immunodeficency virus
MOH	Medical officer of health
MSM	Men having Sex with Men
N & E P	North and East provinces
NCP	North Central province
NSACP	National STD/AIDS control programme
NWP	North Western province
Sab P	Sabaragamuwa province
SP	Southern province
STD	Sexually transmitted disease
TB	Tuberculosis patient
TW	Transport worker
UP	Uva province
WP	Western province

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1. Introduction

Good Surveillance does not necessarily ensure the making of right decisions, but it reduces the chances of making the wrong ones.

Alexander D. Langmuir (Langmuir 1963)

Surveillance, the eyes and ears of public health, provides information through which public health programes can act effectively and efficiently. Controlling and preventing diseases based on information collected through surveillance requires action.

The surveillance of Human Immunodeficiency Virus (HIV) infection is of great value in designing, implementing and monitoring of public health programmes for the prevention and control of HIV infection and the Acquired Immunodeficiency Syndrome (AIDS). There are number of different methods available for HIV surveillance. Of these behavioural surveillance, biological or sero-surveillance, HIV and AIDS case surveillance and use of other supplementary data such as Sexually Transmitted Infections (STI) and Tuberculosis surveillance have been recommended by WHO/UNAIDS.

High quality sentinel surveillance systems have frequent and timely data collection, conduct surveillance in appropriate populations, are consistent in the sites and groups that are measured over time and provide estimates that are representative of the population.

The National STD/AIDS Control Programme (NSACP) of Sri Lanka has been annually conducting HIV Sentinel sero-surveillance since 1993. This survey was initially designed on the guidelines prepared by World Health Organization (WHO) in 1989. The purpose of HIV sentinel survey is to track HIV infection levels through 'watch post' institutions. These sentinel institutions routinely draw blood for other purposes. The usual method of HIV testing for sentinel survey is known as Unlinked Anonymous Testing. This method involves the use of blood already collected for another purpose. Having performed the stipulated test, the labels of tubes are removed to delink from any identity and the HIV test is carried out. The purpose of unlinked anonymous testing is not to identify infected individuals or case finding. The objective is public health surveillance of HIV infection. The strengths and weaknesses of HIV sentinel surveys have been clearly described in 'the guidelines for

Second Generation HIV Surveillance' published by UNAIDS/WHO. The HIV sero-surveillance in Sri Lanka has been regularly reviewed and necessary modifications done based on the new evidence about the local HIV epidemic. Certain Sentinel groups were discontinued while others were newly added depending on the new evidence of the local epidemic. Enrolment of some sentinel groups was done in the field level rather than from clinic settings (sex workers, transport workers, armed forces and drug users).

In Sri Lanka, behavioural surveillance with regard to HIV commenced in 2006 and the first round of BSS has been completed in 2007. In a very low HIV prevalent situation BSS is more appropriate to monitor risk behaviors. As such in 2008 sentinel surveillance survey conducted among another Most at Risk Population groups (MARPs).Once the BSS system get well established, the possibility of conducting integrated behavioral and sero surveillance will be explored in future.

All surveillance methods have their limitations. The HIV sentinel surveillance is no exception. However, the information generated by sero-survey complements to other data on the HIV epidemic and will be useful to improve the understanding of the HIV epidemic in Sri Lanka.

2. Methodology

In keeping up with the recommendations of the national working group on HIV surveillance only two groups i.e. MSM and DU were included in the 2008 survey. based on the information of high risk behaviours from BSS 2006 , experts view who conducted the external review ,National Strategic Plan and HIV estimates,SS will be conducted in every 2 years

Only two high risk populations were included in the survey .For the first time Men having Sex with Men was included in 2008 survey. Other population group surveyed was drug users. The survey was carried out in only two sentinel sites namely Western and Southern Provinces. In the past ,populations included in the survey were female sex workers, STD clinic attendees, patients with tuberculosis, military service personnel, drug users and pre-employment category. Female sex workers were included in the survey, from the beginning due to high risk behaviour patterns. STD clinic attendees represent (probable) clients of sex workers and their partners. patients with tuberculosis do not represent a behaviour category. However, they are a good sentinel group to monitor HIV infections in a low prevalence situation due to the synergistic relationship between HIV and TB infections.

Military (service) personnel were included in the survey since 2003 due to their reported high risk behaviours. Pre-employment category was included since 2004 for North and East provinces only. The main reason for this was difficulty in getting adequate sample sizes for all the sentinel groups in N&E Provinces. This group consisted of people who came for pre-employment screening with VDRL. However, in terms of behavioural risk this sentinel group represents the general population. Drug user group was newly added in 2006 survey due to their high risk behaviours with respect of acquiring HIV infection. Transport worker group which became consecutively negative for HIV antibodies since its inclusion in 2003, was dropped in 2006 survey. Among reported HIV positives in Sri Lanka, 11% transmission possibly be attributed to homosexual mode. An attempt to include MSM group in 2006 and 2007 sentinel survey was not successful. Main MSM networks were contacted and consented to participate. However during the survey period great effort was taken to enrolle MSM members as they were a diverse and hidden population.

Duration of the survey

The survey of 2008 was planned to be conducted over a period of 3 months from 15th August 2008. Both sentinel sites performed well and covered the stipulated sample sizes for the drug users within the 3 month period. Both sentinel sites failed to cover sample sizes for MSM. So that , survey was extended by two more weeks to get more blood samples from the MSM category..

Sentinel sites

Sentinel sites that took part in the 2008 survey were Western Province and Southern Province.. (Annex IV). For a given sentinel site there were more than one sample collecting centres (Table 1).

Table 1. Sentinel sites and sample collecting centers for 2008 survey

Sentinel Sites	Sample-collecting centers
1. Western Province (WP)	Colombo, Colombo South, Colombo North, Negombo, Kalutara
2. Southern Province (SP)	Mahamodara, Balapitiya, Matara, Hambantota

Sampling method

Men having Sex with Men were enrolled through MSM NGOs and Homo or bisexual persons who attended the STD clinics during the survey period

. Field visits were made to the drop-in centres of the NGOs during preselected days. After obtaining informed consent blood sample for VDRL was drawn. Specially designed card (orange in colour) containing necessary information was given to MSM to prevent double counting.

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Drug Users as a new sentinel group were enrolled from the rehabilitation centres maintained by the National Dangerous Drugs Control Board (NDDCB).

Sample size

Sample sizes were mainly based on WHO recommendations for HIV sero-surveillance surveys. The sample collection was discontinued once the stipulated sample sizes were completed. The predetermined sample sizes are given in table 2.

Table 2. Stipulated sample sizes for each sentinel group and site

Sentinel Group	**WP**	**SP**
1. MSM	250	250
6. Drug User	250	250

The following **working definitions** were used for survey.

Men having sex with Men (MSM)

***Definition for the survey*:** Men who have had sex with a male/males during past one year.
MSM sample was be recruited with the help of NGOs. Take all approach was adopted in the NGO sites. A card was issued to all the survey participants to avoid double counting.

6. Drug Users

***Definition for the survey*:** Current drug users(non-medicinal drug use within past 6 months)who are males and females, more than 18 years old, in rehabilitation camps in the Western Province under the National Dangerous Drugs Control Board and also in drop-in centers run by the NGOs. A card was issued to all the survey participants to avoid double counting.

Method of HIV testing

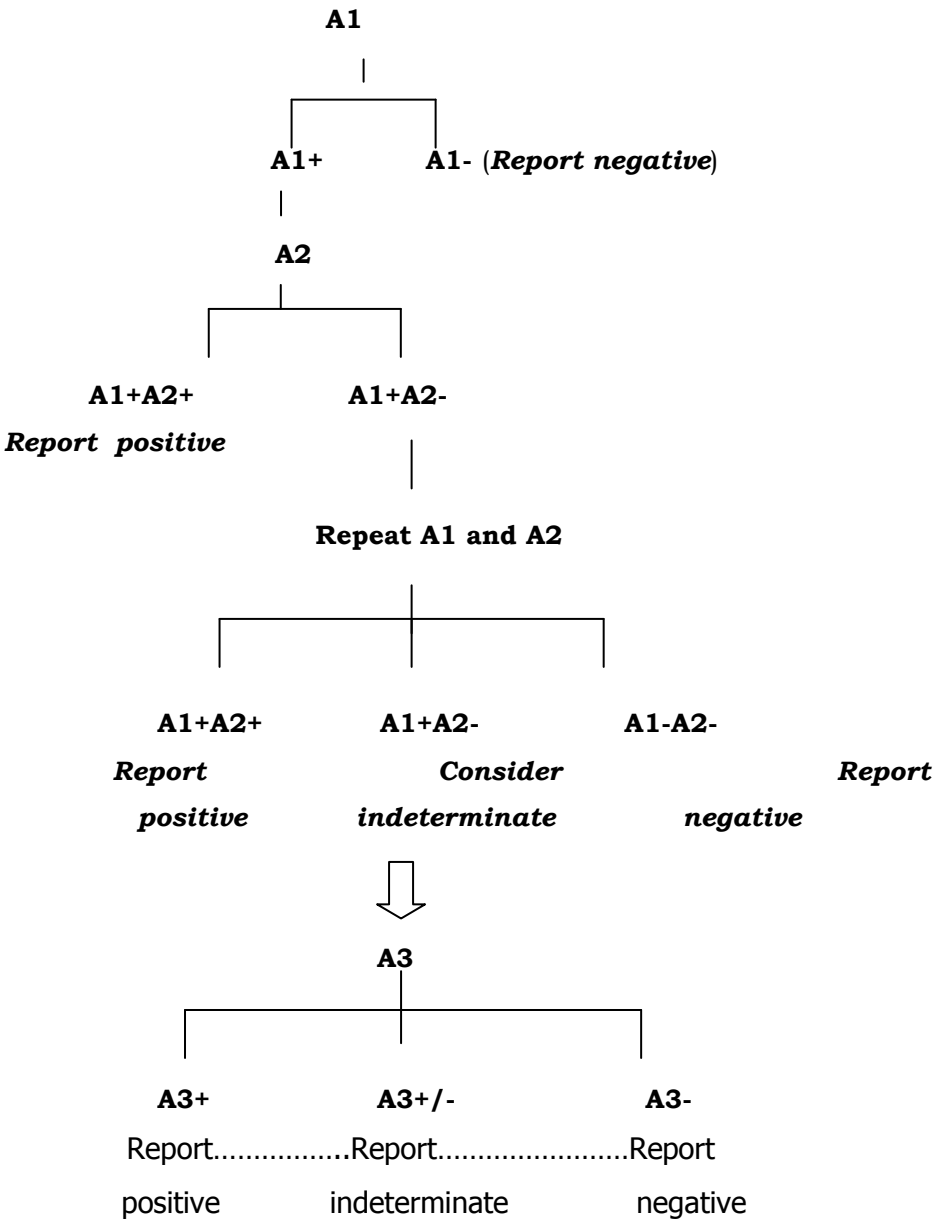
All HIV tests were done on an unlinked anonymous basis. Routinely collected blood was used only in MSMs and DUs who attended STD clinics during the survey period.

Laboratory testing strategy for HIV antibodies

HIV antibody status was mainly determined based on the results of two screening assays (i.e. ELISA and Particle agglutination assay) and a confirmatory test carried out for indeterminate tests.. All samples tested positive with the first test were tested with the second screening test. If both tests were positive the sample was considered as positive. If the 1st test was positive and the 2nd test was negative or vise versa , then both screening tests were repeated (1st and 2nd test) and if both were positive it was considered as positive. If one test was positive and the other test was negative it was considered as indeterminate.

Since the prevalence of HIV is low in Sri Lanka, it was decided that indeterminate samples from screening tests should be tested again with a confirmatory test. The same methodology was used in the 2006 survey as well.

Testing Algorithm used for the 2008 survey is given below.



Assay A1, A2 represents 2 different screening assays (ELISA and Particle agglutination tests). A3 represent a confirmatory test (Line Blot assay)

Staff training, Monitoring and supervision

The survey protocol was modified to suit changes in the 2008 survey. A training workshop was held in Colombo and Galle prior to the commencement of survey to familiarize health-care personnel .and representatives from MSM NGOs, NDDCB and other relevant persons to discuss and agree on the protocol.

Monitoring and supervision was carried out to ensure uniformity at all sentinel sites. Supervisory visits were carried out to sample collecting centers during the survey period. Technical experts from the centre (NSACP) visited the sites and a standardized structured checklist was used to collect relevant information. The problems were discussed and the need for adherence to survey protocol was emphasized.

Results

A total of 781 samples were tested and only a single HIV antibody positive sample was detected in 2008 HIV sentinel sero-survey. Sample size (250) for each sentinel group in each sentinel site was achieved only for the Drug users.

Table: HIV test results by sentinel sites and sentinel groups

Sentinel Sites	Sentinel groups			
	MSM		**DU**	
	Number tested	No. positive	Number tested	No. positive
WP	183	0	256	0
S.P	59	0	283	1 [0.4%]

it was a challenge to enroll MSM for the sentinel survey lot of effort taken to achieve the sample size . MSM NGOs expressed their willingness to

organize HIV voluntary counseling and testing sessions for their members in the drop-in centers. Such requests were met with a team of doctors ,nurses and PHIs.

Figure: 1

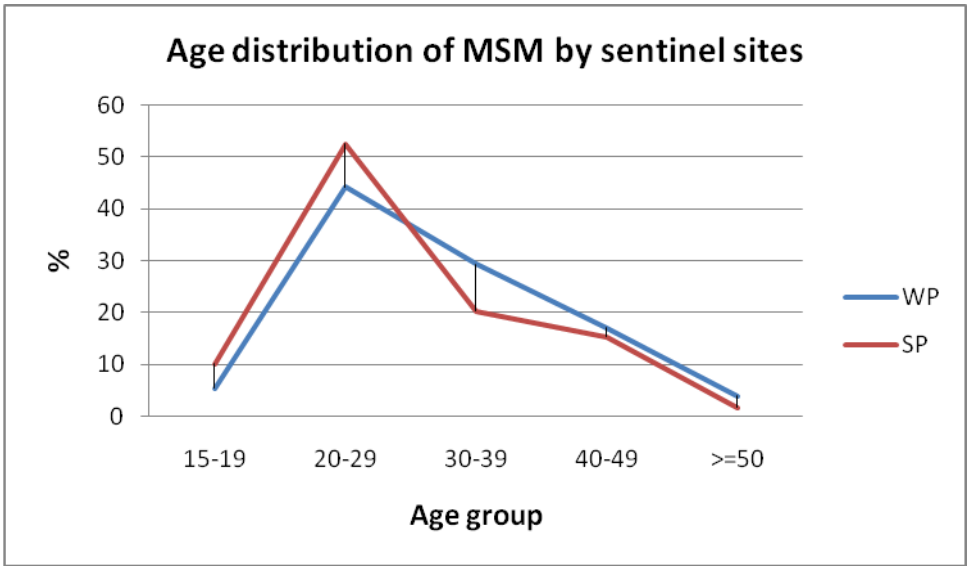


Figure 1 shows the distribution of MSM enrolled in two sentinel sites by age group Majority of the sample was in 20-29 and 30-39 age groups in both sentinel sites. Mean age for the sample was 30.7 with a standard deviation of 9.5.

A total of 240 MSMs were tested and none were HIV positive. the HIV prevalence rate among MSM 0%.

Figure:2

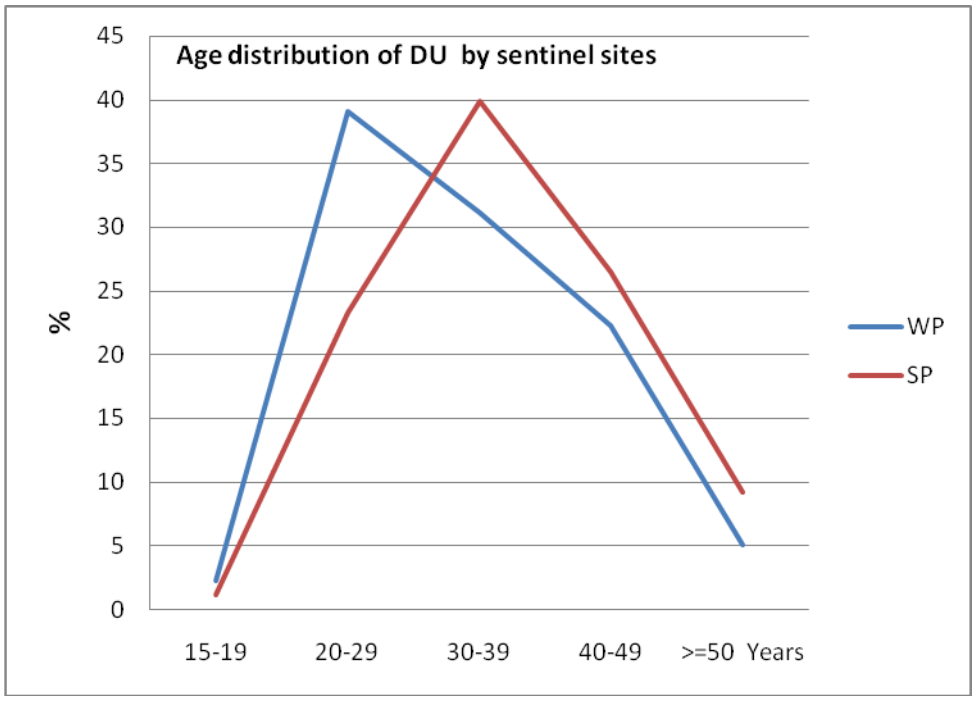


Figure 2 shows the distribution of drug users enrolled in the survey by age group and sentinel sites. Similar to the MSM, majority of the sample was in 20-29 and 30-39 age groups in all most all sentinel sites. Mean age for the drug user sample was 35.2 years with a standard deviation of 9.1. Of the total 539 drug users tested and one became positive for HIV antibodies.

SUMMARY

Table 4. Summary of HIV positive cases in HIV sentinel sero-survey 2008.

No	Sentinel site	Bleeding site	Sentinel group	Age	Sex	Sero-prevalence rate
1	Southern P.	Galle	DU	47 years	Male	0.4%

4. Discussion

The number of blood samples tested in 2008 HIV sentinel sero-survey was 781. Of these, only one sample gave positive HIV antibody test results.

Drug users were added to the sentinel survey from 2006. Intra venous drug use is directly linked to the HIV transmission. IVDU prevalence is very low in Sri Lanka and to monitor the drug user behavior as a proxy measure it was decided to add drug users for the sentinel surveillance since 2006. Similar to 2007, one drug user sample from the Western province became positive for HIV antibodies. The enrolment of drug users was satisfactory in all sentinel sites. HIV sero prevalence among drug users in the Southern Province estimated to be 0.4%.

Limitation of survey

The sample size for MSM group was unable to cover in both sentinel sites even with the extended period. Enrolement of the MSMs were resource intensive exercise. After gaining the trust and confidence of the MSM category it will be possible to enrolle adequate numbers for the survey.

HIV sentinel survey conducted in 2008 neither show a clear trend for the sentinel groups surveyed nor marked change in HIV sero-prevalence among the sentinel groups surveyed. Still these results are compatible with a low level HIV prevalence in the country. A properly conducted behavioural surveillance system

would be more sensitive to issues related to HIV epidemic in this situation. The first round of behavioural survey was completed recently. Results shows high risk and vulnerability of DU and MSM for HIV. For certain period alternative BSS and Sero surveillance will take place until HIV surveillance will be done by IBBS.

Acknowledgement

The National STD/AIDS Control Programme wishes to thank the World Health Organization for funding the survey.

The staff of the STD clinics who participated in the sentinel surveillance are acknowledged for their co-operation for carrying out the survey.

The NSACP appreciates the support given by the National dangerous drugs control board and .
Last but not least, all the participants of this survey is acknowledged with special thanks.

References

WHO (World Health Organization) (1994). Carrying out HIV Sentinel Surveillance, A guide for programme managers. Regional office for South-East Asia, New Delhi.

WHO/UNAIDS (World Health Organization/ Joint United Nation's Programme on HIV/AIDS) (2000). Guidelines for Second generation HIV surveillance.

Geutshe Gesellschaft fur (April 1999). HIV/AIDS surveillance in developing countries.

Almaz Sharman. HIV testing in population based surveys. Measure. DHS. (Oct 2000)
Languir AD. The surveillance of Communicable Diseases of National Importance. New England Journal of Medicine,1963,268;182-91

Annex 1

Results of HIV Sentinel survey 1993-2007 for Female sex workers

Number tested and number positive (rate)

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Colombo (WP)	1/200 (0.5%)	0/200	0/200	0/100	0/110	0/407	0/654	0/286	0/243	0/424	1/405 (0.2%)	1/439 (0.2%)	0/325	1/381 (0.3%)	0/421
Kandy (CP)	0/100 0/100	0/100	0/80	0/41	0/82	0/86	0/105	0/70	0/55	1/147 (0.7%)	0/88	1/97 (1%)	0/66	0/106	0//58
Galle (SP)	0/23 0/8	0/26	0/79	0/95	0/100	0/191	0/291	0/279	0/211	0/242	0/245	0/209	0/116	0/175	0/144
Rathnapura (Sab.P)	0/7 0/46	0/27	0/101	0/57	0/47	0/174	0/245	0/341	1/213 (0.5%)	0/118	0/188	0/212	0/225	0/179	0/150
Anuradhapura (NCP)	-	0/100	0/100	0/100	0/100	0/250	0/290	0/342	0/250	0/192	0/170	0/216	0/182	1/227 (0.4%)	0/180
Kurunegala (NWP)	-	0/30	1/187 (0.5%)	1/100 (1%)	0/67	0/41	0/40	0/593	1/187 (0.5%)	1/320 (0.3%)	0/277	1/219 (0.5%)	0/133	0/108	0/203
Badulla (UP)	-	-	-	0/17	0/43	-	-	0/251	0/250	0/105	0/84	0/86	0/89	0/40	0/62
N&E P	-	-	-	-	-	-	-	-	-	-	0/13	0/19	0	0	0

- Not included in the survey

Annex II

Results of HIV Sentinel survey 1993-2007 for STD Clinic Attendees

Number tested and number positive (rate)

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Colombo (WP)	0/205 0/200	0/376	0/400	0/200	1/400 (0.25%)	1/1385 (0.07%)	0/1849	2/1448 (0.1%)	1/1702 (0.05%)	3/1577 (0.2%)	2/602 (0.3%)	1/621 (0.2%)	0/531	2/515 (0.4%)	1/656 (0.1%)
Kandy (CP)	0/100 0/100	0/200	0/200	0/100	0/200	0/250	0/556	2/749 (0.3%)	0/700	0/775	0/445	0/302	0/248	3/283 (1.1)	3/250 (1.2%)
Galle (SP)	0/198 0/133	0/98	0/200	0/100	0/200	0/449	0/494	0/595	0/801	0/668	2/410 (0.5%)	0/250	0/249	0/250	1/320 (0.3%)
Rathnapura (Sab.P)	0/50 0/79	0/43	0/103	0/100	0/185	0/250	0/286	2/375 (0.5%)	0/412	0/372	0/275	0/250	0/284	0/264	0/183
Anuradhapura (NCP)	-	0/96	0/174	0/100	0/100	0/275	0/313	0/349	1/268 (0.4%)	0/488	0/407	1/357 (0.3%)	0/278	0/260	0/351
Kurunegala (NWP)	-	0/79	1/234 (0.4%)	1/113 (0.9%)	0/100	0/250	2/251 (0.8%)	0/668	1/680 (0.2%)	1/951 (0.1%)	3/296 (1%)	0/328	0/308	1/305 (0.4%)	0/263
Badulla (UP)	-	-	-	0/34	0/62	-	-	0/276	1/374 (0.3%)	1/326 (0.3%)	1/250 (0.4%)	0/250	0/248	1/250 (0.4%)	0/216
N&E P	-	-	-	-	-	-	-	-	-	0/79	0/134	0/244	1/126 [0.9%]	1/89 (1.1%)	0/222

- Not included in the survey

Annex III

Results of HIV Sentinel survey 1993-2007 for TB patients

Number tested and number positive (rate)

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Colombo (WP)	1/303	0/200	0/155	0/200	0/100	0/250	0/413	0/223	0/276	0/287	1/282 (0.3%)	0/256	1/259 [0.4%]	1/238 (0.4%)	0/227
Kandy (CP)	1/100 (1%)	0/49	0/54	0/93	0/100	0/250	0/242	0/269	1/363 (0.3%)	0/324	0/282	0/304	0/258	0/234	0/204
Galle (SP)	0/166	0/29	0/63	0/52	0/100	-	0/177	0/174	0/250	0/289	0/143	0/152	1/109 [0.9%]	0/221	0/120
Rathnapura (Sab.P)	0/65	0/31	0/57	0/88	0/100	-	-	0/94	-	0/242	0/254	0/212	0/196	0/248	0/173
Anuradhapura (NCP)	-	0/76	0/74	0/26	0/100	-	-	0/165	-	0/194	0/220	0/275	0/234	0/129	1/121 (0.8%)
Kurunegala (NWP)	-	0/35	0/134	0/47	0/61	-	-	0/75	-	0/199	0/167	0/216	0/256	0/162	0/179
Badulla (UP)	-	-	-	0/39	0/67	-	-	0/111	-	0/187	0/152	0/77	0/152	0/59	0/143
N&E P	-	-	-	-	-	-	-		-	0/2	0/66	0/164	0/64	0/41	0/66

- Not included in the survey

Annex 1V

Results of HIV Sentinel survey 2006 -2008 for Drug users

Number tested and number positive (rate)

	2006	**2007**	**2008**
Colombo (WP)	1/207 (0.5%)	1/235 (0.4%)	0/256
Galle (SP)	0/225	0/150	1/283 (0.4%)

Annex V

Results of HIV Sentinel survey 2003-2007 for Service Personnel

Number tested and number positive (rate)

	2003	**2004**	**2005**	**2006**	**2007**
Colombo (WP)	1/405 (0.2%)	0/399	0/400	0/400	0/400
Kandy (CP)	0/88	0/394	0/400	-	-
Galle (SP)	0/245	0/398	0/400	-	-
Rathnapura (Sab.P)	0/188	0/398	0/400	-	-
Anuradhapura (NCP)	0/170	0/400	0/400	0/400	0/400
Kurunegala (NWP)	0/277	0/400	0/400	-	-
Badulla (UP)	0/84	0/397	0/400	-	-
N&E P	0/13	0/400	0/400	0/400	0/441

- Not included in the survey

Annex V1

Results of HIV Sentinel survey 2004-2007 for Pre- employment category

Number tested and number positive (rate)

	2004	**2005**	**2006**	**2007**
N&E P	0/812	1/1036 (0.09%)	0/696	0/565

Annex VI1

Results of HIV Sentinel survey 2003-2005 for Transport workers

Number tested and number positive (rate)

	2003	**2004**	**2005**
C P		0/557	0/321