



World Health
Organization

COUNTRY OFFICE

Myanmar

HIV Sentinel Sero-Surveillance Manual, Myanmar

National AIDS Programme
Department of Health
Myanmar

3rd Version
March 2007

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ACKNOWLEDGEMENTS

The National AIDS Programme is grateful to Professor Dr Kyaw Myint, Minister for Health, the Deputy Ministers, the Director General and officials in the Department of Health for supporting the development of the HIV sentinel surveillance manual. The National AIDS Programme also acknowledges the WHO country office, Myanmar and the WHO Regional Office for South-East Asia for the technical and financial support in developing the manual.

Dr. Min Thwe

Programme Manager

National AIDS Programme

Department of Health, Myanmar



GLOSSARY

Bias: A systematic error in the conduct of a research study. Any trend in the collection, analysis, interpretation, publication, or review of data that lead to conclusions that is systematically different from the truth.

Confidence interval: A range of values that has a specified probability of including the true value of the variable—e.g., HIV prevalence. The specified probability is called the confidence level, and the end points of the confidence interval are called the confidence limits.

Cross-sectional study: A study or screening test conducted in a defined population at a single point in time.

Descriptive analysis: A summary of data for the entire sero-survey sample and for each subgroup for which socio-demographic data have been collected.

Enzyme immunoassay (EIA): A type of HIV test that identifies antibodies to HIV. EIAs rely on a primary antigen-antibody interaction and can use whole viral lysate of HIV or one or more antigens from the virus.

Incidence: The number of new cases of infection or disease in a defined population within a specified time period (i.e., the rate of incidence).

Information bias: A systematic error in the collection of information for the sero-survey, such as inaccurate recording of age. A flaw in measuring exposure or outcome that results in different levels of accuracy of information between compared groups.

Informed consent: Informed consent is based on the principle that competent persons are entitled to make decisions regarding their participation in, or acquiescence to, certain events in the context of a professional relationship between health-care provider and patient/client.

Participation bias: A systematic error due to differences in characteristics between those who are willing to participate in a study and those who are not.

Prevalence: The percentage of persons in a given population with a disease or condition at a given point in time.

Quality assurance: The dynamic and ongoing process of monitoring a system for reproducibility and reliability of results that permits corrective action when established criteria are not met.

Rapid test: An HIV antibody test that is simple, does not require any reagents or equipment other than what is contained in the kit, and provides fast results.

Sample: A selected subset of a population.

Second generation HIV surveillance: Developed by the World Health Organization (WHO) and the Joint United Nations Programme on HIV/AIDS (UNAIDS), second generation HIV surveillance is a conceptual framework for improving HIV surveillance. Guidelines for second-generation HIV surveillance include approaches for making better use of data to increase and improve the response to the HIV epidemic.

Selection bias: A systematic error due to differences in characteristics between those selected for study and those not selected for study.

Sentinel surveillance: Surveillance conducted through 'watchpost' sites that provide access to populations that are of particular interest or representative of a larger population.

Sero-surveillance: Epidemiologic study or activity based on the detection through serologic testing of the presence or absence of HIV antibodies. Latent, sub-clinical infections and carrier states can thus be detected, in addition to clinically overt cases.

Testing strategy: The use of an appropriate test or combination of tests in testing for HIV . The choice of testing strategy used is based on the objective of the test, the sensitivity and specificity of the test, and HIV prevalence in the population being tested. HIV testing strategies were created to maximize accuracy and minimize cost.

Unlinked anonymous testing: In unlinked anonymous testing, a sample of blood originally collected for other purposes is tested for HIV after all the information that could identify the source of the blood is eliminated from the sample.

Voluntary counselling and confidential testing (VCCT): Voluntary counselling and confidential testing for HIV that is offered free of coercion. With VCCT, patients have the option to accept or refuse HIV testing.



PURPOSE

of the **MANUAL**

This document, an update of the 1998 HIV sero-surveillance protocol, provides guidance on conducting facility-based HIV sero-surveys. The protocol is consistent with internationally recommended best practices¹.

The main purpose of the document is to standardize methodologies for surveillance across multiple sites. Additionally, the document can also serve as a training aid and a reference manual for supervision, monitoring and quality assurance.

¹ UNAIDS/WHO Working group on Global HIV/AIDS and STI surveillance. Guidelines for conducting HIV sentinel serosurveys among pregnant women and other groups. 2003

1

INTRODUCTION

1.1 Epidemiologic assessment

The first HIV infection in Myanmar was reported in 1988, and the first AIDS case in 1991. According to national and UNAIDS/WHO estimates², there are approximately 338,911 people living with HIV/AIDS. Approximately, 1.3 percent of the adult population in Myanmar is infected with the HIV.

By December 2005, 10,730 AIDS cases had been reported to the Ministry of Health. Heterosexual transmission and injecting drug use are the main drivers of the epidemic accounting for 68% and 30% of the reported AIDS cases. A marked gradient of HIV/AIDS is evident when AIDS cases are mapped out by geographical areas, with the lowest rates in the West of the country and the highest in the East. Three-quarters of the reported HIV

² Report of technical working group on projection and demographic analysis of HIV and AIDS, 2005

infections and AIDS cases are among men. However, the epidemic is rapidly acquiring a feminine face—the male to female ratio has changed from 8:1 in 1994 to 2.1 in 2005.

As in other Asian countries, HIV is highest in groups with high-risk behaviour; these include sex workers (SW), injecting drug users (IDU) and men who have sex with men (MSM). Among IDUs, the median HIV prevalence in six sentinel sites in 2006 was 42.46% (range: 21% - 63%). Among commercial sex workers in Yangon and Mandalay, the HIV prevalence was 35% and 32%, respectively in 2006. Among STI attendees who serve as a proxy for clients of sex workers, the median HIV prevalence was 4.9%.

In 2006, the mean HIV prevalence among pregnant women was 1.54% and the median was 1.5. Among new TB patients HIV prevalence in four sites ranged from 6% to 23.18% with a median of 10.67%. Analysis of trends in surveillance data indicates that the epidemic peaked in 2000 and then began to decline thereafter (Figures 1.1 and 1.2).

Figure 1.1 HIV prevalence among population groups with high-risk behaviours—Myanmar, 1992-2006

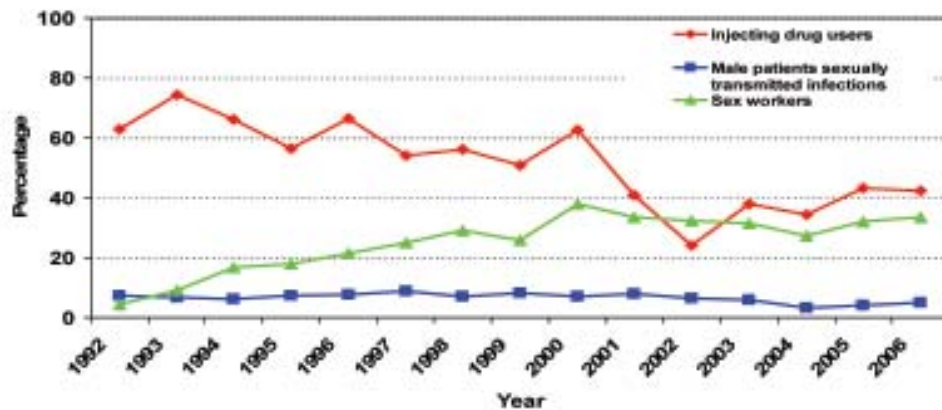
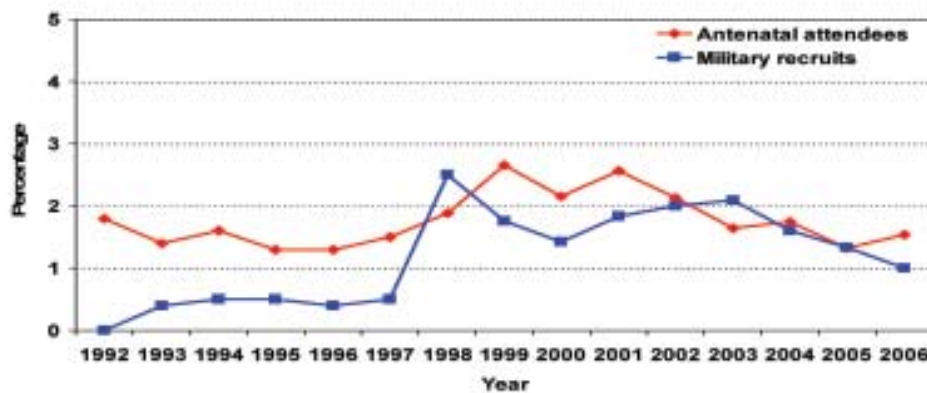


Figure 1.2 HIV prevalence among antenatal attendees and military recruits—Myanmar, 1992-2006



1.2 HIV surveillance

HIV surveillance is the systematic and regular collection of information on the occurrence, distribution and trends in HIV infection and factors associated with infection for use for public health action. It monitors the risk of infection among specific populations on an ongoing basis for the purpose of public health action.

Second generation HIV surveillance system includes HIV and STI surveillance and monitors risk behaviours, using them to warn of or explain changes in levels of infection. Thus, second-generation HIV surveillance is not a single method of conducting HIV surveillance, but rather a collection of principles for tracking the epidemic. These principles include:

- a focus on trends over time
- a better understanding of the behaviours that drive the epidemic
- emphasis on the sub-populations at highest risk for infection
- better use of existing data
- flexibility to the stage of the epidemic

HIV sero-surveillance refers to measuring HIV prevalence (the proportion of a population with HIV infection). When HIV prevalence is determined by testing blood for HIV antibody, the term HIV seroprevalence is used. For practical purposes, the two terms are usually used synonymously. Surveys that collect blood for HIV or other testing are generally referred to as sero-surveys.

HIV sentinel surveillance is considered a core activity of HIV sero-surveillance. Its characteristics include the following:

- It measures the prevalence of HIV infection in a selected sentinel population in serial cross-sectional surveys in a consistent manner on an ongoing basis.
- It involves the collection and testing of blood for HIV.
- In most settings, demographic characteristics and limited data on risk behaviour are also collected.

HIV Incidence is defined as the rate of new infections occurring in a population over time. HIV incidence is expressed as a percent per year. It provides a measure of the speed of spread of HIV in a population and indicates where HIV prevention is needed influenced by levels of risky behaviours

HIV prevalence is defined as the proportion of persons living with HIV in a population at one point in time. A measure of the level of infection in a population provides a measure of current and future need for care influenced by both the rate of new infections (incidence) and the rate that infected people leave the population for reasons such as death or migration.

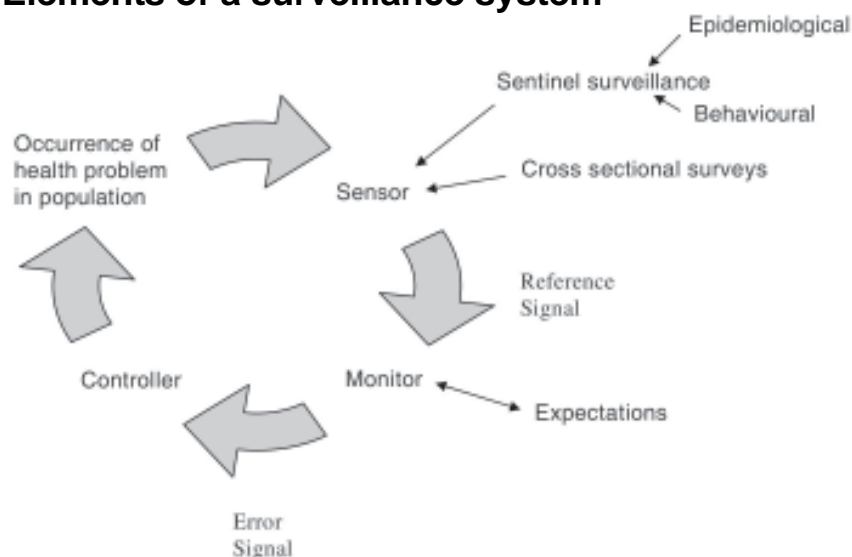
An assumption of HIV sero-surveillance is that trends in HIV prevalence reflect patterns in HIV transmission, that is, HIV incidence. Early in epidemics, trends in HIV prevalence may indeed reflect trends in HIV incidence as most infections are new infections. In mature epidemics, however, an increasing number of infections may be old infections. Direct measures of

HIV incidence may be needed to track current trends in the epidemic. HIV incidence can be measured by cohort studies, repeat testing of individuals, laboratory based methods, mathematical modelling or by measuring HIV prevalence in 15-24 years old.

Uses of HIV surveillance include:

- Educating the public
- Prevention and care programme planning and resource allocation
- Targeting and developing new prevention and care programs
- Monitoring and evaluating existing prevention and care programmes
- Estimating and projecting new and total HIV infections, AIDS cases, AIDS deaths, HIV-positive pregnancies and births, and numbers of orphans
- Tracking the leading edge of the epidemic and monitoring trends over time
- Advocacy
- Mobilisation of political commitment
- Guiding scientific research

1.3 Elements of a surveillance system³



³ Manual of operations for sentinel surveillance of HIV infection and HIV behavioural surveillance, AIDS/STD prevention and Control Programme, Nov 1998

- Sensor** = It could be a system or a person. In this instance, the sensor will be the sentinel surveillance that is set up in a certain area or it could be either a rapid cross sectional survey conducted to find out the prevalence of HIV infection in a certain population. In places where sentinel sites could not be established as a result of lack of groups of interest or problems with transportation of specimens to the laboratory, cross sectional surveys conducted in a specially defined interest group could be the sensor.
- Reference signal** = This represents the data collected from the sentinel surveillance or rapid surveys and information generated from the collected data.
- Monitor** = The AIDS Prevention and Control Programme will be acting as the monitor and continuously watching the HIV prevalence in a specified area. As the sentinel surveillance system develops it could be used to monitor AIDS death rates and risk factor distribution.
- Expectation** = This is a threshold figure arbitrarily set by decision/policy makers and based on this expectation the monitoring agency will be sending out error signals.
- Error signals** = This is feedback triggered by monitoring of the surveillance data provided to the peripheral health out post. It could be just provision of sentinel surveillance results in a timely manner or specific instructions targeted for intervention activities.
- Controller** = The controller in a surveillance system is AIDS/STD team leader. Based on the error signal received from the monitor the controller will be initiating intervention activities (i.e. efforts to reduce of personal risk behaviours in certain groups in the area of jurisdiction).

The key elements of sentinel surveillance system are:

- Systematic collection of data for planning of control activities
- Timely analysis of data
- Timely feedback and dissemination of results
- Action based on results
- Periodic evaluation of the surveillance system

1.4 Existing HIV Sentinel Surveillance System in Myanmar

In 1992, HIV sentinel surveillance (HSS) system was established in nine sites across Myanmar. It gradually expanded to include 30 sites across all country. Surveillance was set up among population groups with high risk behaviour: Female sex workers (FSW) at two sites, injecting drug users (IDUs) in five sites and male patients with sexually transmitted infections (STI) at 30 sites. As a proxy for low-risk groups, samples are collected from pregnant women in 30 sites, and blood donors and military recruits (two sites each: Mandalay and Yangon). New tuberculosis patients were included in sentinel surveillance from 2005 at 10 sites. In all, each year, about 19,000 individuals are tested for HIV under the sentinel surveillance surveys. Sentinel surveillance was carried out twice a year in each of the 21 sites until 1999. In 2000, following WHO/UNAIDS recommendations the frequency of surveillance was changed to once a year. Since 2005, the TB/HIV sentinel surveillance was introduced and will be expanded the sentinel sites by year with the collaboration of the National TB Programme. The methodology used for HIV surveillance is facility-based that are located in urban areas e.g. samples are collected from aAntenatal clinic, STI clinic etc. The usual yearly timeline of activities for implementation of HSS is detailed in Annex 7.

2

**OBJECTIVES of
HIV Sentinel
Sero-Surveillance**

The purpose of HIV sero-surveillance is to provide data needed for advocacy, programme planning, monitoring and evaluation and analysis of trends.

The specific objectives of HIV sero-surveillance are:

- To measure HIV prevalence among selected sentinel population groups;
- To provide information on changes or trends in distribution of HIV by geographic and socio-demographic parameters;
- To identify groups or geographical areas for targeted intervention;
- To make available data that will be used for estimating sizes of populations and modelling the impact of the national response to the epidemic.

3

SURVEY METHODS

3.1 Survey Design

Cross-sectional survey in selected population groups at sentinel sites.

3.2 Population groups

The following population groups will be included:

- a) Most-at-risk populations: female sex workers (FSW), injecting drug users (IDUs), men having sex with men (MSM)
- b) Populations at medium risk (bridging population): male STI patients
- c) Populations at lower risk: ANC attendees, military recruits, blood donors
- d) Other sentinel population groups: TB patients

3.3 Sentinel sites

The selection of sentinel sites is guided by the following criteria:

- The sites provide services for the selected sentinel populations, such as ANC or STI clinic patients or TB clinics.
- Minimal demographic information available on the client.
- Blood is drawn from patients as part of routine care (ANC, STI patients, military recruits)
- A reliable laboratory is available on site or nearby to perform the routine laboratory tests and reliable roads and transport options exist to send specimens to the reference laboratory.
- There is an AIDS/STD team in the respective township.
- The sites are readily accessible to the regional and national surveillance staff for data collection or supervision of data collection.
- The sites provide services or healthcare to relatively large numbers of persons so that the minimal sample size can be obtained within the sampling period.
- The sites are located in different geographic areas across the country and cater to populations from urban and rural areas.
- On-site staff is cooperative and capable of conducting surveillance.
- On-site staff understands the need for HIV sentinel surveillance and are willing to be trained, supervised and implement activities.

Thus the selection of sentinel sites is in keeping a balance between the need for data and the logistic feasibility of implementation. Table 3.1 and Figure 3.1 give the location of sentinel sites for each population group:

3.4 New features added to sero-surveillance in 2007

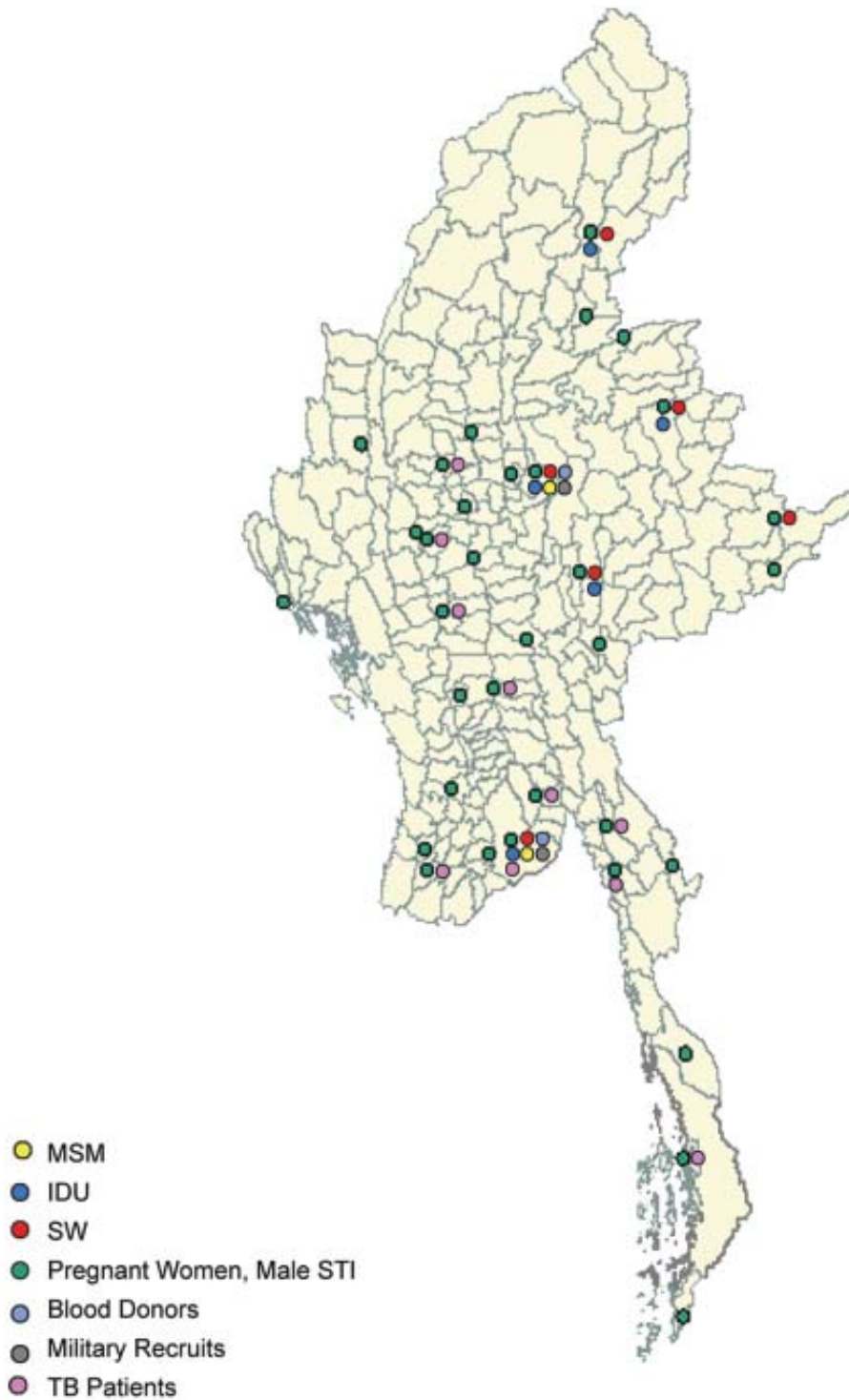
- New sentinel sites have been added in order to have greater geographical representation;
- Sample sizes have been increased in order to add statistical precision;
- Men having sex with men (MSM) has been incorporated as new surveillance group;
- In 20 selected pilot sentinel sites (annex 6) decentralised HIV testing using simple/rapid tests will be conducted by the local AIDS/STD teams. This local testing will be implemented parallel to the traditional blood collection sampling for centralised testing at the reference laboratories in Yangon NHL and Mandalay PHL (implemented by all 34 sentinel sites).

Table 3.1 Location of sentinel sites by population subgroup, Myanmar

Sr	Sentinel Sites	Pregnant Women	Military recruit	Blood donors	Male STI patients	Sex workers	Injecting drug users	Men who have sex with Men	TB patients
1	Yangon	√	√	√	√	√	√	√	√
2	Mandalay	√	√	√	√	√	√	√	
3	Meiktila	√			√				
4	Taunggyi	√			√	√	√		
5	Lashio	√			√	√	√		
6	Tachileik	√			√				
7	Muse	√			√		√		
8	Dawei	√			√				
9	Kawthaung	√			√				
10	Myitkyeena	√			√	√	√		
11	Bamaw	√			√				
12	Mawlamyaing	√			√				√
13	Patheingyi	√			√				√
14	Bago	√			√				√
15	Pyaw	√			√				√
16	Magway	√			√				√
17	Hpa-an	√			√				√
18	Sittway	√			√				
19	Monywa	√			√				√
20	Loikaw	√			√				
21	Haka	√			√				
22	Hintharta	√			√				
23	Maubin	√			√				
24	Myeik	√			√				√
25	Myingyan	√			√				
26	Pakokku	√			√				
27	Shwebo	√			√				
28	Kyaingtong	√			√	√			
29	Myawaddy	√			√				
30	Nyaung-U	√			√				√
31	Myaung Mya	√			√				
32	Taungtha	√			√				
33	Pyinmana	*			√				
34	Pyin Oo Lwin	*			√				

* new sentinel sites expanded in 2007 round, depend on the result of male STD patient, pregnant women may be included in these sites in the subsequent round.

Figure 3.1 Location of Sentinal Sites by Population Sub-group



3.5 Sample Size

Sampling is the process of selecting a representative subset of a larger population in order to estimate some unknown characteristic of that larger population.

An appropriate sample size needs to be worked out keeping a balance between statistical precision and the feasibility of data collection. If the sample size is too small, the results are imprecise (with wide confidence intervals); if the sample size is too large, resources are wasted and it is not always feasible to achieve the sample size within the survey timeframe.

The formula to determine sample size (N) needed for pre-specified interval with specified confidence level is:

$$N = 4 z_{\alpha}^2 P (1 - P) \div W^2 \quad \text{where}$$

- z_{α} is a factor that corresponds to the desired confidence interval (for a 95% confidence level, $z_{\alpha} = 1.96$).
- P is the expected proportion of patients with the outcome (such as HIV prevalence).
- W is the width of the interval.

The recommended minimal sample size per sentinel site is given in Table 3.4.

Table 3.5 Total sample size and population groups per site

Population	Number of sites	Sample size per site	Sampling method	Periodicity	Duration*
Male STI patients	34	150 ^a	Consecutive	Annual	12 weeks
FSW	5	200	Consecutive	Annual	12 weeks
MSM	2	200	Consecutive	Annual	12 weeks
IDUs	6	200	Consecutive	Annual	12 weeks
Pregnant women	34	400	Consecutive	Annual	12 weeks
Military recruits	2	400	Consecutive	Annual	12 weeks
Blood donors	2	400	Consecutive	Annual	12 weeks
New TB patients	10	150	Consecutive	Annual	12 weeks

* Duration of sample collection may extend to 16 weeks if sample volume is not sufficient

^a Based on feedback discussion at the training on HSS in March 2007, the sample size of male STD patients is reduced from 200 to 150

3.6 Sampling Scheme

The consecutive sampling is the choice of sampling method to select the survey population. All the sample coming to respective clinics are strictly chosen on a serial register. All of the subjects who are eligible should be included as they are consulted. In other words, in consecutive sampling, select every individual that meets the inclusion criteria until the required sample size is achieved during the survey period.

3.7 Survey Period

At each site subjects will be recruited until the required sample size is achieved or 12 weeks have elapsed, whichever is earlier. The period of the survey is 1 March to 30 May each year. In sites where the required sample size is not achieved, the survey duration can be extended for another four weeks.

3.8 Participant eligibility criteria

Overarching issues:

- ◆ Consecutive sampling must be followed to avoid selection bias;
- ◆ A candidate must be enrolled in the surveillance only ONCE during the survey period;
- ◆ Ethical issues must be taken into account particularly during the participants sampling process and information handling (see section 3.10)

Pregnant women:

- ◆ All pregnant women attending antenatal (ANC) clinic first time during the intake (survey) period and whose blood is drawn routinely for syphilis testing and
- ◆ Aged 15-49 years

Military recruit:

- ◆ All potential recruits for military services registering at the recruiting centers and
- ◆ Male and
- ◆ Aged 18 years and above

STI patient

- ◆ All individuals seeking treatment for STI(s) through facility-based services whose blood is drawn routinely for syphilis testing and
- ◆ Male and
- ◆ Aged 15 years and above

Female sex worker (FSW)

- ◆ Aged 15 years and above
- ◆ Either direct or indirect sex workers receiving services through project facilities including targeted intervention sites and
- ◆ Having sold sex in exchange for cash/kind at least once in the past one month.

Injecting drug user (IDU)

- ◆ Male and
- ◆ Aged 15 years and above and
- ◆ Hasve injected drugs for non-medical reasons any time during the past six months, and receiving services through the drug treatment centre or through the services of a needle exchange programme.

Men who have sex with men

- ◆ Aged 15 years and above and
- ◆ Had receptive and or insertive sex with another male at least once in the last 12 months, and self identified as MSM or through the targeted intervention sites providing services

New TB patient

- ◆ Aged 15 and above and
- ◆ All new TB patients aattending the TB clinic during the survey period and
- ◆ Newly diagnosed TB or if treated, the treatment must be less than one month

Blood donor

- ◆ Blood units screened for HIV during the intake period, obtained from the blood banks

3.9 Socio-demographic data and specimen collection

Basic demographic data which is already being routinely collected will be recorded, namely:

- Age in completed years
- Marital status whether single, married, divorced, separated
- Permanent residence, whether urban or rural
- Parity for pregnant women, primipara or multipara
- In case of sex workers, type of sex work will be recorded, whether direct or indirect

- For new TB patients, type of TB will be recorded, e.g., pulmonary or extra-pulmonary

These data should be collected at the site of blood collection using Form 1 (annex 3).

In case of most-at-risk populations (FSWs, IDUs, MSM) as there is verbal informed consent, if there is refusal by an individual to participate in the surveillance, even then, the socio-demographic variables should be recorded on the refusal form or Form 5 (Annex 10). This will facilitate in the analysis and interpretation of data, i.e., to calculate the refusal rate and to examine whether any bias has been caused due to the refusal.

3.10 Specimen collection, processing, storage and transportation

Specimen collection

About 5-7 ml of venous whole blood will be collected by venipuncture using routine procedures. The procedures for specimen collection are given in Annex 1.

Blood should be collected in a vacutainer or screw-capped bottle which has been labelled with an identifier, such as registration number or name (specimens and forms received from NGOs need not include names), date of collection and the name of the centre from where blood is collected, i.e.: **Form 1** or **Form 3** –TB patients (Annex 3). If possible, the blood should be sent to the STD team on the same day. If it is not possible to send the blood on the same day then let the blood stand at room temperature for 30 minutes and after the clot is formed, the vacutainer should be kept in the refrigerator. Blood should be transported to the STD team in an upright position following bio-safety procedures (**Annex2**).

Specimen processing

If whole blood is received, then the first step in the laboratory is to centrifuge the blood at 3,000 rpm for 10-15min.

Coding, separation of serum and labelling (see Annex 8)

Coding and separation of serum should be done by a person other than the person who will be doing the HIV testing.

Each specimen should be coded using the surveillance code with XX-YY-ZZZ format, where:

- XX defines the area code or the sentinel site—this remains unchanged for all specimens originating from the corresponding site;
- YY stands for the surveillance group; and
- ZZZ is a running number starting with 001 and is unique for a person taken part in surveillance system.

E.g.- Yangon, CSW- (01- 02- 001),.....200

Form 2 should be completed using the code (***Annex 3***). The socio-demographic information of the specimen (age, sex, residence etc.) on **Form 2** should be abstracted from **Form 1**.

In the case of pilot sites implementing decentralised HIV testing (**Annex 6**), the serum should be aliquoted into two new sterile microvials. One microvial is used for decentralised -local- HIV antibody testing at the AIDS/STD team laboratory and the other microvial should be stored for transportation to the reference laboratory (NHL or PHL).

Each microvial must be coded with the corresponding surveillance code (XX-YY-ZZZ code). The code should be written clearly using a water proof pen. Adhesive plaster tape should not be used on microvials for labeling. Approximately 1 microliter of serum should be aliquoted in each of the two microvials. During aliquoting, if there is spillage, then wipe the outside surfaces of the microvial. Serum is drawn off by sterile pasteur pipette and transferred to microvials. One transfer pipette should be used for each specimen. The pipette should be discarded after using once.

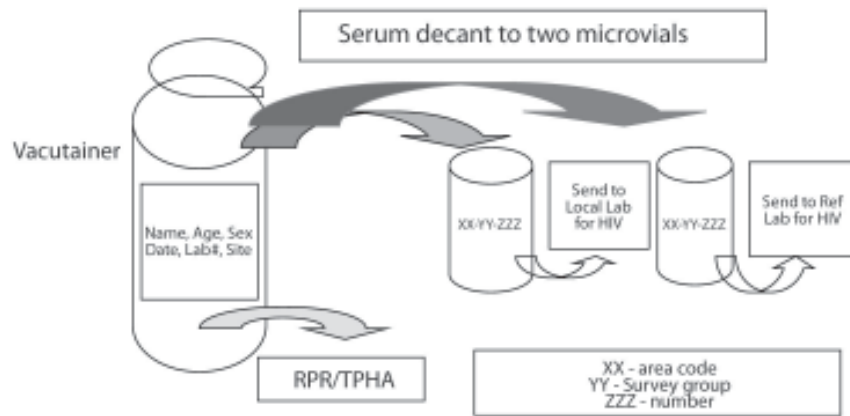
Syphilis testing

The remnant serum in the vacutainer should be used for syphilis testing using RPR/VDRL and TPHA in the AIDS/STD teams. After syphilis testing, the result of the syphilis test should be recorded in the **Form 1**. The **Form 1** with the result should be sent back to the collection centre.

HIV testing in pilot local testing sites

One of the two microvials used for HIV testing is performed by simple/rapid tests at the pilot sites (see **Annex 6**). After testing for HIV antibody, the result of the HIV test is written on the **Form 2** and **Form 4** (TB patients). At the end of the survey, the **Form 2** and **Form 4** with the HIV test result are sent to NAP for data entry.

Figure 3.10.1 Specimen collection and coding at local site



HIV testing at referral laboratory and storage of specimens in the STD team laboratory

The second microvial with the serum has to be transported to the reference laboratory (NHL or PHL) for centralised HIV testing. This second microvial should be accompanied of a **Form 2** -or **Form 4** for TB patients- without HIV result. The microvial can be stored in the refrigerator at +4°C temporarily up to 5 days. If storage more than 5 days is required, then the specimen should be frozen in the deep freezer until transport of the specimen to the reference laboratory. In case there is no regular electricity supply, then store the specimens in the freezer compartment of the solar refrigerator.

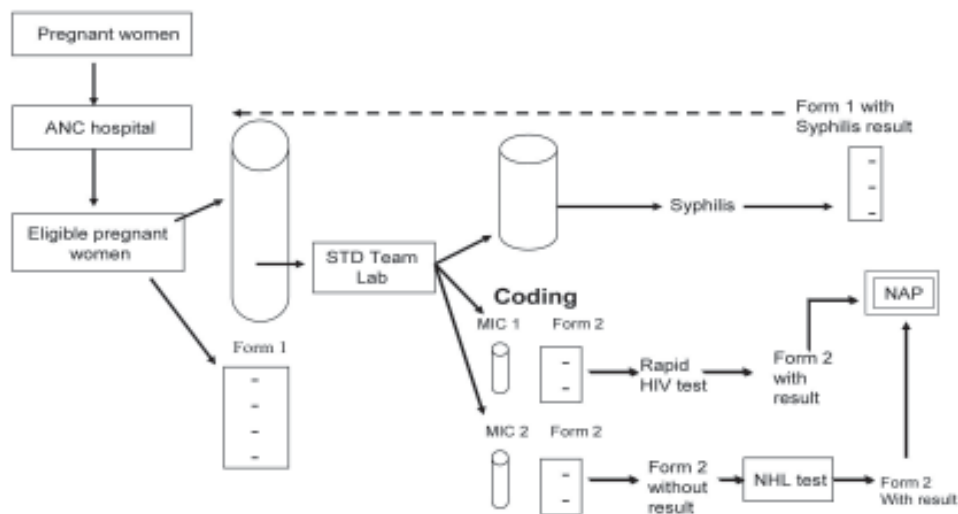
Transportation of serum specimens to the reference laboratory

Packing and transportation of specimens should be done following appropriate cold chain and laboratory biosafety procedures. Details for specimen storage and transportation are given in **Annex 1**.

Specifically, the following care must be taken:

- The microvials should not have a crack or leakage
- Place the microvials in a zip-loc plastic bag and pack with packing materials (paper, cotton, tissue paper).
- Then place the zip-loc bag in a secondary container which is unbreakable and tightly capped.
- Place copy of Form 2 inside the secondary container or bring it in person to the reference laboratory.
- The secondary container should be labeled
- Place the secondary container in a cold box, addressed to NHL/PHL
- Put the biohazard symbol (danger, fragile sign) on the cold box.

Figure 3.10.2 The schematic diagram of specimen processing in pregnant women



In the case of blood units screened for HIV received by blood donors, all blood banks will send reports directly to the NAP during the intake (survey) period.

In case of surveillance of HIV among **TB patients**, **Form 3** for TB patients in Annex 3 will be filled for each patient. Blood will be drawn with a syringe. A portion of the blood will be transferred to a labelled screw capped bottle (sugar bottle) for glucose testing. The remaining blood will be centrifuged. After centrifugation, serum will be aliquoted in two microvials. The microvials will be labelled with a code. **Form 4** (Annex 3) will be completed with the corresponding code and the socio-demographic data and details on type of TB. The coded microvials along with the Form 4 will be sent to the AIDS/STD team for HIV testing.

3.11 Confidentiality and ethical issues

Top priority should be attributed to ethical issues and to protect the confidentiality of participants. No identifying data will be sent to the reference laboratory or to the national programme.

As the code on **Form 2** are different than the code on **Form 1** (which contains the identifying information), there is no way to link the result of the HIV test result to the source of blood (the participant to the survey). In the case of ANC clients, STI patients and military recruits population groups, as blood is routinely drawn as part of services for syphilis testing conditions for unlinked anonymous testing are met and there is no need for verbal consent to participate in the surveillance.

For the most-at-risk population groups i.e.: IDUs, FSWs and MSM, as blood is not routinely drawn as part of regular services, blood samples will be collected for unlinked anonymous testing after verbal informed consent (see Annex 9). Participants to the surveillance who meet the criteria will be enrolled at the targeted intervention sites of the government and NGOs, where high-risk group populations are receiving services.

All individuals availing the services at the facility will be explained the purpose of surveillance and an informed verbal consent will be obtained. For those who consent to participate, blood will be collected in the same way as for

other groups. For those who refuse to participate, data will be recorded in the refusal form (Form 5) the socio-demographic variables such as age, sex, marital status, etc. (see Annex 10).

In the case of TB patients, all eligible new TB patients will be offered blood glucose testing at the selected sentinel sites. After an informed verbal consent to perform blood glucose, blood will be collected.

In all cases, after collection, the blood sample accompanied of **Form 1** or **Form 3** (TB patients) are sent to local AIDS/STD team for coding in **Form 2** or **Form 4** (TB patients). After processing, a part of the serum will be aliquoted into a microvial and sent to the local AIDS/STD team for HIV testing along with the **Form 2** or **Form 4**. As the **Form 2** and **Form 4** have only the code and no personal identifier, it will not be possible to link the HIV results to the patient.

Since unlinked anonymous testing is used, it will not be possible to send back the results of the HIV test to the subject. However, if the subject is interested in receiving the results, then he/she will be referred for voluntary counselling and testing to the nearest centre.

4

**LABORATORY
TESTING**

4.1 HIV Testing Strategy

HSS in Myanmar follows the recently recommended WHO guidelines of two test strategy (Strategy II) **irrespective of HIV prevalence**. Rapid tests, automated EIA and combinations are appropriate for the two test strategy. The Strategy II for HIV surveillance consists of two HIV tests:

- Test 1 – More sensitive
- Test 2 – More specific

Sensitivity and specificity are two major factors that determine a test's accuracy in distinguishing between infected and uninfected persons.

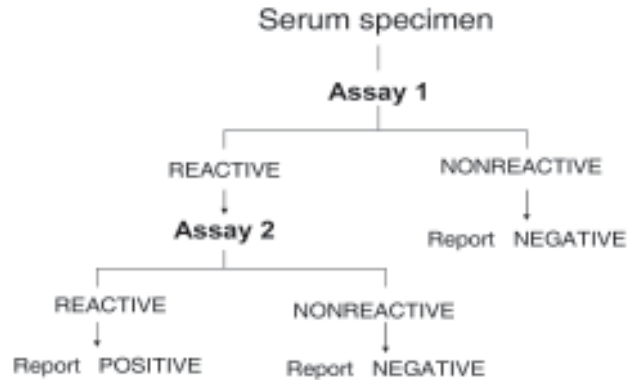
Sensitivity is the probability that an individual who has antibody to HIV will be positive in the test. A test with a high sensitivity will have few false-negative results.

Specificity is the probability that an individual who has no HIV antibody will be negative in the test.

The first test used as a screening test has high sensitive. Specimens that are positive in the first assay are confirmed by a second assay that is more specific. Specimens that test negative in the first assay are reported as

negative. Specimens that are reactive in both assays are reported as positive. Specimens that are positive in the first assay and negative in the second are reported as negative. The figure 4.1 demonstrated the HIV antibody testing algorithm for surveillance.

Figure 4.1 Strategy II for HIV testing for surveillance



At the AIDS/STD team laboratories, HIV testing must be performed in line with strategy II using rapid tests.

At the National Health Laboratory and Public Health Laboratory, designated staffs will register the specimens. Samples are tested for HIV following “National HIV antibody testing guidelines”.

4.2 Quality Assurance

All the specimens from upper Myanmar are tested at the Public health laboratory in Mandalay and those from lower Myanmar are tested at the National Health Laboratory in Yangon.

- Each laboratory should have written protocols for HIV testing.
- Internal quality control tests are used in every test run.
- The National Health Laboratory runs the external quality assurance programme for all the laboratories in the country where HIV testing is done.

- In addition, the National Health Laboratory in Yangon and the Public Health Laboratory in Mandalay participate in external quality assurance process and regularly receive proficiency panels from the National Serology Reference Laboratory (NSRL) in Australia and US Centres for Disease Control and Prevention, Atlanta, USA.

4.3 Laboratory bio safety

Safety procedures include laboratory protection of the material to be tested, environment and the staff. Personal and laboratory safety can be achieved only by informed, trained responsible individuals through the application of standard precautions. Standard precautions are simple infection control measures that reduce the risk of transmission of pathogens through exposure to blood or body fluids. The laboratory personnel should be trained in safe handling of the clinical specimen and disposal of bio-waste materials. Documentation of biosafety training for laboratory staff is essential including records on vaccinations such as hepatitis B vaccination. Standard operating procedures for biosafety procedures should be in place. **Annex 2** summarizes recommendations for the safe practice in the laboratory and for better bio-waste management.

4.4 Storage of specimens after surveillance

All specimens will be stored at reference laboratories until completion of quality control testing at +2°C to +8°C or lower. After quality control testing, specimens will be stored at preferably -80°C for future evaluation.

5

**DATA
MANAGEMENT**

5.1 Data entry and cleaning

The national AIDS programme will receive Form 1 for syphilis data and Form 2 containing demographic data, HIV and STS results.

A designated data entry operator will enter all the data in the surveillance database.

To ensure accurate data entry, the following steps will be undertaken:

- All data will be entered twice
- Acceptable (legal) values for each variable will be defined.
- About 5% of records will be manually validated for accuracy.
- Data entry operator will be trained and supervised by the national surveillance focal person.
- Data will be continuously backed up on CD ROM.
- After data entry, frequency tables will be produced for each variable to identify missing values. Hard copies of the forms will be referred for verification during data cleaning.

- A data dictionary should also be developed centrally. Data dictionaries are electronic files that describe the basic organization of a project or database. They contain all of the rules that guide data entry.

5.2 Data analysis and interpretation

Data analysis will be done using appropriate software. The process of analysing and interpreting sentinel surveillance data is guided by the following questions:

- Is the prevalence of HIV increasing, decreasing or remaining stable?
- What is the trend in HIV prevalence among 15- to 24-year-olds?
- Which sentinel sites have the highest HIV prevalence? Which groups have the highest HIV prevalence? In which groups is HIV prevalence rising? Falling?
- What are the differences between sites where the prevalence of HIV infection is low (for example, <0.5%) and those where it is relatively high (for example, >5%)?

Analysis of HIV sentinel surveillance data should focus on the prevalence of HIV by person, place and time. However, changes in HIV prevalence by time are of greatest importance. Due to selection biases, sentinel surveillance data may over- or under-estimate the true prevalence of HIV in a population. If methods for conducting sentinel surveillance are consistent from year to year, changes over time may reflect real changes in prevalence.

Trends in time indicate whether the prevalence is rising, falling or remaining stable. A focus on the trend, rather than absolute prevalence, is a principle of second-generation HIV surveillance.

In addition, sentinel surveillance data should be analysed by each of the variables collected. Such analysis may indicate where HIV transmission is highest. Analyses should therefore include HIV prevalence by:

- year of survey

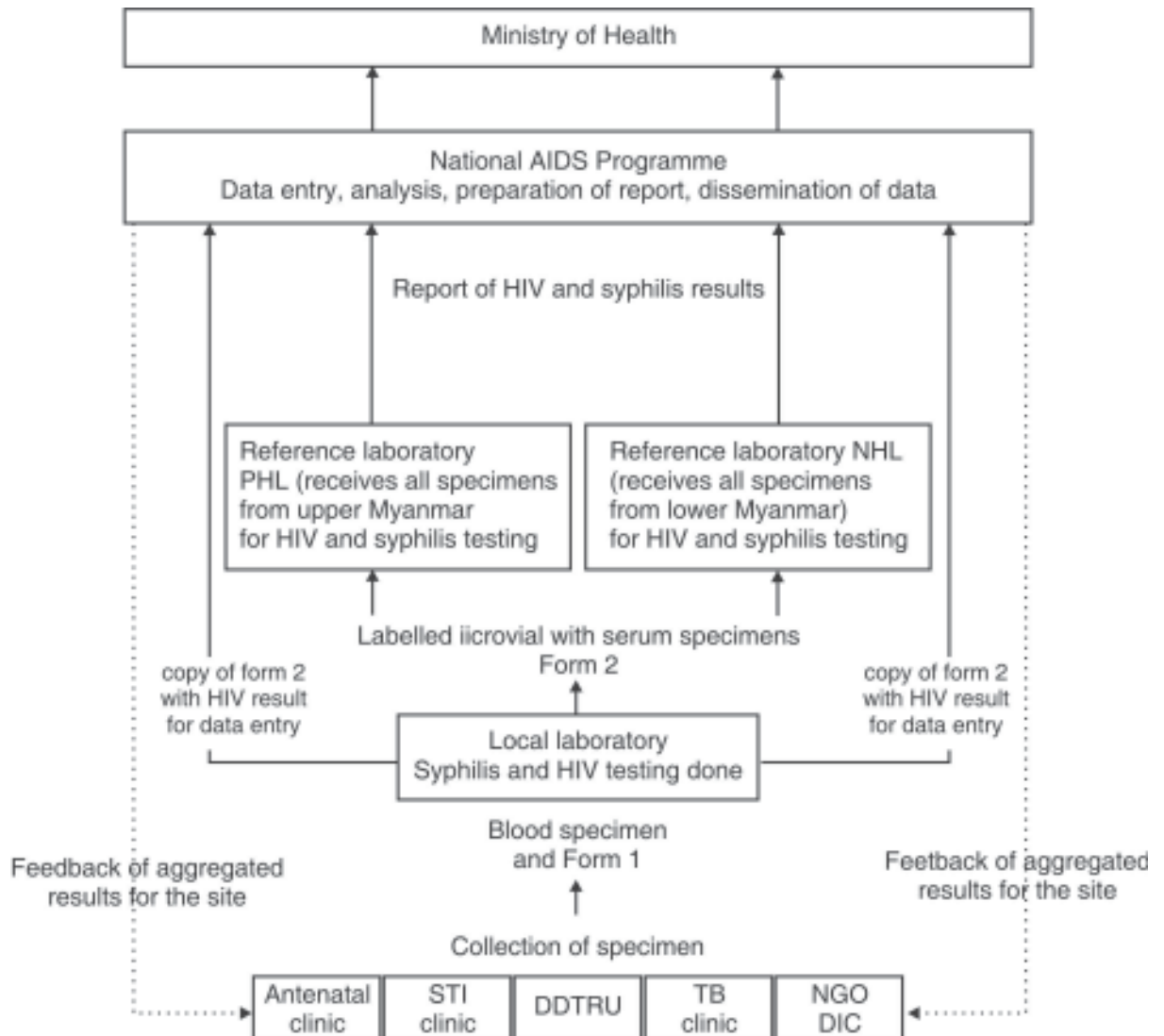
- sentinel site, district, State and Division
- age group (15-24) and 25 and above
- residence (for example, rural versus urban)
- marital status
- in case of sex workers, by type of sex work (direct or indirect)

Summary information that can, at best, be presented is the median and range for each type of sentinel site, on a regional and national basis.

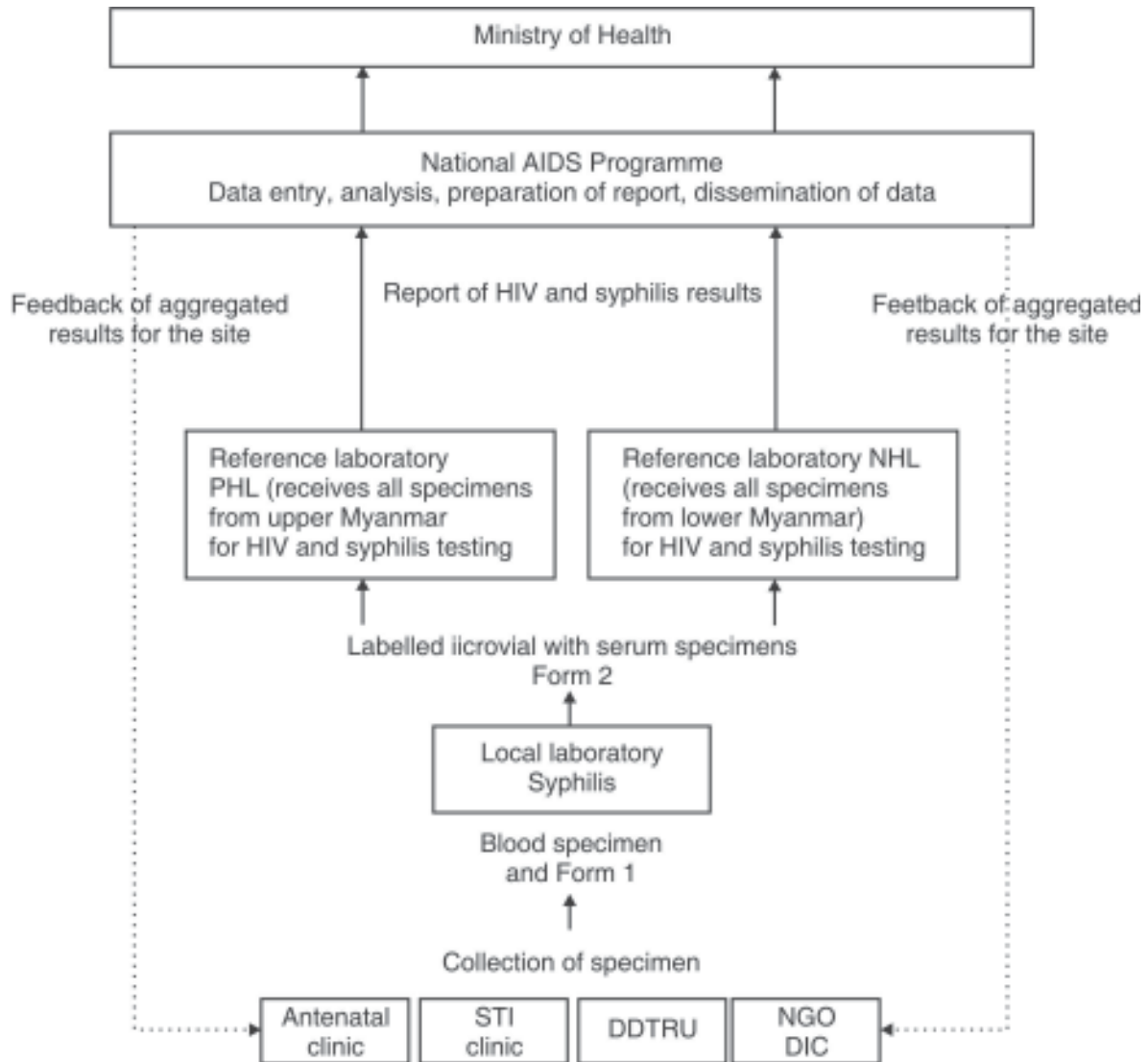
5.3 Data flow and dissemination of data

A complete and detailed surveillance report will outline the method used, results obtained, and conclusion drawn. A second, shorter document will present key findings and prevention messages in a short summary. At a dissemination meeting addressing government bodies, international organizations, local non-government organizations, and the media, the surveillance findings will be disseminated. The figures 5.3.1 and 5.3.2 showed the data flow of surveillance data from field level and feedback.

**Figure 5.3.1 Schematic presentation of surveillance data flow
(At the pilot HIV testing sites)**



**Figure 5.3.2 Schematic presentation of surveillance data flow
(Non pilot sites)**



5.4 Data use

An important goal of second-generation HIV surveillance is to enhance the use of surveillance data for public health action. The impact of data can be enhanced when several sources of information are used. Data from HIV sentinel surveillance are therefore only one of several sources that can be used for public health action. Data can be used for a variety of purposes, such as:

- targeting prevention and care programmes
- monitoring and evaluation
- resource allocation and programme planning
- informing and educating the public
- guiding scientific research
- triangulation
- mobilising political commitment
- advocacy

Triangulation: An important way to use sentinel sero-surveillance data is in combination with other data. The process of examining several different sets of data, which are measuring different things to come up with a better understanding of how and where the epidemic is spreading, is called triangulation or data synthesis.

Second-generation surveillance stresses comparing of HIV sero-surveillance data and HIV behavioural surveillance data, to enhance the explanatory power of the surveillance data. Integrating these data with other sources of data can give a more complete picture of the HIV epidemic. Some other sources of data may include:

- STI and tuberculosis (TB) surveillance data
- Blood donor data
- Behavioral data of high risk population and general population
- AIDS case reporting
- AIDS death surveillance

STIs can indicate recent risk behaviour (for example, unprotected sex) because many STIs and STI syndromes are of short duration and have been acquired recently. As TB is an opportunistic infection associated with HIV, trends in TB surveillance data can indicate trends in HIV infection from some years earlier. Further, PMTCT and VCCT data can also be used as adjunct data to analyse hotspots in conjunction with the HIV sero-surveillance data.

There are several distinct steps to disseminating HIV surveillance data.

They include:

- establishing the message you want to communicate
- selecting the audience to which you want to deliver the message
- selecting the channel through which the message will be delivered
- selecting the tool for delivering the message
- evaluating the impact of the message

The first step in effectively disseminating the results of a particular round of HIV sentinel surveys is establishing a message. Working with State/Division Health Officers or district health officers, the particular team which is responsible for surveillance needs to decide its objective. What is the most important information that the team wants to convey? Is the epidemic increasing or decreasing? Is there evidence that what is being done is working?

In both cases the most likely reason for the declining prevalence needs to be worked out by a thorough review of all data. Next, the content of the message needs to be decided upon, crafted in a clear and concise way and expressed at an appropriate level for the target audience.

Once the message has been established, the target audience should be defined. Today, with the involvement of the multiple sectors of civil society and government in the response to HIV and AIDS, the audience for up-to-date information on the HIV epidemic is much broader than just health professionals.

The key messages must appeal to the target audience and then the use of language is important. The ways of dissemination of messages have to be careful and tactful. The example below showed the ways to circulate the messages.⁴

The same information, different language

- The HIV incidence in the 15- to 19-year-old cohort is high, and the prevalence among 19-year-old women is 33%.
- New HIV infections are common in the late teens; a third of 19-year-old girls are already infected with the virus.
- Hundreds of teenagers get infected with HIV every week. If there are 30 girls in your daughter's class, about 10 of them will have HIV by the time they graduate.

The table 5.4.1 below summarizes the key audience, channels and tools of data dissemination.

Audience	Channels	Tools
National policy makers	One-one-one briefing	Briefing notes Policy briefs
Technical and professional staff involved in NAP monitoring and evaluation and NGOs and other developmental partners	Workshop	Technical report summarizing key surveillance data with tables, charts including programmatic implications of these data
Media, journalists	Through media group.	Information released for media group
International partners, donors	Electronic media such as email	Technical report, peer-reviewed journal articles, Website

The data will be communicated to the national decision makers by face-to-face briefing. After appropriate clearances, the data will be disseminated to

⁴ Guidelines for effective use of data from HIV surveillance systems, UNAIDS/WHO working group on Global HIV/AIDS/STI surveillance, 2004

a wider audience, including health professionals, general public, policy-makers and other decision-makers, media, other sectors (education), non-governmental organizations (NGOs), other national and international organisations, surveillance staff members at national and local levels who help conduct sero-surveys.

An annual report will be prepared showing key trends. Additionally, the data will be posted on the official DOH website.

A timeline of implementation of one cycle of HSS is given in ***Annex 7***.

6

**Training
and Supervision**

6.1 Training

Skilled and knowledgeable personnel are essential for a successful surveillance system. A variety of people are needed to conduct HSS. These include STD team leaders, State/ Divisional AIDS/STD officers and national surveillance focal persons, health assistants, investigators, clinic staffs and laboratory technicians.

The national surveillance focal person in the NAP will be responsible for identifying training needs, designing a training programme and organizing a refresher training of all involved staff before the annual surveillance round begins.

Training needs for each cadre of staff depends on their task description and the skills required performing each task. Responsibilities for each surveillance staff member is defined in ***Annex 4***.

The training contents will include:

- importance of sero-surveillance and uses of data
- review of results from any previous sero-surveys conducted at the site or in the region
- review of the survey protocol and operational procedures
- an opportunity for participants to discuss their concerns and ask for any clarification of sero-survey operations

The training will also be used to motivate the staff to ensure high-quality, timely sero-surveillance activities. This will be accomplished by

- emphasising the importance of each person's contribution to the sero-survey's success
- providing adequate staff training
- ensuring that the needed equipment and forms are available before the survey starts

6.1.1 Elements of Training

PRINCIPLES OF SURVEILLANCE Definition of surveillance
2nd generation HIV surveillance
Objectives of sentinel surveillance
Indicator use
Evaluation of HIV prevention
intervention activities

SURVEY DESIGN Target population
Eligibility criteria
Sampling
Confidentiality and ethical issues of
surveillance activities
Unlinked anonymous testing

DATA COLLECTION No. of patients attending ANC/TB/
STD/DDTRU clinics
Data collection forms
Centrifuging
Procedures in collection blood
Coding
Labelling
Aliquotting into microvials
Storage of microvials
Temperature chart on refrigerator

Laboratory methods Storage and inventory of test kits
Method of syphilis testing
HIV testing strategy
Interpretation of test result
Recording and reporting of result
Biosafety, disposal of wastes

SUPERVISION Eligibility criteria
Consecutive sampling
Completeness of data collection
forms
Labeling of blood specimens
Storage of blood specimens

6.2 Supervision

Supervision is an important part of quality assurance for sero-surveys. At the national level, the National AIDS Programme manager and the M&E coordinator are responsible for ensuring that surveillance is conducted uniformly in all sites. At the State/Divisional level, the State/ Divisional AIDS/ STD officers and the STD team leaders are responsible for ensuring the quality of the surveillance activities. The supervisors will make regular visits to the specimen collection sites and local laboratories to ensure that surveillance is going on in accordance to the protocol.

Supervisory visits should include all aspects of sentinel surveillance, including, sampling, data and specimen collection and management, laboratory equipment, laboratory safety, maintenance of cold chain, confidentiality and ethical aspects. A checklist will be used for monitoring the operational activities.

Supervisory visits are useful to provide on-the-job training and problem solving in addition to monitoring the quality of specimen and data collection. See **Annex 5** for monitoring checklist.

7

Annexure

ANNEX 1: Specimen collection procedures

Standard techniques and care must be exercised to ensure that an acceptable specimen is collected and to minimize any adverse effects to the patient. In general, the phlebotomy requires the use of a 20 to 22 gauge needle to minimize mechanical haemolysis during aspiration and either a syringe or evacuated tube collection system should be used.

Collection of blood:

- Gloves should be worn and sterilized/disposable syringes and needles or vacutainers should be used.
- For avoiding soiling, a big piece of absorbent cotton may be placed below the forearm before commencing veni-puncture.
- After collecting 5 ml of blood aseptically, it should be carefully transferred from the syringe in to a sterile, plastic leak-proof specimen container, preferably screw-capped.
- The containers should be labeled before commencement of veni-puncture.
- After the blood is collected, the tourniquet is removed and the needle is withdrawn. The patient is given a dry sterile cotton swab to press over the site of veni-puncture. Elbow may be flexed to keep the cotton swab in place till the blood stops. Any blood spill should be carefully wiped with 70% ethanol.
- All the swabs and cotton pieces are placed in plastic bags for disposal. If the outside of the vial is visibly contaminated with blood, it should be cleaned with 10% freshly prepared sodium hypochlorite solution.
- The blood is allowed to clot for 30 minutes (not more than 2 hours) at room temperature. The clot may be gently broken if necessary using sterile Pasteur pipettes.

Separation of Serum:

- The collection tube is centrifuged at 1200 g (3000 rpm) for 10 to 15 minutes to separate serum to avoid haemolysis. If no centrifuge is available or there is no electricity supply, the blood with clot may be left in the refrigerator at +4 °C for overnight. The clot will retract and get separated from serum.
- Allow the blood to clot for at least 30 minutes, before centrifugation.
- The specimen vial is un-stoppered; the serum is drawn off by sterile Pasteur pipette and transferred to a sterile plastic screw capped leak-proof tube.

Storage of Serum Specimens

- The sera samples are placed in leak-proof plastic containers in the refrigerator at +4 °C, for temporary storage (up to 5 days).
- The outside of the container is checked for visible contamination with blood which should be cleaned.
- For storage for a long time, deep-freezing at –70°C is advised and cryovial should be used for deep-freezing purposes.

Transport of Serum/Plasma Specimens

- The specimen tube, in which serum/plasma is to be transported, should not have a crack or leakage. Preferably, it should be made of plastic and should be screw-capped.
- The outside of the container should be checked for any visible contamination with blood which should be disinfected.
- The tube should be labeled and then placed in a second tightly capped unbreakable container surrounded by adequate packing materials (like tissue paper, absorbent cotton etc.) to absorb liquid, if leakage occurs accidentally.
- The secondary container should also have a label. This is placed in a thermocol box with ice packs to maintain proper cold chain system during transit.

- Data collection forms with details i.e., name, age, sex, risk factors, permanent address etc. should accompany the specimen.
- A biohazard symbol must be fixed outside the thermocol box. This box can now be sent to a distant laboratory.

Transport of Whole Blood

- The micro vials containing the specimen should be placed in a leak proof container (e.g. a sealed plastic bag). This container should be packed inside a cardboard canister containing sufficient material to absorb all the contents should the tube break or leak.
- Cap the canister tightly. Fasten the request slip securely to the outside of this canister with a rubber band. For mailing, this canister should be placed inside another canister containing the mailing label.
- The specimen should be transported as early as possible after the collection and the test should be performed within the time frame allowed by instrument manufacturer.
- During the transport of specimens, room temperature (18–22°C) should be maintained and specimens should not be exposed to extreme temperatures that could allow them to freeze or become too hot.

ANNEX 2: Laboratory bio-safety practices

The following are the general recommendations for the safe practice in the laboratory and for bio-waste management:

- Never eat, drink or apply cosmetics in a laboratory.
- Vaccinate laboratory personnel against hepatitis B.
- Use gloves as a barrier for protection during phlebotomy.
- Use barrier protection with gowns/aprons, face shield, deflector mask, goggles whenever splash of infectious fluid are expected.
- Use bio-safety centrifuges for sample processing.
- Use bio-safety cabinet while working on specimens which may produce aerosols.
- Use puncture-proof containers located close to the point of use for disposing of sharps
- Dispose off sharps immediately.
- Do not recap, bend or break used needles – but recapping may be done with single- handed method.
- Carefully place used plastic syringes, needles and sharps in the containers, then disinfect by chemical or physical methods i.e. boiling or autoclaving before disposing into incinerator.
- Replace the sharps disposal container by a new one when it is three quarters full.
- Never pass used sharps directly from one person to another.
- Keep all sharps and sharp disposal containers out of the reach of children.
- Do not touch blood spills with your bare hands; cover blood with a 0.5% sodium hypochlorite solution (household bleach); leave it for at least 15-30 minutes; cover with gauze, cotton or sponge and finally wipe away with gloved hands.
- If spills involve any broken glassware, it must be picked up using a mechanical means, such as a brush and dustpan, or forceps. In cases where the absorbent becomes saturated with blood and

bleach, the spill clean up materials should be autoclaved prior to being disposed of in the normal trash.

- Make all staff aware of management of needle stick injury as per the laboratory/ national policy.
- Label the bio-waste materials container with the “Biohazard Label”
- Segregate waste into dry solid waste and liquid waste.
- Package all waste to prevent spills, leaks or breaks during transportation.
- Before disposing, pre-treat the waste.
- Liquid waste such as human blood and blood components such as serum, plasma, etc., and human body fluids should be considered as potentially infectious. Before disposing, this liquid waste should be decontaminated by adding a sufficient volume of sodium hypochlorite to obtain a final concentration of at least 1%. A 30 minute exposure to 1% sodium hypochlorite may be sufficient to ensure effective decontamination. Commercial liquid household bleach typically contains a concentration of 5.25% sodium hypochlorite. A 1:5 dilution of household bleach will produce a 1% sodium hypochlorite solution. After decontamination, the waste could be disposed in the sewer.
- Solid biohazardous waste must be pretreated by decontamination (such as autoclaving) before disposal. All waste must be collected in biohazard bags or closed, leak-proof, labelled containers, to prevent spillage/protrusion of contents during handling/transport.
- Color-coded containers (red) marked with the universal biohazard symbol should be used. Plastic liner should be used inside biowaste container.
- Disinfect (with 0.5% sodium hypochlorite) work places when procedures are completed or after any spill of blood or other potentially infectious material in the work place.

Annex 4: Checklist for quality assurance of surveillance operations

Supervisory surveillance staff may use the following checklist as they monitor the quality of operational activities conducted at the sentinel site during supervisory visits.

Site name: _____

Name of the person conducting supervision: _____

Date of supervisory visit: _____

Week of visit (circle) 1st 2nd 3rd 4th 5th 6th 7th 8th 9th 10th 11th 12th

Persons met

	Name	Designation
1.
2.
3.
4.
5.

At the collection site:

Total no. of the sentinel population visiting the site since surveillance began: _____

Total no. of the sentinel surveillance population sampled: _____

Sampling consecutive? () Yes: _____ () No: _____

Inclusion and exclusion criteria met? () Yes: _____ () No: _____

Form 1 correctly filled: () Yes: _____ () No: _____

Labelling of specimen done correctly? () Yes: _____ () No: _____

Were the staff trained before start of surveillance? () Yes: _____ () No: _____

Comments:

Specimen Processing and testing (At the AIDS/STD team laboratory)

Labelling done correctly? () Yes: _____ () No: _____

Coding done correctly? () Yes: _____ () No: _____

Record keeping satisfactory? () Yes: _____ () No: _____

Standard operating procedures followed for syphilis testing? () Yes: _____ () No: _____

Standard operating procedures followed for HIV testing? () Yes: _____ () No: _____

Storage of test kits satisfactory? () Yes: _____ () No: _____

Laboratory biosafety practices followed? () Yes: _____ () No: _____

Comments:

EQUIPMENT

Type of fridge available: Electric/ solar

Microvials stored in the freezer: () Yes () No: _____ Fridge temperature: _____

Electricity power _____ hour/day _____ day/week

Centrifuge working? () Yes () No: if no, why? _____

Transfer pipettes available () Yes () No: _____

Incubator available () Yes () No

Microscope available () Yes () No

Shaker available () Yes () No

Water bath available () Yes () No

Any stock out of test kits since start of surveillance? () Yes () No

If yes, provide details

Comments:

SAMPLE and DATA FORM TRANSPORT

No. of sample sent to reference laboratory: _____

The last day of samples sent _____

Sent by _____ by _____ Hours taken _____

Cold box available () Yes () No: if no, why _____

Comments:

ANNEX 5: Task description of each staff

Central level

M & E Coordinator

- Develop/ update the national sero-sentinel surveillance survey protocol
- Overall oversight and coordination of surveillance activities, including preparation, conduct, and dissemination of findings
- Assuring the availability of adequate and timely human, material, and financial resources for the conduct of surveillance
- Technical oversight for the conduct of all surveillance aspects, including design, methods, sampling, data management, laboratory procedures, and dissemination of findings
- Trains all district and site-level surveillance staff in sentinel surveillance methods
- Supervision of sites during sampling period
- Responsible for the design of data entry
- Ensures availability of funds for the HSS
- Ensures adequate training of all surveillance staff
- Analyses data, prepare annual surveillance reports and disseminate it for use by all stakeholders

State/Division level

State/Division AIDS/STD officer

- Assures the implementation of surveillance guidelines at site
- Supervision of sentinel sites
- Informs central M&E coordinator in a timely manner about all events relevant to the site's sentinel surveillance conduct
- Coordinate with the non-governmental organizations for collection of specimens of selected groups

STD team leader

- Responsible for the entire process of surveillance at the township level
- Trains the local surveillance team and staffs from INGO in HSS operations
- Ensures provision of equipment, supplies, and test kits to the laboratories
- Ensures efficient operation of sero-survey
- Supervises all surveillance staff and provide on-the-job training
- Ensures confidentiality
- Co-ordinates with partners as well as State/Divisional level and national level surveillance staff

ANC clinic/STI clinic/TB clinic/partners

- Ensure that eligible individuals are included in the sero-survey
- Draw blood following correct laboratory practices
- Label and properly store specimens for transport to the local laboratory
- Fill Form 1 correctly, completely and legibly
- Transport the specimen and Form 1 to the local laboratory following appropriate cold chain and laboratory bio-safety procedures

Laboratory technician at site-level

- Ensure that adequate supplies of lab equipment, supplies, and test kits are available
- Process the specimen following standard operating procedures
- Perform syphilis test and report results back to the clinic staff who sent the blood specimen.
- Perform rapid HIV test in adherence with the standard operating procedures
- Ensure confidentiality
- Store, pack and transport the specimens in adherence with standard operating procedures
- Adhere to laboratory bio-safety procedures

- Inform team leader or State/Divisional AIDS/STD officer in a timely manner about all events relevant to data and specimen collection, such as: lack of supplies, power failures, staff issues, labelling errors, missing blood specimens, or missing surveillance forms
- Send completed Form 2 to the NAP for data entry

Laboratory staffs at the reference laboratories

- Ensure provision of equipment, supplies, and test kits
- Ensure efficient operations of sero-survey
- Provide adequate oversight to the laboratory aspects of surveillance
- In conjunction with the NAP, provide training for laboratory staff
- Testing surveillance specimens for HIV and Serologic Testing for syphilis
- Record keeping of test results
- Carry out quality control and quality assurance scheme
- Train district and site-level laboratory staffs in all laboratory aspects of surveillance
- Send completed Form 2 to the NAP for data entry

Annex 6: HIV antibody testing sites (pilot sites)

Sr. No	Sentinel sites	Pregnant women	Male STD patients	Sex Workers	Injecting drug users	Men sex with men	TB patients	Total Size
1	Yangon	400	150	200	200	200	150	1300
2	Mandalay	400	150	200	200	200		1150
3	Magway	400	150				150	700
4	Taunggyi	400	150	200	200			950
5	Myitkyina	400	150	200	200			950
6	Myeik	400	150				150	700
7	Lashio	400	150	200	200			950
8	Bamaw	400	150					550
9	Patheingyi	400	150				150	700
10	Bago	400	150				150	700
11	Monywa	400	150				150	700
12	Pa-an	400	150				150	700
13	Mawlamyaing	400	150				150	700
14	Pakoku	400	150					550
15	Loikaw	400	150					550
16	Haka	400	150					550
17	Sittway	400	150					550
18	Tachileik	400	150					550
19	Shwebo	400	150					550
20	Kawthaung	400	150					550
	Total							14600

ANNEX 7: Usual Yearly Timeline for Conducting HSS

<i>Activity</i>	<i>Month</i>											
	<i>Jan</i>	<i>Feb</i>	<i>Mar</i>	<i>Apr</i>	<i>May</i>	<i>Jun</i>	<i>Jul</i>	<i>Aug</i>	<i>Sep</i>	<i>Oct</i>	<i>Nov</i>	<i>Dec</i>
Training of trainers and supervisors	X											
Conduct regional laboratory training	X											
Training of sentinel site staff, investigators		X										
Collect data and specimens			X	X	X							
Complete HIV testing				X	X	X	X					
Perform double data entry and data cleaning							X	X	X			
Analyze data										X		
Disseminate data												X
Review and modify field guidelines/forms if necessary for the next round												X
Procure reagents, equipment, and supplies for next round											X	X

Annex 8

Coding Areas

No	Sentinel sites	Code/XX
1	Yangon	01
2	Mandalay	02
3	Meiktila	03
4	Taunggyi	04
5	Lashio	05
6	Tachileik	06
7	Muse	07
8	Dawei	08
9	Kawthaung	09
10	Myitkyeena	10
11	Bamaw	11
12	Mawlamyaing	12
13	Patheingyi	13
14	Bago	14
15	Pyaw	15
16	Magway	16
17	Hpa-an	17
18	Sittway	18
19	Monywa	19
20	Loikaw	20
21	Haka	21
22	Hintharta	22
23	Maubin	23
24	Myeik	24
25	Myingyan	25
26	Pakkoku	26
27	Shwebo	27
28	Kyaingtong	28
29	Myawaddy	29
30	Nyaung-U	30
31	Taungtha	31
32	Myaungmya	32
33	Pyin_U_Lwin	33
34	Pyinmana	34

Coding sentinel groups

No	Sentinel groups	Code/YY
1	Male STD patients	01
2	Female sex workers	02
3	Injecting drug users	03
4	Men sex with men	04
5	Pregnant women	05
6	New Military Recruit	06
7	TB-HIV	07
8	Blood donors	08

Annex 9

Consent Form

Hello, my name is _____. I would like to invite you to participate in the national HIV surveillance programme. Every year, the national AIDS programme conducts anonymous HIV testing to determine the extent of HIV infection in the population. This information is useful to the national planners and policy makers in planning and to mobilise resources and provide services to prevent and control HIV. If you participate in the survey, a small portion of your blood will be collected. We will not write your name on the blood sample or any form. Thus the results of the test cannot be linked to you. In case, you need to know your HIV status, then we can refer you to a voluntary counseling and testing centre where you will be provided counselling. If you choose not to participate in the survey, it will not affect the services you receive from this centre.

ယခု သုတေသနလုပ်ငန်းသည် မြန်မာနိုင်ငံအတွင်း အိမ်ခြံအိုင်ဗွီရောဂါနှင့် ပတ်သက်သည့် ဆောင်ရွက်လျက်ရှိသော သုတေသနလုပ်ငန်းများအနက် တစ်ခုအပါအဝင်ဖြစ်ပါသည်။ ဤ သုတေသနလုပ်ငန်းတွင် မြန်မာနိုင်ငံရှိ မြို့ပေါင်း ၃၄ မြို့၌ သတ်မှတ်ရွေးချယ်ထားသည့် လူ အုပ်စုများအတွင်း အိမ်ခြံအိုင်ဗွီရောဂါပိုးတွေ့နှုန်းကို ပုံမှန်လေ့လာဆန်းစစ်ခြင်း ဆောင်ရွက်ပါ သည်။ ယခုကဲ့သို့ ဆောင်ရွက်ခြင်းမျိုးကို မြန်မာနိုင်ငံတွင် ၁၉၉၂ ခုနှစ်မှစ၍ နှစ်စဉ်ပုံမှန် ဆောင်ရွက်လျက်ရှိပါသည်။ ဤသုတေသန ဆောင်ရွက်ခြင်းကြောင့် မြန်မာနိုင်ငံတွင် အိမ်ခြံ အိုင်ဗွီရောဂါပိုး ကူးစက်ပြန့်ပွားမှု အခြေအနေကို သိရှိနိုင်မည်ဖြစ်ပြီး အဆိုပါအခြေအနေပေါ် မူတည်၍ မြန်မာနိုင်ငံအတွက် လိုအပ်သည့် ရံပုံငွေများတောင်းခံခြင်း၊ ရောဂါကာကွယ် တား ဆီးရေးအတွက် ရံပုံငွေနှင့် အရင်းအနှီးလိုအပ်ချက်များ ခန့်မှန်းတွက်ချက်နိုင်ခြင်း၊ စသည့်လုပ် ငန်း ဆောင်ရွက်နိုင်သောကြောင့် အလွန်အကျိုးရှိမည်ဖြစ်ပါသည်။ ဤသုတေသနလုပ်ငန်းတွင် ပါဝင်မည်ဆိုပါက လူကြီးမင်းထံမှ သွေးအနည်းငယ် (ထမင်းစားစွန်းတစ်စွန်းခန့်) ဖောက်ယူမည် ဖြစ်ပါသည်။ သွေးဖောက်ခြင်းအတွက် အနည်းငယ်နာကျင်နိုင်ပါသည်။ လူကြီးမင်း၏ အမည်ကို မှတ်သားထားမည်မဟုတ်ပါ။ သို့အတွက်ကြောင့် သွေးအဖြေကို နာမည်နှင့်တွဲ၍ မသိရှိနိုင်ပါ။ အကယ်၍ သွေးအဖြေကို သိရှိလိုပါက မိမိဆန္ဒအလျောက် နှစ်သိမ့်ဆွေးနွေးပညာပေး ခံယူပြီး သွေးဖောက်စစ်ဆေးသော နေရာများတွင် ထပ်မံစစ်ဆေးရမည်ဖြစ်ပါသည်။ ဤသုတေသန လုပ်ငန်းတွင် ပါဝင်သည်ဖြစ်စေ၊ မပါဝင်သည်ဖြစ်စေ လူကြီးမင်းအတွက် ဆေးဝါးကုသမှုနှင့် အခြားဆောင်ရွက်ပေးသည့် လုပ်ငန်းရပ်များ ပြောင်းလဲမှုမရှိပါ။ ကျွန်တော်/ကျွန်မတို့၏ သု တေသနလုပ်ငန်းတွင် ပါဝင်ရန် လူကြီးမင်းအား ဖိတ်ခေါ်အပ်ပါသည်။

