

MODULE 3

PARTICIPANT MANUAL

HIV Serosurveillance



World Health
Organization

Regional Office for South-East Asia

2006

First Edition

Module 3

HIV Serosurveillance

Participant Manual

2006
First Edition



**World Health
Organization**

Regional Office for South-East Asia

© World Health Organization 2006

First Edition

This document is not a formal publication of the World Health Organization (WHO), and all rights are reserved by the Organization. The document may, however, be freely reviewed, abstracted, reproduced or translated, in part or in whole, but not for sale or for use in conjunction with commercial purposes.

The views expressed in documents by named authors are solely the responsibility of those authors.

Design and Printed in India by : New Concept Information Systems Pvt. Ltd.
www.newconceptinfo.com

ISBN No. : 92 9022 285 9

Acknowledgments

We are grateful to all the national and international experts who reviewed earlier versions of the module.

Bangladesh: Dr Motiur Rahman, Associate Scientist & Head of RTI/STI Laboratory, ICDDR, B; Dr Md Hanif Uddin, Deputy Programme Manager, National AIDS/STD Programme; Dr Khondoker Mahbuba Jamil, Senior Scientific Officer, Department of Virology, Institute of Epidemiology, Disease Control and Research; Bhutan: Ms Neyzang Wangmo, Associate Lecturer of Royal Institute of Health Sciences

China: Ms Wang Lan, National Center for AIDS/STD Control and Prevention; Cambodia: Dr Ly Penh Sun, Deputy Director, National Center for HIV/AIDS, Dermatology and STD. India: Dr Shashi Kant, Additional Professor, Centre for Community Medicine, All India Institute of Medical Sciences (AIIMS); Dr A.S. Rathore, Joint Director (Training), National AIDS Control Organization; Dr B.S.N. Reddy, Head, Dermatology Department, Maulana Azad Medical College; Dr Madhulekha Bhattacharya, Professor and Head Department of CHA National Institute of Health & Family Welfare; Dr Jagadeeshan, Tamil Nadu State AIDS Control Society. Indonesia: Ms Naning Nugrahini, Technical Officer for STI and Surveillance, Monitoring and Evaluation, Directorate of Direct Transmitted Disease Control; Dr Dicky Budiman, Sub-Directorate of AIDS & STI; Dr Dyah Erti Mustikawati, Head of Section for Evaluation and Reporting, Sub-Directorate of AIDS/STI. Maldives: Mr Mohammed Rameez, Programme Coordinator, Department of Public Health. Myanmar: Dr Min Thwe, National AIDS Programme Manager, Ministry of Health, Government of the Union of Myanmar; Dr Tun Myint, Divisional AIDS Officer, Mandalay AIDS/STD Prevention and Control Programme; Dr Htay Naing, Medical Officer, National AIDS Control Programme. Nepal: Dr K. N. Thakur, Dermatologist, Koshi Zonal Hospital; Dr Devi Prasad Bhusal, Teku Hospital. Sri Lanka: Dr N. Punchihewa, National STD/AIDS Control Programme; Dr K.A.M. Ariyaratne, National STD/AIDS Control Programme; Dr Sriyakanthi Beneragama, Epidemiologist, National STD/AIDS Control Programme. Thailand: Ms Thanapan Fongsiri, AIDS Cluster, Bureau of AIDS, TB and STI, Department of Disease Control, Ministry of Public Health; Dr Tanarak Plipat, Medical Officer, Head of HIV, TB and STD Surveillance Section, Bureau of Epidemiology, Department of Disease Control, Ministry of Public Health; Mr Surasak Thanaisawanyangkoon, Health Technical Officer, Bureau of AIDS, TB and STIs, Ministry of Public Health; Mrs Mattana Herber, Health Technical Officer, Office of Disease Prevention and Control; Timor-Leste: Mr Virgilio Soares, HIV/AIDS Officer, Ministry of Health. Vietnam : Dr Phan Thi Thu Huong, Deputy Head of HIV/AIDS/STI Surveillance, Vietnam Administration of HIV/AIDS Control (VAAC).

United States Department of Health and Human Services, Centers for Disease Control and Prevention (HHS-CDC), Global AIDS Programme(GAP) Surveillance Team.

University of California at San Francisco (UCSF), Institute for Global Health, AIDS Research Institute through the University Technical Assistance Programme(UTAP) with CDC/GAP.

TABLE OF CONTENTS

Introduction	7
How to Study this Module	7
Additions, Corrections and Suggestions	8
UNIT 1	
Objectives and Approaches to HIV Surveillance	9
Overview	9
Introduction	10
Definitions and Terms	10
Overview of HIV Serosurveillance	12
Exercises	17
Annex 1.1: Steps for Setting Up an HIV Sentinel Surveillance System	18
Annex 1.2: Outline of a Survey Protocol	20
UNIT 2	
Selection of Sentinel Populations and Sentinel Sites	22
Overview	22
Introduction	22
Selecting Sentinel Populations	22
Access to Sentinel Populations	23
Criteria for Site Selection	26
Exercises	28
UNIT 3	
Sample Size, Sampling Methods, Duration and Frequency of Sampling	30
Overview	30
Introduction	31
Components of Sampling	31
Sampling Schemes	36
Exercises	39
UNIT 4	
Specimen and Data Collection	42
Overview	42
Introduction	43
Approaches to HIV Testing	43
Procedures for Unlinked Anonymous Testing without Consent	47
Exercises	54
Annex 4.1: Unlinked Anonymous HIV Surveillance Data Collection Form for Antenatal Clinic Attendees India	55
Annex 4.2: Operational Procedures for Unlinked Anonymous HIV Sentinel Surveillance Supported by the CDC Global AIDS Programme	56

Unit 5	
Choosing an HIV Test	61
Overview	61
Introduction	61
Selecting an HIV Antibody Test	62
Selecting an HIV Testing Algorithm	63
Ensuring Quality in the Laboratory	66
Exercises	69
Unit 6	
Training and Supervision	71
Overview	71
Introduction	71
Training	71
Supervision	74
Exercises	75
Unit 7	
Data Management, Analysis and Interpretation	76
Overview	76
Introduction	76
Data Entry and Management	76
Exercises	80
Unit 8	
Uses and Dissemination of HIV Sentinel Surveillance Data	83
Overview	83
Introduction	83
Uses of HIV Surveillance Data	83
Disseminating HIV Surveillance Data	88
Exercises	92
Module 3 Summary	95
APPENDIX A	
Answers to Warm-Up Questions and Case Studies	97
APPENDIX B	
Unlinked Testing	116
Appendix C	
Checklist for Quality Assurance of Surveillance Activities	118

How to Study this Module

What you should know before the course

This course is meant primarily for district-level surveillance officers. As a participant, you should have a basic medical understanding of HIV/AIDS and public health surveillance before taking the course.

Module structure

The module is divided into units. The units are convenient blocks of material for a single study session. This module can also be used for self-study.

We begin each unit with some warm-up questions. Some of the answers you may know. For other questions, your answer may just be a guess. Answer the questions as best you can.

You will keep the warm-up questions in this manual. No one will see your answers but you. We will study and discuss the unit, and then you will have time to go back and change your warm-up answers. At the end of the unit, the class will discuss the warm-up questions. You can then check your work.

Appendices

More information is provided:

Appendix A: Answers to Warm-Up Questions and Case Studies

Appendix B: Unlinked Testing

Appendix C: Checklist for Quality Assurance of Surveillance Activities

Additions, Corrections, Suggestions

Do you want to suggest changes to this module? Is there additional information you would like to see? Please write or email us. We will collect your letters and emails, and consider your comments in the next update to this module.

Address

HIV/AIDS Unit
Department of Communicable Diseases
World Health Organization
Regional Office for South-East Asia
World Health House,
Indraprastha Estate
Mahatama Gandhi Marg
New Delhi 110 002, India
Email: hiv@searo.who.int
Fax: 91 11 23370197

Objectives and Approaches to HIV Surveillance

Overview

What this unit is about

This unit gives an overview of HIV surveillance, including objectives and approaches. It provides the rationale for recommending HIV sentinel surveillance as a core activity of HIV surveillance for Asia.

Warm-up questions

1. HIV serosurveillance refers to the component of second-generation HIV surveillance that measures HIV_____.
2. Which of the following is one of the epidemiologic principles that guide HIV surveillance?
 - a. HIV infections are not evenly distributed in a population.
 - b. There are a limited number of ways that HIV can be transmitted.
 - c. HIV infection enters different areas and populations at different times, and spreads at different rates.
 - d. All of the above.
3. Blood donation is ideally voluntary and entails selecting donors at lowest risk of infection. HIV prevalence data from blood banks are likely to _____ true prevalence in the general population.
 - a. overestimate
 - b. underestimate
4. True or false? In low-level epidemics, HIV surveillance should primarily focus on measuring HIV prevalence in antenatal clinics.

True	False
------	-------
5. Which type of surveillance better shows the clinical disease burden of the HIV epidemic?
 - a. AIDS case surveillance
 - b. HIV serosurveillance
6. Because of the long latent period from HIV infection to the onset of AIDS, AIDS case surveillance may _____ the magnitude of the epidemic early on, when the HIV epidemic is expanding.
 - a. over-represent
 - b. under-represent
7. Which of these is a goal of HIV surveillance?
 - a. identifying sub-groups at greater or lesser risk for infection
 - b. monitoring trends in the prevalence of infection over time
 - c. assessing risk factors of HIV transmission
 - d. all of the above

8. True or false? Sentinel surveys are harder to do than population-based surveys. They give a more accurate picture of the over-all HIV prevalence in a population.

True

False

9. Selection bias is a big concern for _____ surveys. People who attend a particular facility may be different from those who do not use that site.
- population-based
 - sentinel

Introduction

What you will learn

By the end of this unit, you should be able to:

- define the terms HIV surveillance, second-generation HIV surveillance, HIV serosurveillance, and HIV sentinel surveillance as used in this module;
- describe how certain epidemiologic principles and also the stage of the epidemic in a location guide HIV serosurveillance;
- compare AIDS case surveillance and HIV serosurveillance, identify the strengths and weaknesses of each, and describe how the two are complimentary;
- identify the main objectives of HIV serosurveillance;
- describe the three main approaches to conducting HIV serosurveillance;
- describe HIV incidence surveillance;
- identify alternative sources of HIV testing data that can be used for HIV surveillance in a second-generation surveillance system.

Definitions and Terms

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 surveillance

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.

The principle of flexibility means that many component activities can make up second-generation HIV surveillance depending on the setting and resources.

Serosurveillance

HIV serosurveillance 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 *serosurveys*.

Sentinel surveillance

HIV sentinel surveillance is considered a core activity of HIV serosurveillance and the primary focus of this training manual. 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.

The populations selected for HIV sentinel surveillance include persons at risk for HIV infection who are regularly and routinely seen in defined locations. These defined locations, also known as sentinel sites, are usually clinics with a surrounding geographic base.

- Sentinel sites may be selected because they include persons that are proxies for the general population; for example, antenatal clinics.
- Or, sentinel sites may be selected because they include persons at particularly high risk of HIV infection, such as STI clinics, drug treatment centres, jails, TB clinics or hospital wards.

In some settings, HIV sentinel surveillance may refer to regular cross-sectional serosurveys conducted in communities outside clinics or other facilities. For example, targeted intervention programmes among sex workers or men who have sex with men (MSM) are sometimes used for sentinel surveillance.

Case reporting

Do not confuse sentinel surveillance with *case reporting*, although case reporting can be an integral part of second-generation HIV surveillance.

- *HIV case reporting* entails the systematic identification and reporting of HIV cases to public health authorities. HIV case reporting is not usually done in SEAR countries except in Sri Lanka.
- *AIDS case reporting* or *AIDS case surveillance* is the identification and reporting of persons meeting the AIDS case definition. Case reporting is not covered in this manual.
- The words *active* and *passive* are used to describe surveillance activities that depend on the public health officials conducting the activities (active) or rely on physicians or non-public health officials to collect or report data (passive).

Overview of HIV Serosurveillance

This manual focuses on one core activity of HIV surveillance: HIV serosurveillance. HIV serosurveillance measures HIV prevalence in specific populations on an ongoing basis.

Uses of HIV surveillance data

The uses of HIV surveillance data include:

- Advocacy;
- Mobilization of political commitment;
- Educating the public;
- Prevention and care programme planning and resource allocation;
- Targeting and developing new prevention and care programmes;
- 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;
- Guiding scientific research;
- Providing information on changes or trends in disease distribution by geographic, sociodemographic or exposure parameters;
- Identifying groups or geographical areas for targeted intervention efforts (national, district, local);
- Providing data for prevention programme management, such as for voluntary counselling and testing, prevention of maternal-to-child transmission and STI management (national, district, local).

Principles of HIV serosurveillance

Epidemiologic principles that guide HIV serosurveillance include:

- HIV infections are not uniformly distributed in a population. The distribution of HIV infection in the population depends on the prevalence of behaviours associated with an increased risk for HIV transmission.
- There are a limited number of modes of HIV transmission. These include:
 - through sexual intercourse
 - through contact with blood
 - from mother to child
- HIV infection enters into different geographic areas and populations at different times and spreads at different rates.

In order to most accurately measure HIV prevalence, surveillance data focuses primarily on three variables:

- person (for example, young women vs. older men)
- place (for example, by city versus rural health district)
- time (for example, an increase or decrease over the last three years)

Monitoring trends in HIV infection over person, place and time requires that surveillance be conducted in the same manner and in the same population groups each time it is done.

HIV serosurvey designs

There are three main survey designs for HIV serosurveillance:

HIV sentinel surveillance entails measuring the prevalence of HIV infection in a selected sentinel population in serial cross-sectional surveys in a consistent manner on an ongoing basis.

- Sentinel populations are usually clinic attendees (for instance, STI clinics) where blood that is routinely drawn for other purposes (such as syphilis testing) is used for HIV testing.
- The steps for setting up a sentinel surveillance system are presented in Annex 1.1.
- A template for a survey protocol is presented in Annex 1.2.
- The procedure for conducting sentinel surveillance is the focus of this manual.

Community-based serosurveys may be needed to reach populations that are not included in clinic-based sentinel sites and who are rare in surveys of the general population.

- Community-based surveys may be conducted to reach populations at particularly high risk for HIV infection.
- In Asia, such surveys may be conducted among sex workers, long-distance truck drivers, injection drug users or men who have sex with men.

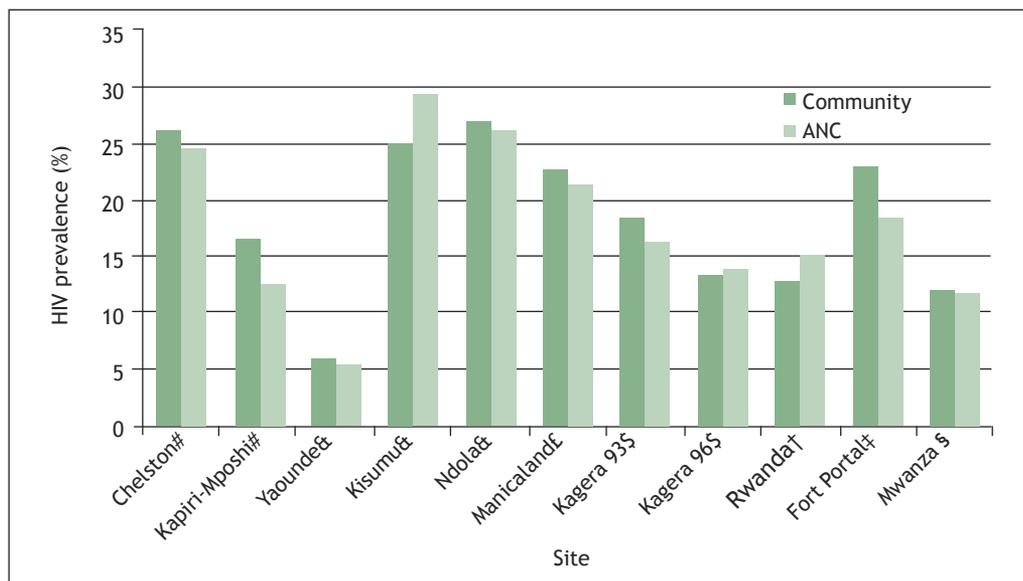
Population-based serosurveys are designed to obtain a direct measure of HIV prevalence in the general population.

- Population-based surveys use a probability sample of a population defined by geographic boundaries, such as villages or provinces.
- In a probability survey, each person in that population has an equal or known probability of selection in the sample.
- An example is the Demographic and Health Survey Plus, which includes collection of blood for HIV testing. Such surveys are complex and costly. Nonetheless, periodic population-based serosurveys may be needed to calibrate sentinel surveillance data. That is, does the site over- or under- estimate the true prevalence of HIV in the population?

A recent study compared HIV prevalence estimates from ANC sentinel surveillance to community- and population- based studies in sub-Saharan Africa. Of note, there is reasonable correlation in HIV prevalence between the two approaches across various locations in diverse African countries.

Figure 1.1

HIV prevalence in adults (community studies) and pregnant women (ANCs) by site



Source: Walker N, Stanecki KA, Brown T, et al. Methods and procedures for estimating HIV/AIDS and its impact: the UNAIDS/WHO estimates for end of 2001. AIDS 2003, Oct 17;17(15):2215-25.

HIV incidence and prevalence

An assumption of HIV serosurveillance is that trends in HIV prevalence reflect patterns in HIV transmission, that is, HIV incidence.

- *Incidence* is defined as the rate of new infections occurring in a population over time. HIV incidence is expressed as per cent per year.
- In contrast, HIV *prevalence* is defined as the proportion of persons living with HIV in a population at one point in time.

The following table compares these two measures of infection in a population:

Table 1.1

Comparing incidence and prevalence

Type of measure	Characteristics
Incidence	<ul style="list-style-type: none"> • provides a measure of the speed of spread of HIV in a population • indicates where HIV prevention is needed influenced by levels of risky behaviours
Prevalence	<ul style="list-style-type: none"> • 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 at which infected people leave the population for reasons such as death or migration

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.

Monitoring indicators

Unfortunately, direct measures of HIV incidence are logistically difficult and costly to obtain. Several methods to measure or estimate HIV incidence include:

Cohort studies - The traditional method to measure HIV incidence entails enrolling persons who are uninfected into a cohort study. Subjects are periodically tested for HIV (for instance, annually) to measure the rate of new infection.

- For example, “HIV incidence and factors contributed to retention in a 12-month follow-up study of injection drug users in Sichuan Province, China,” (Ruan, Y. et al., *J Acquir Immune Defic Syndr.* 2005 Aug 1;39(4):459-63) studied a cohort of HIV-negative 333 IDUs to determine rates of new infection.
- An even larger study (Hu, D.J. et al. Frequency of HIV-1 dual subtype infections, including intersubtype superinfections, among injection drug users in Bangkok, Thailand. *AIDS*, 2005 Feb 18;19(3):303-8) followed 1,209 IDUs in 15 methadone clinics to determine incidence.

Laboratory-based methods - Several laboratory tests can identify persons in the early period of HIV infection. A promising technique to measure HIV incidence in cross-sectional serosurveys is the HIV-1 BED incidence EIA. The assay identifies persons who were infected in approximately the past six months.

- *Repeat testers* - HIV incidence can be calculated from persons who are repeatedly tested for HIV, for example, at voluntary counselling and testing sites or through routine testing at STI clinics. New infections are identified by persons who tested HIV-negative at one visit and later test HIV-positive at another.
- *Mathematical modelling* - Various equations to estimate HIV incidence have been developed based on a variety of data and assumptions, including HIV prevalence by age groups, the chance of transmission through certain behaviours, or back-calculation from AIDS cases.
- *HIV prevalence in young age groups* - HIV incidence is often estimated from the HIV prevalence among the youngest individuals such as 15- to 24-year-old women in ANC surveys. Because they have not been sexually active for very long, their infections are relatively new.
- Until there is further validation of and experience with the methods to directly measure HIV incidence, it is recommended to use trends in HIV prevalence among 15- to 24-year-olds as a practical proxy measure for trends in HIV incidence.

Additional sources of prevalence data

HIV testing is done in a large number of programmes and settings. Testing in these sites is not usually conducted for surveillance reasons, but the data from these sites may be used to enhance HIV serosurveillance activities. The data, however, must be interpreted cautiously. The list below outlines the five general types of HIV testing programmes.

1. *Voluntary counselling and testing programmes* - Persons may seek HIV testing in order to be counselled on their care and treatment options and to reduce their risk of acquiring and transmitting infection. To the extent that persons who suspect they are infected seek out HIV testing, using HIV prevalence data from voluntary testing programmes may overestimate the true prevalence in a population.
2. *Routine HIV testing* - In some settings, HIV testing is routinely offered and conducted as part of standard care. For example, many ANCs in Asia are scaling up programmes to prevent mother-to-child transmission of HIV. As coverage of all women increases, data could approximate prevalence determined by ANC-based HIV sentinel surveillance. STI and TB clinics are other settings where routine or universal HIV testing of patients is indicated for their care.
3. *Blood transfusion safety* - In order to prevent transmission of HIV from transfusion of blood and blood products, universal HIV testing is indicated. Ideally, blood donation is voluntary, and measures to select donors at lowest risk of infection are in place. HIV prevalence data from blood banks are therefore likely to underestimate true prevalence in a population.
4. *Scientific research* - HIV testing is often done in the context of scientific research whose purposes may range from epidemiologic surveys to characterize populations at high-risk to prevention interventions to reduce risk. HIV prevalence data from studies must therefore be interpreted in the context of the objectives of the research and the study subjects included.
5. *Screening of persons entering the military, seeking employment, or other benefits* - In some instances, persons are routinely tested for HIV for a particular purpose, such as entering the military or to get health insurance. HIV prevalence data from these sources may be biased by self-selection. For example, data from screening in the military may be more representative of the young adult male population if there is universal conscription, but less representative if based on voluntary service or if there are many restrictions on who may enlist.

While HIV testing data collected for purposes other than surveillance may under- or over-estimate true population prevalence, they are still a potential source of information regarding HIV prevalence in different populations. Next we turn to the main source for collecting information about HIV prevalence, HIV sentinel surveillance.

Summary

For South-East Asia, serosurveillance is the core activity of HIV surveillance. HIV serosurveillance measures HIV prevalence in specific populations on an ongoing basis. There are three main survey designs for HIV serosurveillance:

- HIV sentinel surveillance
- Community-based serosurveillance
- Population-based serosurveillance.

HIV incidence is a measure of new infections in a population, while prevalence is a measure of the defined as the proportion of persons living with HIV in a population at one point in time. There are different methods for estimating HIV incidence and prevalence.

Exercises

Warm-up review

Take a few minutes now to look back at your answers for the warm-up questions at the beginning of the unit. Make any changes you want to.

Small group discussion

Get into small groups to discuss these questions.

1. List all of the groups where HIV testing is conducted in your district or province.
2. For what reasons is testing being conducted in each group?
3. Can you suggest groups in which HIV serosurveys might be useful in your district or province?
4. What methods have been used to assess HIV prevalence and monitor trends in your district or province?
5. To what extent are the above objectives for HIV sentinel surveillance applicable to the HIV sentinel surveillance system in your country? List which ones need improvement.

Apply what you have learned/case study

You are the surveillance officer for the Panga district of the country of Nodesh. Your district is large and located on a major highway on the border of a country with a large refugee population. New funding for surveillance has made possible the expansion of activities in your district.

Currently, two of the four antenatal clinics in your district participate in the national HIV sentinel surveillance system. One is located in the main city of your district, Bangalay, which is also the provincial capital. The other is in a rural area near the provincial capital. Of the remaining two antenatal clinics, one is located far from the capital, far from the main highway, near a refugee camp across the border. The other is in a private hospital funded by international charities in the provincial capital.

There is a rapidly growing town, Datapur, on the national border where truck drivers wait long hours to pass customs inspections. Sex workers congregate in the border town, along the highway, and in two distinct areas of Panga. There are also an STI clinic and outpatient TB programme in the hospital in the provincial capital. You have sufficient funds to add one surveillance activity in your district.

- a. What types of surveillance activities could you consider?
- b. What are the advantages and disadvantages of each?

Annex 1.1 Steps for Setting Up an HIV Sentinel Surveillance System

Before an HIV sentinel surveillance system is set up or expanded to an area where it does not exist, take the following steps as part of a strategic plan and develop a surveillance protocol.

Background preparation

- Review existing epidemiologic situation and need for HIV surveillance
- Assess current HIV surveillance activities at the national, provincial and district level
- Review additional, existing sources of HIV prevalence data

General survey methods

- Select sentinel populations.
- Select sites for sentinel surveillance.
- Select inclusion criteria for sample.
- Review methods for collecting blood samples for HIV testing.
- Review procedures for maintaining confidentiality of HIV test results.
- Determine data to be collected with blood samples.
- Determine methods for compiling, analysing, presenting and disseminating data at national, provincial and district levels.

Sampling methods

- Determine the overall sample size.
- Determine the frequency of sampling.
- Determine the duration of sampling.
- Determine the minimum sample size per sentinel site.

Laboratory testing

- Review recommended Joint United Nations Programme on AIDS (UNAIDS)/WHO HIV testing strategy.
- Select HIV tests to be used for surveillance specimens.
- Develop HIV testing protocol for local and national use.
- Develop quality assurance plans for laboratory HIV testing.

Training

Provide training for:

- surveillance personnel
- sentinel site staff
- laboratory staff
- supervisory personnel
- data management and analysis personnel

Surveillance system supervision

- Develop a plan for supervision at sentinel sites.
- Be sure supervisory plans include district, regional and national staff.

Personnel requirements

- Identify personnel requirements for data collection and specimen processing.
- Identify personnel requirements for transport of specimens to the laboratory.
- Identify personnel requirements for HIV testing.
- Identify personnel requirements for data compilation, analysis, presentation and interpretation.
- Identify personnel requirements for district, provincial and national supervision.

Equipment needs

- Identify equipment needs for specimen collection, serum separation, storage and transport.
- Identify equipment needs for HIV testing.
- Identify equipment needs for data compilation, analysis and presentation.
- Identify general office equipment and space.

Budget

- Determine cost of identified required personnel and equipment.

Dissemination, presentation

Plan dissemination and presentation of results to audiences including:

- National AIDS Committee
- Ministry of Health, other government ministries
- Media and general public
- Sentinel sites/districts/provinces
- General public and community-based organizations

Finalization

Compile these elements into a plan of action and timeline for implementation of HIV sentinel surveillance protocol.

Annex 1.2 Outline of a Survey Protocol

Introduction

- a. types of HIV/AIDS surveillance (biological, AIDS case, behavioural, etc.)
- b. modes of blood collection for HIV testing (with/without informed consent, linked/unlinked/confidential anonymous)

Sampling, blood and data collection

- a. sentinel population: Describe a clinic population, eligibility and ineligibility requirements
- b. sampling frame
- c. sample size (per site), sampling period, possibly by type of site (rural/urban)
- d. blood and data collection at site: Describe methods step by step; highlight which steps are to take place in the clinic waiting room, and which in the laboratory (laboratory technician)
 - i. Tally sheet to count eligible women
 - ii. Routine blood draw for syphilis
 - iii. Filling in of laboratory request form
 - iv. Filling in of surveillance questionnaire
 - v. Syphilis testing
 - vi. Removing an aliquot of blood and unlinking the specimen
 - vii. Labelling of surveillance questionnaire and specimen
 - viii. HIV testing at site
 - ix. Hands-on demonstration of activities
- e. overview: data and specimen flow chart to central/national office
- f. forms and file keeping:
 - i. list forms to be used
 - ii. describe purpose of each form
 - iii. state who is to fill in form
 - iv. describe how to fill in form
- g. specimen storage (temperature recording form)
- h. specimen transport

Syphilis testing

- a. introduction
- b. serologic testing
 - i. introduction
 - ii. immunology of syphilis infection
 - iii. test principles
 - iv. interpretation of results of test used
 - v. recording of syphilis results, unlinking
 - vi. treatment of syphilis
 - vii. handling of blood taken for syphilis testing

HIV testing

- a. type of HIV test(s) used
- b. testing algorithm
- c. protocol for conducting testing (if done at site)

Supervision

- a. outline who supervises site staff, how, and when.
- b. explain how findings of supervision are forwarded to regional/national level

Roles and responsibilities during the surveillance round

- a. Ministry of Health
- b. regional level
- c. health centre
 - i. health centre coordinator or manager
 - ii. health centre laboratory technician
 - iii. nurse

Other

- a. required materials and equipment for each sentinel site
- b. checklist for trainers