

**Handbook of Indicators**  
**for**  
**HIV/AIDS/STI Programs**

**First Edition**  
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In addition to the draft UNAIDS guide, several sources of information on existing indicators and measurement approaches were consulted, including the WHO Global Programme on AIDS Prevention Indicators, The Evaluation Project Reproductive Health Indicators, the AIDS Control and Prevention (AIDSCAP) Project, the Centers for Disease Control and Prevention/U.S. Department of Health and Human Services, and the Bureau of the Census.

## ACRONYMS

AIDS	Acquired immune deficiency syndrome
AIDSCAP	AIDS Control and Prevention Project
ANC	Antenatal care
API	AIDS Program Effort Index
ARV	Antiretroviral
BSS	Behavioral surveillance survey
CA	Cooperating agency
CDIE	Center for Development Information and Evaluation (USAID)
DHS	Demographic and Health Survey
DOSA	Discussion-oriented self-assessment
FHI	Family Health International
FP	Family planning
GPA	Global Programme on AIDS (WHO)
G/PHN	Bureau for Global Programs, Field Support and Research, Center for Population, Health and Nutrition (USAID)
HIV	Human immunodeficiency virus
IEC	Information, education and communication
IR	Intermediate Result
M&E	Monitoring and evaluation
MTCT	Mother-to-child-transmission of HIV
OCAT	Organizational capacity assessment tool
ORS	Oral dehydration solution
PSI	Population Services International
PVO	Private voluntary organization
R4	Results Review and Resource Request
RF	Results Framework
RH	Reproductive health
RPR	Rapid plasma reagin
SDP	Service delivery point
SSO	Strategic Support Objective
SSOT	Strategic Support Objective team
STI	Sexually Transmitted Infection
UNAIDS	Joint United Nations Programme on HIV/AIDS
USAID	United States Agency for International Development
VCT	Voluntary counseling and testing
WHO	World Health Organization

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## I. INTRODUCTION

### PURPOSE OF HANDBOOK

In 1996, the HIV–AIDS Division of the USAID Bureau for Global Programs, Field Support and Research, Center for Population, Health and Nutrition, Office of Health and Nutrition (G/PHN/HN/HIV–AIDS), redesigned its HIV/AIDS Strategic Support Objective (SSO) and Results Package to better reflect the experience gained to date in prevention activities and to respond more effectively to the growing and changing worldwide epidemic. The new HIV/AIDS Results Package selected by the stakeholders during the participatory redesign process represents those programming areas in which the Center for Population, Health, and Nutrition (Global Bureau) has the greatest comparative advantage and/or leadership responsibility, including continuing to focus on the prevention of sexual transmission of HIV through behavioral change interventions and a wide range of operational and service delivery areas, such as sexually transmitted disease prevention, HIV/AIDS care and support, human rights, and capacity building. Referred to as the fourth G/PHN Strategic Support Objective (SSO 4), it aims to achieve an **increased use of improved, effective, and sustainable responses to reduce HIV transmission and to mitigate the impact of the HIV/AIDS pandemic.**

To monitor the progress of the new G/PHN HIV/AIDS strategy, it is necessary to define appropriate indicators that USAID’s Global Bureau, Regional Bureaus, field Missions and SSO 4 partners can feasibly measure. Therefore, the objectives of this handbook are to

- define the key indicators for monitoring and evaluating the SSO 4 portfolio;
- promote the use of standard indicators for the monitoring and evaluation of USAID HIV/AIDS country programs through the Results Review and Resource Request (R4) process; and,
- facilitate the adoption of global indicators for the monitoring and evaluation of programmatic areas that will be covered under the SSO 4 portfolio in subsequent years.

This handbook presents indicators for monitoring and evaluating USAID–supported programs.<sup>1</sup> For each indicator, definitions, data sources, purposes, and strengths and limitations are described. The handbook is designed to include indicators to measure the key aspects of the USAID HIV–AIDS portfolio. As many country programs only address part of this portfolio, users of the handbook should choose those indicators that are appropriate for monitoring and evaluating their programs. It is important to note that this document places primary emphasis on those indicators directly related to the Intermediate Results (IRs) under SSO 4. Section II presents the key indicators to measure the main components of the portfolio. Section III includes a supplementary list of indicators for those programmatic areas that are not part of the portfolio,

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<sup>1</sup> In some countries, USAID may only support programs in select regions. While many of the indicators could be measured on smaller scale interventions or projects, it may not be cost-effective to measure them at this level.

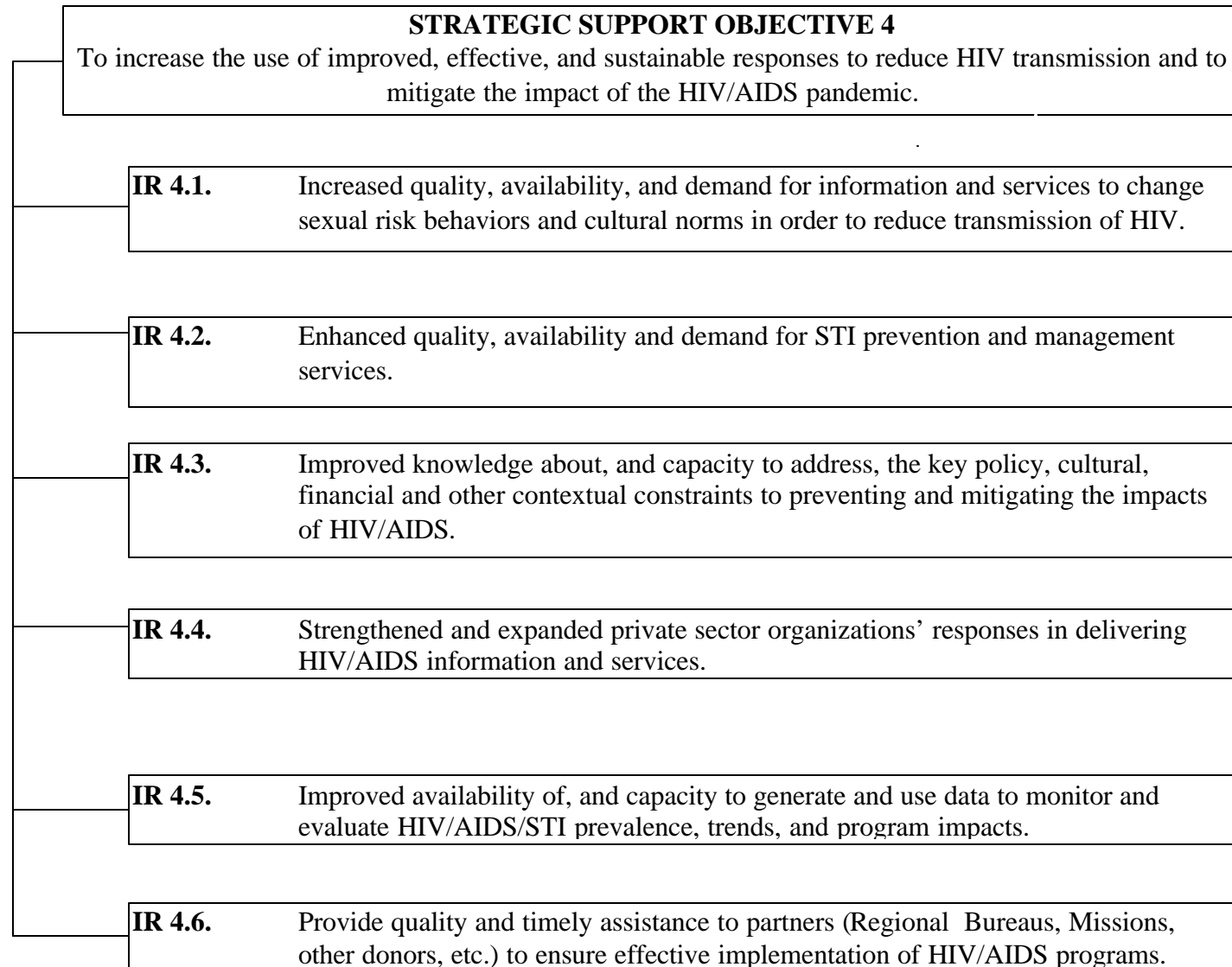
and may be appropriate for use by those Missions that support activities in these areas. These additional indicators are currently in use or being field tested by UNAIDS and national partners.

Most of the indicators included in this handbook are consistent with the *Guide and Methods Packages for Monitoring and Evaluation of National AIDS Programmes* that is currently being field tested by UNAIDS, MEASURE Evaluation, WHO, and USAID partners. This guide was developed through a broad consultation with country program staff, donor representatives and evaluation specialists from institutions all over the world. It aims to summarize the best practices in the field of monitoring and evaluation (M&E) of national HIV prevention, AIDS care and sexually transmitted infection (STI) control programs at the end of the 1990's, and to recommend options for M&E systems in the future. The guide and its four Methods Packages provide valuable information on state-of-the-art data collection instruments and measurement tools necessary for the application of many of the indicators in this handbook.

This global guide is more comprehensive in its coverage of HIV, AIDS and STI interventions and is intended primarily for use by program managers in national AIDS control programs. The USAID handbook, however, is intended for use by Mission and regional Population, Health, and Nutrition officers and field support staff at the project level, including all projects supported under the SSO 4 portfolio.

Figure 1 presents the Global Bureau's SSO 4 Strategic Framework, including the overall Strategic Support Objective and the six Intermediate Results. Figure 2 shows the Africa Bureau's SO 9 HIV/AIDS Results Framework. A listing of all the key indicators that are included in this handbook follows figure 1. Those indicators that are still under development are listed in *bold italics*. Further details on these indicators will be included in future editions of the handbook once they have been tested. **This is a working document and will be updated periodically.**

**FIGURE 1: SSO 4 STRATEGIC FRAMEWORK**







## **SUMMARY LIST OF INDICATORS**

### **SSO 4 LEVEL INDICATORS**

- *HIV incidence*
- *STI prevalence*
- HIV prevalence among pregnant women
- Syphilis prevalence among pregnant women
- HIV prevalence in subpopulations with high-risk behavior
- Percent of children who are orphans
- The AIDS Program Effort Index (API)

### **IR 4.1. Reduction of Sexual Risk**

#### **Condom Accessibility and Quality**

- Condoms available for distribution nationwide
- Retail outlets and services with condoms in stock
- Condoms that meet quality and control measures

#### **Knowledge**

- Knowledge of HIV–prevention methods
- No incorrect beliefs about AIDS
- Comprehensive correct knowledge about AIDS
- Knowledge of HIV prevention among males having sex with males
- Knowledge of HIV prevention among injecting drug users
- Knowledge of prevention of mother-to-child transmission of HIV

#### **Sexual Behavior**

- Risky sex in the last year
- Condom use at last risky sex
- Sexual relations with sex worker in the last 12 months
- Condom use at last commercial sex; reported by client
- Condom use at last commercial sex; reported by sex worker
- Risky male-male sex in the last year
- Condom use at last male-male anal sex

#### **Sexual Negotiation**

- Women’s ability to negotiate safer sex with husband

### **IR 4.2. Improved STI Services**

- Appropriate diagnosis and treatment of STIs
- Advice to STI patients on prevention and referral to HIV testing services

- Drug supply at STI clinics
- Men and women seeking treatment for STIs

### **IR 4.3. Reduction of Contextual Constraints**

#### **Policy**

- *Spending on HIV prevention*

#### **Stigma and Discrimination**

- *Accepting attitudes towards those living with HIV*
- *Employers not discriminating against those with HIV*

### **IR 4.4. Improved Private Sector Responses**

#### **Private Sector Capacity Building**

- Number of people receiving quality HIV/AIDS services from USAID–assisted private sector organizations
- Number of people receiving quality HIV/AIDS services from USAID–assisted U.S. private voluntary organizations (PVOs)
- Number of people receiving quality HIV/AIDS services from USAID–assisted commercial firms
- Number of people receiving quality HIV/AIDS services from USAID–assisted indigenous nongovernmental organizations (NGOs)

#### ***IR 4.5. Strengthened Data Collection for Monitoring and Evaluation***

***[To be developed by The Synergy Project]***

#### ***IR 4.6. Effective Program Implementation***

***[To be developed by The Synergy Project]***

### **ADDITIONAL INDICATORS FROM UNAIDS M&E GUIDE**

#### **Sexual Behavior among Young People**

- Median age at first sex
- Young people having premarital sex in the last 12 months
- Condom use at last premarital sex
- Young people with multiple partners in the last 12 months
- Condom use at last risky sex
- Age mixing in sexual relationships

### **Voluntary Counseling and Testing (VCT)**

- Population requesting HIV test and receiving results
- Districts with VCT services
- Quality post HIV test counseling
- VCT centers with conditions for quality services

### **Mother-to-Child Transmission (MTCT) of HIV**

- Pregnant women counseled and tested for HIV
- Antenatal clinics (ANC) offering or referring for VCT
- Quality HIV counseling for pregnant women
- Provision of antiretroviral (ARV) therapy during pregnancy

### **Injecting Drug Use**

- Drug injectors sharing equipment
- Drug injectors using condoms at last sex

### **Blood Safety**

- Screening of blood units for transfusion
- Reduction of unnecessary blood transfusions
- Health care facilities with guidelines/practices for prevention of accidental HIV transmission

### **Care and Support for the HIV- infected and their Families**

- Medical personnel trained in the care of HIV–related conditions
- Health facilities with the capacity to deliver appropriate care to HIV–infected persons
- Health facilities with drugs for opportunistic infections and palliative care in stock
- Households receiving help in caring for chronically ill young adults
- Households receiving help with orphan care

## **DEFINITIONS OF KEY EVALUATION TERMS AND CONCEPTS**

The evaluation terminology used in this handbook (and defined below) emphasizes the distinction between program-based and population-based results, short/medium- and long-term population-based results, and program monitoring and impact assessment. While this terminology was developed within the context of the evaluation of family planning programs, it is also applicable to the evaluation of other health programs, such as HIV/AIDS/STI.

### **Stages of the HIV/AIDS Epidemic**

UNAIDS and WHO, in their report, *Second Generation Surveillance for HIV: The Next Decade*, define the three epidemiological stages of the HIV/AIDS epidemic: low-level, concentrated and generalized. The stage of the epidemic has important implications for public and private sector priorities in preventing the spread of HIV. A brief description of each epidemic stage is provided below.

#### Low-level Epidemics

This stage of the HIV/AIDS epidemic occurs in areas where HIV has not yet spread widely, even among groups whose behavior puts them at risk. In these high-risk groups, HIV prevalence has not consistently exceeded 5 percent. Developing areas with low-level epidemics are estimated to include more than 40 percent of the world population, half the population of developing countries, and more than half the population of low-income countries.

#### Concentrated Epidemics

This stage of the epidemic occurs when HIV prevalence consistently exceeds 5 percent in one or more groups with high-risk behavior, but is still less than 1 percent in pregnant women in urban areas. Once HIV has reached high levels among those that are most likely to contract and spread the virus, containing the epidemic becomes increasingly difficult and requires additional proactive measures.

#### Generalized Epidemics

In generalized epidemics, HIV is firmly established in the general population and HIV prevalence is consistently more than 1 percent in pregnant women. Although high-risk groups may continue to contribute disproportionately to the spread of HIV, sexual networking in the general population is sufficient to sustain an epidemic, independent of high-risk groups.

Countries with a generalized epidemic will face two related sets of challenges: establishing or maintaining prevention programs focused on those most likely to contract and spread HIV, while expanding prevention efforts to those with a somewhat lower risk of transmitting the virus; and, mitigating the impact of AIDS sickness and death, especially among the poor.

## Program Components

Program **inputs** refer to the set of resources (i.e., financial, policies, personnel, facilities, space, equipment and supplies) that are the basic materials of the program.

Program **processes** refer to the set of activities in which program inputs are utilized to achieve the results expected from the program.

Program **outputs** are the results obtained at the program level through the execution of program activities using program resources. These may be divided into the following three components: functional outputs, service outputs and service utilization.

- **Functional outputs** are the direct result of program activities in six key functional areas: policy, training, management, commodities and logistics, research and evaluation, and information, education, and communication (IEC). Examples of functional outputs include the number of people trained in the last year, number of IEC messages aired on the radio over the last quarter, and existence of a management information system.
- **Service outputs** are the results of program activities aimed at improving the service delivery system. These are measured in terms of quality, accessibility of services, and program image and acceptability.
- **Service utilization** is the result of making services more accessible and satisfactory to potential clients. This result is generally measured at the program level.

Program **outcomes** and **impacts** are the set of intermediate and longer term results expected to occur at the population level due to program activities and the generation of program outputs.

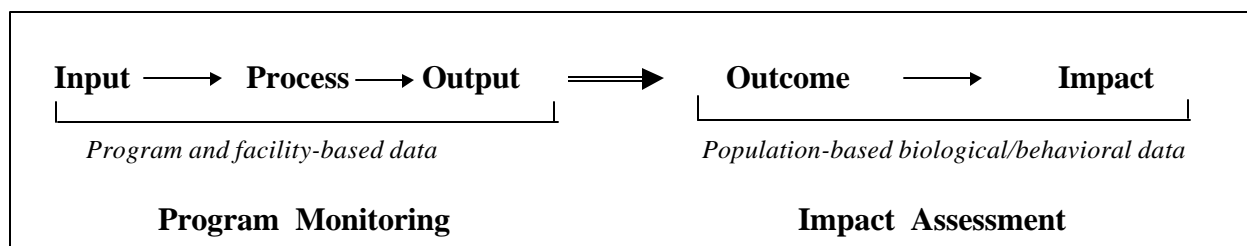
- **Program outcomes** are the intermediate results at the population level that are closely linked to program activities and program-level results. These intermediate results, or outcomes, are generally achieved in two to five years.
- **Program impacts** are the results at the population level that are long term in nature and are produced only through the action of intermediate outcomes. Long-term results, or impact, are generally achieved in 5–10 years.

## Levels of Measurement

Inputs, process, and outputs relate to activities and results at the program level and are usually measured with program-based or facility-based data. Program-based data come from routine data collection (e.g., service statistics, client and other clinic records, administrative records, commodities shipments, sales) as well as information that is collected on site whether services are delivered (e.g., provider surveys, observation of provider-client interaction, retail audits, mystery clients) or from a follow-up study of clients.

Outcomes are usually measured with population-based biological and behavioral data. Population-based data refer to information obtained from a probability sample of the target population in the catchment area for the program. This may be a country, a region, or a particular subgroup of the population (e.g., sex workers), depending on the areas that a given USAID Mission is supporting. The data are generally collected from surveys, such as the Demographic and Health Survey, Behavioral Surveillance Survey or the Young Adult Reproductive Health Survey. Biological-based data are generally collected through sentinel surveillance systems.

The primary types of data sources for the different levels of measurement are shown below.



## Types of evaluation

**Program monitoring** tracks progress in program performance by establishing that project inputs, activities, and outputs have occurred. Program monitoring also identifies possible problem areas that may require more indepth evaluation.

**Impact assessment** determines the extent to which program- and/or population-level results are attributable to a specific program or intervention (e.g., behavior change interventions that result in a decrease in HIV prevalence).

It is particularly important to understand the distinction between program monitoring and impact assessment. While program-monitoring measures change over time, impact assessment tries to determine the cause of that change (i.e., attribute change to the program). To measure the attribution (impact) of behavior change to the program, it is necessary to develop a causal model that traces how the program elements are expected to affect behavior. In addition, the causal pathways must be tracked statistically from inputs to outcomes. However, the indicators used to measure impact are generally the same as for program monitoring. The primary distinctions between the two are the study designs and the analytic techniques used.

## Methods Package

The data collection instruments and guidelines needed to construct the proposed indicators are available in the UNAIDS/WHO/USAID/MEASURE, *Guide and Methods Packages for Monitoring and Evaluation of National AIDS Programmes*. These are based on existing instruments from a variety of sources, and are grouped into four packages. Each Methods Package focuses on one major area of AIDS programs: knowledge, attitudes, sexual behavior;

program context, input, and output; service provision; and, health status. Each Methods Package also centers on a particular type of data collection, for example, population surveys or health facility assessments. Some of the instruments have been in existence for many years and have been widely tested, others are relatively new, and a few are still under development. If specific instruments improve with experience, previous versions can simply be replaced with newer versions. To access the latest version of a given data collection instrument, all updates will be posted on the Internet at a UNAIDS web site, initially operated by MEASURE *Evaluation* (<http://www.cpc.unc.edu/measure>).

Appendices I, II and III show the grouping of the indicators in the four Methods Packages and list the data collection instruments and guidelines that already exist or are currently under active development; compare the indicators proposed in this USAID handbook and currently being field tested by UNAIDS/WHO/MEASURE, and present the overview of global indicators by program area, Methods Package, measurement levels, and priority by the stage of the epidemic. The choice of indicators and therefore of data collection instruments will depend on a number of factors, including the stage of the epidemic, available resources, and capacity for data collection.

## **SELECTING AND USING INDICATORS**

Good indicators for the monitoring and evaluation of HIV/AIDS/STI programs should be clear about the purpose they are to serve. Once this is established, efforts should be made to ensure that the indicator is well defined, feasible to collect, easy to interpret, and able to track changes over time.

### **Selecting Indicators**

Indicators are operational measures of the components of a program. Once a baseline value has been fixed for the indicator, it can be monitored over time to see how well program services are being supplied and used and/or whether the targeted change in condom use is being achieved.

While there are a number of desirable features of a good indicator, more specifically, it should

- actually measure the phenomenon it is intended to measure (valid),
- produce the same results when used more than once to measure precisely the same phenomenon (reliable),
- measure only the phenomenon it is intended to measure (specific),
- reflect changes in the state of the phenomenon under study (sensitive), and
- be measurable or quantifiable with developed and tested definitions and reference standards (operational).

Most importantly, an indicator should be relevant. If one cannot make decisions based on an indicator or group of indicators, there is no point in collecting the information.



The above criteria should be kept in mind when constructing or selecting indicators for monitoring and evaluating different aspects of programs. Otherwise, there is a risk of identifying an inappropriate set of indicators. Also, indicators should be readily available from existing data sources or obtained on a regular basis at low cost. Indicators become problematic when they are unreasonably difficult to compile, irrelevant to the main issues at hand, or measured too infrequently to be helpful.

As a first step, programs should monitor their inputs and outputs. Input and output indicators are relatively easy and inexpensive to collect. Where they register change, they indicate the need for monitoring and evaluation at the outcome or impact level. To ascribe outcomes to program effort would require more rigorous evaluation approaches.

### **Using Indicators**

The Center for Development Information and Evaluation (CDIE) in USAID and others have suggested several criteria to consider in choosing among performance indicators at the program level:

- Is the indicator oriented toward the targeted results (objective) and is it at the appropriate level?

It is important to include at least one indicator relating to the desired results, appropriate to the scale of the intervention. That is, if a desired outcome is to lower STI infection rates in a program that provides care to clients engaging in risky sexual behaviors, an indicator of STI prevalence should be selected and a value obtained for the catchment population if this is not too costly. If the program is largely confined to achieving results among clients of a specific facility (e.g., a STI clinic), then an area-based STI prevalence is not an appropriate result indicator. In this scenario, a more appropriate indicator would be one related to case management (e.g., percent of individuals presenting with specific STIs in health facilities who are assessed and treated in an appropriate way, according to national standards).

- How easy is it to obtain the information, how often is the information updated, and what are the sources of the information? What is the quality of the data?

Effort should be given to design or select indicators of high priority which involve minimal difficulty in measurement. Naturally, priority should be given to indicators based on measures of known quality (i.e., strong reliability and validity).

- How comparable are the results from the indicator?

Because of the need to monitor the performance of health interventions across a number of programs simultaneously and given the new evaluation methods for HIV/AIDS/STI programs, priority should be given to those indicators that offer comparable results. Selection of esoteric, circumstance-specific indicators should be

avoided since validity and reliability can be difficult to determine without repeated applications.

- How responsive to change is the indicator?

An indicator should change in response to program interventions. Indicators that are responsive to underlying intervention efforts in a short period of time (3–5 years) are to be preferred over, but should not displace, those requiring a longer lag time (e.g., HIV prevalence). Responsiveness also depends on sample size, power, confidence intervals, and normal variation over time. This last factor, together with the expected change due to the intervention, should determine the frequency of data collection. For example, if an indicator is only expected to change over a five-year period, it does not make sense to measure it every year. It is necessary to first obtain a baseline value on the indicator so that subsequent values can be compared to determine if change or improvement has occurred.

## **HIV/AIDS/STI PROGRAM EVALUATION**

While the majority of disease control programs use biological indicators to monitor and evaluate progress, HIV/AIDS biological data are either unavailable or of little value for evaluation purposes. The lack of a cure for HIV/AIDS has led programs, and therefore evaluation methodologies, to focus on prevention, particularly in developing countries. It is only recently that efforts have broadened to include other programmatic areas, including care and support, human rights, etc. Methods for monitoring and evaluating programs in these new areas are thus in the early stages of development.

Many groups working in the area of HIV/AIDS/STI continue to develop methodologies for monitoring and evaluating HIV/AIDS/STI, including the application of new technologies for biologic assessment. This handbook presents the current state of the art in the evaluation of HIV/AIDS/STI programs and will be updated periodically in response to new developments.

In the absence of HIV incidence data in many countries, efforts to measure the impact of HIV/AIDS/STI prevention programs have focused on behavior change. In fact, it is the indicators related to sexual behavior change that are the most developed, having been extensively field tested in numerous settings. While many measurement issues remain, there is general consensus on how to measure the sexual behavior indicators presented in this handbook. (The next section on methodological challenges in monitoring and evaluating HIV/AIDS programs discusses this issue in depth).

Measurement in new program areas, such as care and support, human rights, and NGO capacity building are only now receiving attention. Therefore, evaluators are just beginning to develop indicators and conduct field tests to evaluate progress in programs addressing these issues. This handbook provides some information on the current status in these areas. Future versions of this handbook will contain the results of these efforts.

## **METHODOLOGICAL CHALLENGES IN MONITORING AND EVALUATING HIV/AIDS/STI PROGRAMS**

Measurement problems in monitoring and evaluating HIV/AIDS programs have been documented extensively by various groups, including WHO, UNAIDS and FHI/AIDSCAP. The following describes some of the main challenges.

### **Limitations of Measuring Biologic Outcomes (Incidence/Prevalence of STIs and HIV)**

Measuring biologic outcomes can be expensive and unethical. The quality of laboratory testing also needs to be considered, even if the test itself is good. It is important to maintain universal precautions, such as appropriate disposal of syringes, not only in the laboratory, but also in the field.

In addition, there are limitations to interpreting HIV prevalence trends. For example, stable or even declining prevalence over time can mask increases in incidence in subsets of the population. Prevalence can also continue to increase, even if incidence is stable or decreasing, depending on the stage of the epidemic and how many people are dying.

### **Size and Scope of Program Relative to Level of Measurement**

It is important that the measurement tool used to evaluate a program reflect the size and scope of that program. Therefore, it would not be appropriate to evaluate a small-scale program aimed at a particular target population, such as sex workers, with a national-level survey, such as the Demographic and Health Survey (DHS). Such a survey might dilute the effects of a focused intervention. The Behavioral Surveillance Surveys (BSSs), for example, survey specific risk groups within the general population. It can be used for both evaluation purposes and surveillance.

### **Heterogeneity of Target Populations/Scale of Programs in Different Countries**

Many programs target several different types of populations (e.g., sex workers and migrants). Again, the BSS is one methodology that has been designed to monitor behavior in a variety of risk groups.

### **Attribution of Program Effects**

In most countries, there are many donors supporting HIV/AIDS/STI programs. Therefore, it is often very difficult to isolate the effects of the contribution of any one donor or approach.

### **Dependence on Self-Reported Behavior**

Many of the indicators presented in this handbook rely on self-reported behavior of a very sensitive nature (e.g., sex). The accuracy of self-reported behavior is always a concern. However, it is possible to design internal and external checks to help ensure that the data are

valid and reliable. For example, the same question can be phrased several ways within the same data collection instrument or comparisons can be made between partners.

## **GUIDE TO USING THE INDICATORS**

Tracking changes in indicators over time will help program managers and decision-makers assess how successful the program is in meeting its goals. Most indicators are not designed to explain why a situation has changed or has failed to change; they are designed simply to measure the change. Therefore, the data collection and analysis plan should focus on linking indicators at the different levels of measurement. Program outputs should be interpreted in relation to program inputs. Program outcomes, such as an increase in self-reported condom use, should be analyzed in relation to changes in program outputs, such as numbers of condoms sold. HIV prevalence trends should be interpreted in association with changes in sexual behavior.

The proposed framework for the selection of indicators for monitoring and evaluation is the input-process-output-outcome-impact framework described earlier in this section. The indicators can measure what goes into a program (e.g., money, number of condoms, drugs for treating opportunistic infections, test kits, training) and what comes out (e.g., safe units of blood, trained service providers, adolescents educated about safe sex, orphans and families supported). Program outcomes are often described as increased knowledge, changed attitudes, or adoption of safer sexual behavior; ultimately, such outcomes may have an impact on HIV or STI transmission.

Although efforts were made to make the indicators contained in this volume as applicable as possible to diverse settings, some local adaptation will undoubtedly be necessary, depending both on the level at which the program is being implemented and the agency(ies) involved in the planning, design, implementation, monitoring and/or evaluation of the program. Adaptation will be encouraged to ensure that the indicators are relevant to the program and meaningful to stakeholders. Guidance on how to adapt them in ways to further program goals and allow accurate assessment and comparison across programs will be provided through The Synergy Project working in collaboration with other SSO 4 portfolio partners and PHN officers at the Missions and Regional and Global Bureaus.

## II. SSO 4 INDICATORS

### SSO LEVEL INDICATORS

**SSO 4. Increased use of improved, effective, and sustainable responses to reduce HIV transmission and to mitigate the impact of the HIV/AIDS pandemic.**

#### Indicators of Impact

**SSO 4.0.1. *HIV incidence***

**SSO 4.0.2. *STI prevalence***

SSO 4.0.3. HIV prevalence among pregnant women

SSO 4.0.4. Syphilis prevalence among pregnant women

SSO 4.0.5. HIV prevalence in subpopulations with high-risk behavior

SSO 4.0.6. Percent of children who are orphans

SSO 4.0.7. The AIDS Program Effort Index (API)

## **SSO 4.0.1. HIV Incidence and SSO 4.0.2. STI Prevalence**

### *Indicators to be developed*

#### **Program Goals**

All aspects of HIV and STI prevention programs funnel into a single goal: to reduce the transmission of HIV and other STIs and mitigate the effect on affected individuals and their families. If programs are successful in bringing about changes in exposure to HIV infection, then HIV incidence will decline as well.

#### **Measurement Issues**

Decreased transmission of HIV means fewer new cases. However, it is very difficult for regular monitoring systems to measure new cases—incidence data generally come only from sophisticated and expensive longitudinal cohorts. National monitoring and evaluation (M&E) systems therefore tend to use cross-sectional prevalence data to monitor the spread of infection. But with chronic diseases such as HIV, prevalence data are not reliable as a proxy indicator for recent infections. This is especially so when the data come from sentinel surveillance systems built around selected populations, such as women in antenatal clinics (ANCs). ANC data for HIV are biased by mortality, a reduction in fertility in HIV-positive women, and other factors.

Second generation surveillance aims to make better use of data generated by sentinel surveillance, partly by changing sampling and analysis strategies so that data better reflect more recent infections (see appendix IV for a more detailed description of second generation surveillance). The indicators described here make use of those principles. One of the constraints of sentinel HIV surveillance in generalized epidemics is that few sentinel systems provide any data on men. Other proxy measures of impact in men can be used, for example, the incidence of self-reported or clinical STIs. Since interventions aimed at reducing the spread of HIV should also have an impact on STIs—and a much more rapid one at that—STI measures can be useful as indicators of recent changes in risk behavior.

Measures of HIV and STI incidence and prevalence provide an idea of the health impact of the HIV epidemic and of programs designed to limit it. Mortality data also provide powerful impact indicators. It is recognized, however, that the impact of HIV and AIDS extends beyond health or even mortality. Indicators of incapacity and orphanhood provide a crude idea of the potential social and economic impact of the epidemic at a household level; they will grow in importance as the epidemic matures. More refined indicators are needed to measure the social and economic impact of HIV and AIDS—and of the success of national AIDS programs in mitigating that impact. It is hoped that Methods Packages will be expanded to include additional measures of socioeconomic impact as new methodologies are developed.

### **SSO 4.0.3. HIV prevalence among pregnant women**

#### **Definition:**

Percent of blood samples taken from women aged 15–24 and tested for HIV during routine sentinel surveillance at selected antenatal clinics which test positive for HIV.

#### **What it Measures:**

Women who are pregnant have by definition had unprotected sex in the last 9 months. Levels of HIV infection in these women do not reflect levels among women who are not having sex, are infertile, or are systematically using contraception, including barrier methods, such as condoms, which also prevent HIV transmission.

Confining the indicator to women under 25 aims at providing a picture of recent trends in infection. Most infections in this age group are relatively new, and data from these younger women are also less subject to bias than data for the whole reproductive age span. The indicator is reported for women aged 15–24. However, it is strongly recommended that two separate figures be reported: one for women aged 15–24 and one for women across the whole reproductive age range of 15–49. Because many countries have in the past failed to report HIV prevalence broken down by age, it is important to continue to report a figure for HIV prevalence across the 15–49 year age group to allow for the comparison of trends over time.

#### **How to Measure it:**

This indicator is obtained through the national sentinel surveillance system for HIV and is calculated through unlinked anonymous testing for HIV of blood samples taken from women at sentinel antenatal clinics, chosen to reflect urban, rural, ethnic and other sociogeographic divisions.

Even where programs exist that simultaneously offer counseling and voluntary HIV testing for pregnant women to reduce mother-to-child transmission, only the results of unlinked, anonymous screening of blood taken for other purposes should be used in calculating this indicator of HIV prevalence. Refusal and other participation bias are considerably reduced in unlinked anonymous HIV testing compared with other forms of testing.

*Numerator:* The number of HIV–positive blood samples from unlinked anonymous testing of women aged 15–24 from selected antenatal clinics.

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*Denominator:* Total number of women from selected antenatal clinics submitting to unlinked, anonymous HIV blood testing.

#### **Strengths and Limitations:**

The indicator gives a fairly good idea of relatively recent trends in HIV infection nationwide in countries where the epidemic is heterosexually driven. It is less reliable as an indicator of overall epidemic trends in areas where the bulk of HIV infection remains confined to subpopulations with especially high-risk behaviors.

Even in countries with generalized heterosexual epidemics, there are wide regional, ethnic or other differences in trends in HIV infection. These will be lost when data are aggregated into a single national figure. For program purposes, prevalence should always be reported separately by site as well as by a single national figure.

In the past, sample sizes in regular sentinel surveillance have been selected in order to measure changing trends across the whole age range of 15–49. Numbers in each five-year age band may have been too small to yield any reliable trend data, particularly at individual sentinel sites. In order to construct a reliable indicator around the narrower age range, larger sample sizes in the younger age groups will be needed.

Clearly, trends in HIV infection among pregnant women will not adequately reflect some of the most important changes in behavior supported by AIDS prevention programs—abstinence and consistent condom use. Prevalence among pregnant women gives an idea of trends in prevalence in the general population, but it is not an accurate reflection of overall levels in all women, let alone in all men. Prevalence data should therefore be reported together with behavioral data, such as mean age at first sex or condom use at last sex, for better explanatory power.



#### **SSO 4.0.4. Syphilis prevalence among pregnant women**

##### **Definition:**

Percent of blood samples taken from women aged 15–24 and tested for syphilis during routine sentinel surveillance at selected antenatal clinics which test positive for syphilis.

##### **What it Measures:**

STIs are transmitted in the same ways as HIV, and will be prevented by the same safe behaviors being promoted by HIV–prevention programs. Because bacterial STIs are curable, STIs will usually reflect more recent risk behavior than HIV, which stays with an infected person until their death. All the more so because HIV–prevention programs aim to increase recognition and treatment of STIs besides HIV. Thus, measures of STI prevalence are a relatively good guide to recent trends in sexual risk behavior.

##### **How to Measure it:**

Most countries regularly test pregnant women attending antenatal clinics for syphilis with rapid plasma reagin (RPR) tests in order to treat those infected and prevent neonatal syphilis infection in infants. While this screening should be carried on throughout the year in all antenatal clinics nationwide, reporting systems can be erratic and testing quality is difficult to ensure. Linked samples need to be tested for syphilis so that a woman can be appropriately treated. However, for the purposes of constructing this indicator, it is recommended that blood samples sent to a central laboratory for unlinked anonymous testing of HIV are also retested for syphilis. This ensures consistency between data sets regarding site selection and the sample collection period, and facilitates quality control.

As for HIV prevalence, it is strongly recommended that two separate figures be reported: one for women aged 15–24 and one for women across the whole reproductive age range of 15–49. Because many countries have in the past failed to report HIV prevalence broken down by age, it is important to continue to report a figure for HIV prevalence across the 15–49 year age group to allow for the comparison of trends over time.

*Numerator:* Total number of blood samples from women aged 15–24 testing positive for syphilis.

---

*Denominator:* Total number of blood samples from women aged 15–24 tested for syphilis.

##### **Strengths and Limitations:**

Because syphilis is curable, infection tested by RPR probably reflects relatively recent infection. It is therefore recommended that it be measured for women across the whole reproductive age range of 15–49 to give an idea of ongoing risk behavior. However, it is recognized that the indicator will be biased to a certain extent by the association between syphilis and infertility.

For program purposes, especially in order to track changes in risk behavior among young people, the data should also be disaggregated by age group and presented for 15–19, 20–24 and 15–24, as well as for the entire 15–49 year age range.

## **SSO 4.0.5. HIV prevalence in subpopulations with high-risk behavior**

### **Definition:**

HIV prevalence among members of a defined subpopulation at higher risk of contracting or spreading HIV.

### **What it Measures:**

In countries with concentrated epidemics, HIV infection among pregnant women should be monitored to detect the entry of HIV in this population and, hence, into the general population. However, the bulk of interventions in concentrated epidemics are often focused on the behaviors or groups that are contributing most to the expansion of the epidemic. In a concentrated epidemic, these generally include one or more of the following: injecting drug users, males who have sex with other males, sex workers and frequent clients of sex workers.

The design of a second generation surveillance system should take into account the epidemic state. In countries with low-level or concentrated epidemics, surveillance for the HIV virus as well as behavioral surveillance should focus on those groups in which both the infection and interventions to prevent further spread are focused. Changes in HIV prevalence in these groups should reflect the success or failure of prevention efforts.

### **How to Measure it:**

Tracking HIV in subpopulations can be logistically and ethically difficult, especially if the groups are marginalized or their activities are illegal. Sentinel sites for these populations tend to be linked to the provision of health services, for example, a male health clinic in an area with a high concentration of gay sex bars or a drug rehabilitation center.

*Numerator:* Total number of members of the at-risk subpopulation testing positive for HIV at subpopulation sentinel sites.

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*Denominator:* Total number of members of the at-risk subpopulation tested for HIV at subpopulation sentinel sites.

### **Strengths and Limitations:**

Because of the difficulties in access to subpopulations, the biases in subpopulation serosurveillance data are likely to be far greater (and much less predictable) than in data from a more generalized population, such as women at antenatal clinics. Where sentinel sites provide health services to the subpopulation in question, for example, the use of the facility may be associated with problems that are themselves related to HIV infection.

It is especially difficult to minimize biases associated with age, since the age of participation in especially high-risk behaviors may be vary greatly. It is not, therefore, desirable simply to restrict the analysis to young people as it is in ANC sentinel sites.

Despite these difficulties, it is essential to track HIV infection in those with high-risk behaviors in nascent or concentrated epidemics to measure progress or lack thereof in subpopulations.

## **SSO 4.0.6. Percent of children who are AIDS orphans**

### **Definition:**

The percentage of children under 15 in a household survey that have lost either their mother or father or both parents.

### **What it Measures:**

HIV is changing the face of adult mortality in many communities, killing men and women at the ages when they are normally forming families and bringing up children. Their deaths leave behind orphans for whom care needs to be provided, generally by other members of the community. The social and economic impact of rising orphanhood can be considerable and this indicator can enable national AIDS programs tracking orphanhood to be better equipped to plan for impact mitigation efforts. This indicator tracks levels of orphanhood in a country.

### **How to Measure it:**

In a household survey, respondents are asked the ages of all children in the household and whether the mothers and fathers of those children are alive. Those children who are currently under 15 years of age and whose mother or father or both are deceased form the numerator for this indicator. The denominator is all children currently under 15 listed by respondents in the survey.

*Numerator:* Total number of children who are currently under 15 and whose mother or father or both are dead.

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*Denominator:* Total number of children currently under 15 listed by respondents in the survey.

### **Strengths and Limitations:**

Data on an increase in orphanhood can be an emotive indicator of the impact of an AIDS epidemic. Besides tracking the impact of AIDS deaths on communities, then, this indicator also has multiple advocacy uses.

One limitation of this measure is that it is not able to distinguish AIDS-related orphanhood from orphanhood due to other causes. However, since young adult death was stable or falling in most countries for some years before the arrival of HIV, it is not unreasonable to assume that the bulk of any rise in orphanhood over baseline levels is attributable to HIV.

Orphans are a very mobile population. Those most in need of care may be in child-headed households that do not even qualify for inclusion in a household survey. Street children and others who live outside regular households will also be missed. In some urban areas, these children may make up a substantial fraction of orphans in greatest need of care. Also, households with AIDS-related deaths often disintegrate following the death of household heads and children are sent to live with relatives in the same or other areas. Using a household survey and asking about whether the parents are still alive will help alleviate the primary household disintegration issue, although because many urban children may be sent to rural areas, those children cannot be accounted for, despite their orphan status.

#### **SSO 4.0.7. The AIDS Program Effort Index (API)**

##### **Definition:**

The average score given to a national program by a defined group of knowledgeable individuals asked about progress in over 90 individual areas of programming, grouped into 10 major components.

##### **What it Measures:**

The AIDS Program Effort Index (API) is a composite index designed to measure political commitment and program effort in the areas of HIV prevention and care. It tries to capture many of the inputs and outputs of a national HIV/AIDS program. The score is made up of the following 10 main components of an effective national response:

- political support,
- policy formulation,
- organizational structure,
- program resources,
- research and evaluation,
- legal and regulatory,
- human rights,
- prevention programs,
- care programs, and
- international assistance.

##### **How to Measure it:**

In brief, the API uses key informants from a designated mix of institutions to give opinions about central areas of commitment and programming, compiling an index out of scores given in various areas. The score, which is calculated as a percentage, with 0 indicating no program effort and 100 indicating maximum effort, may be converted into a grade to minimize informant variation. Suggested grades range from very weak and weak through moderate and strong to very strong, depending on the range in which the numerical scores fall.

##### **Strengths and Limitations:**

The major concern surrounding the API is its subjectivity. The outcome depends entirely on the choice of informants. Since the indicator is still under development, the choice of informants has not yet been standardized. Questions have also been raised about the utility of a single composite score, in which improvements in some areas may be masked by deterioration in other areas. For diagnostic as well as monitoring purposes, it may be more useful simply to publish the indices separately by category. The separate category scores may stand alone as indicators, although for several areas of program effort, this document proposes alternatives which are based on measured parameters rather than expert opinion and may therefore be more useful in tracking trends over time. One area in which the API process may yield a particularly useful indicator is in the area of policy formulation.

## **IR LEVEL INDICATORS**

### **Reduction of Sexual Risk**

**IR 4.1. Increased quality, availability, and demand for information and services to change sexual risk behaviors and cultural norms in order to reduce transmission of HIV**

#### **Indicators Condom Accessibility and Quality**

- IR 4.1.1. Condoms available for distribution nationwide
- IR 4.1.2. Retail outlets and services with condoms in stock
- IR 4.1.3. Condoms that meet quality and control measures

#### **Knowledge**

- IR 4.1.4. Knowledge of HIV prevention methods
- IR 4.1.5. No incorrect beliefs about AIDS
- IR 4.1.6. Comprehensive correct knowledge about AIDS
- IR 4.1.7. Knowledge of HIV prevention among males having sex with males
- IR 4.1.8. Knowledge of HIV prevention among injecting drug users
- IR 4.1.9. Knowledge of prevention of mother-to-child transmission of HIV

#### **Sexual Behavior**

- IR 4.1.10. Risky sex in the last year
- IR 4.1.11. Condom use at last risky sex
- IR 4.1.12. Sexual relations with sex worker in the last 12 months
- IR 4.1.13. Condom use at last commercial sex, reported by client
- IR 4.1.14. Condom use at last commercial sex, reported by sex worker
- IR 4.1.15. Risky male-male sex in the last year
- IR 4.1.16. Condom use at last male-male anal sex

#### **Sexual Negotiation**

- IR 4.1.17. Women's ability to negotiate safer sex with husband

## **CONDOM ACCESSIBILITY AND QUALITY**

### **Program Goals**

Since it is not sex but unprotected sex that spreads HIV in most countries, increasing condom use has been a central intervention strategy for many AIDS programs. Availability and easy access to condoms are a prerequisite for their use.

There are a number of dimensions to the accessibility of condoms. First, they have to be available in the country—either manufactured or imported in sufficient quantities to meet the needs of the population. Second, they must be distributed throughout the country and be conveniently available to the people who need them. Third, they must be affordable to the people that want them. Other dimensions of accessibility include real or perceived barriers to condom acquisition, such as restrictions on the age of those who can obtain them or social barriers to women or young people buying condoms. The quality of condoms is also of great importance because if they are of poor quality (poorly manufactured or improperly stored), they will not provide effective protection.

In general, AIDS programs should try to make high-quality affordable condoms accessible to anyone who is likely to have sex, preferably at or near the venues where risky sex is most likely to occur.

The fact that condoms are available does not mean they are used. Indicators of condom use are discussed in the section on sexual behavior.

### **Measurement Challenges**

Condom availability should be among the easiest areas of programming to track. A condom is either there or it is not—surely that can be measured? Unfortunately, poor information systems, a plethora of sources of condoms and accountability problems conspire against simplicity. And barriers to accessibility other than simple absence of condoms are often subjective and therefore difficult to measure. Condoms may be widely available in pharmacies, for example. But how is that helpful to a woman who finds herself unexpectedly choosing to have sex with a new partner after all the pharmacies have closed? If condoms are not readily available to her at that stage, has the program met its goals?

Previous attempts to measure condom availability at a peripheral level (such as WHO/Global Programme on AIDS [GPA] Prevention Indicator 3) have combined retail surveys with survey questions asking people whether they know where they can get condoms. Responses to that question may, however, be poorly correlated with actual distribution patterns. It is therefore of limited use in assessing the success of condom distribution nationwide.

All of the indicators of condom availability and accessibility could equally be used for the female condom.

### **IR 4.1.1. Condoms available for distribution nationwide**

#### **Definition:**

Total number of condoms available for distribution nationwide during the preceding 12 months, divided by the total population aged 15–49.

#### **What it Measures:**

The best distribution system in the world is not much help if there is nothing to distribute. The first challenge for national programs promoting condom use is to ensure that there are enough condoms in the country to satisfy demand. This indicator measures the number of condoms available for use by those in the most sexually active age group. This indicator can be used together with indicators of sexual behavior to give a powerful picture of the adequacy of condom provision. For example, if a third of all men aged 15–49 report that they have had nonregular sex in the past year and 20 percent of married couples report that they have used condoms to avoid pregnancy, but there are only three condoms available per sexually active adult per year, it can be deduced that the supply of condoms nationally is not remotely sufficient to meet the potential demand.

#### **How to Measure it:**

The indicator is measured by estimating the number of condoms available for in-country use during the last 12 months. Key informants are identified and interviewed to uncover all possible sources of condom manufacture, importation, distribution, and storage. Next, data are collected from all manufacturers, major commercial distributors, major donors, condom storage facilities, and government, parastatal and NGO bodies involved in acquiring and distributing condoms.

This indicator adds the number of condoms in stock nationally at the start of the 12–month period to the number of condoms imported during the 12–month period and the number of condoms manufactured in-country during the same period, and then subtracts any exports of condoms over that period. The sum of all condoms available for use in the country during the past 12 months is then divided by the total population aged 15–49.

*Numerator:* Total number of condoms available for distribution nationwide during the preceding 12 months.

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*Denominator:* Total population aged 15–49.

#### **Strengths and Limitations:**

The number of condoms available at the central level helps assess the adequacy of overall condom availability. It is important to note, however, that availability is not the same as accessibility, which includes dimensions of price, location and access by subpopulations at risk. It is often the case that not all available condoms are distributed nor do they reach the individuals that most need them to protect against the spread of HIV. This indicator by itself cannot provide a picture of how many in-stock condoms actually get distributed or used.

Ironically, efforts at the national level to encourage condom use sometimes complicate the measurement of this indicator. Many countries have deregulated condom imports in the face of AIDS in order to maximize the number of condoms available. This means that condoms may be imported by a wide variety of companies, NGOs, donors, and government departments (such as the health ministry or the defense ministry) without necessarily reporting numbers imported to a central body. Traditionally, there is also a distinction between condoms distributed through family planning programs and those distributed to reduce sexually transmitted infections. It is important to take both sources into account. If possible, data need to be presented by program, since family planning program condoms are primarily intended for

relatively low-risk acts within stable unions, while AIDS program condoms aim at nonregular, high-risk sexual contacts.

A rise in the number of condoms manufactured or imported into a country can be useful in supporting other indicators measuring increases in self-reported condom use or decreases in self-reported STIs, and eventually HIV prevalence.



## IR 4.1.2. Retail outlets and services with condoms in stock

### **Definition:**

The proportion of randomly selected retail outlets and service delivery points that have condoms in stock at the time of a survey.

### **What it Measures:**

This indicator measures actual distribution of condoms at designated points at any one point in time. It reflects the success of attempts to broaden the distribution of condoms so that they are more widely available to people who need them, and at locations and times when people are likely to need them.

### **How to Measure it:**

A number of different types of sites are randomly selected for a retail survey. The sampling frame should be stratified to reflect sites in both urban and rural areas. Sites will be selected from a standard checklist of venues where condoms should be accessible, including bars and night clubs, different classes of retail shops (e.g., pharmacies, supermarkets, convenience stores, market stalls, gasoline stations), STI clinics, and other service provision points. Outlets that provide services to people who may find it difficult to access condoms at conventional sites, for example, teenagers, should be included. The indicator is the number of sites with condoms currently in stock, divided by the total number of sites surveyed.

While the indicator gives a single summary figure, the data can also be disaggregated by outlet type. This will provide invaluable information for program managers and for those seeking to improve the marketing of condoms. The populations they seek to serve may analyze outlet types. This provides an idea of the adequacy of efforts to meet the needs of people with potentially high-risk behavior, such as young people or those in mobile occupations.

*Numerator:* Total number of randomly selected retail outlets and service delivery points that have condoms in stock.

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*Denominator:* Total number of retail outlets selected.

### **Strengths and Limitations:**

The statistical departments or finance ministries of many countries conduct regular (usually quarterly) retail surveys that include price and availability data for a wide variety of commodities. These are usually conducted to help in the compilation of the consumer price index and other economic statistics and are often contracted to private market research firms. They typically use a well-established sampling frame covering a wide variety of venues nationwide. Where such surveys exist, condoms can simply be added to the basket of commodities for which data are collected. Certain venues, such as STI clinics and family planning clinics, may not be covered by the regular retail survey. In this case, special surveys of these extra venues can be undertaken to provide the necessary extra data. On the whole, however, the cost to the national AIDS program of adding condoms to retail surveys (in both human and monetary terms) should be minimal.

It is recommended that this indicator be based on a standard list of venues in conducting the retail survey. However, some countries may choose to modify the list to include nonstandard venues where a special effort is being made to distribute condoms; secondary schools might be an example. In others, not all of the venues will be relevant. This is especially true in low-level or concentrated epidemics, where the focus may be distribution of condoms within a well-defined subpopulation with particularly high risk. The fact that condoms are not widely distributed in convenience stores across the country will not be an indication of program failure in this situation.

Countries may also wish to weight the different outlet types in constructing the aggregate indicator. It is not possible to recommend a standard weighting procedure. Any variation in venues or weighting will affect the comparability of the indicator across countries. These limitations will not affect the presentation of data disaggregated by outlet type and should not affect trends over time in a single country unless the venue mix is changed.

A limitation of the measure is that it provides a picture of availability at a single point in time. When distribution is relatively regular, this poses no major problems. However, when there are serious disruptions to condom supply at the central level, the repercussions may be felt simultaneously at a large majority of venues. If a survey is carried out at this time, it will appear as though the peripheral distribution system is inadequate whereas, in fact, the fault lies at the central level. In countries where quarterly retail surveys are undertaken, it may be possible to report an annual average to better reflect consistency of supply.

### **IR 4.1.3. Condoms that meet quality and control measures**

#### **Definition:**

The percentage of condoms in central stock and in retail outlets that meet WHO quality specifications of all condoms in stock.

#### **What it Measures:**

The quality of condoms at their time of use determines their effectiveness in preventing HIV, STIs and pregnancy. Quality (and more particularly poor quality) also affects popular perception of the value of condoms, which can in turn have a major impact on the success of prevention programs.

There are many stages at which the quality of a condom may have deteriorated to the point of being unacceptable. Condoms may be poorly manufactured in the first place, and manufacturers' quality control may have been inadequate. Condoms may have been improperly stored at the central level. Or they may have been in perfect condition at the time of distribution but have been sitting in the sunshine for two months on a market stall before being sold. Since it is not practical to sample condoms once they have been acquired by end users, the indicator is based on condoms sampled both from central storage and from retail outlets.

The quality indicator will be aggregated into a single figure. However, it is vital that the data be reported separately by source of sampled condom for program purposes. If poor quality is detected at the central level, national tender specifications or quality control procedures will have to be remedied. Poor quality at the retail level may require changes in the distribution system or better advice to retailers on stock handling.

#### **How to Measure it:**

The sampling frame for retail outlets used in Indicator 4.1.2. can be used for the retail portion of this indicator; indeed, condoms may be samples from retail outlets during the retail survey. Care should be taken in the handling and storage of condoms between sampling and testing to ensure that no deterioration in quality is attributable to the sampling and testing procedure itself. At the central level, a sample frame can be constructed from the central-level storage facilities identified in the calculation of Indicator 4.1.1. and condoms sampled at random from those facilities.

#### **Strengths and Limitations:**

This indicator provides an objective measure of condom quality within a country. It is simple to measure, but does require a minimum of equipment and trained staff. Since behavioral studies suggest that perceptions of poor condom quality contribute significantly to people's failure to use condoms, information about adequate quality can be used to good effect in promoting their wider use. It should be noted, however, that this indicator is a double-edged sword. If results are poor and immediate rectifying action is not taken, people's reservations about condom use are likely to be reinforced and condom use might suffer further.

This indicator will miss deterioration, which takes place after the acquisition of a condom by a client, but before its use. Poor storage practices at this point may contribute significantly to condom failure rates.

## **KNOWLEDGE ABOUT TRANSMISSION OF HIV**

Since unprotected sex is the driving force behind most HIV epidemics and threatens to be the future for all of them, AIDS programs have focused actively on increasing people's knowledge about sexual transmission and on promoting safer sex. Efforts have sometimes been made to change the underlying social attitudes that foster unsafe sex. Very often, these are attitudes that promote double standards for men and women and that give men power in sexual relationships.

Although they are all strongly interrelated, goals and indicators in the areas of knowledge of sexual transmission, attitudes towards sex, and sexual behavior itself will be presented separately.

Knowledge is an important prerequisite for prevention in other areas of HIV transmission, also. This section therefore includes a measure of knowledge in drug injecting populations and of mother-to-child transmission.

### **Program Goals**

Early assumptions that knowledge about AIDS and how to prevent it would lead to behavior change have proven optimistic. However, there is no doubt that knowledge is an important prerequisite for behavior change.

Most national programs have put a great deal of effort into IEC campaigns, which aim to inform, educate and communicate with people about HIV, the behaviors that spread it and the ways it can be avoided. Many programs have had a great deal of success in imparting this information. Indicators of knowledge are beginning to register high levels of correct knowledge. But behind this knowledge often lurks misinformation or misconceptions, which influence the way people behave. Increasingly, programs are turning their attention to breaking down these misconceptions.

### **Measurement Challenges**

Existing composite indicators of HIV-related knowledge focus on correct knowledge. While they ask about misconceptions, incorrect knowledge is not commonly included in an indicator.

One of the challenges in measuring knowledge is deciding how much prompting should be done. It is probably true that spontaneous answers are a better reflection of the respondent's actual behavior than prompted responses. If IEC messages emphasize a particular type of behavioral change, prompted questions are likely to get the "desirable" answer, regardless of actual practice. The trouble with unprompted responses is that they tend to be extremely variable between populations and across time, and this variability does not always reflect true differences in knowledge. Rather, it is likely to be because of variation in the interviewer's ability to solicit spontaneous responses and their preference for certain response codes. For the purposes of constructing standardized knowledge indicators that are comparable across time, prompted responses may be more useful than unprompted responses.

To date, most knowledge questionnaires have recorded mutual monogamy as a “correct” response for avoiding HIV infection. As HIV prevalence rises, more monogamous people will encounter a single lifelong partner who is already infected. It is therefore suggested that prompted answers involving monogamy take care to use a more precise definition, such as “stay with one faithful, uninfected partner.”

Correct information about how HIV is contracted and how it can be avoided does not vary from place to place. Misconceptions do vary, however, with particular rumors gaining currency in some populations both about how HIV is spread (by witchcraft, for example) and how it can be avoided (for instance, by eating a certain kind of fish).

Indicators of misconceptions can be varied to include misconceptions that are locally common. If the three most common misconceptions are used in every setting, this should not affect crosscountry comparison of indicators. The indicator is not measuring knowledge about witchcraft, after all; it is measuring incorrect knowledge about AIDS. In many societies, the common misconceptions are already well known. In others, qualitative studies may have to be undertaken before deciding which elements to include in the indicator.

The relative importance accorded to correct knowledge of the major modes of transmission and misconceptions may vary with the epidemic state. In generalized epidemics, in which a very high proportion of people answer correctly to questions about transmission, addressing misconceptions may become a major focus of IEC campaigns. In low-level or concentrated epidemics, in which past IEC activities have been more limited, attention may still be focused on improving basic knowledge about modes of transmission. Indeed, in concentrated epidemics, more attention may be focused on increasing knowledge within specific subpopulations about prevention methods related to the behaviors which put those subpopulations at risk.

In all indicators of AIDS–related knowledge, the denominator should be the entire population of respondents, rather than just those who have heard of AIDS. This is because those who have not heard of AIDS (and who therefore cannot have any “correct” knowledge about it) definitely represent failures of IEC campaigns. In most countries, at the end of the 1990’s, these people constitute only a very small proportion of the population.

With knowledge, attitudes, and sexual behavior—even more than in other areas of programming—it is imperative that indicators be reported separately by gender.

#### **IR 4.1.4. Knowledge of HIV prevention methods**

##### **Definition:**

The percentage of all respondents who, in response to prompting, correctly identify having no penetrative sex, using condoms, and having sex only with one faithful uninfected partner as a means of protection against HIV infection.

##### **What it Measures:**

Most AIDS programs targeting the general population promote abstinence, mutual monogamy and condom use as the primary ways of avoiding HIV infection. This indicator measures the extent to which those messages have reached the general population or the specific subpopulation surveyed.

##### **How to Measure it:**

The indicator is derived from correct answers given for all three primary sexual prevention methods through a series of prompted questions in an individual survey. A response of fewer than three ways is not counted in the numerator of the indicator.

*Numerator:* The number of male/female respondents who, in response to prompting, correctly identify having no penetrative sex, using condoms, and having sex only with one faithful uninfected partner as means of protection against HIV infection.

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*Denominator:* Total number of male/female respondents interviewed during survey.

The precise wording of the prompted question must be given careful thought in each linguistic and cultural context. Because abstinence is often defined differently in different contexts, for example, it should be specified as meaning nonpenetrative sex, with the wording varying from language to language.

The correct prevention methods prompted for should be interspersed in the questionnaire with misconceptions used to calculate Indicator 4.1.5.

##### **Strengths and limitations:**

Data for this indicator are easy to collect in a population survey. In most countries, the score on this indicator will be high, but disaggregation of the indicator by individual questions, residence, gender, or age group may provide useful pointers to gaps in information flows.

As with all aggregate indicators, data should also be reported separately by response for the benefit of program managers who are likely to use the information to feed back into future IEC efforts.

### **IR 4.1.5. No incorrect beliefs about AIDS**

#### **Definition:**

The percentage of all respondents who correctly respond that a person who looks healthy may pass on HIV and who also correctly reject the two most common local misconceptions about AIDS transmission or prevention.

#### **What it Measures:**

Many of the people who know that condoms protect against AIDS also believe that AIDS can be contracted from a mosquito bite or other uncontrollable event. Why bother to reduce the pleasure of sex, they reason, if they might in any case be infected by something as random as a mosquito bite? At high levels of HIV-related awareness, a reduction in misconceptions that act as disincentives to behavior change may actually be a better reflection of the success of an IEC campaign than an incremental shift in already high levels of “correct” knowledge. This indicator measures progress made in reducing misconceptions.

#### **How to Measure it:**

In a series of prompted questions, respondents are given correct and incorrect statements about AIDS transmission and prevention. Responses to the correct statements about prevention are used to calculate Indicator 4.1.4. Responses to a statement about infection in healthy-looking people and to two incorrect statements about transmission or prevention are used to calculate this indicator.

*Numerator:* The number of male/female respondents who correctly respond that a person who looks healthy may pass on HIV and who also correctly reject the two most common local misconceptions about AIDS transmission or prevention.

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*Denominator:* Total number of male/female respondents interviewed during survey.

The incorrect statements will vary to reflect the misconceptions most common in the local context, including the belief that AIDS can be spread through an insect bite or witchcraft, and that AIDS is preventable by eating certain types of food or herbs, or curable by having sex with a certain type of person, such as a virgin. One statement will always center on knowledge of the “healthy carrier” concept, that is, knowledge that a person may contract HIV by having unprotected sex with an apparently healthy person.

#### **Strengths and Limitations:**

Again, this is easy to measure. It gives a good picture of the level of false beliefs, which may impede people’s determination to act on correct knowledge. When the data are disaggregated, they provide invaluable information for program managers planning future IEC campaigns, telling them which misconceptions need to be addressed and in which subpopulations.

One limitation is the indicator’s inability to distinguish between misconceptions which are likely to influence behavior and those which are merely incidental. The indicator will not be able to record trends over time if misconceptions also change over time.

## **IR 4.1.6. Comprehensive correct knowledge about AIDS**

### **Definition:**

Percent of respondents who correctly identify all three major ways of preventing the sexual transmission of HIV **and** who reject three major misconceptions about HIV transmission or prevention.

### **What it Measures:**

This indicator is simply an aggregation of data from the previous two indicators. It reflects the extent to which national IEC programs and other efforts have succeeded in promoting the knowledge of prevention methods against HIV and have managed to reduce misconceptions relating to the disease.

### **How to Measure it:**

This indicator is compiled from data collected for Indicator 4.1.4. and Indicator 4.1.5. Only respondents who answered correctly on **all six** prompted questions are included in the numerator. The denominator is all respondents, regardless of whether they have ever heard of AIDS.

*Numerator:* The number of male/female respondents who correctly identify all three major ways of preventing the sexual transmission of HIV **and** who reject three major misconceptions about HIV transmission or prevention.

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*Denominator:* Total number of male/female respondents interviewed during survey.

### **Strengths and Limitations:**

Since it shares the data collected for Indicator 4.1.4. and Indicator 4.1.5., this indicator also shares their strengths and weaknesses. Since many people with correct knowledge about prevention also have incorrect beliefs, it is likely to be much lower than Indicator 4.1.4. A smaller number of people with no misconceptions but with incorrect knowledge about prevention are likely to bring this combined indicator down below the level recorded by Indicator 4.1.5.



#### **IR 4.1.7. Knowledge of HIV prevention among males having sex with males**

##### **Definition:**

Percent of males having sex with males who, in response to prompting, correctly identify avoiding anal sex and using condoms during anal sex as a means of preventing HIV infection.

##### **What it Measures:**

When there is a concentration of HIV infection or risk behaviors among males who have sex with other males, IEC campaigns are often designed to meet the specific needs of this population. Most of these campaigns promote nonpenetrative sex and condom use during anal sex as ways of avoiding HIV infection. This indicator measures the extent to which those messages have reached members of the subpopulation of males who have sex with males.

##### **How to Measure it:**

In a behavioral survey of males who have sex with other males, respondents are asked about their knowledge of AIDS and whether it can be prevented. They are then prompted for various correct and incorrect means of prevention, including nonpenetrative sex and condom use during anal sex. The indicator is derived from correct answers given for these two methods of preventing HIV transmission during sex between males. Someone giving correct answers to only one of the two is not counted in the numerator of the indicator. All respondents are included in the denominator, regardless of whether they have ever heard of AIDS.

*Numerator:* The number of male respondents who have sex with males, who in response to prompting, correctly identify avoiding anal sex and using condoms during anal sex as a means of preventing HIV infection.

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*Denominator:* Total number of male respondents who have sex with males interviewed in survey.

##### **Strengths and Limitations:**

The greatest difficulty in collecting information for this indicator is likely to be accessing a representative sample of males who have sex with other males.

Clearly, there are many other ways of preventing HIV transmission in male-male sex. These include abstinence, condom use during oral sex, and mutually faithful partnerships among men who have tested HIV-negative and have had no other partners since the test. The extent to which these different messages are stressed depends very much on the context in which male-male sex takes place. The “mutual faithfulness” message is, for example, much more likely to be emphasized in countries with well-established gay communities in which long-term partnerships are common. It will be of far less importance in countries where a majority of males who have sex with males are also married, or where male-male sex is dominated by commercial exchanges. In order to make the indicator more comparable across different situations, the areas of knowledge cited are those that are a focus of prevention programs for males who have sex with males in almost all contexts.

This indicator does not include common misconceptions about HIV transmission or prevention. However, similarly to knowledge questions in general population surveys, the question sequence in a behavioral survey among males who have sex with males is likely to contain incorrect as well as correct prevention options, for example, that the insertive partner is at no risk of HIV infection during anal sex. These questions will provide important information in improving IEC messages and preventative interventions.

Limitations of the use of prompted data were discussed in the introduction to this section. While the primary indicator should be constructed using prompted data, a comparison between prompted and

nonprompted data, where possible, may yield significant information. To be of additional use to program managers, data for this indicator may be disaggregated by prevention method, highlighting strengths and weaknesses in existing IEC campaigns.

#### **IR 4.1.8. Knowledge of HIV prevention among injecting drug users**

##### **Definition:**

Percent of respondents in a survey of injecting drug users who, in response to prompting, identify switching to noninjectable drugs, avoiding sharing injecting equipment, and cleaning injecting equipment with bleach as methods of preventing HIV transmission.

##### **What it Measures:**

In HIV epidemics in which there is a concentration of HIV infection or risk behaviors among injecting drug users, some programs actively promote HIV prevention in this population. Most efforts to reduce transmission between drug injectors try to encourage safer drug-taking, including using noninjectable drugs, not sharing injecting equipment, or carefully cleaning injecting equipment with bleach between users. This indicator measures the extent to which drug injectors are aware of these methods of preventing HIV transmission.

##### **How to Measure it:**

In a behavioral survey in a community of drug injectors, respondents are asked about their knowledge of AIDS and whether it can be prevented. They are then prompted for various correct and incorrect means of prevention, including switching to noninjectable drugs, avoiding sharing injecting equipment, and cleaning injecting equipment with bleach. The indicator is derived from correct answers given for all three prevention methods. Someone giving fewer than three correct answers is not counted in the numerator of the indicator. All respondents are included in the denominator, regardless of whether they have ever heard of AIDS.

*Numerator:* The number of injecting drug users who, in response to prompting, identify switching to noninjectable drugs, avoiding sharing injecting equipment, and cleaning injecting equipment with bleach as methods of preventing HIV transmission.

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*Denominator:* Total number of injecting drug users interviewed during survey.

##### **Strengths and Limitations:**

The greatest difficulty in collecting information for this indicator is accessing a representative sample of injecting drug users.

This indicator will only be useful where efforts are being made to reach injecting drug users with prevention messages, which help them reduce exposure to HIV infection, both for themselves and for other members of the drug-taking community. Where such programs exist but concentrate only on a single message supported by appropriate services, it may be possible to restrict the indicator to knowledge about that means of prevention.

Limitations of the use of prompted data were discussed in the introduction to this section; while the primary indicator should be constructed using prompted data, a comparison between prompted and nonprompted data, where possible, may yield interesting information.

#### **IR 4.1.9. Knowledge of prevention of mother-to-child transmission of HIV**

**Definition:**

Percentage of men and women who correctly respond to prompted questions about preventing mother-to-child transmission of HIV through knowledge of HIV status, antiretroviral therapy and avoiding breastfeeding.

**What it Measures:**

This indicator focuses on men's and women's knowledge of both the transmission from mother to child and the knowledge that transmission is preventable. In this field, as in the field of sexual transmission, knowledge is a prerequisite for decision-making and intervention, although it is by no means sufficient to ensure it.

**How to Measure it:**

In a general population survey, respondents are asked about transmission and prevention of HIV. Among these are questions about whether HIV can be transmitted from mother to child and about means of preventing mother-to-child transmission, including whether serostatus must be known.

*Numerator:* The number of men and women who say that HIV transmission from women who have tested positive can be prevented by the mother taking drugs during pregnancy, **and** by the mother avoiding breastfeeding.

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*Denominator:* Total number of men and women surveyed.

**Strengths and Limitations:**

This indicator presupposes that efforts are being made to educate women about mother-to-child transmission of HIV, and that information about prevention forms part of their education.

This separate indicator for knowledge of prevention is designed in this way because it is this knowledge, rather than simply the knowledge of transmission, that is likely to shape a woman's care-seeking and breastfeeding behavior. Because knowledge of serostatus is a prerequisite for the two most effective preventative interventions, it is included in the indicator.

## **SEXUAL BEHAVIOR**

### **Program Goals**

Establishing safer sexual behavior has probably been the most important area of programming for most national AIDS programs to date. Programs seek to delay first sex among young people and encourage lifelong, mutually monogamous partnerships. Because such partnerships are more the exception than the norm in many contexts, programs also encourage reducing the overall number of sexual partners and using condoms, especially with partners other than one's spouse.

Changing sexual behavior is not an easy task. In some high prevalence areas, there is a feeling that most sexually active adults with any risk behavior are already infected; that is, that the adult population is saturated with HIV infection. As a result, attention is turning increasingly towards young people, who are not yet sexually active or who are just embarking on their sexual lives.

Establishing norms of safe behavior among young people early on is thought to be easier than changing norms of unsafe behavior in older people. Because of this emphasis on safe behavior among young people, a separate but complementary set of indicators for sexual behavior among young people is proposed.

### **Measurement Issues**

Measuring changes in sexual behavior is essential in the monitoring and evaluation of national HIV/AIDS and STI control programs. In fact, indicators of sexual behavior and condom use are probably the most important of all indicators in monitoring HIV-prevention programs and evaluating their success.

More has been done to measure sexual behavior than was dreamed possible a decade ago, when it was believed that people would never discuss their sex lives truthfully. In country after country, it has now been demonstrated that people do answer questions about sex, and that the trends derived from their answers match other forms of evidence, such as condom sales and STI prevalence. However, there is still room for improvement. Women, especially, continue to underreport sex outside of marriage in standardized surveys.

Perhaps the most challenging issue in measuring sexual behavior is how to define the levels of risk involved. This question becomes more difficult as prevalence in the general population rises and the lines between high-risk partners, such as sex workers, and low-risk partners, such as husbands, become blurred. The matter of central interest is not numbers of partners but patterns of sexual networking, and this is all but impossible to analyze with simple indicators.

To date, the most common way of dividing relationships into high and low risk has been using a simple measure of time: any (nonmarital) relationship that has lasted or is expected to last for more than a year is classified as regular, while any other relationship is classified as nonregular.

There is a growing feeling that a time-based definition of nonregular does not adequately capture the level of risk inherent in the partnership. For example, many men may consider a sex worker

they visit frequently to be a regular partner under the time-based definition, although she clearly represents higher risk than does a faithful wife.

It is therefore proposed that relationships be divided on the basis of cohabitation. Sex with any noncohabiting partner is considered to be higher risk than with a cohabiting partner, regardless of the duration of the relationship. This definition has the advantage that it is equally valid for all age groups.

Sexual behavior data are one of the central pillars of a monitoring and evaluation system. They should be used to inform and explain trends observed in HIV and STI surveillance data as much as possible. With this in mind, sampling for major surveys of sexual behavior should be carried out in relation to the catchment areas for HIV sentinel sites.

Thought must also be given to the frequency of surveys of sexual behavior. In the absence of a major and radically new program effort, sexual behavior is unlikely to change significantly in a single year, or even two, in the general adult population. Among young people, however, new behavioral trends may emerge more rapidly, especially if additional program resources are aimed at establishing safe behavior in this group.

#### **IR 4.1.10. Risky sex in the last year**

##### **Definition:**

Proportion of respondents who have had sex with a nonmarital, noncohabiting partner in the last 12 months. A nonmarital, noncohabiting partner is a sexual partner who is not a spouse or a partner with whom the respondent is living.

##### **What it Measures:**

The spread of HIV depends upon unprotected sex with people who also have or have had other partners. Most monogamous relationships are cohabiting, although the reverse is not necessarily true. Partners who do not live together—who are irregular or occasional—are those who are most likely to have other partners over the course of a year. These partnerships therefore carry a higher risk of HIV transmission than partnerships that do not link in to a wider sexual network. AIDS prevention programs try to discourage high numbers of partnerships and to encourage mutual monogamy. This indicator aims to give a picture of the proportion of the population that engages in relatively risky partnerships and that are therefore more likely to be exposed to sexual networks within which HIV can circulate.

##### **How to Measure it:**

Respondents are asked about their marital status and the last three sexual partners within the last 12 months. For each partner, details are taken of cohabiting status as well as duration of the relationship, condom use and other factors. The numerator is made up of those respondents who report having had sex with someone who is not their spouse or the person they live with in the last 12 months. The denominator for this indicator is all respondents who report having any sex in the last 12 months.

*Numerator:*     The number of respondents who have had sex with a nonmarital, noncohabiting partner in the last 12 months.

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*Denominator:*   Total number of male/female respondents interviewed.

Polygynous men who live with several spouses will not qualify for the numerator unless they also have sex with women who are not part of their household.

##### **Strengths and Limitations:**

This indicator gives a picture of levels of nonmonogamous sex. Therefore, if people cut out all their extramarital partners, the change will be captured by changes in this indicator. If, however, people reduce the number of extramarital partners from several to one, this reduction will not be reflected in the indicator, even though it has a potentially significant impact on the spread of HIV and may be counted a program success.

This indicator proposes a different definition for higher risk sex than that commonly used in the past, particularly in the calculation of WHO/GPA Prevention Indicator 4, which used the time-based definition of regular and nonregular sexual partners described above. In practice, in existing data which allow for the comparison between the two indicators, the difference has been small.

#### **IR 4.1.11. Condom use at last risky sex**

##### **Definition:**

The percentage of respondents who report using a condom the last time they had sex with a nonmarital, noncohabiting partner, of those who have had sex with such a partner in the last year.

##### **What it Measures:**

If everyone used condoms every time they had sex with a nonmarital or noncohabiting partner, a heterosexually transmitted HIV epidemic would be almost impossible to sustain. While AIDS programs may try to reduce casual partnerships, they also need to promote condom use in the casual partnerships that remain if they are to succeed in curbing the epidemic. This indicator tracks changes in condom use in these partnerships.

##### **How to Measure it:**

For each partner listed in the last 12 months, respondents are asked whether they used a condom the last time the couple had sex. Other questions will allow for the classification of partnerships as cohabiting or noncohabiting. All those who report at least one nonmarital, noncohabiting partner in the last 12 months (i.e., the numerator of Indicator 4.1.11.) form the denominator. The numerator is the number of those respondents in the denominator who used a condom the last time they had sex with their *most recent* noncohabiting partner.

*Numerator:* The number of respondents who report using a condom the last time they had sex with a nonmarital, noncohabiting partner.

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*Denominator:* Total number of male/female respondents who report that they had sex with a nonmarital, noncohabiting partner in the last 12 months.

##### **Strengths and Limitations:**

A rise in this indicator is an extremely powerful indication that condom promotion campaigns are having the desired effect among their principal target markets.

Since condom promotion campaigns are aiming for consistent use of condoms with nonregular partners rather than simply occasional use, some surveys have tried to ask directly about consistent use, often using an always/sometimes/never question. While this may be useful in subpopulation surveys (see below), it is subject to recall and other biases and is not sufficiently robust for use in a general population survey. Asking about the most recent act of noncohabiting sex minimizes recall bias and gives a good cross-sectional picture of levels of condom use. Inevitably, if consistent use rises, the indicator will also rise.



#### **IR 4.1.12. Sexual relations with a sex worker in the last 12 months**

##### **Definition:**

Proportion of men reporting sex with a sex worker in the last 12 months.

##### **What it Measures:**

In all stages of an HIV epidemic, sexual mixing between groups with a high likelihood of infection and the general population is of central interest. In nascent or concentrated epidemics driven by heterosexual transmission, the initial focal point of infection is usually between sex workers and their clients. Those clients then spread infection to their wives and girlfriends, as well as to other sex workers. In such situations, AIDS programs often focus on trying to reduce the proportion of men having sex with sex workers, as well as increasing condom use in these encounters. This indicator measures progress towards the first of these goals.

##### **How to Measure it:**

This indicator is intended **only** for countries with well-defined populations of sex workers (see below). In general population surveys or in specialized surveys among groups of men who fit the profile of clients of sex workers (the military, truck drivers), men are asked directly if they had sex with a sex worker in the previous 12 months.

While there may be several different types of definable sex workers in a given country, each with different perceived levels of risk, all these groups should be combined into an indicator of commercial sex use for monitoring and evaluation purposes.

*Numerator:* The number of male respondents reporting they had sex with a sex worker in the last 12 months.

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*Denominator:* Total number of male respondents interviewed.

In some countries, this indicator has been collected in the past using only sexually active men (rather than all male respondents) as the denominator. In order to maintain trends over time, it is recommended that in these countries the indicator continues to be calculated in this way for a few years **in parallel with** a calculation using all respondents as the denominator.

##### **Strengths and Limitations:**

This indicator is useful in nascent or concentrated heterosexual epidemics in countries where commercial sex (and especially brothel-based sex) is common, and where a prostitute has a clearly defined role. This means it is most likely to be used in parts of the world where commercial sex has played a dominant role in the epidemiology of HIV. If there is no locally specific term for prostitution, the chances are that this indicator is not relevant to the program.

Sex workers are of interest because they have a high turnover of partners and therefore have a high probability of being exposed to infection and passing on infection. The indicator is of limited use in highly concentrated epidemics, since the difference in risk associated with sex with a sex worker compared with any other casual partner may not be very substantial.

It is possible to construct a similar indicator for clients of male sex workers, in special surveys of males who have sex with males.

### **IR 4.1.13. Condom use at last commercial sex, reported by client**

#### **Definition:**

Proportion of men reporting condom use the last time they had sex with a sex worker, of those who report having had sex with a sex worker in the last 12 months.

#### **What it Measures:**

This indicator gives an indication of the success or failure of campaigns to increase condom use among clients of sex workers. It measures condom use by men with partners they consider to be commercial partners.

#### **How to Measure it:**

As with Indicator 4.1.12., this indicator is only relevant in settings where commercial sex or prostitution is well defined. In general population surveys or in specialized surveys among groups of men who fit the profile of clients of sex workers (the military, truck drivers), men are asked if they had sex with a sex worker in the previous 12 months. If the reply is yes, they are then asked whether they used a condom the last time they had sex with a sex worker.

*Numerator:* The number of male respondents reporting condom use the last time they had sex with a sex worker.

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*Denominator:* Total number of male respondents interviewed report having had sex with a sex worker in the last 12 months.

#### **Strengths and Limitations:**

This indicator is invaluable in tracking the success of major programs to promote condom use in commercial sex.

Most AIDS programs aim to increase consistent use of condoms with sex workers. Surveys of clients of sex workers will almost certainly want to ask whether they use a condom always, sometimes or never in sex with sex workers over the last 12 months. Asking about a particular and recent act of sex may give a more robust measure of levels of condom use in commercial sex. If both questions are asked, the “last time you had sex with a sex worker” question should precede the “always, sometimes, never” question.

Where there are several distinct populations of sex workers with different levels of perceived risk—for example, brothel-based prostitutes may be thought of as riskier than girls in nightclubs—data may be collected separately for separate categories of sex worker. This can provide important information for programming. For example, men may report very high levels of consistent condom use in brothels, but much lower levels with women working out of nightclubs. In constructing the indicator, however, only the last commercial sex partner of any sort should be considered.

It is possible to construct a similar indicator for clients of male sex workers, in special surveys of males who have sex with males.

#### **IR 4.1.14. Condom use at last commercial sex, reported by sex worker**

##### **Definition:**

Percentage of sex workers who report using a condom with their most recent client.

##### **What it Measures:**

This measures the success of campaigns to promote condom use in commercial sex from another angle. Although many surveys and the previous indicator gather data from actual clients of sex workers, this indicator gathers data from men and women actually working as providers of sex. Collected in conjunction with self-report client data, this indicator will validate levels of commercial sex and condom use.

##### **How to Measure it:**

In special surveys, sex workers are asked whether they used a condom with their most recent client. The indicator is the number of sex workers who say they used a condom with their most recent client, divided by the total number of sex workers interviewed.

*Numerator:* The number of sex workers reporting having used a condom with their most recent client.

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*Denominator:* Total number of sex workers interviewed.

##### **Strengths and Limitations:**

The goal of most AIDS programs working with sex workers is an increase in the number of sex workers who *always* use a condom and so are protected from HIV infection. As with clients, surveys of sex workers should ask whether they use a condom always, sometimes, or never with their clients. But again, the pressure to say “always” is strong. And again, asking about a particular and recent act of sex may give a more robust measure of levels of condom use with clients. If both questions are asked, the “last client” question should precede the “always, sometimes, never” question.

The difference between the two answers can be useful for program purposes. For example, what proportion of those who report having used a condom during the last sex act also report that they are not regular condom users? Do any sex workers who claim to always use condoms with their clients also report that they did not use one with their last client?

Since a sex worker typically sees more clients than vice versa, there is unlikely to be an exact match between condom use reports between sex workers and their clients. However, if both data sets show trends in the same direction, confidence in this self-reported data is likely to be strengthened.

It is possible to construct a similar indicator for male sex workers, in special surveys of that group.

#### **IR 4.1.15. Risky male-male sex in the last year**

##### **Definition:**

The percentage of men who have had anal sex with more than one male partner in the last 12 months.

##### **What it Measures:**

Unprotected anal sex is by far the highest risk behavior for transmission of HIV among males who have sex with males. Most interventions in this group aim both to decrease the overall number of partners and to increase condom use in all partnerships.

This indicator is similar to Indicator 4.1.10. in that it attempts to measure the extent of exposure to sexual networks. In many countries, cohabitation with same-sex partners is rare; therefore, this measure drops distinctions based on cohabitation or regular partnership and solely examines at-risk activity with multiple partners over a 12-month period.

##### **How to Measure it:**

This indicator is intended for use in special surveys among males who have sex with other males. In a behavioral survey in a sample of males who have sex with males, respondents are asked about sexual partnerships in the preceding 12 months. For male partners, they are asked the number with whom they had anal sex. If the response is more than 1, the respondent enters the numerator for this indicator. The denominator is all respondents. It is assumed that the sampling strategy focuses on men who are likely to be sexually active.

*Numerator:* The number of men who have had anal sex with more than one male partner in the last 12 months.

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*Denominator:* Total number of males who have sex with males interviewed.

##### **Strengths and Limitations:**

As with other subpopulation surveys, there are difficulties associated with sampling and extrapolation of results, and this in turn may lead to difficulties in comparing indicators both across different countries and across time.

Increasingly, respondents in surveys of sexual behavior are questioned specifically about their last three partners. Most indicators are constructed on the basis of information given about the last three partners, minimizing recall bias. However that is not possible in the construction of this indicator, since not all male partners with whom anal sex took place necessarily fall within the last three sexual partners. This measure may therefore be more subject to recall bias than other measures of sexual behavior.

#### **IR 4.1.16. Condom use at last male-male anal sex**

**Definition:**

Percent of men who used a condom at last anal sex with a male partner, of those who have had anal sex with a male partner in the last year.

**What it Measures:**

The single most common intervention among males who have sex with males is the promotion of condom use during anal sex. This indicator measures progress towards increasing the proportion of acts of anal sex that are protected against HIV transmission. It focuses on the last act of anal sex for reasons similar to those given for Indicator 4.1.11.

**How to Measure it:**

This indicator is intended for use where special surveys among males who have sex with other males are possible. In a behavioral survey in a sample of males who have sex with males, respondents are asked about sexual partnerships in the preceding 12 months, about anal sex within those partnerships, and about condom use at last anal sex.

*Numerator:* The number of men who used a condom at last anal sex with a male partner.

*Denominator:* Total number of men who have had anal sex with a male partner in last 12 months.

**Strengths and Limitations:**

This measure suffers from the same difficulties of recall as Indicator 4.1.15. Its most serious limitation is that it does not distinguish between regular and nonregular partners.

Many couples who know their serostatus and are seroconcordant may choose not to use condoms within their regular partnership. Provided they use condoms in any sex with other partners, this represents no increased risk of transmission within the partnership. Where non-use of condoms within stable partnerships is common, the indicator will suggest higher levels of risk than actually exist.

However, defining “regular” partnerships in the context of males who have sex with males is fraught with difficulty, particularly in communities where male-male sex is clandestine. Condom use at last anal sex with any partner probably gives a good indication of overall levels and trends of protected and unprotected sex in populations surveyed.

#### **IR 4.1.17. Women’s ability to negotiate safer sex with husband**

##### **Definition:**

The percentage of respondents who believe that, if her husband has an STI, a wife can either refuse to have sex with him or propose condom use.

##### **What it Measures:**

This indicator is designed to measure a woman’s negotiating power in sex. It is confined to exploring norms within marriage, which in some cultures define a woman’s sexual universe. By specifying that the husband has an STI, the indicator measures attitudes towards a woman’s ability to protect herself from the known risk behavior of her husband.

##### **How to Measure it:**

This indicator is based on a hypothetical question put to respondents in a survey. It asks whether a woman can refuse to have sex with her husband if he has an STI, or can ask him to use a condom. The question is more specific than “can a woman protect herself” in this situation. In past use of the question, people have responded that a woman can protect herself, and on further questioning have responded that she can take medication. This has no bearing on her negotiating power, and so is excluded by the question.

*Numerator:* The number of men and women who believe that, if her husband has an STI, the woman could refuse to have sex with him or propose condom use.

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*Denominator:* Total number of men and women interviewed in the survey.

##### **Strengths and Limitations:**

This is a useful indicator in areas where the rights of women within marriage are known to be low, and where efforts are being made to increase women’s power to protect themselves in situations of known risk. A low score on this indicator may be very powerful in advocacy.

Earlier attempts at broader questioning (for example, “Is it acceptable for a woman to refuse to have sex with her husband?”) are hard to interpret. This is because there are many cultural situations in which it is acceptable (and indeed may be culturally proscribed) to refuse to have sex, such as for a certain number of weeks or months following the birth of a child, or during menses. The ability of a woman to refuse to have sex during these times may elicit a positive response to the survey question, but does not reflect a woman’s ability to negotiate sex with her husband at other times.

Another limitation to this indicator is that it reflects the level of knowledge among men and women about protection/prevention methods if it includes only persons knowing about STIs in the denominator. Used with a full sample, it would include those who do not know about STIs, thereby incorporating elements of knowledge about protection.

## **IMPROVED STI SERVICES**

### **IR 4.2. Enhanced quality, availability, and demand for STI prevention and management services**

#### **Indicators**

IR 4.2.1. Appropriate diagnosis and treatment of STIs

IR 4.2.2. Advice to STI patients on prevention and referral to HIV–testing services

IR 4.2.3. Drug supply at STI clinics

IR 4.2.4. Men and women seeking treatment for STIs

## **STI CARE AND PREVENTION**

### **Program Goals**

Sexually transmitted infections (STIs) are a major public health problem in many countries. Since the presence of other STIs increases the likelihood of HIV transmission, the advent of AIDS has led to a new push to treat and prevent STIs. This package of care includes the syndromic management of STIs. A patient is questioned and physically examined, and then treated for a spectrum of organisms that may have caused the symptoms from which they are suffering. This removes the need for logistically difficult and sometimes expensive laboratory testing.

Many programs also focus on increasing use of STI treatment facilities, especially among young people whose needs were largely neglected by earlier systems. In terms of monitoring and evaluation, there is a need to continue monitoring program efforts to treat STI effectively and efficiently, to provide high-quality STI treatment services, and to facilitate prevention counseling and referral and measurement of treatment seeking demand.

### **Measurement Challenges**

There is more experience with M&E of STI prevention and control programs than with most other areas of HIV-related programming. In terms of the HIV epidemic, monitoring STIs is especially important at two levels: 1) STIs significantly increase the chance of HIV transmission per act of unprotected sex between an infected and an uninfected partner, and 2) STIs can be used as a proxy measure for the impact of HIV prevention programs because STIs are, like HIV, a marker of unprotected sex with a nonmonogamous partner. Unlike HIV, however, bacterial STIs are curable, and therefore new cases are likely to reflect much more recent sexual activity than HIV, which can be a marker of risk behavior as long as a decade before. Thus, HIV-prevention programs should have a visible impact on STIs before any significant changes in HIV prevalence can be seen.



### **IR 4.2.1. Appropriate diagnosis and treatment of STIs**

#### **Definition:**

The percentage of patients who present with STIs at health care facilities who are appropriately diagnosed and treated according to national guidelines.

#### **What it Measures:**

STI programs are focusing on syndromic management of STIs as the most practical approach in high-prevalence, low-resource situations. The shift to syndromic management has increased the potential coverage of care, since there are fewer bottlenecks in diagnosis. Syndromic management has required a huge investment in training for nurses and other health care providers who were new to the approach and often to STI care in general.

This indicator reflects the success of that training, combined with efforts to ensure adequate supplies of drugs and other necessary materials to care provision points. It tracks changes in the provision of adequate care to patients seeking care for STIs.

The choice of STI service delivery points surveyed is important. Traditionally, this indicator has been constructed primarily for public sector STI clinics. This is largely because most of the early training in syndromic management was of public sector employees. However, it is widely recognized that individuals with STIs often seek treatment in other sectors—at private sector clinics, from pharmacies or from traditional healers. Some countries have begun to include these sectors in training programs for syndromic management; evaluations using this indicator have successfully been carried out in these sectors. Service delivery points surveyed should include representative service providers (from any sector) that have received training in syndromic management of STIs.

#### **How to Measure it:**

In the WHO/GPA protocols, data are collected in observations and interviews with providers at selected health services providing STI care. However, only the observed data are used in constructing the indicator. Providers are assessed on history taking, examination and treatment of patients. A provider must score positively on all three items in an interaction with a client for that client to enter the numerator of the indicator.

Following recent methodological developments, it is recommended that data collected during observations be supplemented by data collected in provider interviews, exit interviews with clients and interactions with “mystery” clients, that is, trained assessors posing as clients.

Appropriate diagnosis and treatment is assessed according to national guidelines governing STI services. In developing countries, these will most commonly include protocols for the syndromic management of locally common sexually transmitted pathogens, including treatment with drugs specified in national drug lists. In some countries, both syndromic and etiological management are recognized as appropriate, according to the diagnostic capacity of the service provider. Where national guidelines are not available, WHO guidelines on the syndromic management of STIs may be used to guide assessment of appropriate treatment.

#### **Strengths and Limitations:**

This indicator, measured through observation but including provider interviews in the process of data collection for validation purposes, has been widely used and proven to be feasible. There has been discussion of the extent to which the direct observation and provider interview methodologies bias data. It is thought that service providers perform better under observation than they normally would, or

overreport “correct” diagnosis and treatment, diminishing the gap between knowledge and practice. The addition of client exit interviews and “mystery” patient methodologies, as well as proving feasible, has demonstrated that the biases are not as great as was assumed. The gap between knowledge and practice in the area of treatment is often shaped by service providers’ not following “correct” protocols simply because they know that drugs are unavailable or unaffordable. Because of this, it is recommended that this indicator be presented together with indicators of drug availability such as that proposed below. In exit interviews, it is also worth looking at drug prescriptions. In many cases, prescriptions are correct even when drugs actually provided (because of stock ruptures or for other reasons) are incorrect.

As with all composite indicators, improvements in some areas may mask deterioration in others. If service in one area is poor, the facility will score poorly on the indicator, even if service provision in other areas has progressed significantly. Program managers need scores reported separately by area of knowledge and performance in order to identify areas of weakness and to improve training programs.

#### **IR 4.2.2. Advice to STI patients on prevention and referral to HIV- testing services**

**Definition:**

Percent of patients with STIs who are given advice on condom use and partner notification and who are referred for HIV testing.

**What it Measures:**

STI services seek not only to treat STIs but to prevent their recurrence by promoting condom use and by encouraging the treatment of partners to avoid reinfection. Increasingly, STI care is seen as an entry point for referral for voluntary testing for HIV. This indicator measures the extent to which these aspects of STI service provision are functioning.

**How to Measure it:**

The first two elements of this indicator are currently measured in health facility surveys through direct observation of interaction between care providers and clients. Currently, a health care provider must score positively on both condom advice and partner notification advice for the client to enter the numerator for this indicator. If it is a national policy to refer STI patients for HIV counseling and testing, or if VCT services are available and being actively promoted by national AIDS and STI programs, referral for counseling and voluntary HIV testing should be added to the indicator.

The different components of this indicator should be reported separately, for the reasons given below.

**Strengths and Limitations:**

If a client is at a STI clinic, previous efforts to promote safe behavior have failed. This measure does not contribute to the evaluation of success of prevention initiatives, merely the extent to which they are being complied with at all by service providers.

It is suggested that exit interviews with clients may be a more cost-effective method than observed interactions in compiling this indicator. However, there is a possibility that clients may misreport the actual content of counseling. Further research is needed to determine the reliability of exit interviews in collecting data for this indicator.

Condom promotion, advice on partner referral and referral for HIV testing are in fact quite distinct activities. The value of an aggregate indicator in this field is therefore somewhat limited, at least to program staff. In addition, referral to HIV-testing services will depend upon the availability of those services locally. And the addition of this component will disrupt trends over time in those countries where the similar indicator, WHO/GPA Prevention Indicator 7, has been calculated in the past. For these reasons, special care needs to be taken to ensure that the three separate elements of this indicator are reported separately.

### IR 4.2.3. Drug supply at STI clinics

**Definition:**

Percentage of clients served by health facilities providing STI care that have a current supply of essential STI drugs and report no stock-outs lasting longer than one week in the last 12 months.

**What it Measures:**

Correct history taking, diagnosis and prescription are all critical, but if drugs are not available, these will not translate into cases cured and will therefore have no positive impact on the likelihood of HIV infection.

National AIDS programs engaged in improving STI services have put time and money into improving drug distribution services and in attempting to ensure adequate manufacture or imports of drugs for the syndromic management of STIs. This indicator measures the extent to which those efforts have borne fruit in ensuring that service providers are consistently supplied with the drugs they need to work efficiently.

**How to Measure it:**

Countries promoting syndromic management of STIs usually have protocols for the prescriptions of drugs by syndrome. These are backed up by the inclusion of the relevant drugs on the nation's essential drug list. Drugs necessary to treat each of the important syndromes should be included in the stock-check for this indicator.

A survey of randomly selected facilities providing STI services checks the stock for current supplies of designated drugs. Clinic management is questioned about stock-outs in the last 12 months, and a clinic's stock records are reviewed for that period. Client numbers are also recorded. The sampling frame for the selection of sites should include a mix of private clinics and hospitals and nongovernment services as well as public facilities.

In constructing the indicator, each facility is weighted by its client load. This is because a rupture of stock at a small rural clinic will have less impact on the epidemic at a national level than a stock-out in a large urban clinic that has many more patients.

*Numerator:* The number of clients attending facilities providing STI services that have adequate drugs to treat each of the important STI syndromes in stock currently and that report no stock-outs of these drugs lasting more than 1 week in the past 12 months.

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*Denominator:* Total number of clients attending all STI service facilities surveyed.

**Strengths and Limitations:**

This is a good measure of the consistent supply of drugs to STI service facilities and provides a minimum measure of the availability of drugs. It is recognized, however, that clients very often buy drugs from other sources, even when they have been to a STI facility for diagnosis. Indeed, in countries where control of drug supplies is lax, a stock-out in a public clinic may simply mean that the supply of drugs has been diverted to another nearby outlet. This is likely to affect the cost of the drug to the client (and therefore accessibility), but it may not affect the physical availability of the drug.

#### **IR 4.2.4. Men and women seeking treatment for STIs**

##### **Definition:**

Percent of men and women reporting symptoms of STIs in the last 12 months who sought care at a service provider with personnel trained in STI care.

##### **What it Measures:**

STI programs seek not only to improve the quality of services but also to increase the proportion of people recognizing their infection and seeking those services. This indicator tracks changes in care-seeking behavior among men and women who believe they may have an STI, following initiatives to promote health-seeking behavior.

##### **How to Measure it:**

The construction of the indicator will depend on the country's STI program strategy. It will include in the numerator men and women who sought care from service providers considered appropriate by that strategy because they provide care by people adequately trained in STI care to national standards. In most countries, this will be limited to formal health facilities, including STI clinics. In a few countries, it will include pharmacies and traditional healers.

Respondents in a population-based survey (or, in concentrated epidemics, a subpopulation survey of men or women belonging to groups with typically high-risk sexual behavior, such as sex workers or migrant workers) are asked whether they have noticed a genital discharge or ulcer or experienced lower abdominal pain in the last 12 months. If the response is yes, they are asked what they first did about it. They are then prompted for other sources of care, including health centers, pharmacies and traditional healers. If any of the sources of care they visited is staffed by people trained to national standards in STI service provision, the respondent is included in the numerator.

*Numerator:* The number of men or women who report seeking care from a service provider classified as providing trained care by national standards.

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*Denominator:* Total number of men or women who reported symptoms suggestive of STIs.

The indicator should be reported separately for men and women. For program purposes, it should also be disaggregated by type of service provider.

##### **Strengths and Limitations:**

The indicator provides an idea of the reach of approved STI service provision. Two different aspects of programming confuse the interpretation of this indicator. First, IEC campaigns may work to increase recognition of STIs and their symptoms and to increase seeking treatment. Second, they work to prevent risky sexual behavior and so reduce new cases of STIs. If the indicator shows a rise in the percentage of men or women with self-reported STIs seeking treatment, it may mean that the prevalence of STIs has risen between surveys, but the proportion of infected people seeking treatment is unchanged. On the other hand, it may mean that there has been no change in infection rates, but that more infected men and women recognize and report that they are infected, and seek treatment.

A greater challenge to interpretation is posed by poor coverage of training in STI management. For example, if the national program has made an effort to train pharmacists in the syndromic management of STIs but has succeeded so far in training only 20 percent of all pharmacists, should pharmacists qualify in this indicator as trained service providers? It is suggested that a category of service provider should not be included unless more than 50 percent of the providers in that category have been trained in STI service provision.

The utility of this indicator depends on the existence of an active campaign to increase health-seeking behavior, and particularly, a campaign that promotes the use of specific categories of service providers.

While the relevant survey questions prompt for all types of service providers seen (and the indicator is constructed using multiple responses), respondents are also questioned about their first source of care. This information should help program managers in targeting future IEC and training efforts.

## **REDUCTION OF CONTEXTUAL CONSTRAINTS**

**IR 4.3. Improved knowledge about, and capacity to address, the key policy, cultural, financial, and other contextual constraints to preventing and mitigating the impacts of HIV/AIDS.**

**Indicators Policy**

IR 4.3.1. Spending on HIV prevention

### **Stigma and Discrimination**

IR 4.3.3. Accepting attitudes towards those living with HIV

IR 4.3.4. Employers not discriminating against those with HIV

## **POLICY**

HIV and AIDS have always been politically sensitive. They are spread by behaviors that were initially associated with marginalized groups. Even when it became clear that heterosexual transmission was the overwhelming norm in most severely affected countries, the disease and those infected remained stigmatized. Sex with nonmonogamous partners may be common, but it is often not socially acceptable. Fearing that they would lose support from religious or conservative constituencies, many governments were reluctant to recognize the problems posed by HIV and to commit resources to responding to them.

Decades of experience in other highly politicized areas, such as population planning, have shown that strong political commitment is crucial to program success in such situations.

### **Program Goals**

In many countries, AIDS program staff and even Ministry of Health staff need no convincing of the importance of efforts to prevent HIV and care for those infected and affected. Their commitment, however, is not always reflected in other parts of the government. AIDS program managers often work to increase political commitment at other levels of government. They may do this through joint planning exercises, or by collecting and presenting data to the head of state or cabinet ministers about the virus and the behaviors that spread it. They may also do this by holding educational sessions for legislators, religious leaders, business people and others who may influence policymakers at the top levels of government. National program managers are often supported in these efforts by external agencies that believe that strong political commitment is critical to successful AIDS programming.

One of the goals of external agencies and program managers is for senior policymakers to recognize and understand the nature and magnitude of the problem, and then—when merited—to put the problem firmly on the national agenda. That means committing funds and other resources to responding to the epidemic. It means turning the rhetoric of multisectoralism into a reality. It means breaking the silence surrounding the epidemic, drawing the attention of citizens to the contribution they can make to curb the epidemic and its consequences.

More political commitment to dealing with HIV leads inevitably to a stronger national response. That means there will be more activity to monitor and evaluate. Recording changes in political commitment may correct misconceptions about other M&E efforts—if commitment is low and showing no signs of rising, it may be optimistic to expect a massive impact from the rest of the national response.

### **Measurement Challenges**

The greatest difficulty with measuring political commitment is finding an objective measure. Most measures tend to include some subjectivity and are therefore of limited use for intercountry comparisons. Much more importantly, however, they can be difficult to interpret in measuring trends over time.



Many policy measures are of the yes/no variety: does a stated policy exist in a given area? Does joint planning exist? These may be helpful in pointing out gaps where advocacy or policy development work is most needed, but they are not very helpful in tracking incremental changes in the policy climate over time. It is also difficult to discern from yes/no indicators the quality of the policies. A national strategic plan may exist, and it may be based on a broad consultation of interested groups. Its contribution to the national response depends not on its existence, however, but on the extent to which it is implemented. That is much harder to measure, and certainly cannot be captured in a yes/no indicator. It may, however, be reflected in national accounts; a provision of a strategic plan that is supported by a line item in a ministerial budget is more likely to be implemented than one that is not financed.

In the field of population policy, composite indicators have been constructed to reflect the level of political support for the provision of family planning/reproductive health services. These are based on the opinion of a designated mix of experts, chosen to reflect a variety of institutional and professional views about a number of different aspects of political context and commitment. The AIDS Program Effort Index, which is being field tested for HIV programs, is an SSO level indicator that is discussed in the first section of this chapter.

Following the logic that governments fund their real interests, budget allocations can provide a useful indicator of changes in political commitment over time. However, funding-based indicators are not always useful for intercountry comparisons because funding for AIDS programs comes from various sources, both inside and outside the government.

A straightforward measure, such as the proportion of the regular health budget allocated to AIDS, may overlook the fact that a government knows that it can more easily obtain donor funding for AIDS than for other health issues, and allocates its own budget accordingly. This dynamic may affect another potential indicator of political commitment: the proportion of all spending on AIDS that comes from the national coffers.

While a dramatic rise in domestic funding for HIV almost certainly reflects an increase in political commitment, the reverse is not necessarily true because an increase in political commitment could equally be reflected in an aggressive search for outside funding for HIV-related activities.

Precisely because of the sensitivity of HIV and AIDS and the relative weakness of many AIDS programs within the government structure, it may be more difficult for program staff to calculate policy indicators than indicators in other areas of programming, such as STI care or sexual behavior. This is the area of M&E most likely to require outside evaluation, although clearly such an evaluation should be conducted together with the national program.

### **IR 4.3.1. Spending on HIV prevention**

#### **What it Aims to Measure:**

Measures of expenditure provide an indication of the government's willingness to commit resources to HIV programs. In extensive consultations, it was considered important to develop an indicator centered on expenditure on HIV. However, no clear definition of what constitutes HIV-related expenditure has been developed yet, nor is there any clear methodology for collecting the relevant data.

#### **Issues for Consideration:**

It has been suggested that a measure of spending should be restricted to spending on prevention programs from public budgets. Why only prevention? Because HIV-prevention programs are usually fairly well demarcated. Care programs, on the other hand, are more often integrated into other areas of service provision, making it difficult to decide the portion of costs of a health care facility or of drug acquisition that should be designated as spending for HIV. In addition, prevention is necessary in all countries, whereas demand for care will vary according to the stage of the epidemic. For example, in the early years of even a generalized epidemic, demand for care will be low.

Even within prevention, it is not easy to define HIV-related expenditures. For example, if the education budget funds teacher training which includes a reproductive health component, what proportion should be allocated to HIV prevention? Should any part of spending on rural credit programs that provide women with the possibility of making a living and reducing their dependence on men be counted as HIV-related spending? Should budgeted expenditure be considered or only actual expenditure?

A further dilemma is whether or not to include funding from nongovernment sources. Outside funding is far less likely to reflect true political commitment to responding to HIV than funds drawn from national sources (and it is even harder to track than budget allocations). In some countries, an increase in political commitment to HIV-prevention activities may result in the active pursuit of additional commitments in this area by external donors. Regarding soft loans, while they must be repaid over time, the concessional terms on which they are given mean that up to 70 percent are effectively grants, if compared with market rate money. Do such loans really reflect government priorities, or are they dictated by the priorities of lending institutions?

As a reflection of political commitment, the extent to which the response meets the needs of the epidemic is as important as its overall magnitude. An indicator of expenditure would therefore have to build in some idea of the burden of HIV in a country so that the relative adequacy of the response can be assessed. One option would be to use the number of people infected with HIV in a country as a denominator. While existing infections reflect past prevention failures rather than those still at risk, they give an idea of the magnitude of the problem. In making crosscountry comparisons, it may also be considered desirable to include some measure of overall resources, such as per capita spending on health, which might give a clearer picture of the relative importance accorded to HIV.

#### **Potential Sources of Data:**

If a measure of prevalence is to be included, it can be taken from the WHO/UNAIDS EpiFact sheets, which give estimates of the number of people living with HIV and are updated annually in consultation with national program managers. Budgeted expenditure information can be constructed from national and ministerial budgets. Actual expenditure is often detailed in annual national auditors' reports. (Using actual rather than budgeted expenditures will mean that the indicator will reflect budget allocations of more than a year previously.) Some information about resource allocation is summarized in the UNAIDS Country Profile series. Strategy documents from some of the major donor agencies are another potential source of information about expenditure.

## **Stigma and Discrimination**

Stigma is literally a mark or blemish upon someone or something, with the mark or suspicion of HIV having negative connotations in most societies. Discrimination is defined in terms of legal and human rights issues.

Stigma has many roots, among them the association of the disease in the public eye with marginalized groups, such as homosexuals, drug injectors and sex workers, and with inappropriate behavior or wrongdoing, such as promiscuity. HIV is far more heavily stigmatized than other STIs or hepatitis B or C, which share many modes of transmission. This stigma is institutionalized, resulting in open discrimination in employment, schooling or access to health care services, because they (or people close to them) are infected with HIV.

## **Program Goals**

Stigma and discrimination are of concern to AIDS programs for two main reasons: they can make life unbearable for those who live with the disease and they affect prevention and care efforts. People who have been exposed to HIV through their behavior or that of their partner may be unwilling to be tested or to change their behavior in any way for fear of being suspected of being infected with HIV. If they are indeed infected, they may continue to spread the virus and will not be able to access adequate care. For example, a pregnant woman who knows she is HIV positive but feels forced to breastfeed her child for fear that bottle feeding will brand her as infected and lead to her being thrown out of the family.

Sexual behavior that carries a high risk of HIV transmission is often a survival strategy for people with no access to less dangerous ways to secure their living. If people with HIV or their families are denied access to jobs, education or basic services, they may resort to survival strategies that further fuel the epidemic.

Programs aim to combat active discrimination by changing laws to support those living with HIV and AIDS and by ensuring that those laws are enforced. They seek to change attitudes towards infected people and their families. More supportive attitudes should translate into more supportive behavior, transforming a hostile world into one that is compassionate and constructive. They seek to break the silence surrounding the disease, partly by actively involving people living with HIV and their communities in an active response. It is hoped that more open discussion will reduce the fears and misconceptions that reinforce risky behavior.

## **Measurement Challenges**

Stigma and discrimination, but especially the former, are among the most difficult aspects of the epidemic to quantify. It is perhaps for this reason that many prevention and care programs have the reduction of stigma and the fostering of more supportive attitudes as a stated objective, but virtually none has developed a reliable way of measuring this most intangible of phenomena. In the first place, no clear definitions exist of stigma or the qualities that characterize it. Is it even possible to measure something that has not been clearly defined?

While some stigmatizing attitudes and discriminatory practices are all too obvious, others remain largely hidden. There is no clear relationship between attitudes and behavior in this context. What people actually do in the face of something as frightening as AIDS may well differ from what they say they would do, and the discrepancy seems to run in different directions. Some studies have found, for example, that people expressing very negative attitudes to those infected with HIV actually provide supportive care for an HIV-infected relative in their own home. Contrarily, some people who deny any negative attitudes towards people with HIV actively discriminate against them in specific settings, such as the provision of health care.

Interventions designed to reduce discriminatory attitudes may have a more rapid and/or profound effect on reported attitudes than on the embedded attitudes that drive an individual's behavior. Decades of human rights campaigning in the United States have, for instance, greatly reduced the proportion of people who openly admit to being racially prejudiced. Whether this change in stated attitudes is reflected in a similarly large reduction in active discrimination in practice is open to doubt.

To complicate matters still further, active discrimination is sometimes difficult to discern. It can take highly visible forms, such as being fired from a job. But it can also be noticed in the failure to provide services available to other members of society, or even the absence of compassion and supportive advice from church or community leaders.

It is difficult to collect information about behavior towards those infected with HIV. Partly because of stigma itself, the HIV status of people who are in fact infected is rarely openly acknowledged, even within their own families. Therefore, most questions that attempt to measure stigma focus on hypothetical situations, such as the willingness to care for a relative with AIDS or beliefs about whether people with HIV should be permitted to continue working with others. It is not clear to what extent hypothetical willingness to care for a sick family member is matched in practice, or, indeed, to what extent it is a useful indicator of social stigma. Other hypothetical questions, such as a willingness to be tested for HIV, have been shown to be very poor predictors of actual behavior, possibly because of the magnitude of social stigma. However, for lack of better predictors, hypothetical questions about people's attitudes are likely to remain central to attempts to track changes in negative attitudes towards people with HIV.

Studies in several countries suggest that the stigma attached to being infected with HIV varies for men and women. Respondents of both sexes are far more likely to express stigmatizing or disapproving attitudes towards women living with HIV than towards men. To capture this difference, questions (whether hypothetical or not) should be asked and analyzed separately about situations relating to infected women and to infected men.

Measures of discrimination have tended to be of the yes/no variety, for instance, "Does legislation exist to protect against discrimination?" In some measures, there is also an attempt to judge whether or not the legislation is enforced. This may be useful in identifying important gaps and areas for program effort. It is of limited use, however, in the regular monitoring and evaluation of national AIDS programs. Composite indicators of these yes/no questions are almost impossible to interpret. A gain in passing legislation in one area may be counteracted by a backsliding in enforcement in another. It is noted that the AIDS Program Effort Index (API) will

partly measure the extent to which the legal system protects the human rights of HIV–infected persons.

### IR 4.3.3. Accepting attitudes towards those living with HIV

**Definition:**

The percentage of people expressing accepting attitudes towards people with HIV.

**What it Measures:**

This is an indicator based on answers to a series of hypothetical questions about men and women with HIV. It reflects what people are prepared to say about how they feel or what they would do when confronted with various situations involving people living with HIV.

**How to Measure it:**

Respondents in a general population survey are asked a series of questions about people with HIV, as follows:

- If a member of your family became sick with the AIDS virus, would you be willing to care for them in your household?
- If you knew that a shopkeeper or food seller had the AIDS virus, would you buy food from them?
- If a teacher has the AIDS virus but is not sick, should he or she be allowed to continue teaching in school?
- Do you think a person with HIV should get the same, more or less health care than someone with any other chronic disease?

*Numerator:* The number of respondents who report an accepting or supportive attitude on all four of the above.

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*Denominator:* Total number of men or women interviewed.

Some surveys, such as the Demographic and Health Survey, will include an additional older age group than other population-based surveys. Given that older people in many societies are accorded more decision-making power and influence, it may be worthwhile to view respondents in the older age group, that is, 49–60 in addition to those respondents aged 15–49.

**Strengths and Limitations:**

Methodologically, this is a relatively easy way to construct an indicator of attitudes toward people with HIV. A low score on the indicator is a fairly sound indication of high levels of stigma, and for that reason alone, it is worth measuring.

There are, however, difficulties in interpreting indicators based on hypothetical questions, and a high score on the indicator is harder to understand. It could mean that there is little real stigma attached to HIV. Or it could mean that people know they should not discriminate, and therefore report accepting attitudes. This may, however, not change their behavior, which may continue to be discriminatory towards people with HIV. Changes in the indicator could therefore reflect a reduction in stigma or simply a growing awareness that it is not acceptable to admit to one's prejudices.

The proposed indicator is constructed in exactly the same way as the WHO Care and Support Indicator 4. However, one of the four questions upon which it is based is fractionally different and the fourth has changed to better reflect situations in which people with HIV actually suffer from stigma. Since this

indicator has not yet been widely used, these changes will have little bearing on comparability and trend measures over time.

Indeed, the fact that this WHO indicator was used infrequently calls into question its usefulness. It is possible that it was rarely used because so little programming effort to date has gone in to reducing stigma surrounding HIV in most countries. As the power of stigma to obstruct prevention and care efforts becomes clearer, however, it is likely that more national AIDS programs will turn their attention to this area. It is expected, therefore, that use of this indicator will increase.

#### **IR 4.3.4. Employers not discriminating against those with HIV**

##### **What it Aims to Measure:**

There are many aspects of HIV-related discrimination, ranging from withholding services such as health care to abusive treatment in school. Legislation related to the rights of people with HIV range from the protective (specifying that employers may not fire an employee on the grounds of HIV infection, for example) to the restrictive (for example, laws that forbid HIV-infected people from marrying). The extent to which these laws are enforced varies widely. Discrimination may also take place in areas in which there is no relevant legislation.

Despite a number of ongoing efforts, as yet no indicator has been able to reflect this complexity adequately. This is not only because composite indicators are hard to interpret. Different aspects of discrimination may change in different directions, with progress in some areas being offset by setbacks in other areas. It has been suggested that focusing on a single important area of discrimination, such as discrimination in employment, might yield a more easily interpretable indicator of changing HIV-related discrimination over time.

##### **Issues for Consideration:**

An indicator of discrimination in employment focuses on a single but rather tangible aspect of discrimination. The indicator might aim to track changes over time in codes of conduct or policies related to employees living with HIV and AIDS in large private companies or in the public sector. A rise in the proportion of top employers openly committed to fair and nondiscriminatory treatment of employees with HIV and AIDS may be a good marker for positive practices in the formal sector as a whole.

Defining exactly what should be measured is not straightforward, however. Should an indicator focus on policy, practice, or a combination of the two? Even within a single company, stated policies may differ from actual practices. A company with no stated policy on HIV or AIDS may nonetheless protect the rights of employees with HIV and ensure that they have access to the same care and facilities as employees with cancer or other chronic or terminal illnesses. On the other hand, companies may have written policies on HIV but may not enforce them, finding other nominal reasons to fire employees that they know or suspect to be infected.

If the indicator focuses on practices of individual companies, which companies should be included? Presumably, efforts should be made to include the largest employers. But if these include the local subsidiaries of multinational companies, their codes of employment may not reflect national norms. Will companies share information on their policies, let alone allow a review of their practices?

Obviously, an indicator focusing on employment practices does not begin to give a comprehensive picture of all aspects of discrimination in a country. It is likely to be restricted to the formal sector, and will not reflect the situation relating to women and children, who are largely excluded from the formal sector in many countries.



## **IMPROVED PRIVATE SECTOR RESPONSE**

### **IR 4.4. Strengthened and expanded private sector organizations' responses in delivering HIV/AIDS information and services**

#### **Interim Private Sector Capacity-Building Indicators**

- IR 4.4.a. Number of people receiving HIV/AIDS services from USAID–assisted private sector organizations.
- IR 4.4.1.a. Number of people receiving HIV/AIDS services from USAID–assisted U.S. PVOs.
- IR 4.4.2.a. Number of people receiving HIV/AIDS services from USAID–assisted commercial firms.
- IR 4.4.3.a. Number of people receiving HIV/AIDS services from USAID–assisted indigenous NGOs.

#### **Final Private Sector Capacity-Building Indicators**

##### *To be developed*

- IR 4.4.b. Number of people receiving quality HIV/AIDS services from USAID–assisted private sector organizations.*
- IR 4.4.1.b. Number of people receiving quality HIV/AIDS services from USAID–assisted U.S. PVOs.*
- IR 4.4.2.b. Number of people receiving quality HIV/AIDS services from USAID–assisted commercial firms.*
- IR 4.4.3.b. Number of people receiving quality HIV/AIDS services from USAID–assisted indigenous NGOs.*

## PRIVATE SECTOR CAPACITY BUILDING

### Purpose and Issues

The purpose of this set of indicators is to measure the outcome of private sector capacity-building programs supported by USAID. This is achieved by tracking the improved **performance** of the assisted organizations—in terms of changes in the quality and quantity of HIV/AIDS prevention and care services delivered. The indicators can be aggregated to reflect the effect of building the capacities of all private sector organizations delivering HIV–prevention and care services.

### Measurement Challenges

#### Levels of Measurement

The plethora of organizational strength indices (e.g., organizational capacity assessment tool [OCAT] and discussion-oriented self-assessment [DOSA]) frequently used in international health programs are poor proxies for organizational performance, and are therefore **not** appropriate for use as indicators of the **outcomes** of HIV/AIDS capacity-building activities. They are, instead, more appropriately used for diagnosing the reasons for the high/low/changed performance and for planning the details of a capacity-building activity.

#### Collecting and Reporting Data on Service Coverage

Many USAID–assisted private sector organizations may not currently be able to measure and report service volume and quality. If capacity-building efforts are to be sustainable, however, it is essential that assisted organizations be able to track their own performance. Such monitoring is an essential component of managing any type of service delivery and the training or technical assistance provided to such organizations should include a module on simple monitoring and reporting.

#### Tracking Service Quality

While minimum quality standards have been established for some key services offered by private sector organizations (e.g., STI services), such quality standards have not yet been established for many other services—especially behavior change interventions. Once established, however, they should be incorporated into this set of indicators.

## Interim Private Sector Capacity-Building Indicators

- IR 4.4.a. Number of people receiving HIV/AIDS services from USAID- assisted private sector organizations
- IR 4.4.1.a. Number of people receiving HIV/AIDS services from USAID- assisted U.S. PVOs
- IR 4.4.2.a. Number of people receiving HIV/AIDS services from USAID- assisted commercial firms
- IR 4.4.3.a. Number of people receiving HIV/AIDS services from USAID- assisted indigenous NGOs

### Definition:

The number of people receiving HIV/AIDS services from USAID–assisted private sector organizations in the past 12 months.

### What these Measure:

These indicators measure the outcomes of USAID–financed capacity-building interventions by measuring the changes in the coverage of quality HIV–prevention and care services provided by USAID–supported private sector organizations. These private sector organizations may include U.S. PVOs, commercial firms, and indigenous NGOs. **Quality** is defined by the minimum standards appropriate for the key services provided by the private sector organization to the communities that it serves. The types of services that are offered by private sector organizations may include behavior change interventions (including education, counseling, condom promotion and distribution), STI referral and management interventions, and home-based care.

### How to Measure them:

Data can be gathered from private sector organization records and program monitoring systems, exit interviews, direct observation and community services on the following:

- Total number of USAID–supported private sector organizations delivering HIV–prevention and care services (by type) that receive assistance in building technical, managerial, and financial capacities, among others;
- Size of each organization’s catchment population (disaggregated by type, for example, males who have sex with males [MSM], sex workers, youth);
- Size of population (disaggregated by type, for example, MSM, sex workers, youth) actually receiving quality services from each organization; and,
- Measures to indicate the quality of the services delivered, by service type.

### Strengths and Limitations:

The purpose of this set of indicators is to measure the outcome of private sector capacity-building programs. This is achieved by tracking the improved **performance** of the assisted organizations in terms of changes in the quantity of HIV/AIDS–prevention and care services delivered. The indicators can be aggregated to reflect the effect of building the capacities of all private sector organizations delivering HIV–prevention and care services.

## **STRENGTHENED DATA COLLECTION FOR MONITORING AND EVALUATION**

**IR 4.5. Improved availability of and capacity to generate and use data to monitor and evaluate HIV/AIDS/STI prevalence, trends, and program impacts**

### **Indicators**

*To be revised and/or developed*

*IR 4.5.1. Number of selected countries with operational STI/HIV surveillance systems.*

*IR 4.5.2. Cost of gathering data, better information, and better coverage.*

*IR 4.5.3. Use of data.*

*IR 4.5.4. Proportion of intervention models whose effectiveness (program impact) has been established.*

### **IR 4.5.1. Number of selected countries with operational STI/HIV surveillance systems**

#### **Definition:**

Number of selected countries that produce annual HIV (STI and AIDS, where available) surveillance reports, generally through ministries of health, that present data on disease patterns.

**Operational surveillance system:** Given the variability in surveillance systems, it may be appropriate to define an **operational** system as present or absent (any system versus no system). As surveillance systems develop, the definition of operational could be revised to reflect advances in the systems.

#### **What it Measures:**

This indicator measures the number of countries with operational HIV surveillance systems and the number of countries that produce annual HIV surveillance reports that present data on disease patterns on an annual or biannual basis.

#### **How to Measure it:**

Data from the Bureau of the Census HIV/AIDS Surveillance Data Base are used for this measure, including annual reporting, where feasible, and biannual otherwise. (Annual reporting is preferred, but some systems may initially only be able to report on a biannual basis.)

#### **Strengths and Limitations:**

Surveillance of HIV prevalence is fundamental to monitoring HIV prevalence and guiding policy and programs. To date much of the data on HIV prevalence has been collected in sentinel populations through service delivery points, such as STI and ANC clinic attendees. Surveillance of these populations has served as the standard for measuring the magnitude, growth and geographic scope of HIV epidemics over time.

However, service delivery-based sites for data collection can introduce significant biases. Those individuals with access to those sites who use their services may not represent the general population. STI clinics are particularly problematic because of changes/improvements in services provision and changes in their clientele. Such changes could distort the data and bias an analysis of trends. Antenatal clinics are somewhat more stable, although the population served could also change over time.

One consideration is whether STI and ANC clinics should continue to serve as the standard source of data for surveillance of HIV prevalence. One alternative source of data for surveillance is blood donor screening for transfusion, especially if such screening is conducted in a voluntary and not directive fashion. A second alternative source of data for HIV prevalence is through periodic cross-sectional surveillance studies. Although such studies are resource intensive, they produce better estimates of HIV in the general population.

#### **Surveillance of STI and AIDS:**

The surveillance of STIs through service delivery points is more complex because of a variety of factors. While there is an array of STIs that could be monitored, it is generally only feasible to monitor one or two. STI surveillance systems also depend on provider cooperation. STI surveillance systems do not work very well in countries rich in resources, such as the United States.

The surveillance of AIDS cases has not been used extensively to understand the dynamics of the pandemic, since surveillance is constrained by difficulties inherent to the case definition of AIDS and the general weakness of reporting systems. In mature epidemics, however, the analysis of reported AIDS cases, particularly if reports include information on age and sex, may become increasingly useful. This

analysis can provide information relevant to the assessment of trends over time, even if the delay between HIV infection and the onset of AIDS–defining conditions is several years.

The establishment of surveillance programs will succeed only if capacity building through institutional strengthening and skill building is an integral part of the program. Surveillance will further improve if regular analysis, feedback and the use of surveillance information for policy development, program monitoring and evaluation occur.

Epidemiological surveillance should be linked to the periodic collection and analysis of behavioral and social data to provide additional clues about the possible association between HIV infection and individual or collective factors influencing the risk of infection. National commitments need to be made to generate, analyze and disseminate information on the HIV epidemics and international guidance on methods to ensure both the reliability and comparability of the information collected. Such methods should rely on standard procedures, minimum sample sizes and a limited number of surveillance sites.

## **EFFECTIVE PROGRAM IMPLEMENTATION**

**IR 4.6. Provide quality and timely assistance to partners (Regional Bureaus, Missions, other donors, etc.) to ensure effective implementation of HIV/AIDS programs.**

### **Indicators**

#### *To be developed*

- IR 4.6.1. Percentage of “Highly Satisfactory” responses in annual customer survey.*
- IR 4.6.2. Number of times research findings and evaluation results adopted/applied in subsequent program design and implementation.*
- IR 4.6.3. Coordination and collaboration to improved programming and implementation of STI/HIV/AIDS programming among all partners (CAs, donors, governments, NGOs, etc.) at the country level.*

### **III. ADDITIONAL INDICATORS**

#### **A. Sexual Behavior among Young People**

1. Median age at first sex
2. Young people having premarital sex in the last 12 months
3. Condom use at last premarital sex
4. Young people with multiple partners in the last 12 months
5. Condom use at last risky sex
6. Age mixing in sexual relationships

#### **B. Voluntary Counseling and Testing (VCT)**

1. Population requesting HIV test and receiving results
2. Districts with VCT services
3. Quality of post-HIV test counseling
4. VCT centers with conditions for quality services

#### **C. Mother-to-Child Transmission (MTCT) of HIV**

1. Pregnant women counseled and tested for HIV
2. ANC clinics offering or referring for VCT
3. Quality HIV counseling for pregnant women
4. Provision of ARV therapy during pregnancy

#### **D. Injecting Drug Use**

1. Drug injectors sharing equipment
2. Drug injectors using condoms at last sex

#### **E. Blood Safety**

1. Screening of blood units for transfusion
2. Reduction of unnecessary blood transfusions
3. Health care facilities with guidelines and practices for prevention of accidental HIV transmission

#### **F. Care and Support for the HIV Infected and their Families**

1. Medical personnel trained in the care of HIV-related conditions
2. Health facilities with the capacity to deliver appropriate care to HIV-infected patients
3. Health facilities with drugs for opportunistic infections and palliative care in stock
4. Households receiving help in caring for chronically ill young adults
5. Households receiving help with orphan care



## **A. Sexual Behavior among Young People**

### **Program Goals**

The importance of young people in determining the future of the HIV epidemic has been described above. As HIV prevalence rises in a generalized epidemic, the chances of encountering an infected partner early in one's sexual life rises. The importance of establishing safe behavior early on therefore also grows. The success of prevention programs will increasingly be judged on their success in persuading young people to delay first sex, to restrict the number of partners they choose (or the type of sexual partners they have or choose), and to use condoms when they do have sex.

### **Measurement Issues**

One of the difficulties in choosing indicators of sexual activity among young people is defining an appropriate age group. The most common age group chosen in this context is 15–24. However, the relevance of this spectrum may vary considerably from country to country. In many countries with high prevalence HIV epidemics, a sizable proportion of young people are sexually active before age 15. In these cases, surveys focusing on young people should sample respondents under 15. There is also wide variation in the proportions of sexually active young people across the entire age range typically thought to represent youth. Most indicators of sexual behavior in young people should therefore be presented separately for the age groups under 15 (where relevant), 15–19, and 20–24. It is possible that the age range sampled in youth surveys will vary by gender within a country. As with all indicators of sexual behavior, indicators for young people should obviously be presented separately by gender, even when the age range chosen is identical for both sexes.

Past attempts to track sexual behavior among young people have sometimes foundered on opposition from parents, teachers or other gatekeepers who prefer to believe that questions about sexual behavior are, in the words of the education ministry in one high HIV-prevalence country, “not relevant to this cohort.” Tracking sexual behavior among young people is a critical part of good monitoring and evaluation of HIV programs in countries with generalized epidemics. However, program managers should be aware that these monitoring activities need to be carefully designed and presented so that their purpose is clearly understood and potential opposition is minimized.

Special attention also needs to be paid to sampling strategies for young people, since those most at risk may well be outside the conventional frameworks that afford access to young people, such as the school system.

## **A.1. Median age at first sex**

### **Definition:**

The age by which one half of young men or young women aged 15–24 have had first penetrative sex (median age) of all young people surveyed.

### **What it Measures:**

A major program goal in many areas is delaying the age at which young people first have sex. Clearly, young people are protected from infection by abstinence. But there is evidence to suggest that a later age at first sex also reduces susceptibility to infection per act of sex, at least for women. This indicator measures the age by which half of the adolescent population is sexually active. An upward shift in the indicator suggests that programs promoting abstinence among young people are working.

### **How to Measure it:**

In household or special surveys focusing on young people, respondents are asked whether or not they have ever had penetrative sex. A curve is plotted according to the percent that say they have had sex by each single year of age. The age at which the curve exceeds 50 percent is taken to be the median age at first sex. On average, people reporting that they are a certain age will be 6 months older than that age. (For example, those who say they are 15 will range from those who turned 15 on the day of the survey to those who will turn 16 the following day. Assuming an even age distribution, they will be, on average, 15.5.) Half a year should therefore be added to the exact ages used in the calculation of the median age at first sex.

### **Strengths and Limitations:**

Because this indicator is constructed from a question about current virginity status, it is sensitive to recent changes in the age at first sex. The indicator itself does not, however, give any idea of the full distribution of ages at sexual initiation. In some circumstances, such as when a significant proportion of girls are exposed to sex at very young ages, it may be the tails rather than the middle of the age curve which interest those designing prevention programs.

To allow for the construction of a robust indicator using this current status methodology, reasonable sample sizes are needed at each single year of age (preferably at least 100 respondents of each sex in single years, especially the single years at which the median age is expected).

The indicator is most useful where the median is rather young—between 15 and 19 years. Where the median age at first sex is over 19 for both men and women, promoting abstinence among adolescents may be replaced by other priority interventions within the program and this indicator will diminish in importance and may not even be measured.

## A.2. Young people having premarital sex in the last 12 months

### **Definition:**

Percent of young single people (15–24) who have had sex in the last 12 months of all young people surveyed.

### **What it Measures:**

This indicator is a measure of premarital sex among young people. A high score on this indicator reflects a failure of prevention messages stressing abstinence until marriage.

The converse of this indicator, that is, the indicator score subtracted from 100, functions as an indicator of abstinence among unmarried young people. Success in promoting abstinence should be reflected in a later age at first sex, as measured by Indicator A.1. This indicator, however, captures an additional dimension: anyone who has been abstinent for more than a year (regardless of whether they have ever had sex) will **not** be counted in the numerator for Indicator A.2. So the inverse indicator of abstinence will include not only virgins but also people who have given up sex for at least the last year as a protective measure against HIV and other STIs.

### **How to Measure it:**

In a survey among people aged 15–24, respondents are asked about their marital status and their sexual partnerships.

*Numerator:* The number of people aged 15–24 who report any sex in the last 12 months.

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*Denominator:* Total number of unmarried respondents aged 15–24.

The indicator should be reported separately for men and women. It may also be constructed separately for those under 15, 15–19, and 20–24, as appropriate. In those settings in which the proportion of 20–24 year olds who are single will be very low, at least among women, it may not be appropriate to construct the indicator for this age group.

### **Strengths and Limitations:**

This indicator has a critical role in advocacy. Resistance to improved sexual education and service provision for young people frequently comes from parents or other authorities who believe that abstinence until marriage is the only acceptable message for young people. An indicator that tracks premarital sex tracks the success or failure of this message and may point to gaps in the current approach. In addition, this indicator measures changes in what may be culturally and socially ascribed norms for early sexual activity.

A limitation may also be that small sample sizes of the different age strata could make analysis and interpretation of results quite difficult. In addition, in areas where early marriage is both encouraged and acceptable, prevention programs may have a limited effect on changing prevailing social and cultural norms around marriage.

### A.3. Condom use at last premarital sex

**Definition:**

Percent of young single people (15–24) who used a condom at last sex, of single people who have had sex in the last 12 months.

**What it Measures:**

In many high HIV-prevalence epidemics, it is clear that a high (and rising) proportion of HIV infections take place before marriage, but reluctance to provide services to decrease risk among people who choose to be sexually active before marriage is sometimes intense. Some national programs are beginning to actively promote the provision of services to young and unmarried people. This indicator tracks their success in reducing the risk of HIV infection in premarital sex by increasing condom use.

**How to Measure it:**

In a survey among people aged 15–24, respondents are asked about their marital status and their sexual partnerships, including condom use at last sex with each partner. Those who are single and report using a condom the last time they had sex in the last 12 months are part of the numerator. The denominator is all single respondents who have had sex in the last year (i.e., the denominator for this indicator is the numerator for the previous indicator, Indicator A.2).

*Numerator:* The number of single people, aged 15–24, who report using a condom the last time they had sex in the last 12 months.

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*Denominator:* Total number of unmarried respondents, aged 15–24, who report having had sex in the last 12 months.

The indicator should be reported separately for men and women. It may also be constructed separately for those under 15, 15–19, and 20–24, as appropriate. In those settings in which the proportion of 20–24 year olds who are single is very low, at least among women, it may not be appropriate to construct the indicator for this age group.

**Strengths and Limitations:**

This indicator tracks levels of risk in premarital sex. Clearly, it should be presented together with the previous indicator, since low levels of condom use and high levels of premarital sex will be much more worrying than low levels of condom use and very low levels of premarital sex.

#### A.4. Young people with multiple partners in the last 12 months

**Definition:**

Percent of young people (15–24) who have had sex with more than one partner in the last 12 months, of all sexually active young people.

**What it Measures:**

Prevention messages for young people tend to begin with abstinence and often focus also on mutual monogamy. But because sexual relationships among young people are frequently unstable, relationships that were intended to be mutually monogamous may break up and be replaced by other relationships in which similar intentions prevail. Particularly in high HIV-prevalence epidemics, serial monogamy is not greatly protective against HIV infection. This indicator measures the proportion of young people that has been exposed to more than one partner in the last year. That is, the proportion for whom the “one mutually faithful partner” message has failed.

**How to Measure it:**

In a survey among people aged 15–24, respondents are asked about their sexual partnerships in the last year. Those that report more than one partner in the last 12 months are included in the numerator. The denominator is all respondents who have been sexually active in the last year.

*Numerator:* The number of single people aged 15–24 who report having more than one sexual partner in the last 12 months.

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*Denominator:* Total number of respondents, aged 15–24, who report being sexually active in the last 12 months.

The indicator should be reported separately for men and women. It may also be constructed separately for those under 15, 15–19, and 20–24, as appropriate.

**Strengths and Limitations:**

This indicator does not distinguish between marital and nonmarital partners. It tracks all multiple partnerships, regardless of their relative levels of risk. In the very similar adult sexual behavior indicator (Indicator 4.1.10.), a distinction is made between marital and cohabiting partners, and all other partner types. This is partly to cope with the measurement challenge posed by men in polygynous societies, who may have multiple partners within marriage. However, polygyny among men under 25 is extremely rare. It is therefore not necessary to make the distinction in an indicator for young people.

## A.5. Condom use at last risky sex

### **Definition:**

Percent of young people (15–24) who used a condom at last sex with a nonmarital, noncohabiting partner, of those who have had sex with a nonmarital, noncohabiting partner in the last 12 months.

### **What it Measures:**

This is the same as adult Indicator 4.1.11. It should be reported across the 15–24 year age range and separately by sex. It may also be reported separately for 15–19 year olds, 20–24 year olds, and under 15 year olds, when relevant.

It differs from Indicator A.4. in that it includes the nonmarital partners of young people who are currently married, as well as all reported partners of those who are still single or not cohabiting with their partner.

### **How to Measure it:**

In a general population or targeted youth survey, all respondents are asked about their sexual partnerships in the last years. For each partner a young person reports, a cohabitation status is established. When a general population survey is undertaken for people aged 15–49, the data can be stratified by age groups to calculate this indicator.

*Numerator:* The number of respondents aged 15–24 who report that they used a condom the last time they had sex with a nonmarital, noncohabiting partner.

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*Denominator:* Total number of respondents aged 15–24 who report that they had sex with a nonmarital, noncohabiting partner in the last 12 months.

### **Strengths and Limitations:**

In terms of advocacy, this indicator can have powerful effects. When the indicator shows low levels of condom use with higher risk sex among youth, programs will need to focus around abstinence after initiation of sexual activity, but primarily on condom use.

The indicator includes in the denominator all young people having sex with a nonmarital, noncohabiting partner; thus, it is able to capture the sexual behavior of younger people both in and out of what may be considered stable or regular relationships.

The indicator suffers from the same reporting bias problems inherent in surveys asking about sexual behavior. Depending upon the degree of program effort saturation and/or existing cultural or religious mores, young people may actually be more willing than adults to report details about their sexual behavior.

## **A.6. Age mixing in sexual relationships**

### *In need of further development*

#### **What it Aims to Measure:**

One of the principal forces driving the heterosexual spread of HIV is age mixing. Often, the virus is introduced into a new pool of uninfected young people when people in that age group have sex with people in an age group that is already heavily infected. Most commonly, the younger partners are girls, the older partners are men. These types of partnerships are especially effective at spreading the virus because for physiological reasons, there is a high risk of infection per act of sex between a young, uninfected girl and a more mature, infected man.

In some countries, this pattern of mixing is common enough to have been given a name: the “sugar daddy syndrome.” AIDS programs sometimes try to address it directly through IEC campaigns and initiatives to increase girls’ negotiating powers. In consultation with a number of countries, it was thought important to develop an indicator that might reflect progress being made in discouraging unequal sexual relationships between older men and younger women.

#### **Issues for Consideration:**

There are many difficulties associated with identifying and measuring an appropriate indicator in this area. First, in the majority of sexual relationships in nearly every society in the world, the men are older than the women. It is not clear what age difference constitutes a particularly elevated risk for HIV infection, or whether that age difference would be similar in different countries or communities.

Second, many of the most pronounced age differences—especially in polygynous societies—are within marriage. Should these relationships be classified as high risk? Third, the most obvious way to collect relevant data would be to ask people about the age of their partners. But many people, especially young women with casual older partners, may not have a clear idea of their partner’s age.

In addition, the issue of relationships between older men and younger women is frequently culturally and politically sensitive. Any indicator in this area would need extremely careful preparation and testing.

## **B. Voluntary Counseling and Testing (VCT)**

### **Program Goals**

Voluntary counseling and HIV testing (VCT) is becoming an increasingly important area of HIV prevention and care programming. People who have chosen to be counseled and then have gone on to have an HIV test have, in limited studies, registered some behavior change that should contribute to lower rates of HIV spread.

The ready availability of VCT services is also thought to be a factor in reducing stigma surrounding HIV and in encouraging community support and care for those affected. Perhaps most importantly, VCT services are an essential early entry point to social support services and medical and associated care for those infected with HIV, where these services exist.

Many national AIDS programs are trying to increase the availability and quality of counseling and of testing services by supporting the training of counselors and providing necessary inputs. In countries where efforts are being made to reduce transmission of HIV from mother to child, there is a special interest in the counseling and voluntary testing of pregnant women. This area of VCT programming is discussed in the section on mother-to-child transmission.

### **Measurement Challenges**

In counseling—perhaps more than in any other area of service provision—service quality determines the outcome. Poor quality counseling can result in misunderstanding and even resistance to change, and circumstantial evidence suggests that poor counseling is not uncommon. But measuring quality of counseling is exceptionally difficult. Because confidentiality is a critical element of VCT, observational studies are difficult, but not impossible. “Mystery” patient studies and exit interviews with clients are possibilities for pretest counseling, but ethical issues make these unsuitable for use in assessing the quality of posttest counseling. Issues of confidentiality also complicate other outcome and impact measures, such as the proportion of those testing positive who are adequately referred to care and support services, and who receive such care and support.

Demand for HIV testing is hard to measure. Survey questions asking about willingness to be tested typically get very high positive response rates. Yet when free counseling and testing is offered in the same populations, uptake is typically very low. The only reliable measures of demand are those based on uptake, and these will of course be biased by supply, by perceptions about confidentiality and the quality of counseling, and by services available to (or, conversely, the degree of stigma likely to be encountered by) those testing positive.

Another difficulty in evaluating progress in the provision of quality VCT is deciding which service providers should be included in an assessment. While an increasing number of countries have special centers dedicated exclusively to counseling and testing for HIV, high proportions of tests take place in private clinics or doctors’ offices. The fact that tests are proposed for diagnostic purposes does not diminish the need for pre- and posttest counseling, confidentiality and other elements of quality service provision.



## **B.1. Population requesting HIV test and receiving results**

### **Definition:**

Percent of people aged 15–49 surveyed who have ever voluntarily requested an HIV test and received the results.

It is suggested that data also be collected on those requiring an HIV test, receiving the test and receiving the results in the last 12 months.

### **What it Measures:**

The coverage of quality VCT services will greatly assist in determining whether those services achieve the three aims of providing an entry point for care and support, of promoting safe behavior and of breaking the vicious circle of silence and stigma.

This indicator aims to give an idea of the reach of HIV–testing services in the general population, and of the percentage of people who have at some point known their HIV status. It can also help in assessing demand for services.

### **How to Measure it:**

In a general population survey, respondents are asked whether they have ever requested an HIV test, and if so, whether they have received the results. Those that reply yes to both questions form the numerator, while the denominator is all respondents.

*Numerator:* The number of respondents who report having requested an HIV test and have received the results.

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*Denominator:* Total number of respondents surveyed.

The questionnaire prefaces the questions with, “I am not going to ask you about your HIV status, but am interested to know how much demand there is for HIV testing and counseling.” As for most indicators, this should be presented separately for men and women.

In addition to having information about the broad reach of VCT services over time, it will be useful also to know the percentage of the population surveyed who have been tested and have received the results in the last 12 months, a more time-sensitive measure.

### **Strengths and Limitations:**

The survey question specifies that the test must have been requested. In many situations, people assume that their blood has been tested for HIV at some time, for example, when giving a blood donation, when applying for insurance, or for surveillance purposes when attending antenatal services. These involuntary tests, whether real or perceived, are excluded in the calculation of this indicator. So are tests made for diagnostic purposes without the consent of the client, even if the client was then told of the results. Such tests do not reflect either the coverage of or the demand for testing services.

The stipulation that the client must have received the result is included to give an idea of the proportion of people likely to know their HIV status. The difference between the number of people who requested a test and the number who received their results may reflect the quality of services.

However, since this indicator is not limited to voluntary testing and counseling services staffed by trained counselors, this information will be of limited use in assessing the quality of the voluntary counseling and

testing services promoted by most AIDS programs. It may, for example, include tests requested from private doctors who do not necessarily provide any counseling.

In areas where HIV is highly stigmatized, respondents may be unwilling even to admit to having taken an HIV test, since it may be an admission that they fear they may be infected. This is all the more true when the question is posed in the context of a questionnaire about risk behavior. On the contrary, in countries where testing has been heavily promoted as a sign of responsibility, some people may report that they have been tested when in fact they have not. Despite these potential biases, the indicator is useful for obtaining an approximation of the proportion of people likely to know their HIV status and for measuring trends over time.

The indicator measures the percentage of respondents that has **ever** requested an HIV test. An ever- tested measure is less sensitive to recent trends in test-seeking behavior than a time-bound measure, such as “tested in the last 12 months,” but provides a better estimate of the reach of testing services.

In low-level and concentrated epidemics, the indicator is likely to yield extremely low percentages if measured in the general population. However, it can be used effectively in behavioral surveys of subpopulations at higher risk of infection.

## B.2. Districts with VCT centers

### **Definition:**

Percent of districts that have at least one center staffed by trained counselors providing specialized HIV counseling and testing services free or at affordable rates.

### **What it Measures:**

This is another measure of coverage, but focuses more particularly on coverage of specialized VCT services.

### **How to Measure it:**

Using key informants and health systems records of counselor training, a census is constructed of facilities offering counseling by trained counselors and HIV–testing services. Since the object is to estimate the accessibility of counseling and testing services, all specialized services that are open and accessible to most members of the general public should be included, whether public, private or nongovernmental. This will include VCT services that are integrated into hospital or primary health care services. It may, however, exclude those attached to services with limited clientele, such as ANC or STI clinics.

Since price is a major part of accessibility, cost should be considered in formulating this indicator. A suggested formula is: the price of voluntary counseling and HIV testing should not exceed one half of the daily minimum wage, or one half of the gross national product per person per day, calculated at purchasing power parity.

A further criterion is that the staff actually providing counseling is trained. Where a country has specified minimum standards of training for counselors, staff providing counseling should meet these standards of training.

Facilities meeting the criteria for service provision, staff training and price are mapped by district or a similar administrative unit. The indicator is the percentage of all districts in the country with at least one facility meeting the criteria. Since districts (or administrative units) are usually defined in relation to their population size, weighting of the indicator is considered unnecessary.

*Numerator:* The number of districts in the country with at least one facility meeting the criteria.

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*Denominator:* Total number of districts in the country.

### **Strengths and Limitations:**

The indicator gives an approximation of coverage of VCT services. It is most useful in tracking changes over time as a national program attempts to improve service provision to meet need in a generalized epidemic. Once coverage has reached a certain level, it is unlikely to fall again and the indicator will become obsolete.

A major limitation of the indicator is that it does not take into account the scale of the epidemic (and therefore the scale of potential need for VCT). It is not appropriate for use in nascent or concentrated epidemics. In those situations, VCT services will be more efficiently used if they concentrate on providing for the needs of populations with higher than average risk behavior.

### B.3. Quality post- HIV test counseling

**Definition:**

Percent of post-HIV test counseling sessions at voluntary counseling and testing facilities that meet international standards for quality counseling.

**What it Measures:**

Quality is central to the effectiveness of counseling. Many programs have made great efforts to improve the quality of counseling, not least through the intensive training of counselors. This indicator measures the extent to which such efforts have resulted in quality counseling. It is based on the observation of posttest counseling sessions and uses a checklist to create a score of quality that includes interpersonal skills, information gathering from the client, correct and complete information given to the client, discussion of personal circumstances and partner notification, reinforced prevention messages, referral for care and support (when relevant), and other aspects of counseling.

**How to Measure it :**

In a survey of facilities providing counseling and voluntary HIV testing, between three and five posttest counseling sessions are observed per site, with different counselors, if applicable. Counseling skills are scored against a standard checklist of items that constitute the minimum standards for quality post-HIV test counseling.

*Numerator:* The number of post-HIV test counseling sessions observed that meet minimum standards for quality post-HIV test counseling.

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*Denominator:* Total number of post-HIV test counseling sessions observed.

**Strengths and Limitations:**

This indicator relies on the observation of counseling sessions. Observational studies are time consuming and counselors may deviate from their standard practice in observed sessions because of the presence of the observer. Confidentiality is a major issue in observational studies of posttest counseling and the consent of the client is required before observation can take place. Experience has shown that counselors themselves often refuse to be observed. An alternative to direct observation is that counseling sessions may be taped for later anonymous review. This may reduce reluctance to participate on the part of both the client and the counselor, makes the review exercise more time efficient, and allows for checking of variation in scoring between reviewers.

The measure looks only at posttest counseling sessions. It is recognized that the quality of pretest counseling is also important in assessing clients' needs, in helping them to make decisions about testing and in preparing them for results. In managing and improving VCT services, the evaluation of the quality of pretest counseling will be important. However, since the time and resources available for observational studies are likely to be limited, for the purposes of routine M&E, facility surveys should concentrate on posttest counseling. Since quality is determined largely by the skills, knowledge and dedication of the counselor, it is likely that scores on pre- and posttest counseling will be highly correlated.

#### **B.4. VCT centers with minimum conditions to provide quality services**

##### **Definition:**

The percentage of clients served by VCT services that meet minimum conditions necessary to provide quality counseling and HIV–testing services.

##### **What it Measures:**

In many countries, voluntary counseling and testing has become the responsibility of underfunded and ill-equipped nongovernment and community organizations or has become a corollary of private sector health service providers. Many of these lack even the most basic structural facilities necessary to provide quality counseling, such as a room where counseling can be undertaken privately, or a regular electricity supply to ensure the adequate storage of specimens until testing.

This indicator measures the proportion of providers of counseling and testing that have even the basic requirements to provide quality counseling. Since sites are weighted by client volume, the indicator actually measures the percentage of clients served by sites with adequate conditions.

##### **How to Measure it:**

A random sample of providers of counseling and testing services (including NGOs, private clinics and doctors' surgeries) are checked for the structural elements necessary to provide quality counseling and testing services. These include trained staff, adequate privacy for counseling, systems for maintaining confidentiality, a directory of services for referral, and adequate conditions for ensuring quality control of specimen tests.

The score obtained by each site in the random sample is weighted by the annual client load of that site. The indicator is the number of clients served in the last year by sites with adequate conditions necessary to provide quality VCT services, divided by the total number of clients served in the last year by all sites sampled. It may also be useful to disaggregate this indicator by type of service provider (NGO, hospital, private clinic).

*Numerator:*     The number of clients served in the last year by sites with adequate conditions to provide quality VCT services.

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*Denominator:*   Total number of clients served in the last year by all sites sampled.

##### **Strengths and Limitations:**

This indicator is a measure of a factor that is necessary but not sufficient to guarantee quality counseling services. The percentage of clients served in a facility that meets conditions for quality counseling is also likely to reflect other factors, such as access, available testing services, or a history of positive experiences at the center by other community members. Inevitably, a number of contextual variables are reflected in an indicator assessing quality.

A potential difficulty in constructing this indicator is that sites with inadequate recordkeeping may be unaware of their overall client load, and it will therefore not be possible to weight the indicator by client load. It is possible to construct the indicator as a simple percentage, that is, the percentage of facilities surveyed which meet minimum conditions for adequate service. However, because poor conditions at a small facility with a low caseload are relatively less important than poor facilities at a large and busy center, weighting should be applied whenever possible.

## **C. Mother-to-Child Transmission of HIV**

### **Program Goals**

It is only recently that interventions to reduce transmission of HIV from mother to child have been available even in industrialized countries. Now, as shorter, less complex and therefore much more inexpensive drug regimes are proving effective in reducing transmission, these interventions are becoming more widely available in developing countries. However, they remain relatively costly, and careful evaluation of their effectiveness may be necessary to justify support for such interventions from the public budget.

Strategies to reduce mother-to-child transmission generally begin by supporting primary prevention of HIV among women likely to become pregnant. It is only once this strategy has failed and sexually active women of childbearing age are infected that other strategies are used.

Next in line is reproductive choice. Women considering pregnancy are informed of the implications of childbearing for those infected with HIV (see Indicator 4.1.9.), and are encouraged to find out their HIV status through voluntary counseling and testing. Those that test positive should be further counseled on the implications of pregnancy and given advice about appropriate contraceptive use.

HIV-positive women who become pregnant may have a number of options open to them if they know about their infection. For this reason, routine counseling and voluntary, confidential testing of pregnant women is an essential element in programs designed to reduce transmission from mother to child. Once a pregnant woman knows her status, there are two major (and complementary) prevention strategies open to her. First, she may take antiretroviral drugs for the last weeks of pregnancy or around delivery. Second, she may avoid breastfeeding the child. The second strategy is possible without the first; indeed, it is likely to avoid up to half of all vertical transmission. It appears that antiretroviral treatment followed by breastfeeding may also cut the risk of vertical transmission, at least for women who breastfeed only up to 6 months. Recent developments in treating mothers just before delivery and both the mother and infant just after delivery have had success in reducing HIV transmission, even among women exclusively breastfeeding for 3 months and weaning.

### **Measurement Issues**

Indicators of service provision in mother-to-child transmission should ideally cover provision of counseling and voluntary testing services for pregnant women, the availability and affordability of AZT or other drugs during pregnancy, provision of advice on infant feeding, and the availability and affordability of alternatives to breast milk.

Inputs must be a factor in assessing outputs. Counseling that includes information about AZT during pregnancy is not particularly helpful where AZT is not available or affordable. As with regular VCT services, the quality of counseling services will be an important component in evaluating the provision of prevention to pregnant HIV-positive women. The issues are complex, involving shared confidentiality with a partner, future prevention, and fertility

decisions and infant feeding decisions. The latter in turn involves consideration of resources and possible exposure to illness (for the infant) and stigma (for the mother).

Confidentiality is an important factor that increases the challenges inherent in developing indicators. For example, the percentage of HIV–infected mothers not breastfeeding might be an important indicator of a successful prevention program for vertical transmission. But it would clearly not be possible to collect these data unless there was a sophisticated system of follow up of all women after delivery, with coding for those who had tested positive during antenatal visits.

Impact indicators in this area are extremely difficult to obtain. Unless prohibitively expensive tests are used, HIV testing at birth (that is, ELISA antibody testing) gives no indication of the infection status of the infant. In any case, about half of all vertical transmission in developing countries takes place after birth, during breastfeeding. Follow up would be almost impossible for routine surveillance systems. In many countries, particularly those with high pre–AIDS mortality in the under five-year age group and poor vital registration systems, infant and child mortality indicators are not specific enough to register changes in rates of vertical transmission.

Many countries have only extremely limited interventions in this area. Clearly, monitoring and evaluation choices in this area (as in any other) should depend on program goals: if services to reduce mother-to-child transmission are limited, then M&E resources are likely to be better used tracking changes in other areas, where programming is stronger.

## C.1. Pregnant women counseled and tested for HIV

### **Definition:**

Percentage of women who were counseled during antenatal care for their most recent pregnancy, accepted an offer of testing, and received the test results, of all women who were pregnant at any time in the two years preceding the survey.

### **What it Measures:**

The principal active interventions to reduce mother-to-child infection depend on knowledge of HIV status. Knowledge of HIV status during pregnancy may also affect future reproductive choices. Ideally, women would learn their HIV status using VCT services before they chose to become pregnant. But the gap between this ideal and reality is often very wide. In practice, the first opportunity women have to be counseled about HIV and to be offered tests may frequently be at antenatal clinics that offer these services as a precursor to offering interventions to reduce transmission from mother to child.

In order to learn their HIV status in an antenatal care situation, women have to go through a number of steps. First, they must attend antenatal services. Then, they must be counseled and offered an HIV test. Next, they must accept a test. Finally, they must return to receive the test results. It is only after the posttest counseling that follows all of these steps that they will be able to make necessary decisions about therapy and infant feeding.

This indicator measures the percentage of women with a recent pregnancy who completed all of those steps. Data are collected in a general population survey, so the indicator gives an idea of the coverage of ANC-based counseling and testing countrywide, rather than just in specific pilot facilities.

### **How to Measure it:**

In a general population survey, women are asked when their most recent child was born and whether they received any antenatal care before that last birth. If so, they are asked whether clinic staff talked to them about HIV infection and offered them a confidential HIV test. If yes, they are further asked if they agreed to a test and if they received the results. The questions are preceded by an assurance that the interviewer is not interested in knowing the outcome of any test.

In order to measure recent trends, women whose most recent birth was more than two years ago are excluded from the analysis. The indicator is the number of women who were counseled and offered voluntary HIV testing at an ANC clinic before their most recent birth in the last two years and received the test results, divided by the total number of women surveyed.

*Numerator:* The number of women who were counseled and offered voluntary HIV testing at ANC before their most recent birth in the last two years and received the test results.

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*Denominator:* Total number of women surveyed.

### **Strengths and Limitations:**

This is a very broad measure of service provision. It provides a good idea of coverage on a nationwide scale. It is recognized, however, that few countries have the resources even to attempt to introduce counseling and voluntary testing for pregnant women countrywide. Those countries that are attempting to provide prevention services for pregnant, HIV-positive women typically start with pilot projects in a few antenatal clinics. Even if all women in pilot clinics are counseled and offered testing, the indicator will typically remain low for some time. It should be used in conjunction with Indicator C.2.



A summary indicator, it does not attempt to diagnose at which point women are dropping out of the spectrum of potential care. For program purposes, it will be important to know whether a poor result on the summary indicator is because of low initial attendance at antenatal services, because women attending services are not being offered tests, because they are refusing the offer of a test, or because they are tested but not returning for their test results. Each of these points of failure has a different implication for programming, and all can be calculated from the data as collected for this indicator. The summary indicator is an overall quantification of service coverage. Clearly, it does not attempt to measure other important aspects of service provision, such as quality of counseling.

## C.2. Antenatal clinics offering or referring for VCT

### **Definition:**

Percent of clients at public antenatal clinics that attend clinics offering counseling and voluntary testing for HIV by trained staff, or that refer clients to VCT services.

### **What it Measures:**

While the previous measure gave an idea of coverage of counseling and voluntary testing among pregnant women in the population, this indicator gives an idea of the proportion of public ANC clinics in the country that are offering the service. That is, it gives some idea of the extent to which the national program is able to scale up interventions begun on a pilot basis. It should reflect efforts to expand prevention services for pregnant women more quickly than the population-based coverage measure given by Indicator C.1.

### **How to Measure it:**

In a health facility survey, randomly selected public antenatal clinics are visited. Staff interviews and record reviews are conducted to ascertain whether any of the clinic staff are trained in counseling and whether the clinic routinely counsels clients about HIV in pregnancy and offers HIV tests with posttest counseling or refers clients to qualified outside services. The annual client volume of the clinic is also recorded.

The indicator is weighted by client volume and is calculated as follows:

*Numerator:* The number of clients in the past year attending antenatal clinics offering voluntary testing for HIV and posttest counseling by trained staff or referring to other services.

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*Denominator:* Total number of women attending antenatal clinics surveyed in the past year.

### **Strengths and Limitations:**

Private sector clinics will often take the lead in providing services for those HIV-infected pregnant women who can afford to pay for interventions. Because such interventions are relatively expensive, the goal of national programs is to extend their reach to less affluent members of society through service provision in public facilities. It is therefore recommended that this indicator be confined to measuring service provision in public sector clinics. However, countries making an effort to increase training in counseling for staff at ANC clinics in the private sector or among traditional birth attendants should include such groups in this indicator.

Ideally, this measure would include all public antenatal services in a country. Since this is likely to be impractical, sampling must be adopted. However, clinics are likely to counsel all patients or none, so the profile of the clinics sampled will have a potentially huge effect on the indicator, and changes may be difficult to interpret over time.

This indicator is most useful in countries that are actively expanding coverage of mother-to-child prevention services. A steady rise in the indicator is likely to reflect a steady expansion of service provision.

### C.3. Quality HIV counseling for pregnant women

**Definition:**

Percent of posttest counseling sessions for women attending antenatal clinics offering counseling and voluntary HIV testing that meet international standards for quality counseling.

**What it Measures:**

Counseling and HIV testing in antenatal situations differ from VCT at dedicated counseling and testing centers in that women have not consciously decided to come for testing. Indeed, they may know little or nothing about HIV, and may never have considered testing or its implications. It differs, too, in that counseling and testing in ANC situations should be linked to concrete interventions that potentially bring an almost immediate benefit to the women and her infant. But many complex issues arise, such as how to counsel women who are HIV positive but who risk being thrown out of their home if they reveal their status by not breastfeeding.

If counseling and voluntary testing is to be widely offered to pregnant women, it is almost inconceivable that the resources will be found to provide dedicated counselors for pre- and posttest counseling for all women at all ANC sites. It is much more likely that the bulk of the extra burden of counseling will fall on regular ANC staff with a brief extra training in counseling for HIV.

This indicator, based on observation of posttest counseling sessions, uses a checklist to create a score of quality that includes interpersonal skills, information gathering from the client, correct and complete information given to the client, discussion of therapy, infant feeding options, personal circumstances and partner notification, and other aspects of counseling.

**How to Measure it:**

In a health facility survey at antenatal clinics providing counseling and voluntary HIV testing for pregnant women, between three and five posttest counseling sessions are observed per site. Counseling skills are scored against a standard checklist of items that constitute the minimum standards for quality post-HIV test counseling in antenatal situations. (The checklist is similar to that used in Indicator C.2.) In addition, it includes issues specific to the antenatal situation, such as discussion of the risks and mechanics of vertical transmission, the proper usage of antiretroviral therapy together with its advantages and disadvantages, and issues surrounding breastfeeding and substitute feeding. Counselors are also assessed on the discussions they generate about shared confidentiality, reproductive choice and referral for contraception.

*Numerator:* The number of post-HIV test counseling sessions of women observed that meet the criteria outlined in a standard checklist of quality post-HIV test counseling.

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*Denominator:* Total number of post-HIV test counseling sessions observed of women in ANC clinics.

**Strengths and Limitations:**

This indicator shares the strengths and limitations of other indicators for the provision of counseling. Observational studies are time consuming and performance of counselors may deviate from their standard practice because of the presence of the observer. Confidentiality is a major issue in observational studies of posttest counseling, and the consent of the client must be sought before observation can take place. Experience has shown that counselors themselves often refuse to be observed. An alternative to direct observation is that counseling sessions may be taped for later anonymous review. This may reduce reluctance to participate on the part of both the client and the counselor, makes the review exercise more time efficient, and allows for checking of variation in scoring between reviewers.

The measure looks only at posttest counseling sessions. It is recognized that the quality of pretest counseling is especially important in the antenatal setting because many women will not previously have considered an HIV test or will have had little or no information about mother-to-child transmission of HIV and potential prevention methods. However, current practice in pretest counseling varies widely, ranging from group sessions with videotaped information to individual sessions. It would therefore be difficult to propose a standardized assessment in this area. Test results and at least part of posttest counseling, however, must always involve a private interaction between a counselor and a client or couple.

Like all composite indicators, this indicator aggregates information that must also be reported separately for most effective program management and planning.

#### **C.4. HIV- positive women provided with antiretroviral therapy in pregnancy**

##### **Definition:**

The percentage of women testing positive at selected antenatal clinics in the last year who are provided with a complete course of antiretroviral therapy to prevent mother-to-child transmission, according to national/international guidelines.

##### **What it Measures:**

Taking a course of antiretroviral therapy is an important watershed in the prevention of MTCT of HIV (although it is not the end point because replacement feeding regimes still have to be followed after delivery). This indicator gives an idea of the proportion of all women testing positive during pregnancy at ANC facilities offering HIV prevention services who are provided with a complete course of therapy that allows them to reach this watershed.

##### **How to Measure it:**

In a facility survey of antenatal clinics providing prevention services, client records are reviewed along with records of HIV test results. Women who test HIV positive return for the results and are provided with a full course of antiretroviral therapy (along with therapy for the newborn) as dictated by the nationally approved treatment protocol (or WHO/UNAIDS standards) are included in the numerator. The denominator is all women who test positive for HIV, regardless of whether or not they returned for their test results.

*Numerator:* The number of HIV women who return for their test results and are provided with a full course of antiretroviral therapy, along with therapy for the newborn.

*Denominator:* Total number of women who test positive for HIV, regardless of whether or not they returned for their results.

##### **Strengths and Limitations:**

The principal limitation of this indicator is that it does not measure compliance with the antiretroviral regime. Unless drug taking is supervised under a standardized regime, it will not be possible to monitor compliance as part of a routine M&E system. It is recognized, however, that drugs provided do not necessarily equal drugs consumed, and the imbalance may go in either direction. Drugs may be provided to a woman and sold or passed on to someone else, or not taken for other reasons. However, clinics with no stocks of antiretroviral drugs may prescribe them to women who may fill prescriptions elsewhere.

Private clinics providing prescriptions but assuming that drugs will be acquired privately are not included in this indicator, even though they may form the bulk of clinics providing mother-to-child prevention programs for several years.

Research on prevention of mother-to-child HIV infection continues apace, and recommendations for preventive therapy are likely to change rapidly in years to come. This begs the question of which regime should be followed in calculating this indicator. It is suggested that the regime currently sanctioned by national guidelines be the benchmark for provision of therapy, even if international guidelines have since been revised. Where no national guidelines exist, the latest international guidelines sanctioned by UNAIDS, UNICEF and WHO should be used.

## **D. Injecting Drug Use**

### **Program Goals**

In many countries that now have concentrated epidemics, HIV has spread most rapidly among injecting drug users. Prevention in this group has been relatively neglected in many countries, largely for political reasons, even though affordable and effective interventions do exist.

Since the sharing of needles and syringes provides a very efficient vector for the spread of HIV infection, the most effective interventions among drug injectors are those that reduce the sharing of needles and injecting equipment. The sterilization of injecting equipment, the reduction of risky practices in the preparation of batch drugs, and the promotion of condom use with sexual partners are also common interventions.

Other programmatic interventions include harm reduction through encouraging injecting drug users to switch to other noninjecting drugs. The fact that very often injecting drug users have partners who do not use drugs but with whom sex takes place opens the door for prevention efforts targeted to users and their partners.

### **Measurement Challenges**

The greatest difficulty in monitoring and evaluating interventions with drug injectors is access to the population. Drug injecting is usually illegal and almost always stigmatized and populations of drug injectors are often hidden. It is therefore difficult to establish a sampling frame for behavioral and/or specimen surveys which is in any way replicable over time. Basing measurement on drug injectors presenting for treatment at rehabilitation clinics, or among those arrested for drug-related offenses, will provide highly biased information unlikely to give a useful picture of behavior or infection in the larger population of drug injectors.

It is possible to identify hidden or underground groups using community assessment and qualitative research methods. Data collection by social scientists, once inside the community, will provide a less biased view than rehabilitation centers or police records, but are obviously targeted to a small population and will not provide nationally representative figures. Other options are to seek out social service or health providers serving marginalized groups and to make efforts to add on program activities for monitoring and evaluation purposes.

## D.1. Drug injectors sharing equipment

### Definition:

Percent of injecting drug users surveyed who report sharing injecting equipment in the past month.

### What it Measures:

Sharing of injecting equipment is both the biggest risk factor for HIV transmission among drug injectors and the most common focus of interventions. While equipment sharing is now relatively uncommon in industrialized countries with long histories of preventive interventions among drug injectors, the same is not true of many of the countries in which drug-injecting populations are exploding. This indicator measures progress over time in reducing the proportion of drug users sharing equipment.

This indicator also measures progress in program efforts to educate injecting drug users to shift to safer methods of injection. Where programs have needle-exchange efforts or education about sharing/sterilizing needles, the indicator will be useful to measure change in behavior over time.

### How to Measure it:

In a behavioral survey among injecting drug users, respondents are asked about their injecting habits. Those that report sharing needles, syringes or other injecting equipment in the past month form the numerator. The denominator is all respondents.

*Numerator:* The number of injecting drug users who report having shared needles, syringes or other injecting equipment in the past month.

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*Denominator:* Total number of injecting drug users surveyed.

Drug injecting practices vary from place to place. In order to capture as wide a range of risk injection as possible, questionnaires should specify all the locally relevant types of equipment that may result in the exchange of body fluids. These will include needles and syringes, but other paraphernalia, such as “cooking” equipment, can also become contaminated, depending on local drug preparation methods.

### Strengths and Limitations:

As with all indicators measured among drug injectors, the biggest difficulty is access. Random sampling is all but impossible and convenience samples are biased in ways that are often unpredictable. It is therefore difficult to determine the extent to which those surveyed are representative of the larger population of injecting drug users. Where the representativeness of the sample is variable, trends over time will be hard to interpret.

It is assumed that these surveys take place among people identified as members of a community of drug injectors. It is possible that, in response to HIV-related interventions, some injectors stop taking drugs entirely or switch to noninjectable drugs. These respondents should still be included in the denominator for this indicator; by ceasing to inject, they by definition cease to share injecting equipment. What the indicator can show is whether education and prevention efforts have made a difference in actual injecting behavior.

## D.2. Drug injectors using condoms at last sex

### **Definition:**

Percent of injecting drug users surveyed who used a condom the last time they had sex, of those who have had sex in the last 12 months.

### **What it Measures:**

Drug injectors frequently have sexual partners who do not inject drugs. Because of the high HIV prevalence typically found among injecting drug users, these partners are at especially high risk of infection through sex unless a condom is used. They provide a conduit by which the virus may enter the larger population, which is sexually active but has no direct contact with drug injectors.

While interventions with drug users center on safer injecting practices, many also actively promote condom use during sex, aiming to minimize the spread of HIV from drug users to the general population. This indicator tracks changes over time in condom use by injecting drug users with any partner.

### **How to Measure it:**

In a survey of injecting drug users, respondents are asked about sexual partners in the last 12 months and about condom use at most recent sex. The indicator is the number reporting that they used a condom the last time they had sex, divided by all those who have had sex.

*Numerator:* The number of injecting drug users reporting that they used a condom the last time they had sex.

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*Denominator:* Total number of injecting drug users who had sex in the last 12 months.

### **Strengths and Limitations:**

For reasons given in the section on sexual behavior, a cross-sectional measure of condom use at last sex gives a rather reliable picture of overall levels in condom use. The major limitation of this measure among drug injectors is that it does not distinguish between partners who are themselves injectors and those who are not. Men and women who inject drugs are far more likely to be at risk for HIV because of their injecting behavior than because of their sexual behavior—unprotected sex with another injector is likely to represent only a small incremental risk of infection for them. In addition, couples who know that they are both infected with HIV are unlikely to use condoms with one another. It is when a drug injector has unprotected sex with someone who does not inject drugs that the risk of sexual transmission is greatest.

Distinguishing between injecting and noninjecting partners may not be practical. People may not know their partner's injecting status; this is especially likely to be the case among injectors who support their habit through commercial sex. Inaccuracies in recall are more likely if people are asked to report condom use with the most recent partner who was not an injector.

The indicator deliberately does not distinguish between regular and nonregular partners. In areas in which the majority of injecting drug users is men, the fact that their non-injecting partner is a regular partner increases rather than decreases the risk of spreading infection to her and her children. If she also has other noninjecting partners, it further increases the chance of the epidemic spread of HIV.



## **E. Blood Safety**

### **Program Goals**

During the initial years of the epidemic, a major effort was made to reduce blood transfusion-associated transmission of HIV through HIV–antibody screening, blood donor selection, prevention of avoidable transfusions, blood banking, and other measures. Much of this work was actively supported by WHO/GPA. While efforts to guarantee an HIV–free blood supply are continuing, the dissolution of GPA contributed to blood safety’s slipping down the agendas of resource-strapped countries and donors.

This is especially problematic in sub-Saharan Africa, where the risk of HIV transmission is highest because both HIV prevalence and the number of blood transfusions are high. In 1995, UNAIDS estimated that one fourth of the 2.3 million blood donations in sub-Saharan Africa were not screened for HIV. Many of the transfusions given in sub-Saharan Africa are unnecessary, although real demand is high because fertility is high and malaria and anemia are common.

Donors are often not screened for HIV risk because they are relatives of the patients. Even when a blood screening policy is in place, it is often tripped up by a lack of reagents, skilled staff, or equipment. Many countries are attempting to return their attention to this recently neglected area. They are trying to establish and enforce guidelines on blood safety and are especially keen to ensure quality control.

Contaminated blood transfusion probably remains the greatest source of HIV infection in health care settings. But there are also risks of infection associated with other aspects of care. Health service providers may become infected with HIV through needle stick injuries and injuries during surgery. Poor caring practices by HIV–infected medical staff may also carry risk of infection for the patient. Universal precautions are designed to minimize these and other events, but irregular supplies of surgical gloves or sterile needles, poor sterilization equipment and overburdened staff unable to follow time-consuming safety routines often contribute to the breach of these precautions.

### **Measurement Challenges**

There are very few systematic indicators for any aspect of blood safety, from the screening of donors to the quality of existing HIV screening systems. Standardized prevention indicators in the area of blood safety are desperately needed, and may include indicators of donor screening as well as the screening of blood units. It is worth noting, however, that in very high prevalence epidemics, where more than one adult in five is infected, for example, the utility of donor screening policies is at best questionable. Resources may be better used for monitoring the quality of blood screening procedures. Indeed, the higher the population prevalence of HIV, the higher priority blood safety should be for the national program.

The lack of trained staff and other essential inputs, such as reagents and reliable refrigeration, are important constraints to maintaining a safe blood supply in many countries. It is safe to assume that these constraints will also apply to the ability to monitor and evaluate blood safety.

The monitoring of blood safety is much easier in countries where all blood for transfusion is collected by a centrally administered national blood transfusion service, or where all blood, regardless of its provenance, is screened in central laboratories. However, such services are comparatively rare. Private blood banks are common in many countries, while individual hospitals in some cases manage their own blood supplies. Many transfusions will take place in private hospitals or clinics, increasing the chances that records of the total number of transfusions may be incomplete. Donor screening and screening of blood units may vary substantially between services. When universal quality control is not possible, the sampling frame for facility-based monitoring and evaluation will be critical.

## **E.1. Screening of blood units for transfusion**

### **Definition:**

The percentage of blood units transfused that have been screened for HIV according to national or WHO guidelines.

### **What it Measures:**

Blood safety programs aim to ensure that the overwhelming majority (ideally 100 percent) of blood units are screened for HIV and those that are included in the national blood supply are indeed uninfected. This is demonstrably not the case in many countries. Some blood units are not screened at all and poorly trained personnel using outdated equipment or insufficient inputs screen others. Poor blood testing facilities mean that some blood is screened using antibody tests at a time after the donor has become infected with HIV but before the donor has developed antibodies to the virus. Together, these factors mean that a significant proportion of blood units may be classified as safe even though they are infected. This indicator gives an idea of the overall percentage of blood units that have been screened to high enough standards that they can confidently be said to be free of HIV.

### **How to Measure it:**

Three pieces of information are needed for this indicator: an estimate of the total number of whole blood units transfused in a 3–6 month period, an estimate of the proportion of donated units screened for HIV, and among the units screened, an estimate of the proportion screened according to WHO or national standards.

Quality of screening may be determined from a special study that retests a sample of blood previously screened or from an assessment of the conditions under which the screening occurred. In situations where this approach is not feasible, data on the percentage of facilities with good screening and transfusion records and no stock-out of test kits may be used to construct the indicator.

### **Strengths and Limitations:**

The measure is a strong indicator of the overall safety of the blood supply. However, changes in the indicator could reflect changes in the proportion of blood units screened or changes in the quality of the screening process. A successful campaign to reduce unnecessary transfusions may also be reflected in the indicator because the overall number of transfused units would fall and the proportion of those screened to WHO/national standards should rise in consequence.

The diagnostic power of the indicator by itself is therefore limited. However, the separate elements involved—the number of units screened, the proportion of those screened to WHO/national standards, and the number of units transfused—can be reported separately for programmatic purposes.

## **E.2. Reduction of unnecessary blood transfusions**

### **Definition:**

The number of blood units transfused in the previous 12 months, per 1,000 population.

### **What it Measures:**

A high proportion of all blood transfusions in many countries is unnecessary, and this is also true in African countries with high HIV prevalence. It follows that substantial proportions of blood transfusions that result in HIV infection are in fact unnecessary. Recognizing this fact, many countries have introduced or strengthened measures designed to reduce the number of unnecessary transfusions. This indicator provides a rudimentary measure of success towards that goal.

### **How to Measure it:**

In countries with centralized blood transfusion services or with adequate health information systems, the number of units transfused annually countrywide can be compiled from routine service records. In other countries, it may be necessary to introduce systematic recordkeeping at sentinel hospitals. Census and/or population data at the national level or of the district or city served by the hospital is the denominator.

*Numerator:* The total number of blood units transfused in the previous 12 months.

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*Denominator:* National population (or hospital catchment area population) x 1,000.

### **Strengths and Limitations:**

Since this indicator does not attempt to assess the proportion of blood units that are unnecessarily transfused, it is at best a basic measure of progress in reducing overall transfusions. However, supplemental data on transfusion can be collected where further insight is desired and the added effort warranted.

This indicator is not comparable across countries, since the genuine need for transfusions may vary greatly from country to country, but it does provide an idea of trends over time in a single country.

### **E.3. Health care facilities with guidelines and practices for prevention of accidental HIV transmission**

#### **Definition:**

Percent of health care facilities having guidelines to prevent accidental transmission of HIV, having adequate sterilization procedures, and having surgical gloves in stock.

#### **What it Measures:**

As HIV prevalence rises among patients seen at health facilities, the danger of accidental transmission of HIV between health care provider and patient or from one patient to another also rises. Some, but not all, of the accidental transmission can be avoided by the routine use of surgical gloves in all caring functions by the proper sterilization of medical equipment, and by the careful handling, storage and disposal of equipment.

This indicator gives an idea of the proportion of health care facilities meeting these minimum conditions for the reduction of accidental transmission of HIV.

#### **How to Measure it:**

In a survey of randomly selected health facilities at the primary, secondary and tertiary levels, service providers are asked to show written guidelines for avoiding the accidental transmission of HIV. Sterilization practices should be observed to see that they conform with these guidelines. In the absence of written guidelines, sterilization practices should conform to national (and failing that, international) standards. A stock check is also carried out for surgical gloves.

*Numerator:* Number of facilities scoring positively on all three conditions: written standards, adequate sterilization practices, and surgical gloves in stock.

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*Denominator:* Total number of facilities surveyed.

#### **Strengths and Limitations:**

This indicator has the virtue of being relatively easy to construct during routine health facility surveys undertaken for the monitoring of care and support activities.

This is an indirect measure of the risk of HIV transmission in health care settings. A record of actual incidents carrying a risk of HIV transmission (e.g., needle stick injuries, gloves ripped during surgery) might provide a more direct measure of risky practices in health care settings. However, experience suggests that completeness of reporting such events varies extremely widely. Reported accidents also fail to reflect the danger of transmission between patients.

For program purposes, the indicator should be disaggregated by component as well as by level of health facility.

## **F. Care and Support for the HIV Infected and their Families**

In the early years of the HIV epidemic, attention in both programming and in monitoring and evaluation focused on prevention of infection. With early prevention failures turning into care needs, there is an urgency for providing care for the people living with HIV/AIDS. In many countries, a large proportion of hospital beds are occupied by patients with HIV infection. Given the chronic nature of the disease and the dynamics of the epidemic, the burden of HIV on the health care system will increase in these countries in the future.

### **Program Goals**

Like the term prevention, the term care and support covers a multitude of different programming areas and services. These include the following for those infected with HIV, their families and communities:

- clinical management,
- nursing care,
- home-based care,
- counseling,
- testing,
- psychological support,
- social support, and
- reduction of stigma and discrimination.

Ideally, most countries would like to provide the full range of services from antiretroviral therapy to counseling support for family caregivers. The reality in most high prevalence countries, however, is far more rudimentary. Basic primary health care was often patchy even before the HIV epidemic and is overstretched where it does exist. Secondary and tertiary level facilities are only available to a small fraction of the population. Unable to provide adequate care through the health system, countries are turning to community-based models of care. The capacity of communities to provide this care is not easy to access.

### **Measurement Challenges**

Monitoring of care and support is not easy. HIV status is rarely known and cannot be asked about in population surveys for M&E purposes. Hence, it is impossible to know how many people with HIV have access to the care and support they need. Health facility-based surveys provide no idea of coverage, and may give only a limited idea of the extent to which care is given at the appropriate (most accessible and cost-effective) level of the health care system.

When care is being provided, the need to protect patient confidentiality stands in the way of any systematic assessment of the quality of care. Direct observations of care provision may be possible for conditions that are commonly associated with, but not exclusive to, HIV. Another difficulty in assessing quality and completeness of care is in setting the high standards or even the minimum standards of care in a given country. Few countries have formal guidelines for care and support against which service quality might be measured.

## F.1. Medical personnel trained in the care of HIV-related conditions

### **Definition:**

The percentage of graduates of medical, nursing and health profession schools in the last year trained in the natural history of HIV and in the diagnosis and care of common opportunistic infections.

### **What it Measures:**

Knowledge about appropriate management of HIV and the infections associated with it is an important prerequisite for quality of care at all levels of the health care system. Many national AIDS control and prevention programs are providing training to existing health service staff, upgrading their skills and knowledge in this area. However, the easiest and most sustainable way to ensure adequate knowledge in the long term is to integrate HIV-related information into the routine medical training for physicians, nurses and other medical personnel.

This indicator measures the extent to which such information has been integrated into the regular training curricula of all medical personnel.

### **How to Measure it:**

From the records of the health and/or education ministries, a list of all institutions providing professional training and issuing medical, nursing and health profession degrees is constructed. A questionnaire is sent to each of these institutions, containing a checklist of items associated with training in knowledge of HIV and management of HIV-infected patients. It will typically include items on the epidemiology and natural history of HIV infection, on basic prevention counseling, on the diagnosis and management of common opportunistic infections, and of referral practices.

*Numerator:* The number of medical graduates in the last 12 months trained in essential aspects of HIV knowledge and management.

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*Denominator:* Total number of medical graduates in the past 12 months.

### **Strengths and Limitations:**

This indicator is relatively easy to construct as long as institutions involved return the questionnaire. Its major limitation is that it does not attempt to measure the quality or depth of the training given. It also only measures the training of current graduates from accredited or certified training institutions in the country. Where HIV-related training overall is concerned, it will not provide a good picture of current levels of knowledge of previous graduates working in the health system, or of other providers and caregivers trained in noninstitutional programs.

However, it should provide a robust measure of trends in the minimum proportion of health service providers trained in HIV and associated care over time.

## **F.2. Health facilities with the capacity to deliver appropriate care to HIV–infected patients**

### **Definition:**

The percentage of health care facilities at different levels of the health care system that have the capacity to deliver appropriate palliative care, treatment for opportunistic infections, and referrals for HIV–infected patients, according to national guidelines.

### **What it Measures:**

This indicator measures the extent to which health services have the capacity to meet treatment, care and referral needs of HIV–infected patients at appropriate levels of the health care systems, according to national guidelines.

In recent years, attempts have been made to ensure that HIV–related conditions are dealt with at the primary, secondary or tertiary care levels within the health system, with referrals in both directions, when necessary. Many countries have produced national guidelines to help guide service providers in the appropriate care of HIV–infected patients. Palliative care and treatment for common and minor opportunistic infections may be given at the primary level, while more complex opportunistic infections may be referred to higher levels of the health care system. Referrals should also be made for social and psychological support, when appropriate.

### **How to Measure it:**

In a health facility survey that includes facility inspection, interviews with service providers, and records reviews, health facilities are assessed against a standard checklist. The checklist, which will differ according to the level of the institution, will typically include the availability of trained staff, the adequacy of diagnostic facilities, the adequacy of sanitation, the adequacy of nursing care, procedures for recordkeeping, preventive counseling, and referral to higher level care and community support organizations, as appropriate. A score is constructed out of the items of the checklist.

*Numerator:* The number of health facilities matching or exceeding the minimum score for adequate capacity to manage HIV–infected patients.

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*Denominator:* Total number of health facilities surveyed.

### **Strengths and Limitations:**

This indicator is a compendium of many different aspects of care and service provision, all of which must score a minimum amount if the facility is to be included in the numerator of the indicator. Because services tend to improve unevenly, especially in resource-constrained settings, the resulting indicator may remain low for some time. Disaggregation of the indicator will indicate the area in which services have improved and those in which they continue to lag.

This indicator is not weighted by client load because it includes facilities at different levels of service provision. Weighting by client load is likely to give tertiary institutions and reference hospitals excessive influence in the indicator, despite the fact that most patients first come into contact with the health system at the primary level.



### **F.3. Health facilities with drugs for opportunistic infections and palliative care in stock**

#### **Definition:**

The percentage of health facilities that are currently stocked with drugs to treat common opportunistic infections and to provide palliative care and report no stock-outs in the past 12 months.

#### **What it Measures:**

However good the diagnostic, nursing, and counseling skills of health service providers, they will have little impact unless the necessary drugs are available. The provision of drugs to treat common opportunistic infections is a more realistic target than the provision of antiretroviral drugs outside an antenatal setting in countries worst affected by HIV, and one that in itself may deliver years of healthy and productive life to infected people at relatively reasonable cost. Palliative care, too, can improve the quality of people's lives at low cost.

This indicator aims to measure the uninterrupted supply of drugs in public facilities to treat locally common opportunistic infections and provide palliative care.

#### **How to Measure it:**

During a health facility survey, a stock-check is taken for drugs defined by national guidelines as appropriate treatment for three locally common opportunistic infections, along with one drug for palliative care. The drugs will vary according to locally common pathogens and approved drugs, but are likely to include oral rehydration solution (ORS) for diarrhea, antifungal drugs and painkillers.

Clinic management is questioned about stock-outs in the last 12 months and clinic stock records are reviewed for that period.

*Numerator:* The number of health facilities that have two designated drugs for opportunistic infections and one for palliative care in stock currently, and report no stock-outs in past 12 months.

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*Denominator:* Total number of health facilities surveyed.

#### **Strengths and Limitations:**

Where no national guidelines for care exist and reliable data about opportunistic infections is limited, it will be difficult to determine which drugs should be included in the stock-take. WHO and UNAIDS provide international guidelines on essential drugs for opportunistic infections and in some cases, these may be substituted for national guidelines.

#### **F.4. Households receiving help in caring for chronically ill young adults**

##### **Definition:**

The percentage of households with a chronically ill adult aged 15–49 in the last 12 months who have received external help in caring for the patient or replacing lost income.

##### **What it Measures:**

As health systems have become strained to the breaking point by the HIV epidemic, the onus of providing care for those affected is being shouldered by families and communities. In countries where the national AIDS program and its partners are making an active effort to support families by providing home-based care, the services range from psychological support to help with nursing, from provision of training to home caregivers to income substitution for lost earnings.

This indicator aims to provide a picture of the proportion of households touched by potentially HIV-related incapacity that are reached by home-based care or other community support programs.

##### **How to Measure it:**

Respondents in a population-based survey are asked whether anyone in their household has been too ill to work or perform their normal duties for 3 months or more out of the previous 12 months. The question should include people who have died within the past 12 months and who were incapacitated for at least 3 months before their death. Households that report incapacitated members are asked the age(s) of that/those person(s), and whether the household received any help in caring for them from sources outside the household. Those that received help are asked for the source of help, and are read a list of potential sources. For each source of help, they are asked whether they paid for the help.

*Numerator:* The number of households receiving unpaid help in caring for a person 15–49 who has been ill for more than 3 months (or who was ill for 3 months before their death) out of the last 12 months from any source other than family or neighbors.

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*Denominator:* Total number of households caring for a person 15–49 who has been ill for more than 3 months (or ill for 3 months before their death) out of the last 12 months.

##### **Strengths and Limitations:**

This indicator attempts to provide an idea of the coverage of home-based care programs by assessing the potential need and measuring the extent to which the need has been met. The indicator makes no attempt to distinguish between HIV and other serious illness, beyond restricting the age band to ages in which the majority of sickness in high-prevalence areas is HIV-related. The omission is not critical inasmuch as it reflects a growing trend among home-based care programs not to distinguish between HIV and non-HIV-related illness.

The indicator does nothing to assess the quality of home-based care. The question sequence does ask what types of care are provided, and the information can be used by programmers but is not included in the construction of the indicator.

Disaggregating this indicator by the sex of the chronically ill person may reveal differences in care seeking behavior by families according to whether the sick person is male or female.

## F.5. Households receiving help with orphan care

### **Definition:**

The percentage of households currently caring for orphans that has received free help with care from outside the family.

### **What it Measures:**

Orphan support is one of the areas of care and support that has received the most attention. It represents a real and growing need, is relatively uncontroversial, and is widely supported by both communities and donors. Good orphan support systems can play an important role in HIV prevention because orphans who do not receive support are disproportionately likely to drop out of school, live very unstable lives, be subject to sexual abuse, and be vulnerable to high-risk survival strategies.

Orphan support programs may take the form of regular visiting of orphans and their caregivers in the household, provision of psychological support, help with clothing or school fees, or income-generating activities.

This indicator attempts to measure the coverage of orphan support programs.

### **How to Measure it:**

Respondents in the household schedule portion of a population-based survey are asked whether their household is caring for any children under the age of 15 whose mother, father, or both parents have died. If so, they are asked whether they received any help in caring for that child from outside the household. Those who received help are asked for the source of the help and are read a list of potential sources, including family members, church groups, village health care workers, social services extension workers, etc. For each source, they are asked whether they paid for the help.

*Numerator:* The number of households currently receiving free help in caring for orphans from a source other than family or neighbors.

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*Denominator:* Total number of households currently caring for orphans.

### **Strengths and Limitations:**

The greatest limitation of this indicator is its inability to distinguish whether needs are being met. Not all households caring for orphans need help. The needs of households with multiple orphans may be greater than those with a single orphan, but this will not be captured in this measure. Unfortunately, needs assessment is beyond the scope of a regular population-based survey. Experience shows that response rates are very high when people are asked whether they need extra support, although more qualitative work distinguishes large differences in actual coping capacity of households that say they would like extra help. Although it provides a picture of overall coverage, this indicator does not measure the extent to which support is reaching the neediest.

Orphans are a very mobile population and those most in need of care may be in childheaded households that do not even qualify for inclusion in a household survey. Street children and others who live outside regular households will also be missed.

## **APPENDICES**

- I: MONITORING AND EVALUATION INSTRUMENTS BY METHODS PACKAGE**
- II: USAID HANDBOOK AND UNAIDS M&E GUIDE METHODS PACKAGES**
- III: INDICATORS BY PROGRAM AREA, METHODS PACKAGE, LEVEL OF MEASUREMENT, AND STAGE OF EPIDEMIC**
- IV: SECOND GENERATION SURVEILLANCE SYSTEMS**

## **APPENDIX I**

### **MONITORING AND EVALUATION INSTRUMENTS BY METHODS PACKAGE**

## APPENDIX I

### MONITORING AND EVALUATION INSTRUMENTS BY METHODS PACKAGE

(Instruments in *italics* are still under development)

<b>PACKAGE 1</b> <b>M&amp;E of Knowledge, Attitudes and Sexual Behavior</b>	<b>PACKAGE 2</b> <b>Monitoring of Program Performance and Context</b>	<b>PACKAGE 3</b> <b>M&amp;E of Availability and Quality of Health and other Services</b>	<b>PACKAGE 4</b> <b>Monitoring of HIV, AIDS and STIs</b>
General population survey (MEASURE <i>Evaluation</i> /UNAIDS)	AIDS Program Effort Index (FUTURES/POLICY project)	Assessment of STI services (WHO/GPA, FHI)	HIV surveillance: policy guidelines (WHO/UNAIDS)
AIDS Module DHS (MEASURE <i>DHS+</i> )	Condom distribution and sales (PSI; WHO/GPA; MEASURE <i>Evaluation</i> )	<i>Assessment of VCT services (UNAIDS, HORIZONS)</i>	<i>HIV surveillance in general populations (WHO/UNAIDS)</i>
Youth target group behavioral surveillance (FHI/IMPACT); <i>school surveys</i>	<i>Monitoring spending and budget allocations</i>	<i>Assessment of MTCT services (UNICEF, WHO, UNAIDS, HORIZONS)</i>	<i>HIV surveillance in subpopulations of high-risk behavior (WHO/UNAIDS)</i>
Female sex workers behavioral surveillance (FHI/IMPACT)		<i>Assessment of quality of care for people living with HIV/AIDS (WHO/UNAIDS)</i>	STI surveillance (RPR, other lab data, disease reporting) (WHO)
<i>Behavioral surveys among drug users (WHO/UNAIDS)</i>		<i>Assessment of blood safety</i>	<i>Monitoring AIDS morbidity, mortality and orphans</i>
<i>Behavioral surveys among males who have sex with males (FHI)</i>			
Guidelines for qualitative data collection and analysis (FHI/AIDSCAP)			

***Methods Package 1: Monitoring of Knowledge, Attitudes and Sexual Behavior***

This package contains guidelines for conducting household surveys in the general population and in specific subpopulations, including information on sampling methods and questionnaires. Such surveys yield most of the information necessary for constructing indicators of knowledge, attitudes and sexual behavior, together with some information that can be used in indicators of stigma. Surveys also give information about access to or utilization of services such as counseling and testing, home-based care for the terminally ill, and orphan support services. In addition to survey instruments, the package contains guidelines for the collection of qualitative data.

The instrument for collection of behavioral data in the general population draws heavily on the general population survey section of the WHO/GPA's Prevention Indicators Methods Package and other WHO/UNAIDS work, as well as on the new AIDS module of the Demographic and Health Survey (MACRO International). The subpopulation surveys were developed by Family Health International (FHI), and are based on FHI's considerable body of experience in implementing behavioral surveillance systems. Recent surveys conducted with help from MEASURE *Evaluation* have also contributed to the instruments in this package.

***Methods Package 2: Monitoring of Program Context and Effort***

Package 2 centers on the compilation of input and output data that can be used to monitor program effort and context. This includes the assessment of condom distribution and sales, based on instruments developed by WHO/GPA and Population Services International (PSI), as well as indicators of STI drug distribution. The newly developed AIDS Program Effort Index, coordinated by the Futures Group's POLICY project, attempts to capture some of the contextual and programmatic aspects of the national response. UNAIDS Country Profiles provide a series of indicators that can help describe the socioeconomic and demographic background of the epidemic.

***Methods Package 3: Monitoring and Evaluation of the Availability and Quality of Health and other Services***

Package 3 focuses on information that can be gathered by conducting regular and systematic surveys at health facilities and at other facilities providing HIV-related services, such as voluntary counseling and testing centers. It includes protocols for collecting information related to STI care, counseling and testing, prevention of transmission of HIV from mother to child and blood safety. The STI care section is based heavily on protocols developed by the WHO/GPA. However, it offers additional and/or alternative methodologies further developed and tested by several countries, often in collaboration with FHI. In other areas covered by the facility survey, little existing material is available upon which to draw. Where possible, guidelines on standards of care are included in the package.

***Methods Package 4: Monitoring HIV, AIDS and STIs***

This package presents methods for monitoring the presence of HIV itself, together with syphilis and other STIs. The guidelines for sentinel surveillance of HIV are based on a framework for second generation surveillance developed by UNAIDS in partnership with WHO and others. The guidelines give advice on selection of sentinel groups and sites and provide information on using data from a number of sources for most effective monitoring of the spread of the virus in a given epidemic state. In addition, this package will include guidelines for STI surveillance (RPR, other laboratory data, syndromic or disease reporting), collection of specimens for HIV/STI testing in household or subpopulation surveys, and collection of data on AIDS-related morbidity and mortality. Also, guidelines on the collection of blood, urine, saliva, or other specimen for HIV or STI testing will be part of this package.

**APPENDIX II**

**USAID HANDBOOK AND UNAIDS M&E GUIDE**

**METHODS PACKAGES**



## APPENDIX II

### USAID HANDBOOK AND UNAIDS M&E GUIDE METHODS PACKAGES

USAID Handbook of Indicators	UNAIDS Methods Package 1
<b>Knowledge about transmission of HIV</b> 1.4. Knowledge of HIV prevention methods 1.5. No incorrect beliefs about AIDS 1.6. Comprehensive correct knowledge about AIDS 1.7. Knowledge of HIV prevention among MSM 1.8. Knowledge of HIV prevention among IDUs  1.9. Knowledge of prevention of MTCT	<b>Knowledge</b> 1. Knowledge of HIV prevention 2. No incorrect beliefs about AIDS 3. Comprehensive knowledge about AIDS 4. Knowledge of HIV prevention among MSM 5. Knowledge of HIV prevention among IDUs 6. Knowledge of MTCT 7. Knowledge of prevention of MTCT
<b>Sexual negotiation</b> 1.17. Woman's ability to negotiate safe sex with spouse	<b>Sexual negotiation</b> 1. Woman's ability to negotiate safe sex with spouse
<b>Sexual behavior</b> 1.10. Risky sex in the last year 1.11. Condom use at last risky sex 1.12. Commercial sex in the last year 1.13. Condom use by clients at last commercial sex 1.14. Condom use by sex workers with last client 1.15. Risky male-male sex in the last year 1.16. Condom use at last male-male anal sex	<b>Sexual behaviour</b> 1. Risky sex in the last year 2. Condom use at last risky sex 3. Commercial sex in the last year 4. Condom use by clients at last commercial sex 5. Condom use by sex workers with last client 6. Risky male-male sex in the last year 7. Condom use at last male-male anal sex
<b>Sexual behavior among young people</b> A.1. Median age at first sex A.2. Premarital sex in the last year A.3. Condom use at last premarital sex A.4. Multiple partners in the last year A.5. Condom use at last risky sex A.6. Age mixing in sexual relationships	<b>Youth sexual behaviour</b> 1. Median age at first sex 2. Premarital sex in the last year 3. Condom use at last premarital sex 4. Multiple partners in the last year 5. Condom use at last risky sex 6. Age mixing in sexual relationships
<b>Injecting drug use</b> D.1. Drug injectors sharing equipment D.2. Drug injectors using condom at last sex	<b>Injecting drug use</b> 1. Drug injectors sharing equipment 2. Drug injectors using condom at last sex
<b>Stigma and discrimination</b> 3.3. Accepting attitudes toward those living with HIV	<b>Stigma and discrimination</b> 1. Accepting attitudes towards HIV-infected people
<b>Voluntary counseling and testing</b> 1. Persons requesting HIV test and receiving results	<b>Voluntary counselling and testing</b> 1. Persons requesting HIV test and receiving results
<b>Mother-to-child transmission</b> C.1. Pregnant women counseled and tested for HIV	<b>Mother-to-child transmission</b> 1. Pregnant women counselled and tested
<b>STI care and prevention</b> 2.4. Treatment seeking by men and women for STIs	<b>STI care and prevention</b> 4. Treatment seeking by men and women for STIs
<b>Care and support</b> F.4. Households helped in caring for young adults F.5. Households helped in caring for orphans	<b>Care and support</b> 4. Households helped in caring for young adults 5. Households helped in caring for orphans
<b>Health and social impact</b>  SSO 4.0.6 Percent of children who are orphans	<b>Health and social impact</b> 4. Households with young adult death 5. Children who are orphans 6. Orphans in school

<b>USAID Handbook of Indicators</b>	<b>UNAIDS Methods Package 2</b>
<b>Policy</b> SSO 4.0.7 AIDS Program Effort Index 3.1. Spending in HIV prevention	<b>Policy</b> 1. AIDS Programme Effort index 2. Spending on HIV prevention
<b>Condom accessibility and quality</b> 4.1. Condoms available nationwide 4.2. Condoms in stock at retail outlets/service points 4.3. Condoms quality	<b>Condom accessibility and quality</b> 1. Condoms available nationwide 2. Condoms in stock at retail outlets/service points 3. Condoms quality
<b>Blood safety</b> E.1. Screening of blood units for transfusion E.2. Reduction of unnecessary blood transfusions	<b>Blood safety</b> 1. Screening of blood units for transfusion 2. Reductions of unnecessary blood transfusions 3. Districts with blood bank/voluntary donor recruitment
<b>Stigma and discrimination</b> 3. Employers not discriminating against those with HIV	<b>Stigma and discrimination</b> 2. Employers not discriminating against those with HIV
<b>Care and support</b> F.1. Medical personnel trained in HIV care F.2. Health facilities with capacity to deliver HIV care F.3. Health facilities with drugs for opportunistic infections and palliative care in stock	<b>Care and support</b> 1. Medical personnel trained in HIV care 2. Health facilities with capacity to deliver HIV care Health facilities with drugs for opportunistic infections and palliative care in stock

<b>USAID Handbook of Indicators</b>	<b>UNAIDS Methods Package 3</b>
<b>Voluntary counseling and testing</b> B.2. Districts with VCT services B.3. Quality of post-HIV test counseling B.4. VCT centers with conditions for quality services	<b>Voluntary counselling and testing</b> 2. Districts with VCT services 3. Quality post-HIV test counselling 4. VCT centres with conditions for quality services
<b>Mother-to-child transmission</b> C.2. ANC clinic offering or referring for VCT C.3. Quality HIV counseling for pregnant women C.4. Provision of ARV therapy during pregnancy	<b>Mother-to-child transmission</b> 3. ANC clinic offering or referring for VCT 4. Quality HIV counselling for pregnant women 5. Provision of ARV therapy during pregnancy
<b>Blood safety</b> E.3. Prevention of accidental transmission in health facilities	<b>Blood safety</b> 4. Prevention of accidental transmission in health facilities
<b>STI care and prevention</b> 2.1. Appropriate diagnosis and treatment of STIs 2.2. Advise on condom use, partner notification and referral to HIV testing services 2.3. Drug supply at STI clinics	<b>STI care and prevention</b> 1. Appropriate diagnosis and treatment of STIs 2. Advise on condom use, partner notification and referral to HIV testing services 3. Drug supply at STI clinics

<b>USAID</b> <b>Handbook of Indicators</b>	<b>UNAIDS</b> <b>Methods Package 4</b>
<b>Health and social impact</b> <ul style="list-style-type: none"> <li>• HIV prevalence among pregnant women</li> <li>• Syphilis prevalence among pregnant women</li> <li>• HIV prevalence in subpopulations at risk</li> <li>• HIV incidence</li> <li>• STI prevalence</li> </ul>	<b>Health and social impact</b> <ol style="list-style-type: none"> <li>1. HIV prevalence among pregnant women</li> <li>2. Syphilis prevalence among pregnant women</li> <li>3. HIV prevalence in subpopulations at risk</li> <li>4. Percent of deaths (ages 15–49) that are HIV related</li> </ol>

<b>USAID</b> <b>Handbook of Indicators</b>	<b>UNAIDS</b> <b>Methods Package 5</b>
<b>Improved private sector response</b> <ol style="list-style-type: none"> <li>4.1. Quality HIV/AIDS services from PVOs</li> <li>4.2. Quality HIV/AIDS services from commercial firms</li> <li>4.3. Quality HIV/AIDS services from indigenous NGOs</li> </ol>	
<b>Strengthened data collection for M&amp;E</b> <ol style="list-style-type: none"> <li>5.1. Countries with operational STI/HIV surveillance systems</li> <li>5.2. Cost of gathering data, better information, and better coverage</li> <li>5.3. Use of data</li> <li>5.4. Proportion of intervention models whose effectiveness has been established</li> </ol>	
<b>Effective program implementation</b> <ol style="list-style-type: none"> <li>6.1. Percent of “highly satisfactory” responses in annual customer survey</li> <li>6.2. Adoption/application of research findings and evaluation results in program design and implementation</li> <li>6.3. Coordination and collaboration at the country level among all partners on STI/HIV/AIDS programming</li> </ol>	

**APPENDIX III**

**INDICATORS BY PROGRAM AREA, METHODS PACKAGE,  
LEVEL OF MEASUREMENT, AND STAGE OF EPIDEMIC**

### APPENDIX III

#### INDICATORS BY PROGRAM AREA, METHODS PACKAGE, LEVEL OF MEASUREMENT, AND STAGE OF EPIDEMIC

Indicator	Package	Level	Priority	
			Generalized	Concentrated/ Low-Level
<b>Policy</b>				
1 AIDS Program Effort Index	2	Context	C*	C
2 Spending on HIV prevention			<i>Under development</i>	
<b>Condom accessibility and quality</b>				
1 Condoms available, nationwide	2	Input	C	C
2 Condoms available, retail	2	Output	C	A
3 Condom quality	2	Input	C	C
<b>Stigma and discrimination</b>				
1 Accepting attitudes towards HIV-infected people	1	Context	C	A
2 Employers not discriminating against those with HIV			<i>Under development</i>	
<b>Knowledge</b>				
1 Knowledge of HIV prevention	1	Output	C	C
2 No incorrect beliefs about AIDS	1	Output	C	C
3 Comprehensive knowledge about AIDS	1	Output	C	C
4 Knowledge of HIV prevention among MSM	1	Output		C
5 Knowledge of HIV prevention among IDUs	1	Output		C
6 Knowledge of prevention of MTCT	1	Output	C	C
<b>Voluntary testing and counseling</b>				
1 Population requesting HIV test and receiving results	1	Output	C	A
2 Districts with VCT services	3	Input	C	
3 Quality post-HIV test counseling	3	Output	C/A	C/A
4 VCT centers with conditions for quality service	3	Input	A	A
<b>Mother-to-child transmission</b>				
1 Pregnant women counseled and tested for HIV	1	Output	C	
2 ANC clinics offering or referring for VCT	3	Input	C/A	C/A
3 Quality HIV counseling for pregnant women	3	Output	A	A
4 Provision of ARV therapy during pregnancy	3	Outcome	A	A
<b>Sexual negotiation</b>				
1 Woman's ability to negotiate safer sex with husband	1	Outcome	A	
<b>Sexual behavior</b>				
1 Risky sex in the last year	1	Outcome	C	C
2 Condom use at last risky sex	1	Outcome	C	C
3 Commercial sex in the last year	1	Outcome	A	C
4 Condom use by clients at last commercial sex	1	Outcome	A	C
5 Condom use by sex workers with last client	1	Outcome	A	A
6 Risky male-male sex in the last year	1	Outcome		C
7 Condom use at last male-male anal sex	1	Outcome		C
<b>Young people's sexual behavior</b>				
1 Median age at first sex	1	Outcome	C	
2 Young people having premarital sex in last year	1	Outcome	C	A
3 Condom use at last premarital sex	1	Outcome	C	A
4 Young people with multiple partners in the last year	1	Outcome	C	A
5 Condom use at last risky sex	1	Outcome	C	A
6 Age mixing in sexual relationships			<i>Under development</i>	

Indicator	Package	Level	Priority	
			Generalized	Concentrated/ Low-Level
<b>Injecting drug use</b>				
1 Drug injectors sharing equipment	1	Outcome		C
2 Drug injectors using condom at last sex	1	Outcome		C
<b>Blood safety</b>				
1 Screening of blood units for transfusion	2	Outcome	C	C
2 Reduction of unnecessary blood transfusions	2	Outcome	A	A
3 Districts with blood bank	2	Output	A	A
<b>STI care and prevention</b>				
1 Appropriate diagnosis and treatment of STIs	3	Outcome	C	C
2 Advice on condom use, partner notification and VCT	3	Output	C	C
3 Drug supply at STI clinics	3	Input	A	A
4 Treatment seeking for STIs	1	Output	A	C/A
<b>Health and social impact</b>				
1 HIV prevalence among pregnant women	4	Impact	C	C
2 Syphilis prevalence among pregnant women	4	Impact	C	C
3 HIV prevalence in subpopulations at risk	4	Impact	A	C
4 Percent of young adult deaths that are HIV-related		Impact	A	A
5 Percent of children who are orphans	1	Impact	C	

\* Note: C = Core Indicator; A = Alternate Indicator

**APPENDIX IV**

**SECOND GENERATION SURVEILLANCE SYSTEMS**

## APPENDIX IV

### SECOND GENERATION SURVEILLANCE SYSTEMS

Second generation surveillance systems refer to those set of activities being advocated for by UNAIDS, WHO, USAID, and other concerned partners, which would improve the quality and ability of existing surveillance systems so that they will yield information that is most useful in reducing the spread of HIV and in providing care for those affected. The goals of second generation surveillance systems are

- Better understanding of trends over time,
- Better understanding of the behaviors driving the epidemic in the country,
- Surveillance more focused on subpopulations at highest risk of infection,
- Flexible surveillance that moves with the needs and state of the epidemic, and
- Better use of surveillance data to increase understanding and to plan for prevention and care.

This means tailoring the surveillance system to the pattern of the epidemic in the country by concentrating on data collection in populations most at risk of becoming newly infected with HIV, comparing information on HIV prevalence and on the behaviors that spread it, and making best use of other sources of health information to increase understanding of the HIV epidemic and the behaviors that spread it.

Existing systems rarely track the risk behaviors that provide warning signs for the spread of HIV and have difficulty explaining changes in levels of HIV infection in mature epidemics or in countries where therapy exists. They often ignore information from other sources and resources are often targeted in the general population where little infection exists, while at-risk subpopulations are neglected.

By concentrating surveillance in areas where it provides the most information, second generation surveillance systems would ensure that money and expertise are used as efficiently as possible and should be tailored to a country's capacity. For example, sentinel sites will be carefully chosen to provide reliable information from a minimum number of sites, while sampling for behavioral data collection takes sentinel sites into account so that strong inferences can be made in comparing behavioral and serological data sets.

A central tenet of second generation surveillance is that behavioral and biological surveillance data be based to inform and explain one another. The value of the two sets of information to illuminate real trends in the epidemic and the behaviors that spread it is greatly increased if they are designed from the start to be used together. The explanatory power of surveillance systems would be increased through improved sampling, with populations sampled being chosen as much as possible to reflect areas from which key sentinel surveillance sites draw their clients. Second generation surveillance systems will also attempt to focus on new infections by increasing sample sizes of younger women (15–24) at key antenatal clinics.

The table on the next page summarizes the existing core surveillance components and additional data in second generation surveillance data for improved monitoring and enhanced evaluation of trends and changes at the three different levels of the epidemic.



Level of Epidemic	Core Surveillance	Second Generation Surveillance
<b>Low-Level</b>	<ul style="list-style-type: none"> <li>▪ Research and mapping of groups with potential risk behavior</li> <li>▪ Analysis of available STI surveillance data</li> <li>▪ Risk-behavior surveys in groups at high risk for HIV infection</li>   <li>▪ HIV serosurveillance in groups with high-risk behavior</li>   <li>▪ Analysis of available blood donor HIV screening data</li> <li>▪ AIDS case reporting</li> <li>▪ HIV case reporting</li> </ul>	<ul style="list-style-type: none"> <li>▪ Mapping to cover larger geographical area, conducted more frequently</li> <li>▪ Estimate size of groups with potential risk behavior</li> <li>▪ Increased geographical coverage of risk behavior surveys</li> <li>▪ STI prevalence and incidence studies in groups with risk behavior</li> <li>▪ Larger coverage and increased frequency of HIV serosurveillance in groups with high-risk behavior</li> <li>▪ HIV sentinel serosurveillance in pregnant women in urban areas</li>   <li>▪ Risk-behavior surveys focused on potential bridging populations</li> </ul>
<b>Concentrated</b>	<ul style="list-style-type: none"> <li>▪ HIV serosurveillance in groups with high-risk behavior</li>   <li>▪ Annual HIV sentinel serosurveillance in pregnant women in urban/high exposure areas</li> <li>▪ Analysis of available blood donor HIV–screening data</li> <li>▪ Repeated risk-behavior surveys in groups with high-risk behavior</li> <li>▪ Repeated risk-behavior surveys in bridging populations</li>   <li>▪ Analysis of STI data in groups with high-risk behavior and bridging populations</li> <li>▪ Repeated risk-behavior surveys in general population in urban/high exposure areas</li> <li>▪ AIDS case reporting</li> </ul>	<ul style="list-style-type: none"> <li>▪ Wider geographical coverage and increased frequency of HIV serosurveillance in groups with high-risk behavior</li> <li>▪ HIV serosurveillance in bridging populations and pregnant women</li>   <li>▪ Wider geographical coverage and increased frequency of repeated behavioral surveys in groups with high-risk behavior and bridging populations</li> <li>▪ Surveys of health-seeking behavior for STI</li>   <li>▪ Repeated risk-behavior surveys in the general population in all areas</li>   <li>▪ HIV case reporting</li> </ul>
<b>Generalized</b>	<ul style="list-style-type: none"> <li>▪ Annual HIV sentinel serosurveillance in pregnant women, urban and rural</li> <li>▪ Increased sample size in high volume sites for analysis by age groups</li>   <li>▪ AIDS case reporting</li>   <li>▪ Repeated behavioral surveys in groups at high risk of HIV infection</li> <li>▪ Analysis of STI surveillance data in groups at high risk of HIV infection</li> <li>▪ Repeated risk-behavior surveys in general population with focus on young people</li> <li>▪ Analysis of STI data in the general population</li> <li>▪ Vital registration data</li> <li>▪ Surveillance of TB and other HIV/AIDS related illnesses</li> </ul>	<ul style="list-style-type: none"> <li>▪ HIV sentinel serosurveillance in pregnant women in larger number of sentinel sites</li> <li>▪ HIV serosurveillance in groups at high risk (sex workers and their clients)</li> <li>▪ Population-based HIV prevalence studies to validate surveillance data</li> <li>▪ Larger coverage of behavioral surveys</li>   <li>▪ Other death data (census and studies)</li> <li>▪ Studies of access to care</li> </ul>