Part III.C
STI/HIV/AIDS

- AIDS Program Effort Index (API)
- Condoms available for distribution nationwide
- Percent of population with accepting attitudes towards those living with HIV
- Percent of population who know HIV prevention methods
- Percent of population with no incorrect beliefs about AIDS
- Percent of population who know methods of preventing mother-to-child transmission of HIV
- Percent of population requesting an HIV test, receiving a test, and receiving test results
- Voluntary counseling and testing centers with minimum conditions to provide quality services
- Percent of pregnant women counseled and tested for HIV
- Antenatal clinics offering and referring for VCT
- Percent of population who had higher risk sex in the last year
- Percent using condoms at last higher risk sex
- Percent of men having commercial sex in the last year
- Percent of young people having multiple partners in last year
- Percent of young people using a condom at last higher risk sex
- Percent of injecting drug users never sharing equipment in the last month
- Percent of transfused blood units screened
- Percent of STI patients appropriately diagnosed and treated
- Percent of STI patients receiving advice on condom use and partner notification and referral to HIV testing services
- Percent of health facilities providing STI services with adequate drug supply
- Number/percent of health facilities with the capacity to deliver appropriate care to HIV-infected patients
- HIV prevalence among pregnant women 15-24 years old
- HIV prevalence in sub-populations with high-risk behavior
- Percent of children under 15 who are orphans

Part III.C

STI/HIV/AIDS

HIV/AIDS has become a major focus for public health specialists and international donor agencies, as this devastating pandemic continues to spread. According to UNAIDS, at the end of 2001, an estimated 40 million people globally were infected with HIV; of these, 70 percent reside in Africa.

Although current financial and human resources are not adequate to confront the mammoth challenge of curbing HIV/AIDS, the existing donor funds have stretched the absorptive capacity of many organizations to the limit. In Africa – especially in those countries in which as many as one third of the adults in urban areas are infected – many health workers have themselves been stricken. In short, available human resources are generally mobilized to implement programs; evaluation in this context of crisis understandably has taken a back seat.

However, with the epidemic showing no signs of letting up, international donor agencies realize that they must remain committed to HIV/AIDS initiatives for the long run. As the sums of money to combat HIV/AIDS increase, so do the calls for accountability in terms of the effective use of funds. The need for better monitoring and evaluation has also led to a growing number of data collection instruments and indicators.

The first global initiative to standardize evaluation indicators came during the 1980s in connection with the World Health Organization's Global Programme on AIDS (GPA). Experts from key organizations met in Geneva over a several year period in the late 1980s and early 1990s to develop a set of 10 "prevention indicators" (known as "PIs"). This initiative was highly laudable, in that standardization of indicators promised multiple benefits: countries with slim evaluation resources would not have to reinvent the wheel; rather, all could benefit from the guidance of this group of experts. Moreover, data from this standardized set of indicators would lend themselves to cross-national comparisons. However, the application of the PI in specific countries proved more challenging. Few countries were able to produce the necessary data on the indicators, and/or the data were of questionable validity. Only a few countries used the PIs for monitoring of trends in programs, knowledge, or behaviors.

Over the last decade, much has changed in HIV/AIDS programming. Although prevention remains paramount, programs must also provide care and support of those infected and affected by the epidemic. Accordingly, evaluators have needed to adapt the monitoring and evaluation tools for these more complex programs.

M&E efforts in HIV/AIDS have evolved significantly in the past three years through a partnership that includes MEASURE *Evaluation*, UNAIDS, WHO, the Centers for Disease Control and Prevention (CDC), Family Health International (FHI), and other USAID cooperating agencies involved in HIV/AIDS programming and evaluation. The group first reviewed existing indicators and tools. Subsequently, MEASURE *Evaluation* and UNAIDS coordinated a series of case studies to review the HIV/AIDS M&E systems in 13 countries, including the feasibility of collecting data on the different PIs. These case studies provided a basis for (a) redefining the list of indicators most useful in monitoring and evaluating HIV/AIDS programs and (b) modifying or in some cases developing tools to measure the indicators.

In 2000, UNAIDS and its partners[1] published a manual entitled *National AIDS Programmes: A Guide to Monitoring and Evaluation*. We have reproduced the "core indicators" from the UNAIDS manual in this section of the *Compendium* as they appeared in the original, because this set of indicators was compiled through a very systematic and participatory process with input from experts throughout the world. The guide currently serves

[1] The partners included CDC, European Union, FHI/IMPACT, MEASURE DHS+, MEASURE *Evaluation*, SYNERGY Project, The POLICY Project, UNICEF, USAID, WHO, and the World Bank.

to strengthen M&E plans and implementation in many countries, as part of the expanded response against AIDS, especially in Africa.

In spite of the recent progress on M&E for HIV/AIDS, major methodological challenges remain.

Methodological Challenges of Evaluating STI/HIV/AIDS Programs

- **Measures requiring self-report are fraught with bias.**

This statement is true for survey work in general, but it is particularly applicable to HIV/AIDS for two reasons. First, respondents may not know their status (e.g., many women have asymptomatic sexually transmitted infections; few adults in the developing world know their HIV sero-status). Second, the stigma surrounding HIV/AIDS makes it a highly sensitive topic. Even if respondents knew their status, evaluators would have strong ethical issues in asking them to reveal it in the course of an interview. Surveys remain a fairly reliable means of determining levels of knowledge (e.g., on HIV transmission and prevention mechanisms). By contrast, questions regarding attitudes and sexual behavior may yield biased answers, influenced by communication programs that teach the "politically correct responses" regarding HIV/AIDS.

- **In contrast to family planning, HIV/AIDS lacks a set of reliable, easily measurable evaluation indicators.**

Comparing HIV/AIDS and family planning is useful to understand the dilemma facing those who evaluate HIV/AIDS programs. One might argue that the comparison is unfair, given that the FP research community has had an additional 20 years to wrestle with these methodological problems. Nonetheless, the problems are fundamental to the behaviors surrounding HIV/AIDS. (This infectious disease has a more complex web of proximate determinants and biological outcomes than does fertility.)

Much of FP evaluation has used three basic indicators:

- Program level: Couple-years of protection (CYP)
- Intermediate outcome: Contraceptive prevalence rate
- Long-term outcome: Fertility rate

Regarding a **program level indicator**, the volume of condoms distributed for HIV/AIDS prevention is analogous to CYP. However, in the case of family planning, the evaluator can estimate the correspondence between the quantity distributed and the protection achieved (e.g., it takes four shots of Depo-Provera to cover a women for one year). By contrast, for condoms, such estimates of coverage – combined with the issues related to consistency of use – make it difficult to convert volume of condoms distributed to the number of persons protected against HIV/AIDS.

In terms of an **intermediate indicator** that measures a behaviour directly linked to the long-term outcome, condom use for HIV/AIDS is certainly analogous to contraceptive use. However, condom use carries a number of limitations. First, condom use is not the only means to safer sex (abstinence and reducing the number of partners lower the risk of HIV/AIDS). Second, the measurement of condom use in surveys is much less precise than the measurement of contraceptive prevalence (the latter which can be validated using fertility rates). In contrast to contraceptive use (which married couples generally practice over a period of time in a fairly consistent manner), condom use may be far more erratic and may vary by type of partner. Self-report on extramarital relations and condom use within such arrangements often lacks precision.

With respect to a **long-term outcome**, the objective of most HIV prevention programs is conceptually clear: to decrease the incidence rate of new HIV infections in a given population. However, it is virtually impossible in practical terms to obtain this information on a truly representative sample in a given country. To measure incidence would require identification and recruitment of a randomly selected sample of the population, followed across multiple (or at least two) periods of time. Moreover, any type of experimental design used to test the effects of a specific intervention is also fraught with the ethical difficulties of withholding a potentially valuable intervention from one group in the name of "good science." Other obstacles include the methodological difficulties in potential loss to follow-up, ethical issues related to lack of facilities to treat persons identified as sero-positive, and the high cost of such data collection. In fact, evaluators in this area have adopted a proxy approach: to test women attending antenatal clinics on the grounds that they represent a wide cross-section of the population. This indicator is the measure of choice for tracking the epidemic in many countries.

The international AIDS community now advocates second-generation surveillance, which involves coordinating the collection of several different types of data. Traditional surveillance systems tracked HIV infection or other biological markers of risk such as STIs. Because one of a limited number of behaviors – namely injection with contaminated needles or blood products or unprotected sex with an infected partner – must precede HIV/AIDS, we know that if these behaviors change, the spread of HIV will change. Second-generation surveillance systems monitor risk behaviors, using them to warn us of, or explain changes in, levels of infection. Thus, second-generation surveillance uses data from behavioral surveillance to interpret data gathered from sero-surveillance efforts.

- **HIV prevalence reflects the accumulation of HIV cases and changes slowly, even if incidence is on the decline.**

Obtaining data on HIV prevalence (e.g., from women attending prenatal clinics) is easier than obtaining data on HIV incidence, which requires tracking persons over time to determine the percentage of sero-negative individuals who become sero-positive in a given year. However, HIV prevalence has the limitation that the measure includes not only the cases (individuals) that become sero-positive in the past year, but rather in all previous years (and who are still alive). Thus, even if one had an intervention that was successfully decreasing incidence of HIV in a given population, this trend would not be immediately evident in data on HIV prevalence. Evaluators have addressed this problem by focusing on 15-19 year olds attending antenatal care in a given country. In practical terms, none would have been sero-positive prior to initiation of sexual activity, which in much of Africa takes place around age 15. (Most female babies with perinatal AIDS would not have survived to adulthood.) Thus, time series data on the prevalence of HIV/AIDS among 15-24 year olds attending antenatal care serves as a useful proxy for HIV incidence. HIV prevalence trends among antenatal clients 15-19 may also be a good indicator of HIV incidence, but as simulations have shown, these trends are more sensitive to changes that may be unrelated with true incidence changes in the female population.

In sum, the indicators presented in this section are reproduced from the document entitled *National AIDS Programmes: A Guide to Monitoring and Evaluation*, which represents the joint efforts of UNAIDS and multiple partner organizations. We have modified the format used in their original document to be consistent with that used in this *Compendium,* and we have included only "core indicators" (not the alternative indicators). Otherwise, the content remains true to the original.

Indicator

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

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.

Data Requirement(s)
Responses to a detailed questionnaire from selected key informants (representatives of the Ministry of Health; NGOs; international consultants familiar with that country; and other informed individuals)

Data Source(s)
The AIDS Program Effort Index (API) questionnaire and protocol[2]

Purpose and Issues
The AIDS Program Effort Index 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 10 main components of an effective national response:

- Political support;
- Policy formulation;
- Organizational structure;
- Program resources;
- Evaluation and research;
- Legal and regulatory aspects;
- Human rights;
- Prevention programs;
- Care programs; and
- Service availability.

The major concerns are that the API may be subjective and unreliable. The outcome depends entirely on the choice of informants, and informants will likely change from year to year. Because 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 deterioration in some areas may mask improvements in other areas. For diagnostic as well as monitoring purposes, simply publishing the scores for the index separately for each component may be more useful. The separate category scores may stand alone as indicators, although for several areas of program effort, this document proposes alternatives based on measured parameters rather than on expert opinion and may therefore more usefully track trends over time.

One area in which the API process may yield a particularly useful indicator is in the area of policy formulation.

[2] Available online at: http://www.tfgi.com/api.asp

Indicator

Condoms Available for Distribution Nationwide

Definition
The total number of condoms available for distribution nationwide during the preceding 12 months, divided by the total population aged 15-49

The indicator estimates the number of condoms (male and female) available for in-country use during the last 12 months. Key informants are identified and interviewed to uncover all possible sources of condom manufacture, import, distribution, and storage. Next, data are collected from all manufacturers and major commercial distributors as well as major donors, condom storage facilities, and government, parastatal, and NGO bodies involved in acquiring and distributing condoms.

This indicator sums the condoms in stock nationally at the start of the 12-month period, plus condoms imported during the 12-month period, plus condoms manufactured in country during the same period, minus 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.

This indicator is calculated as:

$$\frac{\text{\# of condoms in stock} + \text{\# of condoms imported} + \text{\# of condoms manufactured} - \text{\# of condoms exported during a 12-month period}}{\text{Total population aged 15-49}}$$

Data Requirement(s)
Condom inventories and purchase records for (1) social marketing programs, (2) national condom distribution programs, and (3) commercial wholesalers/distributors; stock records and production records for manufacturers

Data Source(s)
WHO/GPA protocol for estimating condom availability for distribution at the central and peripheral level

Purpose and Issues
The best distribution system in the world is not much help if it has 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. Where programs actively promote the availability of male condoms, they should also include female condoms, although the indicator should be disaggregated by condom type.

Combining this indicator with indicators of sexual behavior gives a powerful picture of the adequacy of condom provision. For example, if a third of all men aged 15-49 say they have had non-regular sex in the past year, and 20 percent of married couples say they have used condoms to avoid pregnancy, and yet only three condoms are available per sexually active adult per year, one can deduce that the national supply of condoms is insufficient to meet the potential demand.

The number of condoms available at the central level helps assess the adequacy of overall condom availability. We must note, however, that "availability" does not equal "accessibility," which includes dimensions of price, location, and access by sub-populations at risk for unprotected sex and HIV. Frequently, not all available condoms are distributed or reach the individuals who most need them to protect against the spread of HIV. This indicator by itself cannot give 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. Deregulation means that a wide variety of companies, NGOs, donors and gov-

ernment departments (the health ministry, the defense ministry, among others) may import condoms without necessarily reporting numbers imported to a central body. Programs distinguish between condoms distributed through family planning programs and those distributed to reduce sexually transmitted infections. One must take both sources into account. If possible, evaluators need to present data by program, because family planning programs primarily intend condoms for relatively low-risk acts within stable monogamous unions, whereas AIDS program condoms aim at higher risk sexual contacts.

Where condom promotion activities center around marketing condoms at subsidized prices to people likely engaging in risky sex (social marketing), sales of particular brands of condoms can also provide a useful indicator of program success. Organizations responsible for the social marketing of condoms typically keep very good records of condoms distributed down to the retail level. Although these data tell only part of the story of condom availability, they provide a very low-cost source of information for the National AIDS Program and can be very useful for advocacy purposes. A rise in the number of condoms manufactured or imported into a country, or of condoms sold, can be useful in supporting other indicators measuring rises in self-reported condom use or falls in self-reported STIs and, eventually, in HIV prevalence.

Indicator

Percent of Population with Accepting Attitudes Towards Those Living with HIV

Definition
The percent of people who express accepting attitudes towards people with HIV, of all people surveyed aged 15-49

Respondents in a general population survey answer 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 him or her in your household?
- If you knew that a shopkeeper or food seller had the AIDS virus, would you buy fresh vegetables from them?
- If a female teacher has the AIDS virus but is not sick, should she be allowed to continue teaching in school?
- If a member of your family became infected with the AIDS virus, would you want it to remain a secret?

Only a respondent who reports an accepting or supportive attitude on all four of these questions enters the numerator. The denominator is all people surveyed.

This indicator is calculated as:

$$\frac{\text{\# of respondents who report accepting attitudes on all four questions}}{\text{Total \# of respondents aged 15-49}} \times 100$$

Data Requirement(s)
Self-reported data from survey respondents

Data Source(s)
UNAIDS general population survey; DHS AIDS Module; FHI BSS (adult); FHI BSS (youth)

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

Methodologically, this is a relatively easy way to construct an indicator of attitudes to 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.

However, difficulties arise in interpreting indicators based on hypothetical questions, and a high score on the indicator is harder to understand than a low one is. It could mean little real stigma is attached to HIV. Or it could mean that people know they should not discriminate, and therefore report accepting attitudes. This knowledge may not change their behavior, which may continue to be discriminatory towards people with HIV. Changes in the indicator may therefore reflect a reduction in stigma or simply a growing awareness that it is not nice to own up to one's prejudices. That awareness in itself may, however, constitute the first step in program success. High scores may also reflect the respondent's limited personal experience with someone who is HIV-infected.

The proposed indicator is similar to an earlier measure developed by WHO, but questions have been changed following field testing to better reflect situations in which people with HIV actually suffer from stigma. Field tests revealed that the exact wording of the indicator greatly affected responses. When the gender of the teacher was not specified, for example, one country registered very high levels of "discriminatory" attitudes on that question, for example. Further investigation showed that the negative attitudes were related to recent news reports of male teachers infecting female pupils with HIV.

The earlier WHO indicator has been little used, calling into question the utility of this measure. Possibly, it was little 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 preven-

tion and care efforts becomes ever clearer, however, more national AIDS programs will likely turn their attention to this area. We expect, therefore, that use of this indicator will increase.

Some have suggested that this indicator serves to measure differences in discrimination or stigma by gender. Although some research suggests that women are more likely than men to be treated and viewed harshly if they have HIV or AIDS, other recent surveys have shown little difference in response to gender-specific questions about stigma and discrimination.

Indicator

Percent of Population Who Know HIV Prevention Methods

Definition
The percent of all respondents who, in response to prompted questions, say that a person can reduce the risk of contracting HIV by using condoms or having sex only with one faithful, uninfected partner.

The denominator includes all respondents surveyed, regardless of whether they have ever heard of AIDS or not. The indicator components should also be reported separately to show changes in specific knowledge areas.

The evaluator (i.e., the person designing the questionnaire) must carefully select the precise wording of the prompted questions in each linguistic and cultural context. We should note that the correct prevention methods prompted for should be interspersed in the questionnaire with misconceptions used to calculate the following indicator: **Percent of Population with No Incorrect Beliefs About AIDS**.

This indicator is calculated as:

$$\frac{\text{\# of respondents who say that a person can reduce the risk of contracting HIV by using condoms or having sex only with one faithful, uninfected partner}}{\text{Total \# of respondents}} \times 100$$

Data Requirement(s)
Self-reported data from survey respondents

Data Source(s)
UNAIDS general population survey; DHS AIDS module; FHI BSS (adult); FHI BSS (youth)

Purpose and Issues
Most AIDS programs targeting the general population promote mutual monogamy and condom use as the primary ways of avoiding HIV infection among the sexually active men and women who make up the majority of all adults in virtually every population. This indicator measures the extent to which those messages have reached the general population or the specific sub-population surveyed.

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.

Limitations of the use of prompted data were discussed in the introduction to this section. Although the evaluator should construct the primary indicator using prompted data, a comparison between prompted and non-prompted data where possible may yield interesting information. For instance, both the revised UNAIDS general population survey and the DHS AIDS module ask, "What ways can people protect themselves from getting HIV?" before asking specific "prompted" questions. To further help program managers, this indicator should always be used in conjunction with: **Percent of Population with No Incorrect Beliefs about AIDS**

Previous knowledge indicators included abstinence as a "correct" method of prevention used in this indicator. Abstinence is an extremely important prevention option for young people. However, research in many settings shows that adults who are already sexually active rarely use abstinence as a primary HIV prevention method. In addition, people who know that HIV is sexually transmitted are highly likely to know that not having sex can reduce the risk of transmission. Negative responses on this item are more likely to result from people believing that abstinence is not feasible than from their believing that abstinence does not provide effective protection. In surveys among young people, however, questions about abstinence continue to be important. Programs focusing on delaying age at first sex among young people may choose to add a knowledge indicator that includes correct responses to a question about abstinence as a prevention method.

Gender Implications of this Indicator

Women may be poorly informed about prevention methods because of gender-related socio-cultural barriers that deny or discourage their access to information about HIV and their willingness to discuss such information. For example, many cultures view a woman's ignorance about sexual matters as a sign of purity, this being an ideal feminine quality. Women may thus be reluctant to seek out information about HIV prevention for fear of being labeled as promiscuous (UNAIDS, 1999a). Additionally, women may be reluctant to report that they have such knowledge, for the same reason.

HIV prevention messages may also not be reaching women because some providers may be reluctant or fail to discuss condom use as a method of preventing HIV with female clients. They may perceive condoms as a male contraceptive or because they may associate condoms with illicit sexual activity.

For example, in areas where female literacy rates are low, information campaigns on HIV prevention that rely on printed materials may be ineffective in reaching women who are illiterate or have limited literacy skills.

Indicator

Percent of Population with No Incorrect Beliefs about AIDS

Definition
The percent of all respondents who correctly reject the two most common local misconceptions about AIDS transmission or prevention, and who know that a healthy-looking person can transmit AIDS

In a series of prompted questions, the interviewer reads a series of correct and incorrect statements about AIDS transmission and prevention. Responses to the correct statements about prevention are used to calculate the previous indicator: **Percent of Population Who Know HIV Prevention Methods**. Responses to a question about infection status in healthy-looking people and to two incorrect statements about transmission or prevention are used to calculate this indicator.

The incorrect statements will vary to reflect the misconceptions most common in the local context. Very often these misconceptions will include the belief that AIDS can be spread through an insect bite or through witchcraft. Sometimes, they will include beliefs about prevention or cure, such as AIDS being preventable by eating certain types of foods or herbs, or being curable by having sex with a certain type of person such as a virgin (or simply being curable at all). One question 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. The exact wording may vary locally. For example, in some areas "fat" may be synonymous with "healthy" in this context and may better reflect people's misunderstanding of who constitutes a "safe" partner.

Before conducting a survey, the evaluator should identify the local misconceptions. They may vary over time within the same country.

To enter the numerator for this indicator, a respondent must correctly reject both misconceptions, and must know that a healthy-looking person can transmit AIDS. The denominator is all respondents, including those who have not heard of AIDS. For program purposes, the indicator should be disaggregated by misconception, and the percentage believing that a healthy-looking person cannot transmit HIV should also be reported separately.

This indicator is calculated as:

$$\frac{\text{\# of respondents who correctly reject the two most common local misconceptions about AIDS and who know that a healthy-looking person can transmit AIDS}}{\text{Total \# of respondents}} \times 100$$

Data Requirement(s)
Self-reported data from survey respondents

Data Source(s)
UNAIDS general population survey; DHS AIDS module; FHI BSS (adult); FHI BSS (youth)

Purpose and Issues
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 a disincentive to behavior change may actually better reflect the success of a BCC campaign than will an incremental shift in already high levels of "correct" knowledge. This indicator measures progress made in reducing misconceptions.

Again, this indicator is easy to measure. It gives a good picture of the level of false beliefs that may impede people's determination to act on correct knowledge. When the data are disaggregated, they provide invaluable information for program managers planning future BCC campaigns, telling them which misconceptions must be attacked, and in which sub-populations.

A word of caution is in order, however. There is always a danger that including misconceptions in a question-

naire actually increases their credibility. Preparatory research should be sure to establish commonly held misconceptions (rather than run the risk of promoting new ones), and the questionnaire should make very clear that some of the statements in the sequence are true while others are false.

One limitation is the indicator's potential inability to distinguish between misconceptions which are likely to influence behavior and those which are merely incidental. Measurement of this indicator also requires preparatory work to determine which misconceptions are currently most likely to be common.

Indicator

Percent of Population Who Know Methods of Preventing Mother-to-Child Transmission of HIV

Definition
The percent of women and men who correctly respond to prompted questions about preventing mother-to-child transmission of HIV through anti-retroviral therapy and avoidance of breastfeeding

Respondents in a population survey answer a series of questions about the transmission and prevention of HIV. (See previous indicators: **Percent of Population Who Know HIV Prevention Methods** and **Percent of Population with No Incorrect Beliefs about AIDS**.) Among these are questions about whether HIV can be transmitted from mother to child and about means of preventing mother to child transmission.

The indicator is the number of respondents who say that HIV transmission from women who have tested HIV positive can be prevented by the mother taking drugs during pregnancy, and by the mother avoiding breastfeeding, divided by the total number of respondents to the survey.

This indicator is calculated as:

$$\frac{\text{\# of respondents who say that a mother can avoid MTCT of HIV by taking drugs during pregnancy and by avoiding breastfeeding}}{\text{Total \# of respondents}} \times 100$$

Data Requirement(s)
Self-reported data from survey respondents

Data Source(s)
UNAIDS general population survey; DHS AIDS module; FHI BSS (adult)

Purpose and Issues
This indicator examines whether women and men know of methods to prevent the transmission of HIV from mother to child. In this field, as in the field of prevention of sexual transmission, knowledge is a prerequisite for decision-making and intervention, although by no means sufficient to ensure it.

This indicator measures people's knowledge of methods to prevent transmission from mother to child through anti-retroviral therapy and avoidance of breastfeeding. Men's knowledge in this area is also important, not least because in many societies men dominate decisions about family formation and childbearing, so the indicator is constructed for both sexes. Because most BCC campaigns in this area aim to reach women, program managers will want to monitor program effectiveness by disaggregating the indicator by gender.

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

The indicator does not distinguish in its denominator between those who know about maternal to child transmission and those who do not, because people who do not know that such transmission can be prevented are definitely among those who have not been reached with information about prevention methods. The questioning sequence does, however, allow countries to construct an indicator of knowledge about HIV transmission from mother to child should they wish.

The knowledge that transmission from mother to child can be prevented is likely to shape women's care-seeking and breastfeeding behavior. A pregnant woman who simply knows that she can pass HIV on to her child is less likely to seek to know her HIV status than a pregnant woman who knows that she can avoid transmitting HIV to her child.

In many countries in Latin America and elsewhere, the demand for prevention has driven a radical improvement in service provision for pregnant women with HIV. Such a demand will only arise if people know that therapy exists and can effectively reduce transmission of HIV to infants.

Indicator

Percent of Population Requesting an HIV Test, Receiving a Test, and Receiving Test Results

Definition
The percent of people aged 15-49 surveyed who have *ever* voluntarily requested an HIV test, have received the test, and have received their results

The evaluator can also collect data on those requesting an HIV test, receiving the test, and receiving their results *in the last 12 months.*

A general population or sub-population survey can include questions on whether the respondent has ever requested an HIV test, whether he/she has been tested, and if so, whether he/she has received the results. Those having ever requested a test and having received the results form the numerator, while the denominator is all respondents in the survey.

The interviewer prefaces the question by saying, "I do not want to know the results of the test…." As for most indicators, results should be presented by component and separately for men and women. In addition to having information on the broad reach of VCT services over time, knowing 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, will be useful.

This indicator is calculated as:

$$\frac{\text{\# of respondents aged 15-49 who requested, underwent, and received HIV test results}}{\text{Total \# of respondents aged 15-49}} \times 100$$

Data Requirement(s)
Self-reported data from survey respondents

Data Source(s)
UNAIDS general population survey; DHS AIDS module; FHI BSS (adult); FHI BSS (youth)

Purpose and Issues
The coverage of quality VCT services will go a long way towards determining whether those services achieve their threefold aims of providing an entry point for care and support, promoting safe behavior, and breaking the vicious circle of silence and stigma.

This indicator aims to estimate the reach of HIV testing services in the general population and of the percentage of people who now know their HIV status. It can also be used in specific sub-populations with high-risk behavior where counseling and testing services are being promoted. When calculated for sub-populations with high-risk behavior, the numerator should include only those who requested a test and received their results in the last 12 months.

A breakdown of the indicator into its components parts (looking, for example, at people who requested and received a test but never received their results) can point to gaps in program service provision and quality of care. Data on those who do not return for results or do not know their results may offer insight, for example, into levels of stigma and/or reluctance to learn HIV status given the lack of available options for care.

The survey question for this indicator specifies that the respondent must have requested the test. In many situations, people may 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. To calculate this indicator, the evaluator excludes these involuntary tests, whether real or perceived. Also excluded are tests made for diagnostic purposes without the consent of the client, even if the client was later told of the results. Such tests do not reflect either the coverage of or the demand for testing services, nor do they take into account that the measure emphasizes the "voluntary" element desired for HIV tests. For that reason, survey questions must specify that the person requested a test.

In many countries, many people will have been offered and accepted an HIV test in a health care setting. To measure the proportion of people who may be aware of their sero-status (regardless of who initiated the request for a test), one should also collect data on people having been offered a test, having accepted it, and having received their results.

This indicator gives some idea of the increasing coverage of services that meet people's demand for testing. It is not, however, limited to voluntary testing and counseling services staffed by trained counselors. It may, therefore, 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, because such an admission may imply that they fear they may be infected. This unwillingness increases when the question arises in a questionnaire about risk behavior. On the other hand, in countries that heavily promote testing as a "responsible" act, some people may say they have been tested when in fact they have not. Despite these potential biases, the indicator is useful for providing a rough estimate of the proportion of people likely to know their HIV status at all.

If one adapts the indicator to reflect the percentage of respondents requesting, receiving an HIV test and receiving results *in the last 12 months*, the measure will reflect recent changes in testing services, knowledge about testing among the population surveyed and desire for testing. While those people exposed to HIV more than once in a lifetime should be targeted for repeat testing, existing evidence suggests that most only get tested once. Thus, in high prevalence populations with good coverage of testing, those who tested positive in the past may not return for further testing in future years. This could affect trends in the time-bound indicator. The tendency to test only once tends to bias this indicator in underestimating prevalence.

The "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 the "ever-tested" measure will provide an idea of the overall reach of testing services.

In low-level and concentrated epidemics, the indicator will likely yield extremely low percentages if measured in the general population. However, the indicator is appropriate to measure behavior in sub-populations at higher risk of infection.

Gender Implications of this Indicator

Women's use of VCT services may be limited because of a variety of barriers that prevent them from accessing services, such as: lack of mobility, the cost of tests, and reluctance or prohibition of receiving care from a male health care provider. A lack of female health care providers or female-oriented health services may prevent women from requesting VCT. Women, especially those who are married or who believe they are in a monogamous relationship, may have a low perceived risk of being infected with HIV and thus may not request VCT. Research suggests that men are more likely to seek out VCT services without consulting others, while women feel obligated to discuss testing with partners before requesting services, thus creating a potential barrier to VCT access (Gupta, 2000).

A positive test result may have serious repercussions for women, including partner violence, isolation, ostracism, or abandonment. For this reason, women, although they suspect they may be infected, may not request VCT or return for results. HIV positive women may also fail to fully comply with recommended treatments or bottle-feeding to prevent MTCT for fear of being identified as HIV positive (UNAIDS, 1999b).

Indicator

Voluntary Counseling and Testing Centers with Minimum Conditions to Provide Quality Services

Definition
The number and percent of facilities that provide VCT services meeting minimum conditions necessary to provide quality counseling and HIV testing services

Evaluators take a random sample of facilities and assess the quality of counseling and testing services (including NGOs, private clinics and doctors' surgeries). They evaluate structural elements necessary to provide quality counseling and testing services, including 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.

Evaluators may choose to weight the score obtained by each site in the random sample 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 to provide quality VCT services, divided by the total number of clients served in the last year by all sites sampled.

This indicator is calculated as:

$$\frac{\text{\# of clients served in the last year by sites with adequate conditions to provide quality VCT services}}{\text{Total \# of clients served in the last year by all sites sampled}} \times 100$$

Data Requirement(s)
Assessment by external evaluator of adequacy of key elements for conducting VCT

Data Source(s)
UNAIDS protocol for the evaluation of voluntary counseling and HIV testing services

Purpose and Issues
In many countries, voluntary counseling and testing has landed in the hands of under-funded and ill-equipped non-government and community organizations or has become a corollary of private sector health service providers. Many of these entities lack even the most basic structural facilities necessary to provide quality counseling, such as a room where counseling can occur privately, or a regular electricity supply to ensure the adequate storage of specimens until testing.

This indicator measures a condition 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 the history of positive experiences at the center by other community members. Inevitably, a number of contextual variables influence the results of an indicator assessing quality. The goal of the indicator is to provide a framework for assessing some accepted goals and guidelines.

A potential difficulty in constructing this indicator is that sites with inadequate record keeping may be unaware of their overall client load; it will therefore be impossible to weight the indicator by client load. One could construct the indicator as a simple percentage (i.e., the percentage of facilities surveyed which meet minimum conditions for adequate service). However, because poor conditions at a small facility with a low caseload is relatively less important than poor facilities at a large and busy center, one should apply weighting where possible. (In truth, a strong correlation may exist between conditions and caseload: caseloads may be low *because* conditions are poor.)

As with other aggregate indicators, the evaluator may need to obtain information on different elements separately for program planning purposes. Disaggregating this indicator by type of service provider (NGO, hospital, private clinic) may also be useful.

Indicator

Percent of Pregnant Women Counseled and Tested for HIV

Definition
The percent of women who received counseling during antenatal care for their most recent pregnancy, who accepted an offer of testing, and who received their test results, based on all women pregnant at any time in the two years preceding the survey

In a general population survey, the interviewer asks the respondent when her most recent child was born and whether she received any antenatal care before that last birth. If she received care, she is asked whether clinic staff talked to her about HIV infection and offered her a confidential HIV test. If yes, she is further asked if she agreed to a test and if she received the results. Before asking such questions, the interviewer offers assurance that he/she is not interested in knowing the outcome of any test.

The indicator is the number of women counseled and offered voluntary HIV testing at ANC before their most recent birth in the last two years and received their test results, divided by the total number of women surveyed. To measure recent trends the evaluator excludes women whose most recent birth was more than two years ago from the analysis.

This indicator is calculated as:

$$\frac{\text{\# of women who were counseled, who accepted the offered voluntary HIV testing at ANC, and received results before their most recent birth in the last two years}}{\text{Total \# of women who were pregnant in the last two years}} \times 100$$

Data Requirement(s)
Self-reported data from survey respondents

Data Source(s)
UNAIDS general population survey

Purpose and Issues
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 choose to become pregnant. But the gap between this ideal and reality is often very wide. In practice, the first opportunity many women have to be counseled about HIV and to be offered tests may be at antenatal clinics that offer these services as a precursor to offering interventions to reduce transmission of HIV from mother to child.

To learn their HIV status in an antenatal care situation, women have to complete 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 post-test counseling that follows all of these steps that they 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. A general population survey can yield data on the coverage of ANC-based counseling and testing country-wide, rather than just in specific pilot facilities.

This broad measure of service provision reflects coverage on a national scale. However, few countries may have the resources to introduce counseling and voluntary testing for pregnant women country-wide. Those countries providing 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. Evaluators should use this indicator in conjunction with the following one: **Antenatal Clinics Offering and Referring for VCT**.

As a summary indicator, it does not attempt to diagnose at which point women are dropping out of the spectrum of care. For program purposes, managers will find it 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 do not return for test results. Each of these points of failure has a different implication for programming, and all can be calculated from the data collected for this indicator. The summary indicator does not attempt to measure quality of counseling or other elements of service coverage.

Gender Implications of this Indicator

The availability of anti-retrovirals which can prevent the transmission of HIV from mother to child increase the value that voluntary counseling and testing could have for pregnant women. Yet many women refuse testing and treatment. Health workers must recognize that VCT entails significant risks for women which may include partner violence and ostracism. Applying strict standards of confidentiality and privacy to VCT, as well as to the treatment phase (if one is required), is necessary to ensure that pregnant women will have enough trust in their own safety to risk being tested. The lack of treatment options for the mother herself remains a serious obstacle to prevention of MTCT.

Indicator

Antenatal Clinics Offering and Referring for VCT

Definition
The percent of public antenatal clinics offering counseling and voluntary testing for HIV by trained staff or referring to VCT services

Evaluators randomly select public antenatal clinics in a health facility survey. Evaluators conduct staff interviews and record reviews 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 post-test counseling or refers clients to qualified outside services. The annual client volume of the clinic is also recorded.

This indicator is calculated as:

$$\frac{\text{\# of antenatal clinics offering voluntary testing for HIV and post-test counseling by trained staff}}{\text{Total \# of antenatal clinics}} \times 100$$

Evaluators may then weight the result by client volume.

Data Requirement(s)
Total number of antenatal clinics and number of antenatal clinics offering and referring for VCT

Data Source(s)
UNAIDS guide to the monitoring and evaluation of prevention programs for mother to child HIV transmission; UNAIDS tool for evaluating HIV voluntary counseling and testing

Purpose and Issues
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. Thus, evaluators should calculate this indicator based on service provision in public sector clinics. However, countries that are making an effort to increase training in counseling for staff at antenatal clinics in the private sector or among traditional birth attendants may want to include such groups in this indicator as well.

Ideally, this measure would include all public antenatal services in a country. Since the number of such services is often too large to be practical, sampling is adopted.

This indicator is most useful in countries actively expanding coverage of maternal to child prevention services. A steady rise in the indicator is likely to reflect a steady expansion of service provision. However, if sampling is necessary, the indicator may be slow to reflect progress.

Indicator

Percent of Population Who Had Higher Risk Sex in the Last Year

Definition
The proportion of respondents who have had sex with a non-marital, non-cohabiting partner in the last 12 months of all respondents reporting sexual activity in the last 12 months

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 those respondents who say that in the last 12 months, they have had sex with someone who is not their spouse or the person they live with. The denominator for this indicator is all respondents who report having any sex in the last 12 months.

The numerator should exclude polygynous men who live with several wives unless they also have sex with women who are not part of their household.

This indicator is calculated as:

$$\frac{\text{\# of respondents who report having sex with a non-marital, non-cohabiting partner in the last 12 months}}{\text{Total \# of respondents who report having sex in the last 12 months}} \times 100$$

Data Requirement(s)
Self-reported data from survey respondents

Data Source(s)
UNAIDS general population survey; DHS AIDS Module; FHI BSS (adult)

Purpose and Issues
The spread of HIV depends upon unprotected sex with people who also have other partners. Most monogamous relationships are cohabiting, although the reverse is not necessarily true. Partners who do not live together – who have sex only occasionally – 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 remain outside a wider sexual network. AIDS prevention programs try to discourage high numbers of partnerships and to encourage mutual monogamy. This indicator estimates the proportion of the population that engages in relatively high-risk partnerships and that is therefore more likely to be exposed to sexual networks within which HIV can circulate.

This indicator gives a picture of levels of non-monogamous sex. If people stop having sex with all of their extramarital partners, the change will be captured by changes in this indicator. However, if people simply decrease from seven extra-marital partners to one, for example, the indicator will not reflect a change, even though this reduction may have a significant impact on the epidemic spread of HIV and may count as a program success.

This indicator proposes a different definition for higher risk sex than that commonly used in the past. Obviously, a change in definition will upset trend data for countries that have collected data using a different definition from the one currently proposed. However, this difficulty is surmountable. The proposed data collection instrument allows for both the old and new versions of the indicator to be calculated simultaneously. In practice, in existing data, which allow for the comparison between the two indicators, the difference has been small. The change is proposed largely because countries report dissatisfaction with previous indicators, arising mostly from respondents' difficulties in understanding the definitions of regular and non-regular partnerships.

Indicator

Percent Using Condoms at Last Higher Risk Sex

Definition
The percent of respondents who say they used a condom the last time they had sex with a non-marital, non-cohabiting partner, of those who have had sex with such a partner in the last 12 months

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 allow for the classification of partnerships as cohabiting or non-cohabiting. All those who report at least one non-marital, non-cohabiting partner in the last 12 months (i.e., the numerator of the previous indicator: **Percent of Population Who Had Higher Risk Sex in the Last Year**) form the denominator. The numerator is the number of those in the denominator who used a condom the last time they had sex with their *most recent* non-cohabiting partner.

This indicator is calculated as:

$$\frac{\text{\# of respondents who report using a condom the last time they had sex with a non-marital, non-cohabiting partner}}{\text{Total \# of respondents who report having sex in the last 12 months with a non-marital, non-cohabiting partner}} \times 100$$

Data Requirement(s)
Self-reported data from survey respondents

Data Source(s)
UNAIDS general population survey; DHS AIDS Module; FHI BSS (adult)

Purpose and Issues
If everyone used condoms every time they had sex with a non-marital or non-cohabiting partner, a heterosexually transmitted HIV epidemic would be almost impossible to sustain. Although AIDS programs try to reduce casual partnerships, they must also, if they are to successfully curb the epidemic, promote condom use in the casual partnerships that remain. This indicator tracks changes in condom use in these partnerships.

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

Because condom promotion campaigns aim for consistent use of condoms with non-regular partners rather than simply occasional use, some surveys have tried to ask directly about consistent use, often using an always/sometimes/never question. Although this question may be useful in sub-population surveys (see below), it is subject to recall bias and other biases and is not sufficiently robust for use in a general population survey. Asking about the most recent act of non-cohabiting sex minimizes recall bias and gives a good cross-sectional picture of levels of condom use. However, since higher levels of condom use with non-regular partners will reflect increases in overall consistency of use, this indicator supports the objective of consistent condom use.

Gender Implications of this Indicator

Although women may know the protective effect of condoms, sexual negotiation between partners depends on the balance of power between partners, which in most places, weighs more heavily in the man's favor. This has several ramifications. Many women may lack the negotiation skills to ask their partner to use a condom or they may be reluctant to approach the subject because of the association between condoms, illicit sex, and STIs. Some women may be apprehensive about demanding or negotiating condom use (or withholding sex if partners refuse to use condoms) for fear of partner violence, fear of being perceived as unfaithful or promiscuous, or fear of abandonment (which some women may perceive as having more serious consequences than engaging in unprotected sex) [UNAIDS 1998].

Gender Issues (continued)
Many women may not be having "higher risk sex" (defined as having sex with a non-marital, non-cohabitating partner), but they may be exposed to HIV infection within a monogamous relationship or a marriage, especially where condom use is rare between marital or regular partners. Cultural norms are lenient with regards to men's multiple sex partners – thus diminishing the protective effect that a monogamous relationship has for women who are unable to control or are unaware of their partner's extra-marital relationships (UNAIDS, 1999a).

Indicator

Percent of Men Having Commercial Sex in Last Year

Definition
The percent of men reporting sex with a sex worker in the last 12 months

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, among others), men are asked directly if they had sex with a sex worker in the previous 12 months.

Although a given country may have several different types of definable sex workers, each with different perceived levels of risk, evaluators can combine all these groups into an indicator of commercial sex use for monitoring and evaluation purposes.

This indicator is calculated as:

$$\frac{\text{\# of men who report having sex with a sex worker in the past 12 months}}{\text{Total \# of male respondents}} \times 100$$

In some countries, evaluators have collected this indicator in the past using only sexually active men (rather than all male respondents) as the denominator. To maintain valid trend data, we recommend calculating this indicator both ways (using only sexually active men and using all men in the denominator) over a period of several years.

Data Requirement(s)
Self-reported data from survey respondents

Data Source(s)
UNAIDS general population survey; DHS AIDS Module; FHI BSS (adult)

Purpose and Issues
In concentrated epidemics, sexual mixing between groups with a high likelihood of infection and the general population is of central interest. In heterosexual concentrated epidemics, the initial focal point of infection is among sex workers and their clients. Those clients then spread infection to their wives and girlfriends in the general population, 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.

This indicator is useful in concentrated heterosexual epidemics in countries where commercial sex (and especially brothel-based sex) is common, and where a "prostitute" has a clearly defined role. Thus the indicator is most likely to be used in parts of the world where commercial sex has played a dominant role in the epidemiology of HIV (e.g., many countries in Asia).

Attempts to collect and analyze data using a wider definition of commercial sex (questions such as "Have you given or received money or gifts in exchange for sex?") have not yielded useful information. In epidemic terms, 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. In many cultures, the high number of partners is true of only a fraction of the people who have "received money or gifts in exchange for sex." If no locally specific term for prostitution exists, the chances are that this indicator is not relevant to the program and should not be used.

The indicator is also of limited use in very high prevalence epidemics, because differences in risk associated with sex with a sex worker compared with any other casual partner may be unsubstantial.

One may construct a similar indicator for clients of male sex workers in special surveys of men who have sex with men.

Indicator

Percent of Young People Having Multiple Partners in Last Year

Definition
The percent of young people (15-24) who have had sex with more than one partner in the last 12 months, of all young people surveyed

In a survey among people aged 15-24, respondents are asked about their sexual partnerships in the last year. Those who report more than one partner in the last 12 months constitute the numerator. The denominator is all respondents.

Evaluators should report this result separately for men and women. It may also be constructed separately for those aged 15-19, <15 and 20-24, as appropriate.

This indicator is calculated as:

$$\frac{\text{\# of youth (aged 15-24) who report having sex with more than one partner in the last 12 months}}{\text{Total \# of youth}} \times 100$$

Data Requirement(s)
Self-reported data from survey respondents

Data Source(s)
UNAIDS general population survey; DHS AIDS module; FHI BSS (youth)

Purpose and Issues
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 exposed to more than one partner in the last year, that is, the proportion for whom the "one, mutually faithful partner" message has failed.

This indicator does not distinguish between marital and non-marital partners. It tracks all multiple partnerships, regardless of their relative levels of risk. In the very similar adult sexual behavior indicator (**Percent of Population Who Had Higher Risk Sex in the Last Year**), a distinction is made between marital and cohabiting partners, and all other partner types. This distinction is partly to cope with the measurement challenge posed by men in polygynous societies, who may have multiple partners within marriage. However, because polygyny among men under 25 is extremely rare, the distinction is unnecessary in an indicator for young people.

The indicator also suffers from the expected respondent and social desirability bias. Young people saturated with prevention messages will be highly motivated to underreport partners. Likewise, social pressure for women to give untruthful answers may be strong.

Indicator

Percent of Young People Using a Condom at Last Higher Risk Sex

Definition
The percent of young people (aged 15-24) who have had sex in the last 12 months and used a condom at last sex with a non-marital, non-cohabiting partner, of all young people surveyed

In a general population or targeted youth survey, the interviewer asks all respondents about their sexual partnerships in the last year. For each partner a young person reports, cohabitation status is established. Where a general population survey is undertaken for people aged 15-49, the evaluator can simply stratify the data by age groups to calculate this indicator. The denominator is all young people aged 15-24. The numerator is the percent of those persons using a condom at last sex with a non-marital, non-cohabiting partner in the last 12 months.

This indicator is calculated as:

$$\frac{\text{\# of youth who report using a condom at last sex with a non-marital, non-cohabiting partner}}{\text{Total \# of youth}} \times 100$$

Data Requirement(s)
Self-reported data from survey respondents

Data Source(s)
UNAIDS general population survey; DHS AIDS module; FHI BSS (youth)

Purpose and Issues
The indicator includes the non-marital partners of young people who are currently married, as well as all reported partners of those who are still single or not in a stable enough relationship to be cohabiting with their partner.

The indicator differs from **Percent Using Condoms at Last Higher Risk Sex** in that it includes in the denominator all respondents, rather than just those who report risky sexual activity in the last year.

The evaluator should report the indicator across the 15-24 age range and separately by sex. It may also be reported separately for those aged 15-19, 20-24, and under 15 years, where relevant.

In terms of advocacy, this indicator of young people's sexual behavior can have powerful effects. Where the indicator shows low levels of condom use with higher risk sex among youth, programs will need to focus efforts around abstinence after initiation of sexual activity, but primarily on condom use. But major constraints may exist in programs that wish to avoid addressing youth sexual activity.

Like the previous indicator, **Percent of Young People Having Multiple Partners in Last Year**, this indicator will capture all unmarried people having sex, the proportion of which will generally be fairly high, especially among men. In addition, it will capture married young people having sex outside of marriage.

The indicator suffers from the same reporting bias problems inherent in surveys asking about sexual behavior; depending upon the degree of programs 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.

Indicator

Percent of Injecting Drug Users Never Sharing Equipment in the Last Month

Definition
The percent of active injecting drug users surveyed who report never sharing injecting equipment during the last month

In a behavioral survey among injecting drug users, respondents are asked about their injecting habits. The indicator excludes those who report sharing needles, syringes, or other injecting equipment at any time in the last month. The denominator is all respondents reporting injecting behavior in the last month.

Questionnaires should specify all the locally relevant types of "equipment" that may result in the exchange of body fluids.

This indicator is calculated as:

$$\frac{\text{\# of active injecting drug users who report never sharing injecting equipment during the last month}}{\text{Total \# of respondents who report injecting behavior in the last month}} \times 100$$

Data Requirement(s)
Self-reported data from survey respondents

Data Source(s)
FHI BSS (injecting drug users)

Purpose and Issues
Sharing injecting equipment between HIV-infected and uninfected drug injectors is an extraordinarily effective way of spreading HIV. Because the risk of contracting infection per single act of risky injection is so high, programs must aim for a complete halt to this behavior, not just for a reduction in the sharing of equipment between drug users.

This indicator measures trends in consistently safe behavior among drug users who continue to inject drugs.

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 often unpredictable ways. It is therefore difficult to determine the extent to which those surveyed represent the larger population of injecting drug users. Where the representativeness of the sample is variable, trends over time will be hard to interpret.

These surveys yield information from people identified as members of a community of drug injectors. In response to HIV-related interventions, some injectors may possibly stop taking drugs entirely or switch to non-injected drugs. Since the indicator tracks changes in risky injecting practices over time among people who continue to inject drugs, the denominator excludes people who cease to inject.

Some education programs have focused on sterilizing needles between users. Users may continue to inject drugs and even share needles, but may sterilize between uses. However, knowing the success of individual efforts to sterilize equipment is difficult. Experience in some settings has demonstrated that inadequate cleaning of equipment is common, and many programs have ceased to promote equipment cleaning as a prevention method, preferring to concentrate efforts on ending to the sharing of injecting equipment. This indicator includes in its numerator of those with risky behavior all injecting drug users who sterilize, but still share, their equipment.

Because it restricts those included in the indicator to those who have injected in the last month, this indicator is very sensitive to recent trends in injecting practices. Countries with inconsistent policies supporting safe drug injection may see large variations in this indicator. Police crackdowns on users, distributors, or support services such as needle exchange centers may lead to dramatic changes in injecting practices over a very short period of time.

In addition, the indicator is subject to high recall bias. Depending on the local drug scene, drug users may be injecting several times each day. Recalling the circumstances of every act of injection over the past 30 days may be problematic.

Indicator

Percent of Transfused Blood Units Screened

Definition
The percent of blood units transfused in the last 12 months that have been adequately screened for HIV according to national or WHO guidelines

The indicator requires three pieces of information: the number of blood units transfused in the previous 12 months, the number of blood units screened for HIV in the previous 12 months, and among the units screened, the number screened up to WHO or national standards.

The number of units transfused and the number screened for HIV should be available from health information systems. Quality of screening may be determined from a special study that re-tests a sample of blood previously screened or from an assessment of the conditions under which screening occurred. Where this approach is not feasible, data on the percent of facilities with good screening and transfusion records and no stock outs of test kits may be used to estimate adequately screened blood for this indicator.

This indicator is calculated as:

$$\frac{\text{\# of blood units transfused in the last 12 months that have been adequately screened for HIV}}{\text{Total \# of blood units transfused}} \times 100$$

Data Requirement(s)
Program records

Data Source(s)
MEASURE *Evaluation* blood safety protocol

Purpose and Issues
Blood safety programs aim to ensure that the overwhelming majority (ideally 100 percent) of blood units are screened for HIV, and that those 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; others are screened by poorly trained personnel using outdated equipment or insufficient inputs. Moreover, 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 reflects the overall percentage of blood units screened to high enough standards that they can confidently be declared free of HIV.

Where sufficient information exists to construct it, this 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. The indicator may also reflect a successful campaign to reduce unnecessary transfusions, because the overall number of transfused units would fall and the proportion of those screened to WHO/national standards should rise in consequence. However, the different elements of the indicator should be reported separately for programmatic purposes.

Where health systems are decentralized, or where the private sector is involved in blood screening and blood banking, one may have difficulty obtaining good enough information to construct a robust indicator on a national scale. In this case, selecting sentinel hospitals and laboratories in both the public and the private sector for facility-based surveys of blood transfusion and screening quality will probably be necessary.

Indicator

Percent of STI Patients Appropriately Diagnosed and Treated

Definition
The percent of patients with STIs at selected health care facilities who are appropriately diagnosed and treated according to national guidelines, of all STI patients at those centers

Evaluators collect data through observing and interviewing providers at selected health care facilities offering STI care. 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.

Protocol researchers have tried several alternative data collection methodologies. Instead of, or in some cases in addition to, observation and provider interviews, data have also been collected through 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 guidelines will most commonly include protocols for the syndromic management of locally common sexually transmitted pathogens, including treatment with drugs specified in national drug lists. Some countries recognize both syndromic and etiological management as appropriate, according to the diagnostic capacity of the service provider. Where national guidelines are unavailable, WHO guidelines on the syndromic management of STIs may be used to guide assessment of appropriate treatment.

This indicator is calculated as:

$$\frac{\text{\# of patients with STIs who are appropriately diagnosed and treated}}{\text{Total \# of patients with STIs}} \times 100$$

Data Requirement(s)
Assessment of an external expert

Data Sources
WHO/UNAIDS revised guidelines on evaluating STI services; MEASURE Service Provision Assessment (SPA)

Purpose and Issues
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 such management poses fewer bottlenecks in diagnosis. Training nurses and other health care providers new to the approach and often to STI care in general has required a huge investment.

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.

Choosing which STI service delivery points to survey is important. Traditionally, this indicator has applied primarily to public sector STI clinics, because most of the early training in syndromic management was of public sector employees. However, people with STIs often seek treatment in other sectors – either at private sector clinics, from pharmacies or from traditional healers. Some countries have begun to include these sectors in training programs for syndromic management, and 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 has received training in syndromic management of STIs.

This indicator, measured through observation but including provider interviews in the process of data collection for validation purposes, has been widely used and proven 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 over-report "correct" diagnosis and treatment, falsely diminishing the gap between knowledge and practice. However, client exit interviews and mystery patient methodologies, as well as proving feasible, have demonstrated that the biases are smaller than was assumed. The gap between knowledge and practice in the area of treatment often shaped results because service providers do not follow "correct" protocols simply because they know drugs are unavailable or unaffordable. We thus recommend that evaluators present this indicator with indicators of drug availability.

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 so that they may identify areas of weakness and may improve program performance.

Indicator

Percent of STI Patients Receiving Advice on Condom Use and Partner Notification and Referral to HIV Testing Services

Definition
The percent of patients with STIs who are given advice on condom use and partner notification and referred for HIV testing

Previous indicators only included the first two elements of this indicator. 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. The current indicator includes a third element: referral for voluntary testing for HIV. However, if national policy does not include referring STI patients for HIV counseling and testing, or if VCT services are unavailable and not actively promoted by national AIDS and STI programs, the indicator should exclude referral for counseling and voluntary HIV testing. Health facility surveys through direct observation of interaction between care providers and clients yield data for this indicator.

This indicator is calculated as:

$$\frac{\text{\# of patients with STIs given advice on condom use and partner notification and referred for HIV testing}}{\text{Total \# of patients with STIs}} \times 100$$

The evaluator should report different components of this indicator separately, for reasons given below.

Data Requirement(s)
Assessment by an external expert

Data Sources
WHO/UNAIDS revised guidelines on evaluating STI services; MEASURE Service Provision Assessment (SPA)

Purpose and Issues
By promoting condom use and by encouraging the treatment of partners to avoid reinfection, STI services seek to prevent the recurrence of STIs, not just to treat them. Increasingly, STI care serves 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.

If a client is at an STI clinic, previous efforts to promote safe behavior have failed him or her. This measure does not evaluate the success of prevention initiatives, merely the extent to which service providers are complying with standards.

The extent to which the direct observation methodology biases data has caused concern because researchers assume that service providers perform better under observation than they normally would. Also, it is suggested that exit interviews with clients may be a more cost-effective method than observed interactions in compiling this indicator. However, 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 a different indicator has been calculated in the past. For these reasons, the evaluator must take special care to report separately the three elements of this indicator.

Indicator

Percent of Health Facilities Providing STI Services with Adequate Drug Supply

Definition
This indicator measures the percent of health facilities providing STI care that have a current supply of essential STI drugs and report no stockouts lasting longer than one week in the preceding 12 months

Countries promoting syndromic management of STIs usually have protocols for the prescriptions of drugs by syndrome as well as a national essential drug list that includes the relevant drugs. Drugs necessary to treat each of the important syndromes should appear in the stock-check for this indicator. A survey of randomly selected facilities providing STI services checks for current supplies of designated drugs. Clinic management is questioned about stockouts in the last 12 months, and clinic stock records are reviewed for that period. Client numbers are also recorded. The sampling frame for the selection of sites may include private clinics and hospitals and non-government services, as well as public facilities.

Evaluators may construct the indicator weighting each facility by its client load because a rupture of stock at a small rural clinic will have less impact on the epidemic at a national level than a stockout in a large urban clinic that sees many times more patients.

This indicator is calculated as:

$$\frac{\text{\# of health facilities providing STI services that have a current supply of essential STI drugs and report no stockouts}}{\text{Total \# of health facilities providing STI services}} \times 100$$

Depending on national policy, the indicator may include a variety of outlets providing services for HIV care, such as integrated reproductive health services, private sector facilities, and pharmacies with special training in STI care provision.

Data Requirement(s)
Assessment by an external evaluator

Data Sources
WHO/UNAIDS revised guidelines on evaluating STI services; MEASURE Service Provision Assessment (SPA)

Purpose and Issues
Correct history-taking, diagnosis, and prescription are all very well, but if drugs are unavailable, these procedures will not translate into cases cured and will therefore not reduce 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 manufacturing or importing of drugs for the syndromic management of STIs. This indicator measures the effectiveness of those efforts in ensuring that service providers are consistently supplied with the drugs they need to work efficiently.

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

Again, the selection of STI facilities may have a major influence on the indicator. The facility survey should attempt to include a mix of all major provider categories in both the public and the private sectors.

Indicator

Number/Percent of Health Facilities with the Capacity to Deliver Appropriate Care to HIV-Infected Patients

Definition
The number and percent 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 referral for HIV-infected patients, according to national guidelines

A health facility survey that includes facility inspection, interviews with service providers, and records reviews assesses health facilities against a standard checklist. The checklist, which will be modified according to local standards, will differ according to the level of the institution within the health care system. It will typically include the availability of trained staff, the adequacy of diagnostic facilities, the adequacy of sanitation, the adequacy of nursing care, procedures for record keeping, preventative counseling, and referral to higher level care and community support organizations as appropriate.

The assessment of "adequate" or "appropriate" conditions and services should follow national guidelines for care of HIV-infected patients. The absence of such guidelines in itself indicates that care and support services for HIV-infected people are likely to be inadequate. However, where they do not exist, one may substitute international standards currently being developed by WHO to determine standards against which to measure facilities.

This indicator excludes the availability of drugs and procedures to prevent accidental transmission of HIV within the health care setting because separate indicators cover this availability.

The indicator is the number of health facilities matching or exceeding the minimum score for adequate capacity to manage HIV-infected patients, divided by the total number of health facilities surveyed. For program purposes, it should be disaggregated by level of health facility as well as by area of service provision.

This indicator is calculated as:

$$\frac{\text{\# of health care facilities with the capacity to deliver appropriate palliative care, treatment for opportunistic infections, and referral for HIV-infected patients}}{\text{Total \# of health care facilities}} \times 100$$

Data Requirement(s)
Assessment by external evaluator of adequacy of care to HIV infected patients

Data Sources
WHO draft protocol for the evaluation of HIV/AIDS care and support; UNAIDS protocol for evaluation of care and support

Purpose and Issues
In the early years of the HIV epidemic, a high proportion of patients with HIV-associated conditions were automatically referred to tertiary level institutions because health services at other levels had neither the trained personnel nor the capacity to cope with them appropriately. Even guidelines on what constituted "appropriate" treatment were rarely available. The constant referral to higher levels of care clearly led to inefficient use of resources within the health system.

In recent years, attempts have been made to ensure that HIV-related conditions are dealt with at appropriate 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 where appropriate.

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 system, according to national guidelines.

This indicator is a compendium of many different aspects of care and service provision, all of which must score a minimum amount if the indicator is to include the facility in its numerator. 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 areas in which services have improved and those in which they continue to lag.

The scoring of the components of the indicator will necessarily include a measure of subjectivity. This subjectivity may influence comparisons between different countries, as well as trends over time if the monitoring team changes.

Because it includes facilities at different levels of service provision, the indicator is not weighted by client load. 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.

Indicator

HIV Prevalence among Pregnant Women 15-24 Years Old

Definition
The percent of blood samples taken from women aged 15-24 who test positive for HIV during routine sentinel surveillance at selected antenatal clinics

The data for this indicator are obtained from the national sentinel surveillance system for HIV, and the indicator 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 socio-geographic divisions in a country.

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.

This indicator is calculated as:

$$\frac{\text{\# of pregnant women aged 15-24 who test positive for HIV}}{\text{Total \# of women aged 15-24 tested}} \times 100$$

Data Requirement(s)
Results of test for HIV sero-positivity

Data Sources
UNAIDS/WHO Second Generation Surveillance; WHO guidelines for HIV surveillance

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

Confining the indicator to women aged under 25 aims to give 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, we strongly recommend that the evaluator report two separate figures: 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 15- to 49-year-olds, to allow for the comparison of trends over time.

Additional information may be gained by looking at HIV prevalence by parity of mother. Such information is often routinely collected in sentinel surveillance, and analysis of trends among women of parity 0 and 1 combined is a good additional indicator of trends in HIV incidence among young women.

The indicator gives a fairly good idea of relatively recent trends in HIV infection nation-wide 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 sub-populations with especially high-risk behaviors. Even countries with generalized heterosexual epidemics have wide regional, ethnic, or other differences in trends in HIV infection. These differences will be lost when data are aggregated into a single national figure. For program purposes, prevalence should thus always be reported separately by site as well as by a single national figure. Evaluators should take care in reporting HIV prevalence estimates by sites, however, given the possible political sensitivity of results.

In the past, sample sizes in regular sentinel surveillance have been selected 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. 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 in all populations and not simply the antenatal care clients. Trends in HIV infection are beset by a number of biases, as described above. Prevalence among pregnant women reflects trends in prevalence in the general population, but does not an accurately reflect overall levels in all women, let alone in all men.

Evaluators should thus report prevalence data together with behavioral data (such as mean age at first sex or condom use at last sex) for better explanatory power.

Indicator

HIV Prevalence in Sub-Populations with High-Risk Behavior

Definition
The HIV prevalence among members of a defined sub-population at higher risk of contracting or spreading HIV.

Tracking HIV in sub-populations can be logistically and ethically difficult, especially if the groups are marginalized or their activities are illegal. Sampling and estimation of total population sizes are key issues. An understanding of how the sampled population relates to any larger population sharing similar risk behaviors is critical to the interpretation of the indicator. For some groups, population-based sampling strategies will be necessary. In other cases, sentinel sites are available. Sentinel sites for these populations tend to be linked to the provision of health services, for example, a men's health clinic in an area with a high concentration of gay sex bars, or a drug rehabilitation center.

The indicator is the number of members of the at-risk sub-population testing positive for HIV at sub-population sentinel sites, divided by the total number of members of the at-risk sub-population tested for HIV.

This indicator is calculated as:

$$\frac{\text{\# of members of at-risk sub-populations testing positive for HIV}}{\text{Total \# of members of at-risk sub-population tested}} \times 100$$

Data Requirement(s)
Results of test for HIV sero-positivity

Data Sources
UNAIDS/WHO Second Generation Surveillance guidelines; FHI guidelines on sampling in sub-populations

Purpose and Issues
In countries with concentrated epidemics, tracking of HIV infection among pregnant women may be a waste of resources. In any case, the bulk of interventions in concentrated epidemics often focus on the behaviors or groups contributing most to the expansion of the epidemic. In a concentrated epidemic, these generally include one or more of the following: injecting drug users, men who have sex with other men, 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-grade or concentrated epidemics, surveillance for the HIV virus as well as behavioral surveillance should focus on those groups where both infection and interventions are concentrated. Changes in HIV prevalence in these groups should reflect the success or failure of prevention attempts.

Because of the difficulties in access to sub-populations, the biases in sub-population sero-surveillance 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 sub-population in question, for example, the use of the facility may be associated with problems that are themselves related to HIV infection.

Minimizing biases associated with age is especially difficult, because the age of participation in especially high-risk behaviors may vary widely. It is therefore, undesirable simply to restrict the analysis to young people as it is in ANC sentinel sites.

Despite these difficulties, tracking HIV infection in those with higher risk behaviors in concentrated epidemics is essential. The information will not be perfect, but some measure of progress or lack thereof will be essential to maintain support for prevention programs in critical sub-populations.

Indicator

Percent of Children under 15 Who Are Orphans

Definition
The percent of children under 15 whose mother, father, or both parents have died.

In a household survey or a national census, 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 the age of 15 and whose mother or father or both are dead form the numerator for this indicator. The denominator is all children currently under 15 listed by respondents in the survey.

Breaking the results down into maternal orphanhood, paternal orphanhood, and double orphanhood is useful.

This indicator is calculated as:

$$\frac{\text{\# of children under 15 whose mother, father, or both parents have died}}{\text{Total \# of children under 15 listed by respondents}} \times 100$$

Data Requirement(s)
Responses on household surveys

Data Sources
Household schedule in UNAIDS general population survey; DHS household schedule; Census data

Purpose and Issues
HIV is changing the face of adult mortality in many communities, killing men and women at just the ages when they normally form families and bring up children. Their deaths leave behind orphans who must be cared for, generally by other members of the community. The social and economic impact of rising orphanhood can be considerable; national AIDS programs tracking orphanhood will be better equipped to plan for impact mitigation efforts. This indicator tracks levels of orphanhood in a country.

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

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

Orphans may be more mobile than other children. Those most in need of care may be in child-headed households that do not qualify for inclusion in a household survey. Street children living in orphanages will also be missed. Households with AIDS-related deaths often completely disintegrate following the death of heads, and children are sent to live with relatives in the same or another area. Using a household survey and asking about whether the parents are still alive will help alleviate the primary household disintegration issue.

Definitions of orphanhood differ among countries. For example, in some countries, the legal definition includes all children under 18 who have lost either or both parents, whereas in others it includes all children under 15 who have lost their mother. We suggest that the standard definition given in this indicator allow for comparison across populations. However, countries may also wish to compile an indicator based on their own national definition of orphanhood. The methodology for constructing the indicator remains unchanged.