07

APRIL

A Framework for Monitoring and Evaluating HIV Prevention Programmes for Most-At-Risk Populations

UNAIDS JOINT UNITED NATIONS PROGRAMME ON HIV/AIDS UNHCR UNICEF WFP UNDP UNFPA UNODC ILO UNESCO WHO WORLD BANK

unicef

World Health Organization

USAID FROM THE AMERICAN PEOPLE

CDC

UNAIDS/07.15E / JC1338E (English original, April 2007)

© Joint United Nations Programme on HIV/AIDS (UNAIDS) 2007.

All rights reserved. Publications produced by UNAIDS can be obtained from the UNAIDS Information Centre. Requests for permission to reproduce or translate UNAIDS publications – whether for sale or for noncom-mercial distribution – should also be addressed to the Information Centre at the address below, or by fax, at +41 22 791 48 35, or e-mail: publicationpermissions@unaids.org.

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of UNAIDS concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

The mention of specific companies or of certain manufacturers' products does not imply that they are endorsed or recommended by UNAIDS in preference to others of a similar nature that are not mentioned. Errors and omissions excepted, the names of proprietary products are distinguished by initial capital letters.

UNAIDS does not warrant that the information contained in this publication is complete and correct and shall not be liable for any damages incurred as a result of its use.

WHO Library Cataloguing-in-Publication Data

"UNAIDS/07.15E / JC1338E".

A framework for monitoring and evaluating HIV prevention programmes for most-at-risk populations.

1.HIV infections - prevention and control. 2.Acquired immunodeficiency syndrome – prevention and control. 3.Programme evaluation. I.UNAIDS.

ISBN 978 92 9173 577 8 (NLM classification: WC 503.6)

UNAIDS – 20 avenue Appia – 1211 Geneva 27 – Switzerland
Telephone: (+41) 22 791 36 66 – Fax: (+41) 22 791 48 35
E-mail: distribution@unaids.org – Internet: http://www.unaids.org

MEASURE Evaluation

fhi Family Health International

Table of Contents

Preface i

Acknowledgements ii

List of Acronyms iii

Glossary of Terms iv

Chapter 1 Introduction 1

Chapter 2 Background 11

Chapter 3 Establishing the size and nature of the problem 18

Chapter 4 Determining the contributing factors 26

Chapter 5 Process monitoring and evaluation – determining programme implementation quality 33

Chapter 6 Monitoring programme uptake and coverage 40

Chapter 7 Assessing intervention effectiveness – outcome evaluation 48

Chapter 8 Monitoring programme outcome and impact indicators – the role of surveys and surveillance 58

Chapter 9 Determining collective effectiveness – the use of triangulation and integrated analysis 68

Appendix UNGASS indicators 77

Preface

The organizing framework described in this document is the result of over two years of development work and reflects the input of many individuals, national and international organizations concerned with the planning, the monitoring and the evaluation of prevention programmes for those individuals and populations most-at-risk of acquiring HIV. It is intended for national and subnational programme managers and others involved in (1) planning and implementing programmes; (2) monitoring and evaluation; and (3) using data and information for policy development and programme improvement.

It is not intended to serve as another guide for monitoring indicators. For informational purposes however, the 2007 UNGASS indicators intended for most-at-risk populations are included in the Appendix. Since this is a relatively new area of work, it was felt that the necessary first step was to lay out key guiding principles, concepts, and an organizing framework that could catalyze the work and serve as an initial step in strengthening the conceptual foundation and organizing the array of disconnected methods, references and materials in this area into one document. This framework will be field tested and further practical and operational guidance developed. Therefore, this document is also not intended to serve as an operational manual. Such an operational manual, to be developed in the future, will need to take into consideration and be tailored to regional, setting, contextual, and specific population issues, to name a few.

This organizing framework is being distributed as an initial framework and will be used in various field settings and tested for feasibility and applicability over the next few years. Experience in using this document and the lessons learnt will be collated and form the basis of future guidance development. In this regard, all comments and feedback are welcome and should be sent to the UNAIDS Evaluation Department.

Acknowledgements

This document is the result of a collaborative effort of a large number of agencies and individuals working to improve the situation for populations most affected by HIV. The organizations that collaborated on the development of this framework include USAID, CDC, WHO, UNAIDS, UNICEF, the World Bank, and Family Heath International. This effort was coordinated by MEASURE Evaluation.

The idea for the document was promoted early on by David Wilson and it became a reality with the support and enthusiasm of Cameron Wolf. Members of the technical working group for monitoring and evaluation (M&E) of most at-risk populations who have worked to develop this framework include Ruth Bessinger, Paul DeLay, Hilary Homans, Mary Mahy, Greet Peersman, Cyril Pervhilac, Dimitri Prybylski, Deborah Rugg, Patchara Rumakom, Keith Sabin, and Cameron Wolf.

Individuals who made significant contributions to writing include Mike Merrigan who drafted the chapter on process monitoring; Keith Sabin who contributed to the chapters on size estimation, assessing the contributing factors, and monitoring outcomes and impact; Greet Peersman, Deborah Rugg, Roger Myrick, and Sara Melillo who wrote the chapter on assessing intervention effectiveness; and Dimitri Prybylski who wrote the chapter on triangulation. The background and introduction, and indicator sections benefited from Hilary Homans and Mary Mahy who provided input on at-risk adolescents and young people, Clif Cortez who helped define most at-risk populations, Matt Friedman and Patchara Rumakom who provided the information on the minimum package concept, Deborah Rugg who provided the M&E staircase, and Sharon Weir who provided examples on Priorities for Local AIDS Control Efforts (PLACE). The guide was prepared by Ruth Bessinger.

An initial draft of this document was discussed by members of the technical working group at a meeting in Geneva in August 2005. A revised draft was circulated widely for comments. In addition to members of the technical working group listed above, individuals who provided input at the Geneva meeting, or who provided input and feedback on subsequent drafts include Eddy Beck, Tim Brown, Karl Dehne, Catherine Hankins, Lori Hieber-Girardet, Jose Izazola, Rob Lyerla, Serigne Ndiaye, Kevin O'Reilly, Jessica Rose, Andy Seale, Jackie Tate and Kate Thomson. A near final version was released as a working document by UNAIDS in July 2006.

The July 2006 working document was then circulated to the field and benefited from the input of reviewers from Eastern Europe, Latin America and the Caribbean, Sub-Saharan Africa, and Asia. Individuals who contributed to this final version include: Abu Abdul-Quader, Alimou Barry, Alexei Bobrik, Michel Carael, Mohammed Dahoma, Theresa Diaz, Sergiy Dvoryak, Ksenia Eroshina, Laurel Fain, Peter Figueroa, Samuel Grigoryan, Gabriela de la Iglesia, Elizabeth Lloyd, Salil Panakadan, Caroline Ryan, Zoya Shabarova, and Joachim Theis.

List of Acronyms

AIDS	acquired immunodeficiency syndrome
ART	antiretroviral therapy
BSS	behavioural surveillance system
CDC	United States Centers for Disease Control and Prevention
CT	counselling and testing for HIV
FHI	Family Health International
FSW	female sex worker
GFATM	The Global Fund to Fight AIDS, Tuberculosis and Malaria
HIV	human immunodeficiency virus
IDU	injecting drug user
IBBS	integrated biological and behavioural survey
MARP	most-at-risk population
M&E	monitoring and evaluation
MIS	management information system
MSM	men who have sex with men
MSW	male sex workers
NGO	nongovernmental organization
OI	opportunistic infections
PLACE	Priorities for Local AIDS Control Efforts
PLHIV	people living with HIV
RDS	respondent-driven sampling
STI	sexually transmitted infection
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNGASS	United Nations General Assembly Special Session
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
VCT	voluntary counselling and testing
WHO	World Health Organization

Glossary of Terms

Evaluation is a rigorous, scientifically-based collection of information about programme activities, characteristics, and outcomes that determine the merit or worth of a specific programme. Evaluation studies are used to improve programmes and inform decisions about future resource allocations.

Impact evaluation looks at the rise and fall of disease incidence and prevalence as a function of AIDS programmes. The effects (impact) on entire populations can seldom be attributed to a single programme or even several programmes, therefore, evaluations of impact on populations usually entail a rigorous evaluation design that includes the combined effects of a number of programmes for at-risk populations.

Intervention is a specific set of activities implemented by a project or providers and can be focused at various levels such as the individual, small or large group, community or societal levels.

Monitoring is the routine tracking of key elements of a programme or project and its intended outcomes. It usually includes information from record keeping and surveys – both population and client-based.

Outcome evaluation is a type of evaluation that is concerned with determining if, and by how much, programme activities or services achieved their intended outcomes. Whereas outcome monitoring is helpful and necessary in knowing whether outcomes were attained, outcome evaluation attempts to attribute observed change to the intervention tested, describe the extent or scope of programme outcomes, and indicate what might happen in the absence of the programme. It is methodologically rigorous and requires a comparative element in design, such as a control or comparison group.

Outcome monitoring is the basic tracking of variables that have been adopted as measures or 'indicators' of the desired programme outcomes. It may also track information directly related to programme clients, such as change in knowledge, attitudes, beliefs, skills, behaviours, access to services, policies, and environmental conditions.

Outputs are the results of programme activities; the direct products or deliverables of programme activities, such as the number of counselling sessions completed, the number of people reached, and the number of materials distributed.

Outreach services are those that take health information and services into the communities where most-at-risk populations live, or places where they congregate (such as shooting galleries or sexual pick-up spots). Outreach health services, information and commodities can be provided by health workers in a variety of venues such as storefronts, street corners, and mobile busses.

Peer education is the approach whereby trained people undertake educational activities with their peers to develop the knowledge, attitudes and skills that will enable them to be responsible for and protect their own health and prevent HIV.

Peer outreach educators are members or former members of the same at-risk group who can provide condoms, sterile needles and health information and advice on where health services can be accessed. Sometimes the peer outreach worker will accompany the client to the health service and provide follow-up support.

Process evaluation is a type of evaluation that focuses on programme implementation and uses largely qualitative methods to describe programme activities and perceptions, especially during the developmental stages and early implementation of a programme. It may also include some quantitative approaches, such as surveys about client satisfaction and perceptions about needs and services. In addition, it might provide understanding about the cultural, sociopolitical, legal, and economic contexts that affect a programme.

Process monitoring is the routine gathering of information on all aspects of a project or programme to check on how project activities are progressing. It provides information for planning and feedback on the progress of the project to the donors, implementers, and beneficiaries of the project.

Programme in the AIDS arena, generally refers to an overarching national or subnational systematic response to the epidemic and may include a number of projects and interventions.

Surveillance is the ongoing, systematic collection, analysis, interpretation, and dissemination of data regarding a health-related event for use in public health action to reduce morbidity and mortality and to improve health.

Targeted Media refers to the provision of AIDS information through media (videos, radio shows, written materials, billboards, and websites) that is targeted to specific populations.

Triangulation refers to the analysis and use of data from multiple sources obtained by different methods. Findings can be corroborated and the weakness (or bias) of any one method or data source can be compensated for by the strengths of another, thereby increasing the validity and reliability of the results.

Vulnerability refers to those factors that contribute to people engaging in risky behaviours. A person vulnerable to HIV can be defined as one who is susceptible to, or unable to protect themselves from, significant harm or exploitation linked with HIV infection.

Introduction

Who is this framework for?

This publication provides guidance to governments, international organizations, non-governmental organizations (NGOs) and other members of civil society in monitoring and evaluating (M&E) HIV prevention programmes for most-at-risk populations. It is designed primarily for programme managers and others involved in planning and implementing M&E of programmes and projects for most-at-risk populations at both national and subnational levels.

This framework includes methods and tools that can be applied at the national, and perhaps more appropriately, at the subnational level. Unlike interventions aimed at the general population, interventions for most-at-risk populations are often implemented on a subnational basis, as most-at-risk populations are not uniformly spread across a country. Rather, they are often concentrated in large cities, border areas, and towns with large migrant or tourist populations. Because interventions for most-at-risk populations are often planned and implemented at the local level, M&E efforts should also occur at the local as well as the national level.

The complexity of the methods and approaches presented here varies. While some are within the scope of people or agencies implementing field operations, others require substantial analytical skills and a person or agency to oversee data collection and analysis, and to promote use of the findings.

Rationale for the guide

- Existing M&E guides, particularly for prevention programmes, have largely been developed with generalized epidemics in mind and with little focus on the unique needs of those settings where HIV is concentrated among most at-risk populations.
- Methods and approaches have been developed and used for the M&E of most at-risk populations. Much of this work has been documented in one form or another. However, there is a need to pull these documents together to provide a comprehensive overview addressing M&E in these populations.
- As much of the data collection for M&E of most-at-risk populations is done in an ad-hoc fashion, this document highlights the importance of subnational and project-level M&E as part of a national M&E system.

Guide contents

This framework aims to provide an overview of M&E methods and approaches for most-at-risk populations. It also covers the use of strategic information for programme planning, monitoring, and evaluation. This framework does not intend to provide specific programme guidance for most-at-risk populations. Its focus is on the M&E of targeted HIV prevention programmes and, thus, does not cover the M&E of antiretroviral therapy and other treatment services. Readers are referred to the WHO website at http://www.who.int/hiv/pub/guidelines/en for additional guidance in these other areas.

This framework draws from existing sources where available and includes the most recent thinking about M&E of most-at-risk populations. It does not go into full technical detail, rather, it directs the reader towards appropriate supplemental guides, training materials, and other sources of technical information.

Applying the guide to generalized epidemics

Interventions with most-at-risk populations can be as important in generalized epidemics as in low-level and concentrated epidemics. Without effective interventions in sex work and drug injecting networks, high HIV incidence can drive transmission regardless of epidemic stage. In low-level and concentrated epidemics it is important to prioritize resources for those populations most infected and affected by the disease. In generalized epidemics, a broader response is clearly needed, but this must still include effective efforts to reduce high transmission rates among other vulnerable populations. In addition, interventions should also be targeted to those most vulnerable to HIV infection for humanitarian reasons. Thus, most of this guide will apply to all countries where HIV prevention programmes are targeted to most-at-risk populations, regardless of the stage of their epidemics.

Principles of involvement

In many countries, civil society has often assumed direct responsibility for establishing and operating HIV-related services for most-at-risk populations and, in some, it has pioneered those services. The term 'civil society' embraces NGOs and informal groups at the international, national, and local level. Associations representing people living with HIV (PLHIV), people highly likely to be exposed to HIV, and women are included, as are faith-based organizations. Marginalized individuals are also included, whether they are members of associations or not, such as men who have sex with men (MSM), migrants, sex workers, injecting drug users (IDUs), and prisoners. Civil society

organizations often represent people in marginalized groups, including those who are the most-at-risk and vulnerable to infection, who are often the most stigmatized by their societies. Thus, civil society should be involved in M&E, helping to assess the degree to which services are meeting the actual needs of people likely to be exposed to HIV, as well as PLHIV. Involvement of civil society in planning and implementing a unified monitoring and evaluation system also is supported by the "Three Ones" principles.

Ethical considerations

Appropriate protection of participants should be exercised when conducting any monitoring, evaluation, surveillance, and research activities, but special protection may be warranted when most-at-risk populations are involved. These populations may already be socially vulnerable or marginalized for their behaviours, and data collection efforts that identify or bring attention to these populations may place them at additional risk. All people should be respected and treated as autonomous individuals who can and should freely make decisions regarding their participation in M&E activities. Individuals directing these efforts should maximize the benefits and minimize any potential harm from these activities.

In addition, individuals involved in planning or implementing M&E activities have ethical and legal obligations to protect the privacy of their participants. They must clearly explain to their participants how they will use and protect private information. In this sense, privacy refers to the control of information about an individual by that individual; and the right to control information about one's self is an aspect of autonomy. Some common procedures that ensure that these principles are achieved include informed consent, safeguards of private information, and human subjects review by an institution appropriately authorized to do so.

Elements of Informed Consent

- an explanation of the purpose of the project or study with a description of procedures
- a description of the foreseeable risks or discomforts to subjects
- a description of any compensation to be given
- an explanation of whom to contact with questions
- a statement of any benefits to participants
- a statement about the confidentiality of records
- an explanation that participation is voluntary and that it may be discontinued at any time.

Procedures must be exercised to ensure the confidentiality and protection of private information. These might include conducting interviews in private spaces, using ID numbers rather than names to refer to individuals, and storing private or individually identifiable information in a secure environment.

Some monitoring and evaluation activities may not require human subjects review, if they are not considered 'research', but they may still require a formal review. Data collection activities that can be classified as research require appropriate and ongoing review by qualified individuals and institutions to ensure that the study protocol and procedures will protect the rights of human subjects. It should be noted that some populations, such as youth and prisoners, require special considerations and protection above and beyond those of other populations.

Selecting appropriate indicators

Indicator selection should reflect programme focus and resource allocation, which in turn should reflect the populations most-at-risk in a particular country or setting. An assessment of resource allocation at the national level as compared to new infections in most-at-risk populations may be needed to identify priority programme areas. This would then serve as a guide for indicator selection.

This document includes the 2007 UNGASS indicators of programme coverage, knowledge and behaviour, and HIV prevalence in most-at-risk populations (refer to www.unaids.org for any updates in this list). This list should be considered as a starting point for indicator selection, and most programmes for most-at-risk populations will want to track additional indicators. Countries with concentrated and low-level epidemics may also wish to track indicators of service coverage and HIV-related risk behaviours in other priority populations and in the general population, particularly if the epidemic is becoming more established outside of these risk groups. Further information on indicators appropriate for the general population and for young people can be found in guidance documents,[2] which are available on the UNAIDS website (http://www.unaids.org) and are listed at the end of this chapter.

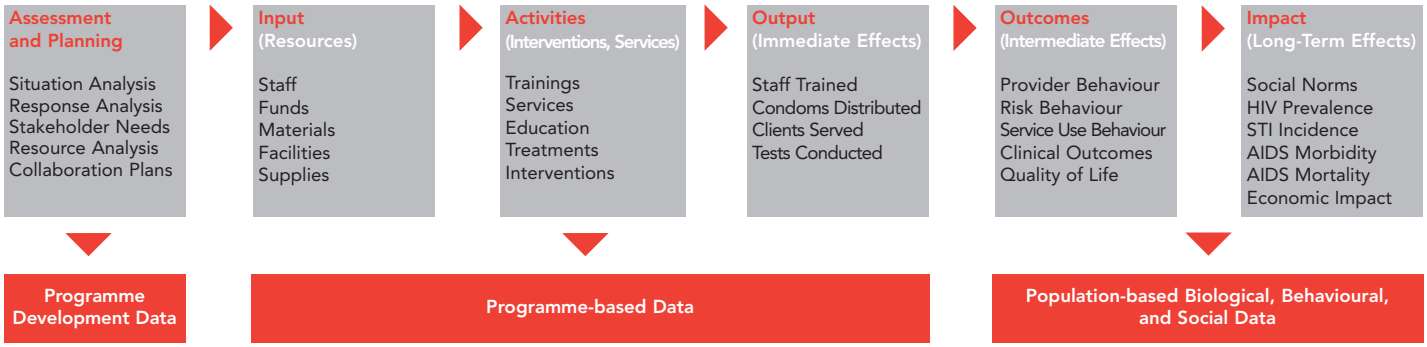
In addition, all countries, regardless of the status of their epidemic, should track indicators of national commitment, such as HIV-related expenditures and national policies. Information on these indicators can be found in the UNGASS guide. As the focus of this framework is on HIV prevention programmes, no indicators for care, support, and treatment programmes that are unique to most-at-risk populations appear in this guide. Readers interested in developing M&E systems for these programme areas are referred to specific guides for care, support and treatment programmes, and antiretroviral programmes that are referenced at the end of this chapter.

In accordance with the "Three Ones" principles, countries are working towards one country-level monitoring and evaluation system. Applying this principle to indicator selection means that indicators should be selected from existing government and donor sets as much as possible. Other considerations include preserving indicator continuity over time, limiting data collection to information that is relevant for programme management, and reducing the burden of data collection on field-level staff.

Framework for indicators

The most commonly used framework for indicator selection is the 'input-activities-output-outcome-impact' framework as shown in Figure 1. This provides a way to organize the data that are required to monitor programme progress and suggests a logical order for collecting and analysing information. This starts with examining the required inputs (for example, resources) for implementing activities, the activities themselves (for example, counselling and testing), and then the resulting outputs (immediate effects, such as the number of people tested). Outputs may lead to outcomes (intermediate effects, such as risk behaviour change) that in turn may lead to impact (long-term effects, such as reduction in HIV incidence). Figure 1 shows this paradigm with some illustrative types of data that might be collected at each step. To truly determine the merit or value of a programme, evaluation studies must supplement monitoring data, as will be discussed later in this guide.

Figure 1. Global AIDS Monitoring And Evaluation Framework And Illustrative Data Types



In addition to monitoring these illustrative data types, select programmes conduct enhanced process and outcome evaluations.

Source: Rugg et al. (2004). Global advances in HIV/AIDS monitoring and evaluation. New Directions for Evaluation. Hoboken, NJ, Wiley Periodicals, Inc.

Organizing framework

The investigation of any problem starts by asking pertinent questions that serve to initiate and organize the response. Such questions might include: what is the problem? What are the contributing factors? What can be done about the problem? Once a programme response has been implemented, questions may include: is it working? And once a reasonable period of time has passed, is the programme reaching enough people to make a difference in the resolution (or severity) of the problem? These basic questions provide a simple and pragmatic way to organize the resources necessary to build an M&E system. The framework provided in Figure 2 depicts the essential information needed for programme decision-making, design and improvement (Rugg et al., 2004). In this document, the framework is being used to identify the information needed to plan, monitor, and evaluate HIV prevention programmes for most-at-risk populations. The framework is a useful tool for organizing a collective, coordinated and unified response to information gathering by national or subnational programmes and all their partners and donors. It provides a step-by-step sequence for planning data collection over time, serving as a 'roadmap' where the answers to questions at one step provide the basis for the questions and information needed at the next step. It also allows everyone involved to identify their role and contribution to the M&E system.

The framework is divided into the following eight steps:

1. Identifying the problem

The first step in the framework is identifying the problem. In the case of HIV, we initially seek to identify the nature, magnitude and course of the overall epidemic and related sub-epidemics. This information typically comes from surveillance systems, special surveys and epidemiological studies. This first step may also include questions about the nature and magnitude of the programmatic response to date. Situation analysis, gap analysis and response analysis are the typical information-gathering activities that seek information about programme status from, for example, related documents, informant interviews and field observations. The surveillance methods used in this first step are also used in the last step when we determine overall impact and collective effectiveness of combined programme efforts, thus closing the loop in the iterative process of programme planning, implementation and evaluation.

2. Determining the contributing factors of risk of infection

In the second step, we seek to determine the contributing factors and determinants of risk of infection. This information is usually obtained from rapid assessments; knowledge, attitude and behaviour surveys; epidemiological risk factor studies; and determinants research. The results at this step help in the design of appropriate interventions.

3. Determining which interventions might work in ideal circumstances

The third step focuses on determining which interventions might work under ideal circumstances by reviewing the available evidence from research-driven protocols (efficacy trials) or evaluations of interventions conducted under specific field conditions (effectiveness studies). Where insufficient evidence exists, evaluation studies may need to be implemented to support evidence-based decision-making. This is an important step, although it is often not sufficiently funded nor is sufficient time allowed to obtain and analyze results in the rush to 'do something'.

4. Determining which interventions and resources are needed

The fourth step should be linked closely with the findings from the third step and involves determining which interventions and resources are needed. This question is usually addressed through needs, resource and response analysis, and will include an assessment of current programmes and estimated coverage. The use of information for strategic planning and management of programmes is an area that needs considerable strengthening, and several donors have committed to devoting extra resources in this area.

5. Assessing the quality of interventions

The fifth step seeks to assess the quality of interventions by asking questions about their implementation. Process monitoring, evaluations, and other forms of quality assessments are typically performed at this step and especially as new programmes are getting underway.

6. Examining the extent of programme outputs

Similarly, the sixth step seeks to examine the extent of programme outputs, answering questions of 'how many?' and whether the programme is being implemented as planned and reaching its intended target population. Typically this information should be routinely collected in a project record-keeping system.

7. Examining programme outcomes

The seventh step examines programme outcomes and answers questions about intervention effectiveness. Typical evaluation methods include intervention outcome studies with control or comparison groups, operations research, health services research, formative research, and other special studies.

8. Determining overall programme effects

The final step focuses on determining overall programme effects and collective effectiveness. Building on the answers to the questions at previous steps, information from population-based surveys and other surveillance activities are once again used to answer questions at this final step. In addition, the systematic collection of programme-related qualitative data assists in interpreting programme outcomes and impact and contributes to our understanding of what is or is not working. Such information could also identify unexpected results and community perceptions that influence programme results and cannot be answered using trend data alone.

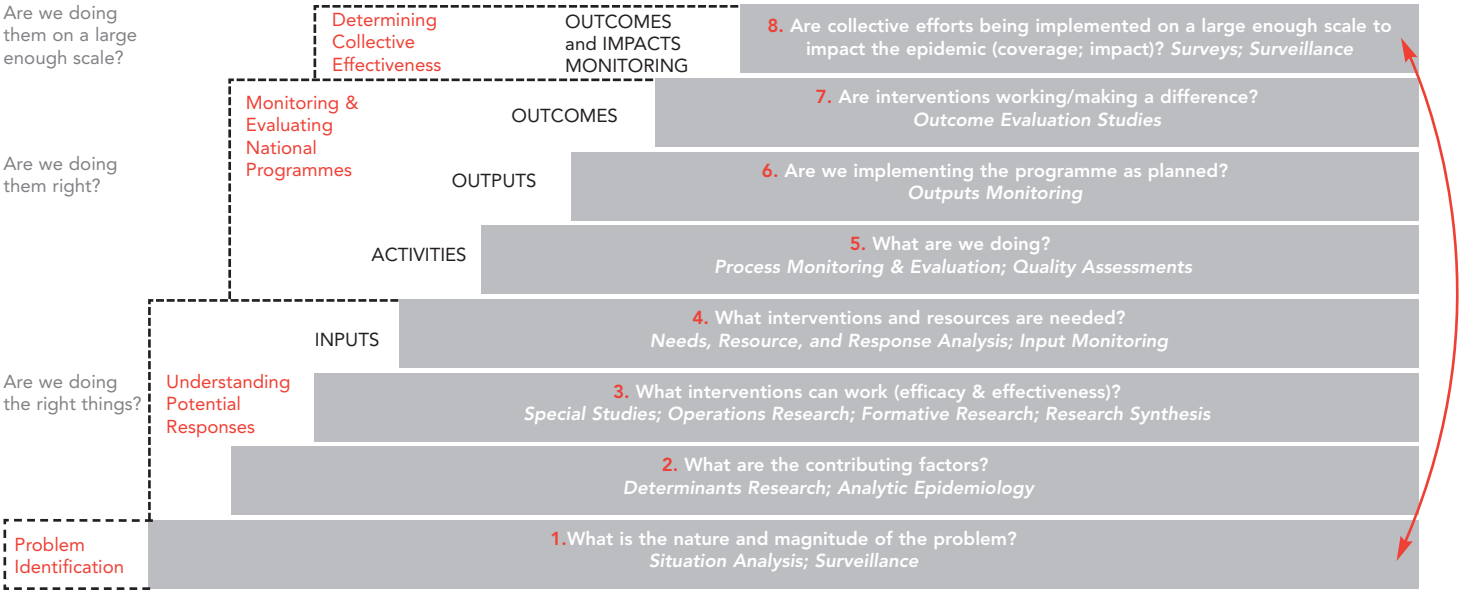
Chapter organization

The chapters in this guide provide the methods and approaches used to answer many of the questions posed in this framework. As this guide focuses more narrowly on M&E methods and approaches rather than on planning a comprehensive response, the attention is on those steps that correspond most closely with this topic. Thus, not all steps in the framework receive equal attention here.
After the introduction and background,

- Chapter 3 presents methods of population size estimations, an important component of the situation analysis and problem identification, the first question in the framework;
- Chapter 4 discusses assessing the contributing factors;
- Chapter 5 presents process M&E;
- Chapter 6 discusses methods to track programme uptake and coverage;
- Chapter 7 covers assessing intervention effectiveness using outcome evaluation studies;
- Chapter 8 discusses monitoring outcome and impact indicators and the role of surveillance;
- Chapter 9 covers assessing collective effectiveness through triangulation methods.

And finally, the methods and examples presented in the last two chapters are also relevant to the first step in the framework, that of problem identification, as the framework reflects an ongoing cycle of feedback of information regarding the nature and magnitude of the epidemic and the response.

Figure 2. A Public Health Questions Approach To Unifying HIV Monitoring And Evaluation.



Source: Rugg et al. (2004). Global advances in HIV/AIDS monitoring and evaluation. New Directions for Evaluation. Hoboken, NJ, Wiley Periodicals, Inc.

Guiding principle: the importance of a strategic and phased approach

An important guiding principle in the implementation of a comprehensive M&E system is the need to take a strategic and phased approach, acknowledging two realities:

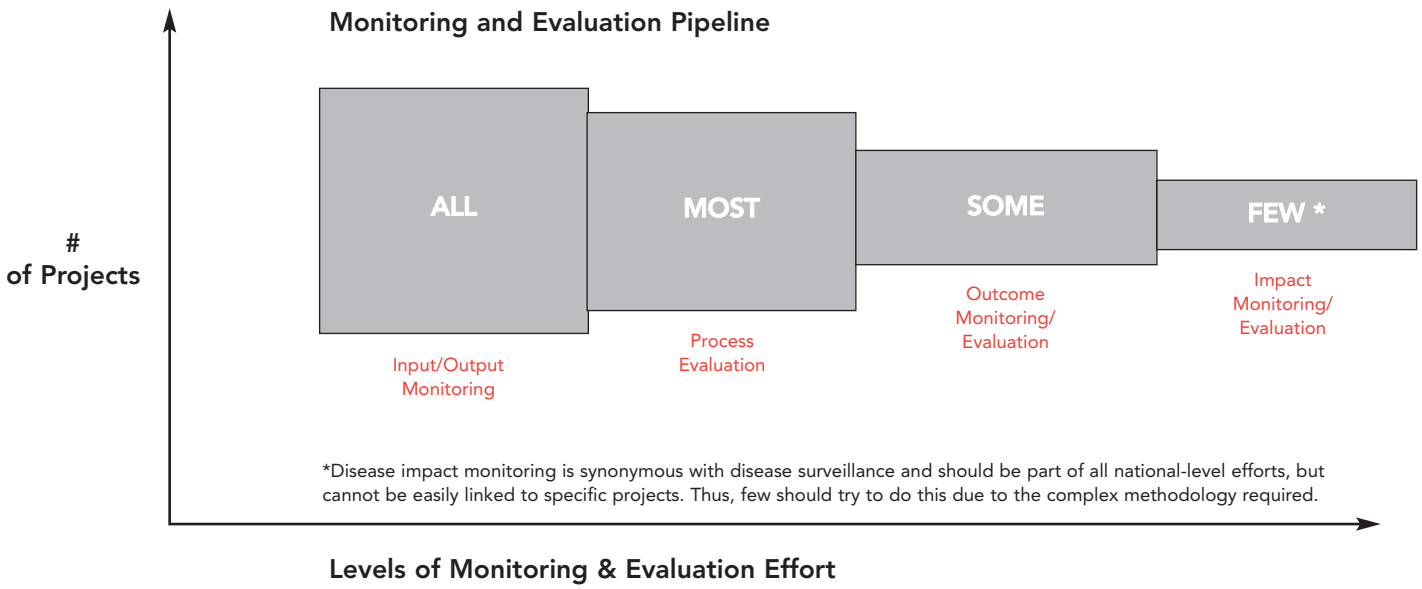
- appropriate infrastructure and capacity must be in place to implement the different components of a comprehensive system—not everything can be done at once; and
- not every programme needs to conduct all aspects of M&E.

A frequently used diagram to depict the latter is the 'M&E pipeline' shown in Figure 3 (Rugg et al., 2004). This M&E pipeline is based on the simple input-activities-outputs-outcomes-impact framework mentioned above. The diagram suggests that all programmes should conduct basic programme input and output monitoring for the purposes of good programme management, for example:

- the number of people tested;
- the number of clients served;
- the number of people trained; or
- the number of condoms distributed.

Most programmes should also conduct some basic process evaluations. This component often includes implementation assessments, quality assessments, basic operations research, case studies and cost analyses. The rationale for conducting outcome monitoring and outcome evaluation should be carefully considered against the additional time, expertise and resources that these methods require. Generally speaking, outcome monitoring should be considered when programmes are more established, and outcome evaluation after the introduction of a new intervention or when the effectiveness of an intervention is unknown or in question. Finally, only in a few cases would impact evaluation be warranted in which an attempt is made to attribute long-term effects (impact) to a specific programme. However, monitoring the unlinked distal impacts (impact monitoring) can be done through surveillance systems and repeated population-based biological and behavioural surveys. All programmes should be aware of these national and subnational data and how these are relevant to their programme. They typically provide a basis for comparing national and local programme output and outcome monitoring efforts. In other words, in determining the overall success or collective effectiveness of all programmes that constitute the national response to AIDS, it is necessary to interpret long-term effects in the context of results from process and outcome evaluations and from existing survey data and output monitoring. The main strategic point here is simple: not everybody needs to do everything.

Figure 3: Strategic Planning for M&E: Setting Realistic Expectations



Source: Rugg et al. (2004). Global advances in HIV/AIDS monitoring and evaluation. New Directions for Evaluation. Hoboken, NJ, Wiley Periodicals, Inc.

Bibliography and references for further reading

Rugg D, Carael M, Boerma J and Novak J (2004). Global advances in monitoring and evaluation of HIV/AIDS: From AIDS case reporting to programme improvement. In: Rugg D, Peersman G and Carael M (Eds.). Global advances in HIV/AIDS monitoring and evaluation. New Directions for Evaluation 103, pp.33-48.

UNAIDS (2000). National AIDS Programmes: A guide to indicators for monitoring and evaluation. UNAIDS, Geneva.

UNAIDS (2004). Coordination of national responses to HIV/AIDS. Guiding principles for national authorities and their partners. UNAIDS, Geneva.

UNAIDS (2007). Monitoring the declaration of commitment on HIV/AIDS. Guidelines on construction of core indicators. UNAIDS,Geneva.

WHO (2004) Guide to monitoring and evaluating national HIV/AIDS prevention programmes for young people. WHO, Geneva.

Background

What are low-level and concentrated epidemics?

WHO and UNAIDS classify HIV epidemics into three broad categories, namely low-level, concentrated, and generalized epidemics.[6]

In a low-level epidemic, HIV infection has not spread to significant levels in any subpopulation, although it may have existed for many years. Infections are largely confined to individuals with higher risk behaviour, often among groups such as sex workers, injecting drug users and men having sex with men. This level of epidemic suggests that networks of risk are rather diffuse and only low levels of partner change or use of non-sterile drug injecting equipment exist, or that the virus has been introduced more recently. In numerical terms, HIV prevalence has not consistently exceeded 5% in any defined subpopulation.

In a concentrated epidemic, HIV has spread substantially in one or more subpopulations, but is not well established in the general population. This level of epidemic suggests active networks of risk within these subpopulations. The future course of the epidemic is determined by the frequency and nature of links between highly infected subpopulations and the general population. In numerical terms, HIV prevalence is consistently over 5% in at least one defined subpopulation. HIV prevalence remains below 1% in pregnant women in urban areas.

In a generalized epidemic, HIV is firmly established in the general population. Although subpopulations at high risk may continue to contribute disproportionately to the spread of HIV, sexual networking in the general population is sufficient to sustain the epidemic independently of subpopulations at higher risk of HIV infection. In numerical terms, HIV prevalence is consistently over 1% in pregnant women.

Which populations are most-at-risk?

This document provides an M&E framework for settings where there is a concentration of risk behaviours that lend themselves to efficient HIV transmission that may then drive the majority of new infections. Behaviours that put people at greater risk of HIV infection include high rates of unprotected sexual partnerships, unprotected anal sex with multiple partners, and injecting drugs with shared equipment and drug preparations. Thus, population groups where these behaviours are concentrated include:

- female sex workers (FSWs);
- clients of FSWs;
- injecting drug users (IDUs); and
- men who have sex with men (MSM).

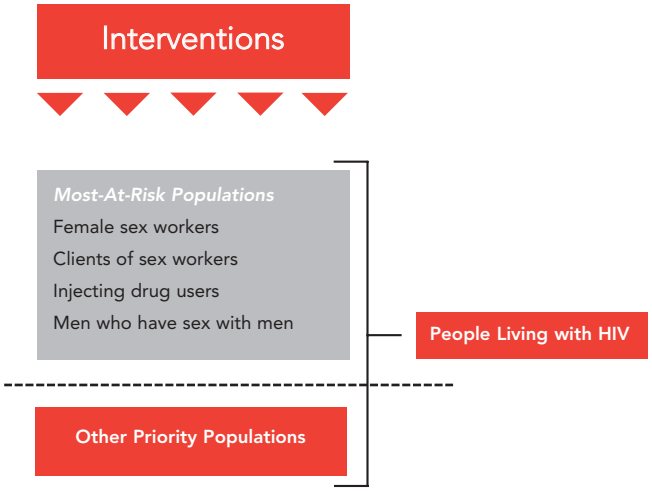
6 Adapted from WHO and UNAIDS (2000).Guidelines for Second Generation Surveillance. Geneva, WHO and UNAIDS (2000).

These behaviours provide the basis for prioritizing interventions to those populations thought to be at highest risk of acquiring and transmitting HIV and identify those populations that should be a priority for monitoring and evaluation efforts of national and subnational programmes. While the focus is on low-level and concentrated epidemic settings, it is well documented that there are countries with generalized epidemics where there is also a need for prevention interventions and M&E efforts among people who are engaging in these most-at-risk behaviours.

Figure 4 depicts the populations most-at-risk of acquiring HIV in low-level and concentrated epidemic settings that are often targeted for interventions. These are, however, not discrete categories, as there are overlapping risk practices of IDUs who also sell sex and engage in high-risk sexual practices, and FSWs and MSM who also inject drugs.

The choice of target populations for interventions and, thus, for M&E efforts should ultimately be based on priority setting that includes an assessment of the level of HIV prevalence and population size, behavioural risk factors and potential responses.

Figure 4. Priority Populations For HIV-Prevention Interventions In Low-Level And Concentrated Epidemics



Female sex workers

Unprotected sexual intercourse with multiple partners increases the risk of exposure and transmission of HIV. Female sex workers (FSWs) operating on an economic incentive to have more sexual partners, are a critical population to address with HIV prevention programmes. In addition, their connection to large numbers of men within the general population acts as a bridge for the virus to other, less-at-risk individuals, and further highlights the importance of prevention with FSWs. FSWs can be formal, establishment-based or street-based, or they can be informal and may not consider themselves to be – or be easily identifiable as – sex workers. This may include those who engage in transactional sex and exchange sex for gifts, school fees or food.

Clients of female sex workers

Programmatically, whenever FSWs are targeted for prevention interventions, their male clients should also always be targeted. This is primarily because the success of interventions with FSWs will be limited if their clients and their behaviours are not addressed. Male clients are often also engaging in unsafe behaviours with other partners such as wives or girlfriends and thus act as a bridge for the spread of HIV from higher-risk populations to lower-risk individuals in the general population. In addition, because of relatively high levels of commercial sex in some populations, clients of FSWs can have a large impact on the spread of HIV in the general population. Clients of FSWs can be targeted through interventions in specific geographic locations (like 'red light districts') or they can be identified through local behavioural research that identifies categories of men most likely to pay for sex. Groups particularly vulnerable are men who are mobile and spend time away from home and their regular partners (for instance, truck drivers, the military, or migrant workers).

Injecting drug users

Using contaminated injecting equipment is the most efficient means of acquiring HIV. In the absence of prevention activities targeting IDUs, HIV prevalence can rise quickly soon after the introduction of the virus into these populations. HIV transmission through use of non-sterile equipment is augmented by sexual transmission among IDUs and between IDUs and their non-IDU sexual partners. Injecting drug use stands out as a behaviour of special significance to be targeted for preventing the rapid spread of the virus within this population and their sexual partners through reducing unsafe injecting practices.

Men who have sex with men

Research has demonstrated that unprotected anal sex is far riskier per sex act than unprotected vaginal sex. Since many men who have sex with men (MSM) engage in anal sex and often have multiple sexual partners, male-to-male sexual transmission is an issue of great importance to HIV prevention. Depending on culture and context, there can be many different subgroupings of men engaging in same-sex relations that are included in this behavioural category regardless of sexual orientation (homosexual, bisexual, or heterosexual). This behavioural risk category also includes men who sell sex to other men (male sex workers). While some male sex workers sell sex to women, the behaviour of highest risk of HIV transmission is anal intercourse with other men. In some cultures, men who sell sex to other men are more readily reached through MSM-related prevention interventions than through sex worker interventions, which are most often focused on FSWs. However, transgendered persons may be better targeted in some settings by efforts aimed at FSWs.

While these behavioural groupings have been useful for targeting prevention interventions, not all high-risk individuals fit neatly into one category, and not all individuals in a given category are at high risk of HIV. For example, MSM in a mutually monogamous relationship with an HIV-negative partner, or IDUs who decrease injecting drug use and do not use non-sterile equipment, are at a much lower risk of HIV infection. And as previously noted, there is overlapping risk between these groupings, and some people may be practising multiple risk behaviours, for example, many FSWs are also IDUs and may sell sex in exchange for drugs. Likewise, IDUs may buy or sell sex in exchange for drugs. This overlap in risk behaviours must be considered in planning and reporting on M&E efforts.

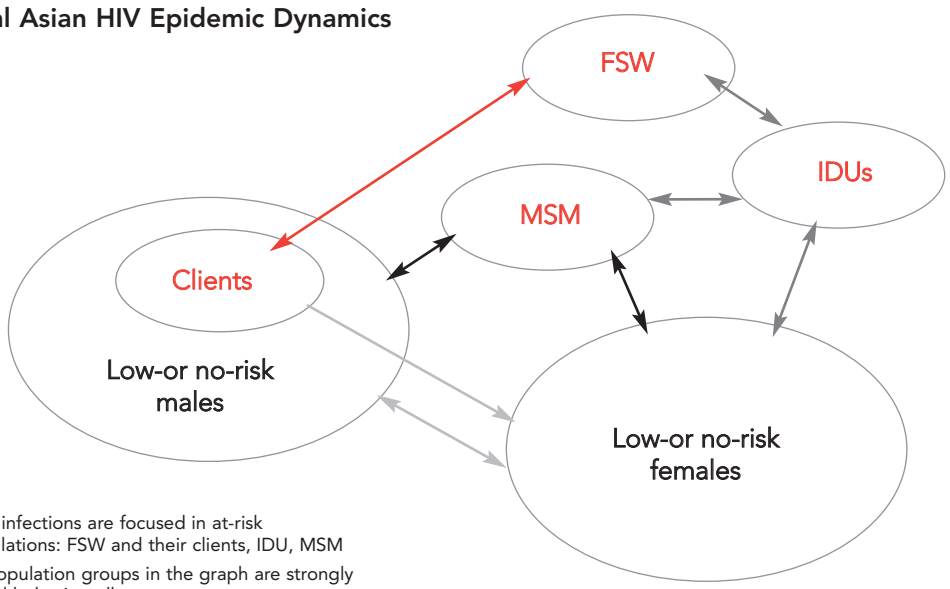
Other priority populations

There may be other groups that are at increased risk of infection in a given community or country. The level of effort directed at reaching these other populations will depend on the level of epidemic and available resources. Most of these populations are vulnerable because of their partners' at-risk behaviours. Sexual partners of IDUs, female partners of MSM, and partners of clients of sex workers are all at increased risk of HIV infection because their partners engage in risky behaviour. In some settings, they make up a substantial proportion of new infections. Figure 5 illustrates the strong behavioural linkages between most-at-risk populations and between most-at-risk and the general population. While this figure illustrates behavioural links between populations in a typical Asian epidemic, a similar figure with a greater emphasis on linkages between IDU and other populations could be used to illustrate the epidemic situation in other regions such as central Asia. Whatever the strength of the linkages between populations, it must also be noted that there is often overlapping risk between these populations.

Unfortunately, sexual partners of most-at-risk populations are not necessarily aware that they are at increased risk and often don't take preventive measures. These populations are difficult to monitor with regard to HIV prevalence or sexual risk behaviour as they are less likely to self-identify or to congregate in locations where they can be reached using standard data collection methods.

Figure 5. The HIV Epidemic Dynamic In Asia: Behavioural Links Between Populations

Typical Asian HIV Epidemic Dynamics



- New infections are focused in at-risk populations: FSW and their clients, IDU, MSM
- All population groups in the graph are strongly linked behaviourally

Additional populations may also be vulnerable to HIV and should be the focus of HIV prevention interventions and, therefore, M&E activities in some settings. This may include, for example, heterosexual men and women with multiple sexual partners, female domestic workers who are often sexually abused, young men and women who are trafficked for sexual exploitation, and populations surrounded by armed conflict who might be subject to high levels of sexual violence. Street children, who are often impoverished or substance dependent are more likely to be exposed to HIV infection as they develop without the guide or supervision of adults and may not have the skills and resources to protect themselves. Male prisoners are of particular concern in many settings due to the risk of having unprotected and often coercive sex, and due to the sharing of injection equipment. These additional subpopulations will vary by country and setting and should be considered for potential monitoring while developing a national or subnational M&E plan.

People living with HIV

All most-at-risk populations will include people living with HIV (PLHIV). Directing a portion of prevention efforts towards individuals living with HIV, also referred to as 'positive prevention', helps support positive living and reduces the risk of transmission to others. Positive prevention includes counselling about whether and how to continue sexual relations, especially for serodiscordant couples with a need to be intimate, peer support for people undertaking these difficult decisions, and availability of condoms for those who choose to continue. These activities may be integrated into other health interventions such as treatment of opportunistic infections and antiretroviral therapy.

The increasing availability of antiretroviral therapy may provide an incentive for individuals to learn their serostatus. In time, this may result in larger numbers of people aware that they are HIV positive, even before they require medical treatment. Most-at-risk populations are often the least likely to access health interventions, particularly if the health services are deemed to be 'unfriendly'. Therefore, outreach to these populations – particularly through peer interventions – and special services will be of utmost importance to ensure that PLHIV are able to access prevention support as well as care and treatment.

Adolescents who engage in at-risk behaviours

Adolescence is a time of rapid development and experimentation, when young people are faced with many new situations, and when the influence of their peers increases and the influence of their parents diminishes. It is also the period when most young people engage in sexual relations for the first time, experiment with psychoactive substances (alcohol, drugs and tobacco), and behaviours are established which may last well into adulthood. In many countries with low-level and concentrated epidemics, a large proportion of people engaging in most-at-risk behaviours are young people, with increasing evidence that many of them are adolescents (see Figure 6).[7]

Adolescents have the same needs as adults for HIV prevention services. However, due to their lack of experience in negotiating use of services and, in some instances, legal barriers to using them, services may need to be delivered in a slightly different manner. It is important to recognize that most-at-risk adolescents may not come to static service delivery points, and services may need to be specifically targeted for them and, in many cases, provided on an outreach or mobile basis (where health services, information and commodities are taken to them). Thus, the essential package of targeted HIV prevention interventions for most-at-risk populations should be adolescent-friendly and accessible for all most-at-risk adolescents whatever their age, legal or socio-economic status. In addition, policy-makers and health-care providers need to consider whether an adolescent has the capacity to consent, or 'competence' to provide consent, to medical interventions and treatment, and whether others should be involved in decision making on their behalf.[8]

It is critical that M&E data are collected and disaggregated by age and sex so that the programmatic response for most-at-risk adolescents can be monitored and evaluated. Adolescents are often overlooked in surveillance efforts because of legal issues or a perception that adolescents are not involved in risky behaviours. While effort should be made to include adolescents in data collection efforts, ethical and legal obligations need to be considered when collecting data on children under 18 in most countries (see Ethical Approaches to Gathering Information from Children and Adolescents in International Settings: Guidelines and Resources, Population Council 2005 for more information on this topic).

7 Young people are defined by the UN as aged 10 to 24 years, adolescents as 10 to 19 and youth as 15 to 24 years.

8 Generally speaking, parents or guardians have the right to make medical decisions on behalf of children not capable of making these decisions themselves. The Convention on the Rights of the Child (CRC) implicitly acknowledges the evolving capacity (CRC; Article 5) of adolescents less than 18 years old to make decisions for themselves, which includes the evolving capacity or competency to consent to medical treatment. However, the law dealing with this varies between countries: some countries designate specific ages at which an adolescent is judged to have capacity, and that may range anywhere from 10 to 18. Where the law is silent, service providers have sometimes developed their own protocols.

Figure 6. Many People Who Engage In At-Risk Behaviours Are Adolescents And Young People

Drug use often begins in adolescents and many IDU are adolescents and young people.

- In Kazakhstan 54% of IDUs are under age 25.
- In St. Petersburg, Russian Federation, almost one third of IDUs are under 19 years of age.
- In Ukraine 20% of IDUs are 'adolescents'.
- In Santos, Brazil, 56% of IDUs are under age 25.

The median age of sex workers is dropping because of the demand for younger women, often perceived by clients to be less likely to be infected with sexually transmitted diseases or HIV.

- In Cambodia, China, Lao People's Democratic Republic, Myanmar, Russian Federation and Viet Nam, between 60% and 70% of sex workers are younger than 25 years of age.
- In Europe and Central Asia it is estimated that 80% of young women selling sex are under 25 years.

A substantial proportion of MSM are younger than 25.

- In Central America, 20% of MSM surveyed were under age 20, and 34% were aged 20 to 24 years.
- In Lima, Peru, 50% of MSM surveyed were under 25 years of age.

Sources:

Monasch R and Mahy M (2006). Young people: the centre of the HIV epidemic. In: Ross D, Dick B and Ferguson J (Eds). Preventing HIV/AIDS in young people. A systematic review of the evidence from developing countries. Geneva, WHO.

Bibliography and references for further reading

Ross D, Dick B and Ferguson J (2006). Preventing HIV/AIDS In Young People. A Systematic Review Of The Evidence From Developing Countries. Geneva, WHO.

UNAIDS (2004). Coordination of national responses to HIV/AIDS. Guiding principles for national authorities and their partners. UNAIDS, Geneva.

UNAIDS (2005). Monitoring the declaration of commitment on HIV/AIDS. Guidelines on construction of core indicators. UNAIDS,Geneva.

WHO (2004) Guide to monitoring and evaluating national HIV/AIDS prevention programmes for young people. WHO, Geneva.

Establishing the Size and Nature of the Problem

What questions are answered by establishing the size and nature of the problem?

To effectively plan interventions and allocate resources, programme planners need to know the nature and magnitude of the problem as well as the programmatic response that has been used to date. Information to describe the problem should be collected as part of a comprehensive needs assessment that includes behavioural risk factors, contributing factors, population size estimates, and HIV prevalence. As later chapters in this guide present approaches for assessing the contributing factors (chapter 4), HIV-related risk behaviours and HIV prevalence (chapter 8), and triangulation of data (chapter 9), this chapter will focus on presenting methods of size estimation.

Population size estimates are needed for programme planning, M&E, and policy and advocacy. A primary reason for conducting population size estimations is to understand the scope of the problem and the scale of the response that is needed. With this information, programme managers can then assess resource requirements and the capacity that is needed to plan an appropriate response with sufficient coverage. For M&E purposes, population size estimates serve as denominators in calculations of programme coverage (discussed in chapter 6). They are also used to project the likely course of the epidemic (in combination with behavioural and seroprevalence data); which is a useful tool to lobby policy-makers and other stakeholders for appropriate interventions and resources.

The use of population size estimations in the Russian Federation

The Open Health Institute has been regularly using the multiplier for the assessment of the number of IDU in all regions in the Russian Federation where they implement projects. The institute finds it useful to conduct size estimations at least every second year because the situation in regards to the drugs that are used and the number of drug users can change very rapidly. Current and accurate size estimations are needed for several reasons. For management purposes, updated information is needed for planning interventions in order to take into account the changing realities in the field. Updated estimates of the population size are also needed as a denominator for coverage estimates, important information for reporting to donors and for advocacy among decision-makers.

Source:
Alexei Bobrik, The Open Health Institute

When is it necessary to conduct size estimations?

For programme planning, estimates of the size of the most-at-risk populations need to be conducted as part of the situation analysis in the programme-planning phase. In addition, because many of these populations are dynamic and populations may move in and out of a programme catchment area, it is important to conduct periodic size estimations to ensure that the magnitude of the response is appropriate, and that size estimates are sufficiently accurate for coverage estimates. Also, it is useful to assess turnover of most-at-risk populations because, while the size of the population may remain constant, its membership may not.

Who should conduct size estimations?

Size estimations are needed both at the national level for policy-making and decisions regarding intervention priorities and resource allocation, as well as at the local level for programme planning, management, monitoring and evaluation. At the national level, the authority charged with surveillance activities may want to make recommendations as to the definitions and the methodologies used for size estimation activities so that local estimates can be utilized at the national level. However, for M&E purposes, it is important to collect the data that are most pertinent to evaluating programmes or assessing programme needs. In this regard, national estimates may not be very useful as they largely serve a political need.

Subnational data collection and estimations, preferably at the level of programme planning and implementation, may be a better way to proceed. Epidemics are rarely spread across a country uniformly, and prevention programmes, ideally, should be implemented where they can have the greatest impact on the epidemic. At the local level, programme managers should be responsible for planning size estimation activities as part of programme planning, monitoring, and evaluation activities. Programme managers may wish to obtain technical assistance in conducting size estimations from a local university or research firms that have experience in this area. In addition, programme managers may wish to use size estimations that have been obtained by others such as the police or local health authorities if these estimations are thought to be valid.

What methods are available for size estimation?

Estimating the size of a population, particularly a hidden population, can be difficult to achieve. There are, however, methods for size estimation that can

provide a reasonable estimate and that can be used for programme planning and assessment. More detailed information on these methods can be found in a UNAIDS/Family Health International (FHI) report of a workshop on size estimation (see bibliography). The following is a summary of the most frequently applied methods:

Census/enumeration methods

Synopsis: These are efforts to count all members of the target population or a sample of the target population.

Main features: In a census, all members of a population are counted. With enumeration methods, a sampling frame (i.e. a list of brothels or shooting galleries) is developed, and members of the population at the selected venues are counted. This figure is then adjusted to obtain an overall estimate of the population size.

Assumptions: These methods assume that most-at-risk populations can be reached at identified venues and then counted, however, members of most-at-risk populations can be hidden. A census can sometimes be impractical, as it is expensive and logistically difficult to conduct, particularly when members of the population move between venues.

Multiplier methods

Synopsis: Use data from two overlapping sources.

Main features: The first set of data usually comes from a service that the population uses or an institution with which individuals come into contact. This may include, for example, the number of FSWs treated at the STI clinic or the number of IDUs arrested. The second set of data usually comes from a survey of the target population, where members are asked about their contact with the service or institution. The number served or contacted is then multiplied by the inverse proportion of the percentage of the target population that reports contact or that is served with the service.

Assumptions: While multiplier methods are relatively straightforward, care must be taken to ensure that the populations from both data sources correspond, so that members of the population survey have a chance to be included in the service or institutional dataset.

Population-based surveys

Synopsis: The prevalence of HIV-related risk behaviour is estimated from surveys of the general population or a subset of the general population.

Main Features: Respondents from a general population survey or from a survey of a subset of the general population (e.g. military, youth, etc.) are asked whether or not they have practised HIV-related risk behaviours (such as having sex with a sex worker). The percentage practising a particular behaviour is then applied to census data or size estimates of the whole population to arrive at an estimate of the total number practising this behaviour.

Assumptions: These surveys are generally designed as household surveys and provide robust estimates of relatively common behaviours. As many of the behaviours that define most-at-risk populations are not common in the general population, they may be missed or estimates may not be very robust. Household-based surveys will not capture those in brothels, in the street, or otherwise not at home. They are most useful for estimating the number of men who engage in paid sex with a sex worker and less useful for less common, and more highly stigmatizing, behaviours.

Capture-recapture

Synopsis: Uses two or more independent and overlapping samples to calculate the population size.

Main features: Researchers 'mark' a random sample of members of the target population through either an interview or other means. They then take a second sample and determine the proportion also caught or 'marked' in the first sample. A third random sample can also be used and the number marked, once, twice, or not at all, is used to estimate the total population size.

Assumptions: This method assumes a closed population, meaning members are not moving in and out of the population between rounds of the survey. It also assumes that members of the population have an equal probability of being marked.

A final method that has been used with varying degrees of success is the Delphi method where a group of known experts is asked about the estimated number of group members.

How to select the most appropriate method for size estimation

The choice of method for population size estimates will depend on a number of factors, including how the information will be used, the data sources that are available, and the resources available for population size estimations. The characteristics of the population and its visibility will also help dictate the choice of method. The method most appropriate for an IDU population, for example, in a given locale may differ from that for an MSM population. Thus, the choice of method should ultimately be left up to national and local programme managers, based on careful consideration of their information needs and the characteristics of the population to be estimated. In some cases, and where resources are sufficient, a combination of methods may be used to help overcome the weaknesses in each method. In addition, if population size is to be monitored over time, the availability of resources for size estimation on an ongoing basis needs to be considered.

If the size of the population is to be tracked over time (as opposed, for example, to a one-time effort conducted as part of a rapid assessment for programme planning purposes), the method that is selected should be one with sufficient rigour and resources to replicate it over time.

Estimating the size of the female sex worker population in Indonesia using a multiplier method.

The principal data source for FSWs was a Department of Social Affairs listing of sex workers by province. However, this registry covers only lower-class establishment-based sex workers – sex workers who work in brothels and sex work complexes. Higher-end establishment-based sex workers who work out of private houses and hotels are not covered in the registers nor are non-brothel-based sex workers – women who work as hostesses in night-clubs or masseuses in massage parlours, where they also may provide sexual services. It is, therefore, necessary to adjust the Department of Social Affairs registries to account for these unregistered sex workers.

A census of sex workers in Bali conducted by an NGO indicated that there were 1062 establishment-based sex workers, of whom 671 fell into the category usually captured by listing from the Department of Social Affairs. In addition, there were 235 non-brothel based sex workers. This suggests that the Department of Social Affairs listing should be inflated by 58% to account for the higher-end establishment-based sex workers and by a further 35% to account for establishment-based sex work. In Jakarta, the Department of Tourism estimates that 80% of the 17,000 women who work in bars, karaoke parlours, massage parlours and saunas also sell sexual services, indicating that there are 13,600 non-brothel-based sex workers in Jakarta. The Department of Social Affairs lists 9,300 lower-class establishment-based sex workers. Thus, the number of sex workers from this listing should be inflated by nearly 150% to account for non-brothel-based sex workers.

The multipliers clearly vary widely from place to place. Because the range was so large, it was decided to use the multipliers to contribute to the low and high estimates for the total number of sex workers in each province. This estimation method gave a low of 193,000 and a high of 273,000 sex workers nationwide.

Source: Adapted from: Ministry of Health, Indonesia (2002). National estimates of adult HIV infection, Indonesia 2002. Workshop report. Ministry of Health, Indonesia.

What are the specific challenges related to most-at-risk populations?

When planning population size estimates (or any M&E activity for that matter), it is important to agree on the definition of the population in the country. For example, an IDU could be defined as someone who has ever injected drugs or someone who has injected drugs within a specified time period. Frequency of injection may also play a role in whether or not a person is identified as an IDU. Without such agreed upon criteria, it can be difficult to compare size estimates across regions and across time.

With many most-at-risk populations engaging in illegal or stigmatized behaviours, any data collection activity, including estimations of population size, is challenging. Making size estimation an inclusive process that involves government and non-governmental organizations, as well as communities, forces people to confront their biases and assumptions, to make the process move forward more effectively.

One challenge is to safeguard the appropriate use of size estimations. There is a very real possibility that reliable estimates of the numbers of IDU, street-based sex workers or MSM could lead not to a public health response, but rather to a law-enforcement response. The likelihood of this happening depends on the national situation, but it should be carefully considered when undertaking, and above all when publicizing, the results of population size estimation efforts. A less damaging yet still problematic response is that authorities will simply ignore the results of a rigorous and transparent estimation and use less robust estimates that better suit their political agendas. Public health officials must weigh the costs of making credible estimates against the likelihood that these estimates will be used constructively.

Many methods for estimating population sizes are based on mathematical calculations and require no contact with individuals. These methods are not designed to identify individuals who may be members of groups at high risk of HIV, or to facilitate access to those groups for programming. For ethical reasons, however, data collection and size estimations should go hand in hand with service provision.

Estimating the size of a venue-based injecting drug user in Kyrgyzstan using an enumeration method.

To estimate the size of a venue-based population, the PLACE method uses information about the number of people who socialize at the venues during busy times and the frequency with which these individuals visit the venues, to obtain a rough estimate of the number of people who visit venues during a given period of time.

In 2003, a PLACE study was performed in Osh, Kyrgyzstan. A total of 237 unique venues were identified in Osh as places where people meet new sexual partners and/or IDUs socialize, and 74 of these venues were randomly selected for interviews with socializing patrons. The number of individuals interviewed at each selected venue was proportional to the number of people who socialized at the venue during busy times. To determine how many IDUs would be reached by a venue-based prevention programme, the number of IDUs who visited the targeted venues during a four-week (28-day) period was estimated. In Osh, 21,289 IDUs with an asymptotic 95% confidence interval of (5,133 – 37,445) were estimated to have socialized at the targeted venues during the four-week period prior to the assessment. Having no information about the respondents' visiting patterns to venues, other than the location of interview, and visits to multiple venues during the study period will result in an overestimate of population size. Thus, for this situation, the estimator can be thought of as an upper bound of the venue-based population size. This approach provides an estimate of the number of IDUs that frequent these venues but not an estimate of all IDUs in the area.

Source: Jackie Tate (2005). Unpublished Dissertation. Chapel Hill, University of North Carolina at Chapel Hill.

How can the results of size estimation be used?

Population size estimations are useful in the areas of policy and advocacy, programme planning and M&E. Estimates of the size of most-at-risk populations, combined with HIV prevalence from surveillance activities among these same populations, are used to develop national estimates of HIV prevalence and the number of PLHIV. When combined with behavioural data, these data can also be used to project future trends in the epidemic, with and without specific interventions – a technique that is particularly useful for influencing policy. They can also be used to estimate the distribution of new infections among most-at-risk populations – which is essential for targeting programmes. While these methodologies go beyond the scope of this guide, further information and tools can be obtained from the UNAIDS reference group on estimates, modelling and projections. For M&E applications, size estimations are used as a denominator for coverage estimates (discussed in more detail in Chapter 6).

Bibliography and references for further reading

MEASURE Evaluation (2005). Priorities for local AIDS control efforts (PLACE). University of North Carolina at Chapel Hill, USA. http://cpc.unc.edu/leadership/place.html

Ministry of Health, Indonesia (2003). National estimates of adult HIV infection, Indonesia. Workshop report. Ministry of Health, Indonesia.

Pisani E, Garnett GP, Grassly NC et al. (2003). Back to basics in HIV prevention: focus on exposure. British Medical Journal 2003, 326 (7403):138884-7.

UNAIDS and FHI (2003). Estimating the size of populations at risk for HIV. Workshop report. http://www.fhi.org/en/HIVAIDS/pub/guide/popsizecontent.htm. Research Triangle Park, NC, FHI.

UNAIDS (2005). Development of the software packages, EPP v2 and Spectrum, and measuring and tracking the epidemic in countries where HIV is concentrated among populations at high risk of HIV. Technical report and recommendations. Geneva, UNAIDS.

UNAIDS and WHO (forthcoming 2007). Back to Basics: A resource manual for planning and tracking effective HIV prevention efforts. UNAIDS/WHO Surveillance working group.

UNAIDS Reference group on estimates, modeling and projections. http://unaids.org/en/HIV_data/Epidemiology/default.asp

Walker NJ, Stover K, Stanecki K et al. (2004) The workbook approach to making estimates and projecting future scenarios of HIV/AIDS in countries with low-level and concentrated epidemics. Sexually Transmitted Infections, August 2004; 80: i10 - i13.

WHO (2004). Case study on estimating HIV infection in a concentrated epidemic: Lessons from Indonesia. UNAIDS/WHO Working group on Global HIV/AIDS/STI Surveillance. Geneva, WHO.

Determining the Contributing Factors

What question does an assessment of the contributing factors answer?

In every community there are a variety of factors that contribute to the creation and maintenance of most-at-risk behaviours. Therefore, an assessment of the environmental or structural factors, community factors and individual factors is needed to plan an appropriate response (Figure 7).

Environmental or structural factors must be considered when planning programmes to intervene on these factors directly or to understand the environment in which appropriate interventions can be implemented. Policies of great importance to prevention planning include the legality of sex work, legality of syringe exchange, legality of sodomy, and legality of condom advertising. Other policies such as safe injection rooms and paraphernalia laws (outlawing the holding of syringes without a prescription) may have a strong impact on drug-using behaviours.

Community factors play a role in creating a risk environment that facilitates HIV transmission. In particular, poverty often leads people to lifestyle choices they would not otherwise make, such as selling sex or selling and using drugs. A lack of educational opportunities can also lead young people to conclude that they cannot improve their earning potential or even earn a living.

Figure 7. Contributing Factors

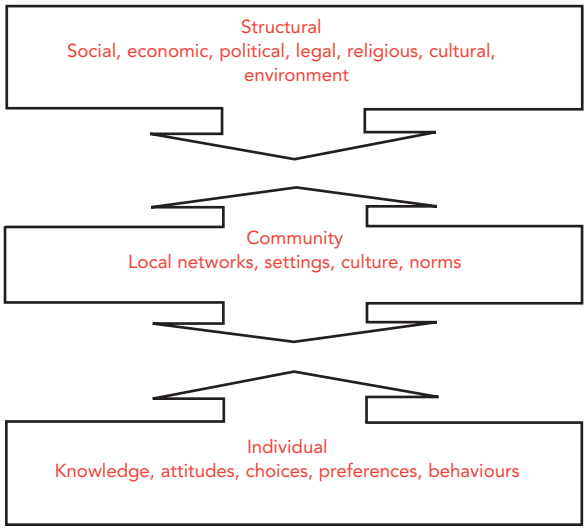


Figure 8. Female Sex Workers And Their Clients: An Example Of Information Needed To Plan An Intervention

Context of sex work

- Different types of sex workers and clients
- Sex workers' needs, perceptions and priorities
- Perceptions and priorities of other actors involved in sex work
- Laws and policies surrounding sex work (and migration if this is a local issue)
- Policies and priorities of funding agencies
- Key stakeholders
- Potential intervention partners, allies or opponents
- Demographic information
- Local occupational and community structures, relationships and lifestyles
- Factors that can facilitate or hinder intervention

Knowledge and behaviours

- Level and patterns of risk behaviours of sex workers, clients and regular partners, and the contexts in which they occur
- Patterns of health-seeking behaviour
- Levels and knowledge of condom use or other safer sex methods
- Knowledge and attitudes about HIV and STIs
- Potential channels, methods, materials and messages for reaching target groups
- Drug and alcohol use by sex workers and clients

Services

- Services already in existence (formal, informal, facility-based, community-based, biomedical or traditional)
- Potential for cooperation with interventions
- Quality
- Attitudes of service providers
- Local perceptions and utilization patterns

Adapted from: WHO (2005). Toolkit for targeted HIV/AIDS prevention and care in sex work settings. Geneva, WHO.

Figure 9. Men Who Have Sex With Men: An Example Of Issues To Explore In A Rapid Assessment

- Stigma and prejudice as they affect the lives and sexual activities of men who have sex with men
- Violence and harassment and their relationship to policing practices
- Emotional and mental well-being of men who have sex with men and their effects on sexual behaviour and lifestyles
- Economic restraints faced by men who have sex with men
- The experiences of men who sell sex to other men
- Knowledge of safer sex, STIs and HIV
- Level and patterns of risk behaviour including sexual behaviour and drug use
- Prevalence of STI symptoms
- Cultural beliefs about sex, sexuality, sexual health and HIV
- Understandings of risk and safety in men's lives, and their relation to the perceptions of HIV
- Attitudes towards and practices relating to drug and alcohol use and the potential affects of these on sexual behaviours and HIV infection

Adapted from: WHO (2004). Rapid assessment and response adaptation guide on HIV and men who have sex with men. Geneva, WHO.

Figure 10. Injecting Drug Users: An Example Of Issues To Be Examined Before Developing Interventions

- How many IDUs are there? Who are they? Have there been recent changes in their drug-using behaviour?
- Why is injecting drug use spreading or about to spread? How is it affecting the health of the IDUs and what are the political and social contexts of the drug use?
- What are the drug injecting and sexual risk practices of IDUs?
- What is the prevalence of blood-borne viruses (HIV, hepatitis B and hepatitis C), overdoses and other negative health effects of drug use?
- Is there any government policy response to injecting drug use? Are there any programmes dealing with or targeting the health needs of IDUs?
- Are there money and resources (such as staff and organizations) available and the ability and desire to intervene?
- What sort of interventions might work and be acceptable, affordable and ongoing?

Adapted from: WHO (2005). Policy and programming guide for HIV/AIDS prevention and care among injecting drug users. Geneva, WHO.

Figures 8, 9, and 10, taken from recent guides on prevention planning issued by WHO (see references at the end of this chapter), provide examples of information to consider when conducting a needs assessment for FSWs, MSM, and IDUs. While these are only illustrative lists, they do reflect many of the environmental, community and individual factors that may be considered, along with the questions or areas of enquiry that are unique to each of these populations.

When should formative research and needs assessments be conducted?

The assessment of the contributing factors and determinants of risk should be conducted as part of the programme design and, thus, should be conducted before the implementation or scaling-up of interventions. Formative research should only be conducted after a comprehensive review of existing information so as to avoid collecting information that already exists and to ensure that the research is well designed to fill any gaps.

Who should conduct formative research and needs assessments?

Programme managers and other stakeholders involved in programme design should be involved in planning formative research and needs assessments. The scope of the assessment, and thus the need for specific technical expertise, will depend on resource availability for programme planning and implementations as well as what is already known. For a more in-depth assessment or situation analysis, researchers with expertise in instrument design, sampling and fieldwork methods should be consulted to help oversee the design and implementation of these activities. These may be identified from local academic institutions with expertise in this area, or through referrals from other organizations working with similar populations.

Broad community support and involvement at the early stages of a needs assessment are required if it is to be successful. This includes the involvement of members of the target population, local authorities and other influential stakeholders, and groups directly involved in providing services to these populations.

What are the methods of formative research and needs assessments?

Formative research and needs assessments usually combine qualitative and/or quantitative methods. Rapid assessments collect basic information in a short period of time, often using participatory methods. These can be followed by a more detailed situation analysis if needed.

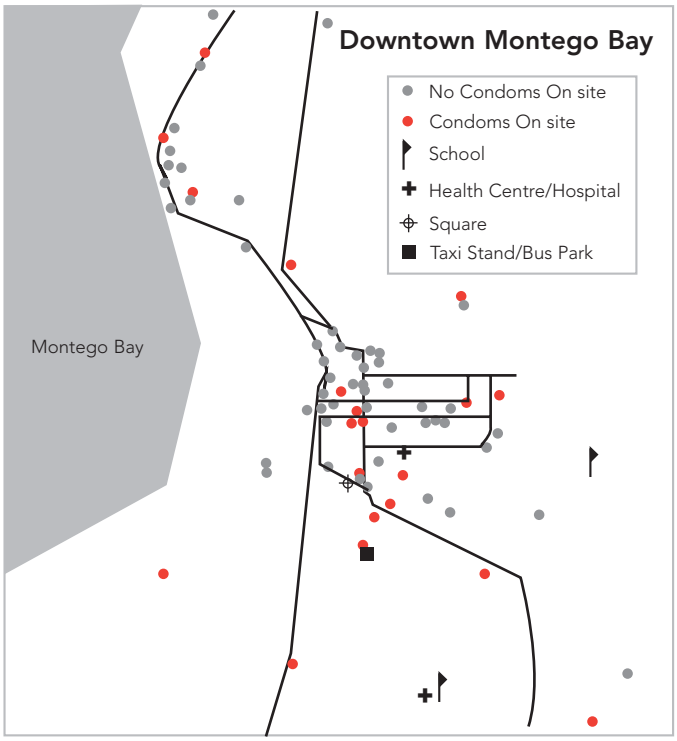
Rapid assessments typically employ observation of the community, visits to sites where drugs or sex are purchased and used, and interviews with key informants in the community. Specific methods may include mapping locations where high-risk behaviours occur, mapping prevention services to assess availability and physical barriers to use, and in-depth interviews and focus group discussions with community members and key informants to understand the effects of the community and environment on risk-taking behaviours.

There are a number of rapid assessment tools available for most-at-risk populations (see references at the end of the chapter). Assessments tools are available from WHO to assess the environment in which HIV-related behaviours are occurring. The Rapid Assessment and Response approach, for example, is a means for undertaking a comprehensive assessment of an issue, including a characterization of the problem, population subgroups affected, settings and contexts, health and risk behaviours, and social consequences. The PLACE methodology is another rapid assessment method aimed at mapping and collecting information at sites where people meet new sexual partners (including FSWs and MSM) or IDUs socialize. Figure 11 provides a map of venues where people meet new sexual partners, which was used to target HIV prevention interventions in Jamaica.

What are the specific challenges related to needs assessment among most-at-risk populations?

Needs assessments will be informative only if they are planned and implemented with the involvement of members of the communities and populations under study. People conducting formative research need to be sensitive to the culture that they are entering, non-judgemental, and understanding of cultural norms and behaviours. Community engagement is essential at all steps of the process. In addition, because these are populations practising behaviours that are often highly stigmatized and sometimes illegal, measures must be taken to prevent harm to these populations. For example, information and maps of locations where most-at-risk behaviours occur may need to be kept confidential if they are likely to be subjected to action by local authorities. Special training and supervision of field work may also be needed to ensure adherence to good research practices, including informed consent, voluntary participation, confidentiality and anonymity.

Figure 11. Mapping Of Venues Where People Meet New Sexual Partners. Montego Bay, Jamaica.



Source: Carolina Population Center. PLACE in Jamaica. Monitoring AIDS prevention at the parish level. MEASURE Evaluation Technical report. Chapel Hill, University of North Carolina at Chapel Hill (2004).

How can the results be used?

A strong assessment of the contributing factors will include public policies that have an impact on at-risk populations, the implementation of these policies, the public and private sector organizations that work with relevant populations, the socio-economic structure of the communities, and the physical environment, both natural and human-made. Once the basic structures are outlined, some analyses of the current environment and its potential effects on risk behaviour can be determined. Interventions can then be planned with a view of these different contributing factors.

Even in the absence of more rigorous situation analyses, rapid assessments can help to identify geographic areas where high-risk behaviour is concentrated, the characteristics and practices of members of these populations, sites where interventions can be implemented, and potential barriers to intervention effectiveness. Figure 11 illustrates the results of a mapping activity, as part of a PLACE assessment in Montego Bay, Jamaica, that identified venues where people meet new sexual partners. This information was used to identify the appropriate venues for HIV prevention programming, including condom promotion.

Bibliography and references for further reading

MEASURE Evaluation (2005). Priorities for local AIDS control efforts (PLACE). University of North Carolina at Chapel Hill, USA. http://cpc.unc.edu/leadership/place.html

PLACE in Jamaica (2004). Monitoring AIDS prevention at the parish level. MEASURE Evaluation Technical report. Carolina Population Center. Chapel Hill, University of North Carolina at Chapel Hill.

Stimson GV, Donoghoe MC, Fitch C, et al (2003). Rapid Assessment and Response Technical Guide. WHO, Geneva.

Weir SS, Pailman C, Mahlalela X et al. (2003). From people to places: focusing AIDS prevention efforts where it matters most. AIDS. 17(6):895-903.

WHO (2002). The rapid assessment and response guide on psychoactive substance use and sexual risk behaviour. Geneva, WHO.

WHO (2004). Rapid Assessment and response adaptation guide on HIV and men who have sex with men. Geneva, WHO.

WHO (2005). Policy and programming guide for HIV/AIDS prevention and care among injecting drug users. Geneva, WHO.

WHO (2005). Toolkit for targeted HIV/AIDS prevention and care in sex work settings. Geneva, WHO.

Process Monitoring and Evaluation – Determining Programme Implementation Quality

What questions does process monitoring and evaluation answer?

Every project or programme, no matter how small, needs a simple monitoring and evaluation strategy that is put into place at the design stage. A major part of this strategy should be a plan for process monitoring and evaluation. Process monitoring is the routine (daily) gathering of information on key aspects of a project or programme to understand how project activities are progressing. It provides information for planning and for feedback about the progress of the project to donors, implementers and beneficiaries of the project. Process evaluation is the periodic assessment of the value of what a project or programme has achieved in relation to planned activities and overall objectives. It identifies the constraints that hinder the project in achieving its objectives and can help to provide solutions that can then be implemented.

While all programmes, regardless of target population and type of intervention, should conduct process monitoring and evaluation, there are several issues to which programmes targeting most-at-risk populations should pay particular attention:

- *Acceptability of programme services* – this could be impacted by experiences of stigma and discrimination, perceptions of privacy and confidentiality, appropriateness and relevancy of interpersonal communication and printed materials, involvement in programme planning and implementation, positive and negative experiences, and overall satisfaction.

- *Access to programme services* – including distance to and location of project sites, opening hours, waiting times, cost, and police presence.

- *Targeting of programmes* – whether programmes are reaching particular networks of most-at-risk populations and excluding others that may be less visible or more highly affected by HIV.

- *Linkages with other services* – as individual programmes cannot be expected to meet all the needs of most-at-risk populations, organizations need to link effectively with others providing complementary services. These include other prevention services as well as treatment, care, support, human rights, and life or vocational skills training.
- *Involvement of community stakeholders* – programmes targeting most-at-risk populations are unlikely to be successful without the simultaneous involvement of those individuals who also influence their vulnerability to HIV. They are specific to local contexts and can include sex industry gatekeepers (e.g. 'madams,' 'pimps'), sexual partners, police and local authorities, or influential individuals. These individuals directly influence the success of interventions, and process evaluations commonly explore their attitudes towards, and interactions with, programmes.

When is it necessary to conduct process monitoring and evaluation?

Process monitoring should start at programme inception, with routine data being collected and used to monitor the services that are provided. These routine data, which include key service output indicators, should be analysed on a regular basis to provide information on progress and provide feedback to programme staff and other key stakeholders.

Process evaluations are often conducted at strategic intervals of every one to two years during a project's life cycle so that analytical and descriptive data are available frequently enough for mid-course corrections to be made. Process evaluations are also used in some cases to help inform the design of outcome evaluations (discussed in chapter 7) and in others to add meaning to quantitative data.

Process monitoring and evaluation are often seen as the most important type of monitoring and evaluation activity for programme managers, as it helps to identify successful aspects that can be continued or expanded as well as deficiencies that can be addressed and the means for addressing them. This information should be communicated periodically to staff to ensure that they are aware of successes, deficiencies and changes in directions. Process monitoring and evaluation also provides an opportunity for most-at-risk populations to contribute to programme development and strengthens the relationships and collaboration between members of affected communities and project stakeholders.

Who should conduct process monitoring and evaluation?

Different types of staff and levels of resources may be required for process monitoring as opposed to process evaluations. As an ongoing activity, process monitoring should be integrated into routine programme management functions and undertaken by field staff, while process evaluations may require additional resources, an outsider's perspective and/or M&E expertise.

What methods are available for process monitoring and evaluation?

Routine data for process monitoring

At a minimum, a management information system (MIS) should be implemented to capture basic information on project activities and services provided for routine monitoring purposes. The information captured by an MIS will be similar to data collected by HIV prevention programmes for other populations and may include the following types of indicators:

- Number of outreach events carried out (e.g. workshops conducted, support group meetings held, drama or street theatre shows)
- Number of products distributed (e.g. condoms, lubricant)
- Number of stakeholders participating in activities
- Number of staff trained (e.g. in outreach, in counselling for serodiscordant couples, STI treatment)
- Number of information contacts (e.g. calls to a hotline, hits on a website, pamphlets distributed)
- Number of media events (e.g. radio programmes, television announcements, etc)
- Number of services provided (e.g. HIV tests conducted, methadone doses provided)
- Number of project sites (e.g. STI clinics, drug treatment centres, drop-in centres)
- Number of clients contacted (e.g. through community outreach, at drop-in centres, etc.)
- Number of clients receiving services (e.g. IDUs in drug treatment, FSWs screened for STIs)
- Number of clients referred to services (e.g. HIV counselling and testing, HIV treatment services, psycho-social support services)

These indicators should be reported separately by population (e.g. IDU, FSW, MSM) and disaggregated by gender and age group where relevant and useful.

Process Evaluation

Process evaluations take into consideration a mixture of existing as well as new data sources. Existing data will include time series and or cross-site analysis of the monitoring indicators mentioned above, programme documents including strategic plans, guidelines, M&E and theoretical frameworks, narrative reports, and mid-term assessments. These can be supplemented by complementary data sources such as national HIV surveillance reports and strategic plans, situational assessments or formative evaluation reports, and policy documents or special studies directly or indirectly related to most-at-risk populations.

Special studies to determine implementation quality

Activities to determine programme implementation quality as part of process evaluations range from rapid assessments that can be accomplished cost-effectively and relatively quickly, to special data collection activities that employ rigorous research methods, detailed assessment tools and in-depth programme analyses. Methods of data collection related to implementation quality may include:

- *Client interviews*

  Interviews with clients provide information on their experience, perceptions and satisfaction with services they have received. This includes interactions with project staff and referral agencies, access and acceptability of project sites, and appropriateness of services. They can also assess the intensity of exposure to interventions (see Figure 12) and whether referral systems intended to provide a continuum of care are working effectively.

- *Staff interviews*

  Interviews with project management and staff can provide information on perceived strengths, weaknesses and needs related to service delivery, programme processes, staff and management structures, capacity, and communications methods.

- *Observation*

  Observation of the client-staff interaction provides an opportunity to assess the completeness and accuracy of information provided to clients, adherence to protocols, and interpersonal communication skills of the staff, and whether the appropriate referrals are made.

- *Facility audits*

  Facility or service audits provide information on the availability of required staff (number and qualifications), adequacy of infrastructure, equipment, support materials, technical and operational guidelines, etc. They can also assess programme support functions, including procurement and material storage and availability, record keeping and documentation.

- *Interviews with Complementary Service Providers*
  This type of interview can address the adequacy of referral linkages by focusing on collaboration with agencies that provide complementary services, and can include an assessment of referral experiences, including follow-up and perceptions about referrals.

- *In-depth interviews and focus groups with non-users*
  Qualitative research methods such as focus groups or in-depth interviews with non-service users can help identify barriers and biases in access to services and gaps in service provision.

How do I select the most appropriate methods?

The issues under investigation and resources that are available need to guide the selection of methods for collecting additional data. For example, if a project is concerned with the uptake of services, staff may wish to analyse the monitoring data relating to service utilization and referrals, then conduct focus groups and in-depth interviews with service providers and non-users to assess barriers and gaps in service delivery. If few clients are returning, they may wish to observe the conditions of the facility, interactions between clients and staff, or conduct interviews with clients to assess areas of dissatisfaction and gaps in service delivery.

What are the specific challenges related to process monitoring and evaluation among most-at-risk populations?

The same ethical considerations associated with research involving human subjects need to be applied when undertaking process evaluations in client communities. Values including respect for privacy, confidentiality, anonymity, and the principle of 'do no harm' must guide the approach to data collection, analysis, and release of findings. Ethical research practices must be strictly adhered to, when accessing project records, to maintain the confidentiality of client information.

Gaining access to clients of projects for additional data collection requires close cooperation with project staff and, when data collection occurs outside of the facility, with gate keepers in the community. This may occur, for example, when contacting clients at brothels, bars or other locations where outreach is conducted. Enlisting cooperation from local authorities can also help to protect data collection staff who may otherwise be harassed by the authorities if it appears that they are soliciting sex or looking to buy drugs. While access to clients is usually obtained through contact with project staff, interviews concerning quality of services should be conducted away from the presence of project staff if unbiased feedback is to be obtained.

How can the results of this activity be used?

Data analysis and use considerations are particularly important for process evaluations. Stakeholder participation in the analysis and interpretation of findings from process evaluations, including the formulation of conclusions and linkages with future plans, is critical to ensure that results become accepted and used. Participation can have important secondary benefits, such as galvanizing a shared understanding of current priorities, strengthening commitment to project activities, and communicating important information to policy-makers. These benefits are likely to be less evident when evaluators do not actively seek broad involvement in the design and analysis phases.

The utility of findings from process evaluations will be enhanced if they are integrated into routine programme management and key findings are frequently made available to stakeholders. In turn, this will facilitate timely programmatic adjustments to meet changing epidemic dynamics and priorities. This requires dissemination strategies that present information in an easily digestible form for stakeholders and that promote the use of findings for programme improvement.

The use of participatory and mixed-method evaluation designs in process evaluations: an example from Bangladesh

In 2005, an independent team conducted a process and outcome evaluation of the Bandhu Social Welfare Society's (BSWS) HIV prevention programme for MSM in Bangladesh. The process assessment investigated activities conducted, programme coverage, and the quality of services. Methods of data collection included a review of monitoring data, such as the number of peer education contacts, in-depth individual and group interviews with programme staff and beneficiaries, and observation of programme services. The evaluation team also used a participatory approach, by involving BSWS staff and beneficiaries in designing the evaluation, collecting the data and using the results by devising action plans to implement the recommendations.

Two major lessons emerged for conducting evaluations with most-at-risk populations. The first was the importance of using participatory evaluation methods with highly stigmatized groups. As a result of involving both staff and beneficiaries in the different stages of the evaluation, the evaluation team gained better access to respondents and better quality data. In addition, because participants had a say in deciding what was evaluated, the evaluation results were actually used by programme stakeholders. Lastly, there was a transfer of skills where staff learned more about how to plan and implement their own evaluation. The second lesson was the value of combining process with outcome components as part of a comprehensive mixed-method design. By conducting a process and outcome assessment together and deliberately mixing quantitative and qualitative methods, the evaluation team and programme stakeholders were able to get a fuller understanding of the programme. In addition, the evaluation team was better able to determine that measured changes were attributable to BSWS's programmes.

Source: Anne Coghlan, ACTion Consulting

Bibliography and references for further reading

Bertrand J, Solis M (2000). Evaluating HIV/AIDS prevention projects: A manual for nongovernmental organizations. MEASURE Evaluation Manual Series. Carolina Population Center. Chapel Hill, University of North Carolina at Chapel Hill.

FHI (2004). Monitoring HIV/AIDS Programmes: A facilitators training guide. Research Triangle Park, NC, FHI.

GFATM (2006). Monitoring and Evaluation Toolkit HIV/AIDS, Tuberculosis, and Malaria. Second Edition, Geneva, GFATM.
http://www.theglobalfund.org/en/about/policies_guidelines/

Rehle T, Saidel T, et al. Evaluating programmes for HIV/AIDS prevention and care programmes in developing countries. A handbook for programme managers and decision-makers. Research Triangle Park, NC, FHI.

Monitoring Programme Uptake and Coverage

What questions does monitoring uptake and coverage answer?

Data on the uptake of services are a basic component of the management information system for planning and resource allocation. They are also important for tracking progress in the provision of services and for providing feedback to stakeholders. The use of information on uptake of services for programme management was covered, in part, in the previous chapter. The use of these data as part of estimating programme coverage is discussed in this section.

Coverage is a measure of whether a programme is working in the right places ('Are services available for most-at-risk populations in the areas where these populations are concentrated?') and reaching its target population ('Are sufficient numbers of the population targeted by interventions actually receiving services?') For a programme to have a maximum impact on HIV prevention among most-at-risk populations, it must do both. Achieving coverage is an intermediate step towards changing behaviour and reducing the number of new infections.

In countries where the epidemic is concentrated among most-at-risk populations, programmes are likely to be delivered in a targeted fashion. Geographic targeting ensures that interventions are being delivered in areas where there is a convergence of risk behaviour. Rather than aiming to achieve national coverage, a programme concerned with effectively allocating scarce prevention resources may aim instead to achieve coverage of these sites. Thus, monitoring geographic as well as individual-level coverage is important for programmes targeting most-at-risk populations.

When is it necessary to monitor uptake and coverage?

During the initial scale-up of programmes, it is important to assess the geographic coverage of HIV prevention services, to ensure that programmes are being delivered to those populations in need of services. This should be assessed on at least an annual basis. Once full geographic coverage is achieved and resources are expected to remain at similar levels, monitoring geographic coverage becomes less important and can be conducted less frequently, perhaps every other year.

Data on clients served or reached are used to track the uptake of HIV prevention services. These data should be collected as part of a routine monitoring system at the project level and implemented at project start-up, then analysed on a monthly basis. Aggregation of project level data for overall programme monitoring purposes may occur on a quarterly, semi-annual or annual basis. Data on uptake can be combined with estimates of the population size (discussed in chapter 3) to determine programme coverage on an annual or biannual basis, depending on the availability of updated population size estimates.

Who should monitor programme uptake and coverage?

Tracking the number of clients served is a basic component of process monitoring at the project level. Project staff may also use these data to calculate individual coverage estimates to assess whether interventions are reaching a sufficient proportion of the target population or if changes to strategies or additional resources are needed.

M&E programme staff at national or subnational levels should be responsible for aggregating data on the uptake of services across projects targeting most-at-risk populations, to assess collective coverage of services. It is also at this level that geographic coverage should be monitored to identify gaps in programming and allocate resources more strategically. Both these activities require capacity at the national or subnational level to compile and analyse data and produce a clear picture on intervention availability and use.

Monitoring the implementation of a minimum package of HIV prevention services for most-at-risk populations in the SE Asia Mekong Region

In the Southeast Asia Mekong region, the strategy of USAID and its partners is to support the implementation of effective HIV prevention interventions in "hot spots" across the region. Many of these sites are cities, large towns, and border areas where there is a convergence of risk behavior and higher levels of HIV infection among most-at-risk populations. At these sites, a minimum package of HIV prevention interventions is being implemented in a coordinated fashion with support from donors, non-governmental organizations and national governments. Services included in the minimum package are: peer education/outreach education, HIV counselling and testing, STI treatment, condom distribution, targeted media, and drug treatment and safer injection practices for IDUs. Also important to the package is that there are linkages between these services and treatment and care services for PLHIV. The availability of the minimum package is monitored at key sites across the region every two years. Interviews with project managers and key informants are used to identify all government and non-government projects that provide services to FSWs, MSMs, or IDUs at each of the sites. The number of sites with all components in place is then assessed. In addition to monitoring scale-up of the minimum package of HIV prevention services, these data are used to improve coordination among partners and support effective programming.

Source: **Patchara Rumakom, USAID Regional Development Mission, Asia.**

What methods are used to monitor uptake and coverage?

Monitoring geographic coverage

Mapping can be used to identify geographic areas or sites within a country where behavioural data and epidemiological data indicate higher levels of HIV risk behaviour and the potential for increasing levels of HIV infection. When combined with size estimates of most-at-risk populations, this can be used to identify those sites or 'hotspots' where HIV prevention interventions should be implemented. The availability of these interventions can then be assessed by interviewing key informants in the communities, members of organizations providing HIV prevention services, and officials from government and donor agencies. The number of sites with HIV prevention interventions available can then be tracked over time.

The choice of interventions to be assessed in estimates of geographic coverage should be evidence based and follow international guidance on best practices. A number of HIV intervention areas have been identified in the 2001 Declaration of Commitment on HIV/AIDS adopted by UNGASS. More detailed information on specific interventions for FSWs and IDUs can be found in the WHO publications referenced at the end of this chapter.

Monitoring uptake and individual coverage

While geographic coverage provides information on the availability of services, it does not provide information on the uptake of services. Because people in most-at-risk populations are often marginalized and face stigma and discrimination, even when services are available, they may not use them. So programmes should monitor the utilization of key services for most-at-risk populations as an important component of assessing coverage.

All projects should record the number of clients receiving services or contacted through outreach activities. This information may be collected in registers maintained at clinics and drop-in centres, or in log books kept by outreach workers. These data should then be aggregated on a regular (i.e. monthly) basis to assess the overall number of clients served and the total by service type. As it can be difficult to record the number of clients rather than client-visits or contacts, a system needs to be put into place to allow the tracking of individual clients. While some client registers may contain personal identifying information, others may use a unique identification number. A drop-in centre for MSM may, for example, provide clients with a membership card containing a unique identification number. This allows individual clients to sign in for services without divulging personal identifying information. When conducting outreach in bars, cruising places, or at other venues, outreach workers may ask clients if they have been contacted by outreach workers previously. They can then make a note of this in their log book after providing outreach services to the client.

Where there are multiple projects implementing interventions for a most-at-risk population, coverage of the programme can be estimated by using aggregated service data from project records or from surveys of most-at-risk populations. The following is a summary of these methods.

Programme records and population size estimates

Synopsis: Data on the uptake of services are obtained from project records combined with population size estimates.

Main Features: Most projects maintain records of clients receiving services or contacted through outreach programmes. These data can be aggregated to produce estimates of the number of clients served during a defined period of time. This is best achieved when working within a unified M&E system which ensures that data are gathered in a uniform format and where overlap between projects is avoided. When combined with estimates of the size of the target population (see chapter 3), coverage can be estimated.

Assumptions: This assumes that programmes can track the number of clients reached within and across different projects. While it is relatively easy to track client-contacts or visits, it is more difficult for projects to track the number of individual clients served. This is particularly true with most-at-risk populations that may be reluctant to access services that require individual identifying information. Where several projects may provide similar services for the same population, or when aggregating estimates of clients served across individual projects, clients receiving services from more than one project may be counted multiple times. Where projects targeting the same population use the same unique code to track clients, this can reduce this double counting. This method also assumes that valid estimates of the size of the target population are available for the denominator.

The use of two different methods to track the number of clients reached with services: examples from the Russian Federation and Viet Nam

To track of the delivery of services to individual clients, a special coding system can be developed and implemented that both maintains anonymity, and at the same time, identifies the client of the programme. For clients of an IDU programme in the Russian Federation, a reproducible code is used that contains a combination of the letters and figures that the client is able to reproduce regardless of his or her condition. This code is created by using the first letter of the client's name, the first letter of the mother's name, year of birth, and other factors. Thus, when receiving services, clients do not need to reveal any personal identifying information, nor do they need to produce a membership card or other document to obtain services.

Source: **Alexey Bobrik, Open Health Institute, the Russian Federation**

Estimating the number of persons reached during a defined period of time is particularly challenging when delivering outreach services to most-at-risk populations in community-based settings as persons may be reached multiple times during a reporting period. This results in an overestimate of the actual number of individuals receiving services. While a unique identifier system may be feasible as a way to track the number of clients receiving services at a fixed site such as a drop-in centre or STI clinic, it is less useful in an outreach setting such as bar, park, or street corner. With the 'Recall Method', service recipients are asked to recall the last time (i.e. last month and year) they were contacted by project staff through HIV prevention outreach. With this single question, the number of contacts or service deliveries can be successfully separated from the number of individuals actually reached in the reference period. When tested in Viet Nam for FSW and MSM programmes, data from the 3-month pilot demonstrated that in comparison to the previous 3 months, while the number of service deliveries did not change significantly, the number of FSWs reached declined by around 50%. In contrast the decline in the number of MSM reached was not significant as there were few repeat contacts; most of the MSM reached had been new and were contacted only once in the quarter.

Source: **Mike Merrigan, Family Health International, Thailand**

Surveys of most-at-risk populations

Synopsis: Questions on exposure to interventions are included in behavioural surveys of people in most-at-risk populations.

Main Features: Respondents in surveys are asked a series of questions about exposure to interventions and use of services. Surveys will most likely capture programme coverage rather than coverage of a particular project's intervention as persons surveyed are not often able to identify the source of the service.

Assumptions: This assumes that respondents will be able to recall exposure to various types of interventions during a specified time period. For mobile populations, such as sex workers in some settings, estimates of coverage at one point in time based on survey data may not reflect the coverage of that target population over a longer period of time, as populations move in and out of the intervention area. In addition, because members of most-at-risk populations who are surveyed may be more likely to have been reached by programme interventions, they can result in an overestimate of coverage.

UNGASS indicators of programme coverage

- Percentage of most-at-risk populations reached with HIV prevention programmes
- Percentage of most-at-risk populations who received an HIV test and know the results

How to select the most appropriate method for monitoring uptake and coverage

Ideally, uptake and coverage should be monitored using programme records and population size estimates. This requires, however, that projects have the capacity to collect and report on uptake of services and that there are systems in place to adjust figures for double counting. In the absence of a good record-keeping system, these data may have to be obtained from surveys.

What are the specific challenges related to monitoring uptake and coverage among most-at-risk populations?

Because members of most-at-risk populations may want to remain anonymous when accessing services or when contacted by outreach workers, it can be difficult for projects to keep track of individual clients who have been reached by the services. Clients may be unwilling to provide personal identifying information that could be used to identify them on subsequent visits. As outreach activities often occur in locations such as bars, shooting galleries or cruising areas, outreach workers are rarely able to record information about the client immediately after contact.

How can the results be used?

Many countries are scaling up to expand the delivery of HIV interventions to most-at-risk populations. Monitoring this effort helps to ensure that a comprehensive range of interventions is being delivered to these populations and that the scale of the interventions is sufficient to meet the need.

With expanded resources being made available, programmes are being held accountable for effectively providing these services and are often obliged to report to national governments, donors and the international community on the number of clients reached as part of the process of generating coverage estimates. Reporting on progress in achieving coverage can be a useful tool for demonstrating results and advocating for additional resources.

In addition to monitoring scale-up, information on programme activities and whom they are reaching is needed for good programme evaluation. Process evaluations (discussed in chapter 5) that aim to assess programme efficiency can compare outputs, such as the number of clients served, with programme inputs. Outcome and impact evaluations (discussed in chapter 7) also benefit from these data. If coverage data are not considered, results of an outcome or impact evaluation may be misleading. The evaluation, for example, may reveal little or no impact, not because the intervention is ineffective, rather because it did not reach sufficient numbers of the target population.

Bibliography and references for further reading

Bertrand JT, Solis M (2000). *Evaluating HIV/AIDS prevention projects*: *A manual for non-governmental organizations.* MEASURE Evaluation Manual Series, No 10. Carolina Population Center. Chapel Hill, University of North Carolina at Chapel Hill.

Chapman S, Capo-Chichi V, Longfield K, Piot P (2005). Project MAP: Measuring access and performance (lessons learned and recommendations).Washington, DC, PSI, Research Division

GFATM (2006). Monitoring and Evaluation Toolkit HIV/AIDS, Tuberculosis, and Malaria. Second Edition, Geneva, GFATM.
http://www.theglobalfund.org/en/about/policies_guidelines/

Rehle T, Saidel T, et al. *Evaluating programmes for HIV/AIDS prevention and care programmes in developing countries. A handbook for programme managers and decision-makers.* Research Triangle Park, NC, FHI.

UNAIDS (2005). *Intensifying HIV prevention*, UNAIDS policy position paper. Geneva, UNAIDS.

United Nations General Assembly Special Session on HIV/AIDS (2001). *Declaration of Commitment on HIV/AIDS.* New York, UN.

WHO (2005). *Policy and programming guide for HIV/AIDS prevention and care among injecting drug users.* Geneva, WHO.

WHO (2005). *Toolkit for targeted HIV/AIDS prevention and care in sex worker settings.* Geneva, WHO.

Assessing Intervention Effectiveness – Outcome Evaluation

What questions can an outcome evaluation answer?

An outcome evaluation determines if, and by how much, programme activities achieve their intended effects on the target population. It answers two questions:

- Are the desired outcomes being observed in the target population?
- Are these changes likely to be the result of the intervention?

The first question involves the collection of data on selected outcomes, such as HIV-related knowledge and risk behaviour, over time.[20] The second question requires the use of methods that provide sufficient evidence to support the link between the observed changes and the intervention. Intended users of the findings from an outcome evaluation, such as programme planners, need to determine up front the magnitude of the effect that is expected and the level of evidence that is needed to conclude that the intervention is indeed effective. These factors will affect decisions about the programme, such as whether funding should be continued and whether the intervention should be expanded or replicated.

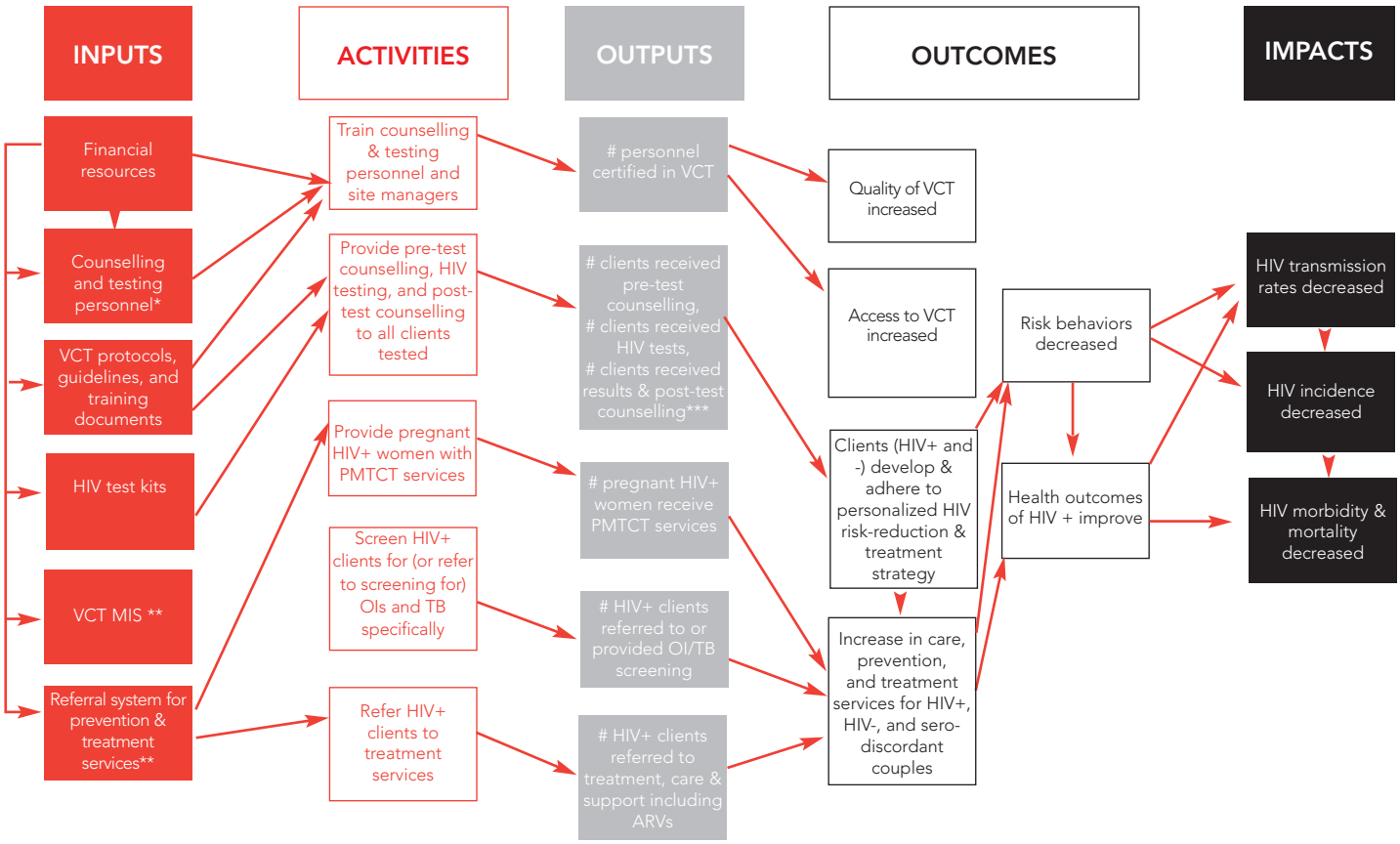
When is it necessary to conduct an outcome evaluation?

Whether or not an outcome evaluation is warranted and which methods should be used will vary by intervention and intervention context. As explained in the introduction to this guidance document, the extent and cost of M&E activities should be commensurate to the size, reach and cost of programmes. In addition, not all M&E activities are appropriate for a given programme or the stage of development of a programme. Generally speaking, one should consider conducting an outcome evaluation after the introduction of a new intervention or when the effectiveness of an intervention is not known, to establish its efficacy. Evaluating efficacy typically refers to determining whether an intervention could work if it were implemented optimally (a more research-based approach for which generally the most rigorous methods are used). Evaluating effectiveness typically refers to determining whether an intervention does work as implemented, usually under less than optimal or real-world conditions (a more pragmatic programmatic approach) (Coyle et al., 1991).

20 Typically, an outcome evaluation collects data on knowledge, attitudes, practices and/or behaviour, while an impact evaluation includes data on disease prevalence and/or incidence as a function of programme activities over time (Rugg, Peersman and Carael, 2004).

The planning for an outcome evaluation should begin at the early stages of programme formulation. One effective method for planning an evaluation is through the development of a logic model (see Figure 13 for an example of a logic model for a VCT programme. Note: only some logical linkages between programme elements are indicated). A logic model provides a roadmap for the programme, highlighting what activities need to come before others and how it is intended to achieve desired outcomes. By including explicit connections between short-term, intermediate and long-term outcomes, programme staff will be better able to evaluate progress and programme success, and locate weaknesses in programme operations (W.K. Kellogg Foundation, 1998). It can be used to decide which of the elements of the programme to study systematically in order to determine whether or not underlying programme assumptions were correct or where the model is failing to perform as originally conceptualized. In other words, it helps to link activities to desired outcomes and helps to focus the evaluation on key events to see what happens, what works, what does not work, and for whom.

Figure 13. An Example Of A VCT Programme Implementation Logic Model



Source: ORC Macro and the US Centers for Disease Control and Prevention
M&E capacity building for programme improvement, slide set for M&E training, Atlanta: Centers for Disease Control and Prevention, 2003.

Before actually conducting the outcome evaluation, it is important to determine through process monitoring and evaluation whether the activities are being implemented as planned and whether they are reaching their intended beneficiaries. In addition, a fledgling project needs to establish its ability to serve a large enough number of clients with an appropriate intensity of service. (For a useful tool for assessing the readiness of an outcome evaluation, see further reading: Global AIDS Programme, 2003). If a programme is not ready for evaluation, limited funds, time and other resources may be wasted and programme staff may be discouraged from conducting and/or permitting any evaluations at all.

There has been a general lack of activity and documentation of HIV prevention outcome evaluations to date, especially for developing countries. A recent review of evaluations of HIV prevention interventions found that interventions targeting most-at-risk populations received little attention and that MSM interventions, in particular, were severely understudied. In addition, most evaluations focused on individual-level interventions and few addressed the effectiveness of social, policy or structural interventions.[22] Based on the results of this review and the current course of the HIV epidemic, there is an undeniable need to increase the level of effort regarding evaluations of interventions for most-at-risk populations, especially among MSM and IDUs.

What methods are available to conduct an outcome evaluation? How can the appropriate methods for a specific context or conditions be selected?

Conducting an outcome evaluation requires systematic, well-grounded methods. The following section will briefly outline the primary methods employed for outcome evaluations. More exhaustive descriptions of methodology can be obtained from the resources listed under bibliography and references for further reading.

Study Design

The choice of an appropriate study design should begin early in the evaluation planning because a variety of factors affect the choice, such as funding, staff skill level, and time allotted. As explained in the introduction to this document, observational, analytical and experimental studies – as well as routine monitoring and programme evaluation – all have a legitimate contribution to make to answer key public health questions (see Figure 4 for an example; see also Beck et al., 2006). Typically, the different methods are used sequentially, each answering different questions. Often, information users will be satisfied with evidence

22 Peersman, et al. (2005).

that is 'good enough', in other words, evidence that supports a plausible link between the programme's operations and the desired outcomes. While non-experimental methods have been used regularly in behavioural outcome evaluations, they may not deliver the information necessary for stakeholders to make informed decisions . Where there is a high degree of uncertainty or the decision stakes are particularly high, more rigorous methods may be needed to provide solid evidence that the intervention, over and above other factors, caused the observed outcomes. The need for a rigorous study design, however, must be balanced with issues of cost and feasibility. It should also be noted that while experimental studies can ascertain the efficacy of an intervention under controlled conditions, they cannot in most instances infer effectiveness of the same intervention once it has been introduced into routine practice.

The use of a randomized control trial to evaluate an intervention for sex workers in Côte d'Ivoire

In Côte d'Ivoire a randomized controlled trial among female sex workers was conducted with 542 women who were given either a basic or intensive intervention (more frequent visits) consisting of information and education, free condoms and STI treatment. Outcomes were measured for 225 women (42%) through self-reported behaviour and testing for STIs. When baseline data were compared with post-intervention data, the intervention was found to be significantly associated with increases in condom use (from 40% to 82%) and decreases in the prevalence of gonorrhoea (from 14% to 5%) and trichomoniasis (from 24% to 11%). In terms of HIV incidence, rates were lower among those who participated in the intensive programme than among those in the basic programme, although these differences were not statistically significant.

Source: Hoffman O, Boler T and Dick B. Achieving global goals on HIV among young people most-at-risk in developing countries: young sex workers, injecting drug users and men who have sex with men (2006). In: Ross D, Dick B and Ferguson J (Eds). Preventing HIV/AIDS In Young People. A Systematic Review Of The Evidence From Developing Countries. Geneva, WHO.

When planning an outcome evaluation, quantitative data or a combination of both quantitative and qualitative data may be used to provide the most comprehensive picture of the intervention's effectiveness.

- Quantitative methods: These are essential in most outcome evaluations for quantifying the extent to which programme objectives were achieved. They analyse relationships between variables such as an individual's background characteristics and HIV-related risk behaviour. Instruments include surveys and questionnaires to systematically collect information for a selected sample of individuals.

- Qualitative methods: These are important for gaining a more complete understanding of the behaviour of most-at-risk populations, factors affecting the success of an HIV intervention, and interpreting quantitative results. Examples of qualitative methods include interviews, focus groups and direct observations.

To increase reliability and validity, quantitative and qualitative behavioural data should be triangulated with relevant biological, behavioural and process data to paint a more comprehensive picture of the context where risk behaviour occurs. Triangulation uses multiple perspectives or methods to interpret a single data set or programme. Without rigorous controlled trials, data triangulation, under certain circumstances, can be used to link the intervention being evaluated and any observed behaviour changes. More information about data triangulation is provided in Chapter 9.

Outcomes

A good outcome evaluation examines outcomes at multiple levels:
(a) individual, client-based outcomes (e.g., in terms of changes in clients' circumstances, status, quality of life or functioning, knowledge, attitude and behaviour);

(b) programme- and system-level outcomes (e.g. improved access to case management, expanded job placement alternatives, strengthened project partnerships);

(c) broader family or community outcomes (e.g. increased civic participation, decreased violence).

One of the common errors in conducting outcome evaluations is not allowing adequate time for the intervention to have an effect before assessing it. HIV behavioural interventions require time to impact personal behaviour, community social norms and HIV incidence itself. Prematurely evaluating programme outcomes may show no change or short-term improvements that are not sustained.

Data collection instruments and sampling methods

One of the primary methods for assessing intervention effectiveness is surveying to assess the perceptions, behaviours, knowledge, attitudes and infection status of most-at-risk populations targeted by an HIV prevention project or intervention. Good surveys utilize well-tested and validated instruments administered to representative samples of the population targeted by the intervention. These surveys should collect data on internationally recommended indicators (discussed in more detail in the following chapter), as well as other information that is needed for evaluation purposes. Surveying 'hard-to-reach' populations creates a significant challenge for those conducting outcome evaluations. An overview of sound, systematic sampling approaches for capturing high-risk behaviours within most-at-risk populations and recommended indicators is presented in Chapter 8.

Who should conduct outcome evaluations?

Conducting a good outcome evaluation requires skilled staff that are dedicated to the task. Evaluators need not necessarily be university-affiliated scholars, but should understand the premise and execution of basic research designs. Evaluators should be involved from the earliest stages of the project so they can plan and budget for an appropriate outcome evaluation design based on what is known about the programme and the information needs. Service providers must realize the importance of evaluation research for project improvement, sustainability and replication, while evaluators must recognize that most organizations need information to address HIV prevention needs. Increased cooperation between programme staff and evaluators will improve the quality and relevance of outcome evaluations.

Outlined below is a process for developing collaborative outcome evaluations in community settings that involves stakeholders with technical expertise and community-based programmatic expertise.

(1) Establish common goals and evaluation questions: From the outset, stakeholders should set common goals and identify questions that will guide the evaluation. During preliminary discussions, stakeholders are encouraged to work together to strike a balance between technical integrity for the evaluation, applied operationalization, and programmatic utilization of results. Most importantly, evaluation questions should reflect priorities for the programme being evaluated.

(2) Develop applied methodology: The evaluation questions should drive the selection of the most appropriate methodology. However, it is critical that the methodology selected remains flexible enough to be adapted to the realities of the project, including tailoring of the methodology to the delivery of services and to the needs of the communities served. The methodology should support the operations of the programme, intervention or services being offered, and not interfere with the delivery of services. One strategy during the pre-evaluation stage is to conduct a training with those involved in the evaluation, to present, explain, and provide interactions around the goals and operations of the evaluation and its contribution to and support of service delivery.

(3) Establish regular communications and collaborative relationships: To ensure necessary buy-in to the evaluation from stakeholders (particularly staff delivering services), regular communication mechanisms and processes should be established among those involved in the evaluation. Regular communication should include open discussions of issues and problems that need to be addressed, and collaborative problem-solving about how best to respond.

(4) Establish regular feedback mechanisms: Regular feedback mechanisms should be established to provide ongoing updates on the evaluation and delivery of services to all stakeholders. An important focus of these updates should be guidance on the application and utilization of data throughout the course of the evaluation that informs service delivery. In many cases, stakeholders will need to be prepared to make adjustments – in both the evaluation methodology and service delivery – based on issues that arise during the evaluation.

(5) Use evaluation to build programmatic capacity: The overall goal of outcome evaluation and research in community settings should be to support development and sustainability of programme service delivery – to ensure that the right services are being delivered in the right way to the right populations. Equally important is that the evaluation be designed in such a way that evaluation processes and systems are developed within the community organization that will last beyond the evaluation and can be applied to other service areas.

What are the specific challenges in conducting outcome evaluations?

Conducting effective outcome evaluations for HIV prevention interventions is inherently challenging due to the skills and resources needed and even more challenging for studies involving most-at-risk populations. It is important to pay attention to the specific barriers in the evaluation planning process. Overcoming discrimination and marginalization within the research and policy arenas presents the first challenge to outcome evaluations specific to HIV–prevention among most-at-risk populations. Some policy-makers, and even programme managers and evaluators, consider high-risk populations unworthy of the resources needed to implement and evaluate interventions. Such marginalized groups, although most-at-risk, therefore, receive less prevention focus. This marginalization is particularly dangerous in the present funding climate, which is dedicating increased funding to HIV treatment, creating an even more competitive environment for prevention funds. Programme planners, evaluators and HIV advocates must convince other stakeholders of the continued need for most-at-risk prevention interventions and evaluations.

Another challenge is that of survey design and implementation. Most-at-risk populations are often mobile and hard to reach, which creates difficulties when the time comes to do follow-up assessments. Therefore, specialized sampling and surveys should be administered to capture the most reliable estimates of behaviour following an intervention. These may require more time, effort and resources, but the utility of the information generally outweighs the cost.

Obtaining and maintaining behaviour change is another main challenge. Designing effective behaviour change programmes for high-risk populations is difficult, and many programmes fail to have a behavioural impact. That does not mean interventions should be stopped. Rather, outcome evaluations can illustrate where intervention improvements could be made.

How can the results from outcome evaluations be used?

Perhaps the most important step in the outcome evaluation process is the effective use and dissemination of data. Because outcome evaluations will provide information on intervention effectiveness, this information is critical for policy-makers and programme planners locally, but also elsewhere. Among the many uses of evaluation results (see list on the following page), the most critical is refining and improving HIV prevention interventions. Outcome evaluations can be used by programme planners to better design programmes tailored to the specific needs of the populations they serve. In addition, the programme's framework and content may be replicable (with adjustments) to other most-at-risk populations or in other geographical areas. Evaluation results can inform resource distribution among different programmes and provide the necessary data to convince policy-makers of the importance of scaling up HIV prevention programmes.

Sonagachi Project of Calcutta

The Sonagachi Project of Calcutta, India, affirmed its effectiveness in increasing condom use among sex workers through a randomized multiple group community trial conducted over 15 months. Results showed condom use increased by 39% in the intervention group compared to 11% in the control group. Consistent condom use increased by 25% in the intervention group compared to 16% in the control group. These findings empirically confirmed the well-known group's anecdotal evidence and illustrated the utility of community-based interventions designed with the target population in mind.

Source: Basu, Jana and Rotheram-Borus, 2004

Possible Uses of Outcome Evaluation Findings

- Assisting strategic programme planning for the future
- Informing capacity-building plans and activities
- Directing programme staffing plans and decisions
- Influencing funding efforts and decisions
- Affecting development of and changes to organizational policy
- Providing valuable information about lessons learnt for agencies planning to implement similar programmes
- Influencing government policy and procedures

It is important that the findings from outcome evaluations are interpreted and integrated with information and lessons learned from other M&E activities, especially process evaluations. Process information will assist in understanding why and how interventions have realized their results or not, and may illustrate what is actually causing the behaviour changes.

To increase the likelihood of data use, evaluators and programme planners should include data use planning prior to and during the intervention evaluation process. Before deciding on the evaluation design, evaluators should generate a list of all relevant stakeholders, such as policy-makers, donors, programme staff, etc., and consider who is most likely to use the data collected from the outcome evaluation and how they might utilize that information. Any barriers to using the data should be identified at that stage and strategies for overcoming them should be discussed. This could include, for example, developing early buy-in from stakeholders and generating evaluation questions meaningful to intended users.

Evaluation findings should be made available to target populations, and these populations should be involved in the wider dissemination of data. For example, an educator could visit a community where sex is sold and discuss the programme, its effectiveness, and where services can be accessed. Evaluation findings should be disseminated in an audience-friendly and timely manner through:

- formal and informal networks in the high-risk community via meetings, newsletters and other forums;
- professional conferences related to HIV prevention and M&E via discussion papers or posters;
- journals (professional or lay);
- electronic media, such as web pages and e-mail.

It is important, especially when publicizing results to the community at risk, that results be tailored to the audience. Overly technical and scientific language should be omitted and important concepts paraphrased and made as practical as possible. Presentations should include reasons why the audience should care about the results and how the results affect them and the entire community.

For evaluation findings to make a difference, the written reports must be of high quality. A useful evaluation report will:

- Provide contextual information to put the evaluation findings in perspective;
- Present persuasive evidence that is strong and relevant;
- Include specific, realistic recommendations for policy-makers and programme planners that will achieve results.

Bibliography and references for further reading

Basu I, Jana S and Rotheram-Borus M (2004). HIV Prevention among Sex Workers in India. *JAIDS*. 36(3):845-852.

Beck EJ and Mays N (2006). Some Lessons Learned. In: Beck EJ, Mays N, Whiteside A and Zugina J (Eds.). *The HIV Pandemic: local and global implications*. Oxford, Oxford University Press.

Coyle S, Boruch R and Turner C (Eds.) (1991). *Evaluating AIDS Prevention Programmes.* Washington DC, National Academy Press.

FHI (2000). *Behavioral Surveillance Surveys: Guidelines for Repeated Behavioral Surveys in Populations at Risk of HIV.* Bangkok, FHI.

Gibney L, DiClemente R and Vermund S (Eds.) (1999). *Preventing HIV in Developing Countries: Biomedical and Behavioral Approaches*. New York, Kluwer/Plenum Publishers.

Global AIDS Programme. (2003). *Monitoring and Evaluation Capacity Building for Programme Improvement Field Guide, Version 1*. Atlanta, GA, U.S. Centers for Disease Control and Prevention.

Lamptey P and Gayle H (Eds.) (2001). *HIV/AIDS Prevention and Care in Resource Constrained Settings: A Handbook for the Design and Management of Programmes.* Arlington, VA, FHI.

Rehle T, Saidel T, Mills S and Magnani R (Eds.). (2001). *Evaluating Programmes for HIV/AIDS Prevention and Care in Developing Countries*, Arlington, VA, FHI.

Rugg D, Peersman G and Carael M (Eds.). (2004). Global Advances in HIV/AIDS Monitoring and Evaluation. *New Directions for Evaluation*, 103. Wiley Periodicals, Inc.

UNAIDS and WHO (2000). *Guidelines for second generation HIV surveillance*. Geneva, Working Group on Global HIV/AIDS and STI surveillance: 48.

W.K. Kellogg Foundation (1998). *Evaluation Handbook*. Battle Creek, MI, W.K. Kellogg Foundation.

Monitoring Programme Outcome and Impact Indicators – the Role of Surveys and Surveillance

What questions do monitoring programme outcomes and impacts answer?

Programme outcomes and impact indicators are measures of a programme's intended effect on the population being targeted by the interventions. Promoting HIV risk avoidance or risk reduction practices is an important component of HIV prevention programmes for most-at-risk populations, and measuring change in this area is central to the task of monitoring and evaluating these programmes. Behavioural change that reduces a population's exposure to HIV infection may include having fewer high-risk sexual partners, using condoms in higher-risk sexual encounters, reducing injecting drug use, or adopting safer injection practices. Tracking changes in sexual and drug-injecting behaviour over time gives an indication of the success of a package of activities aimed at promoting safer behaviour and reducing the spread of HIV in most-at-risk populations.

HIV prevention programmes often put a great deal of effort into behaviour change communication programmes that aim to provide information about how HIV can be avoided and to dispel misconceptions about the disease and how it is transmitted. Monitoring levels of knowledge among most-at-risk populations can prove useful, particularly in those populations where knowledge of how HIV is transmitted and the ways to avoid it is not yet widespread or where misconceptions exist.

Programmes ultimately aim to decrease the number of new HIV infections. HIV prevalence among most-at-risk populations – an indirect measure of programme impact – is important for measuring the success of programmes that aim to reduce the spread of HIV in these populations. While HIV prevalence is a recommended indicator, it does have several limitations. HIV prevalence is a measure that can be slow to change in a more mature epidemic and may only reflect changes in incidence (new infections) after a lag of five years or more. (In contrast, in a relatively young and rapidly growing epidemic, incidence is almost immediately translated into prevalence). In addition, HIV prevalence loses some utility as a measure of the impact of prevention programmes when antiretroviral therapy becomes widely available (the number of PLHIV increases, which can mask changes in numbers of new infections). Despite these limitations, in the absence of measures of HIV incidence, HIV prevalence remains essential to our ability to track and monitor trends in the epidemic.

When is it necessary to monitor programme outcome and impact indicators?

Behavioural surveys and epidemiological surveillance to assess knowledge and risk behaviour and provide information on the level of HIV infection in most-at-risk populations are both important components of situation analysis and problem identification. This information should be used to inform the national response and programme design at all levels and, thus, they are critical activities to conduct before designing programmes and allocating resources. By collecting this information before the implementation of programmes, these data can also serve as a baseline for M&E activities.

Once programmes are implemented, regular behavioural surveys are recommended, particularly when strong prevention programmes are put in place. The frequency of these surveys will depend on the amount of behavioural change that is expected to occur in the populations being monitored, the availability of resources, and the willingness to use the information generated to improve prevention efforts. Ideally, they should be conducted every one to two years.

The frequency of surveillance activities will depend on resources and surveillance methods. HIV sentinel surveillance (HSS) is generally conducted annually, while surveillance that is part of an integrated biological and behavioural surveillance system may be conducted less frequently, perhaps every one to two years.

Who should monitor outcome and impact indicators?

Behavioural and epidemiological surveillance may occur under the leadership of the national AIDS programme or a national epidemiological monitoring centre. In some countries with concentrated epidemics, surveillance may be conducted by NGOs and other civil society organizations and may not be coordinated by national or subnational governments. Because many programmes for most-at-risk-populations are often provided by NGOs, these organizations have an important contribution to make in planning these activities. They are also likely to want to use the data generated to improve their own prevention services and are, therefore, likely to have useful ideas about appropriate survey questions. Secondly, they are likely to have good access to communities that are otherwise difficult to reach.

Very often, a tension exists between national and local officials over the collection of behavioural or biological data and the scale to which the data can be applied. National officials required to report to their legislatures, for example, may wish to cite the national HIV prevalence rate. To this end, national officials may plan national surveys that are designed to estimate a national rate, with small samples from each locality aggregated for a sample size sufficient only to estimate national figures.

Local officials, on the other hand, are most interested in the rate within their province, where they are responsible for the implementation of prevention programmes. In general, in concentrated epidemics, the information needs of local officials may be more important than those at the national level. It is useful to consider the administrative level at which programmes are typically planned and implemented and then collect data at that level.

What methods are available for behavioural and epidemiological surveillance?

When assessing the effectiveness of an intervention, surveys of the population using the service of interest may be sufficient. However, for understanding changes in knowledge, behaviour and HIV status in populations targeted by HIV prevention programmes, surveys must also include people theoretically targeted by an intervention but who do not avail themselves of the service. This section will review some of the methods for monitoring indicators of knowledge, behaviour and HIV prevalence in these populations.

Surveys are used to assess the perceptions, behaviours, knowledge, attitudes and, increasingly, infection status, of most-at-risk populations. Good surveys utilize well-tested and validated instruments administered to representative populations of interest. A sample may be chosen to represent different subpopulations within a most-at-risk population. For example, a sample obtained at bars, clubs or cruising areas where men are seeking other male partners will only be representative of men who go to these and similar venues. Such limited representation is acceptable if it is understood and conclusions are limited to the represented population. The sampling design and instrument used with a given population should be used as the basis of all future surveys assessing similar information, to assure some level of consistency and ability to monitor trends.

Sampling methods for surveying most-at-risk populations

Household surveys are not adequate for tracking risk behaviours that are not widespread in the general population but which may contribute disproportionately to the spread of HIV, such as injecting drug use, male to male sex, or selling sex. To obtain data from individuals with these high-risk behaviours, special surveys of these populations must be conducted. Household surveys also do not reach individuals who are mobile and who tend to spend extended periods of time away from home, such as the military, migrant workers, long-distance truck drivers or other frequent travellers. These populations may be at higher risk of HIV infection, often because they are clients of sex workers or have multiple sexual partners. These are often referred to as 'bridge groups' because they may then transmit HIV to their wives or girlfriends, members of the general population who themselves do not engage in high-risk behaviour. Despite the aforementioned limitations in reaching these populations, household surveys are useful for obtaining information about more common and less stigmatized behaviours, such as men having sex with a sex worker. The following is a brief review of sampling methods for hidden and hard-to-reach populations. For a complete review, see guidelines on behavioural surveillance surveys by FHI.

Venue-based methods

Synopsis: Estimate risk behaviour and other characteristics of groups (e.g. IDUs, FSWs, MSM) attending venues such as bars, brothels, cruising areas, truck stops and shooting galleries.

Main Features: All known venues that risk groups frequent are mapped, and the times of operation recorded. There are a number of rapid assessment techniques to assist in mapping and finding hidden populations, such as International Rapid Assessment, Response and Evaluation (I-RARE). Mapping provides a time-location sampling frame where venues open longer have a higher probability of being sampled. A random sample is taken from the list with the probability of a venue being sampled proportional to the length of time it is open. Venues are then visited during the selected time segment and interviews are conducted.

Assumptions: This assumes that all venues frequented by members of a particular risk group are mapped and that members of a risk group can be identified and recruited at a venue. These methods can be time-consuming and labour-intensive and tend to find only visible members of a population. For example, IDUs or non-gay-identified men typically avoid public gathering sites that could potentially identify them as group members.

Network-based methods

Synopsis: Estimate the characteristics of members of a risk group who belong to the same networks.

Main Features: Members of the risk group are identified through methods such as snowball sampling, random walk, chain referral or respondent-driven sampling (RDS). In snowball sampling, random walk and chain referral sampling, informants in a high-risk population identify other members of their group for sampling. These individuals then identify others, creating a chain of informants. These three methods are essentially convenience methods and have biases associated with the need for the investigators to find referred group members. RDS takes 'snowball sampling' and combines it with a statistical model that assigns weights to create, in theory, a probability sample.

Assumptions: All network-based methods assume that informants will be representative of the target population, but those interviewed may in fact be a biased sample. RDS has features that help overcome some of the limitations of the convenience methods in creating a representative sample. Additional assumptions with RDS are that all members of the risk group are connected with the risk group by at least one reciprocal social tie, that people will visit the office for an interview, and that people will not pretend to be a member of the risk-group to receive an incentive.

Institution-based methods

Synopsis: Estimate the characteristics of a group identified through institutions.

Main Features: Members of the risk group are identified in institutional settings such as STI and TB clinics, needle exchange programmes, prisons and methadone clinics.

Assumptions: Populations are likely to be representative only of those group members that seek services or who have had the misfortune of being caught, in the case of prisons. Nonetheless, a large number of group members may be encountered and much can be learned about programmes not based in these institutions. Such samples, which by nature are convenience samples, can be calibrated against a more complete sample in an ad-hoc survey, provided that the institution-based sample is truly collected systematically in a stable population.

Methods of sero-surveillance among most-at-risk populations

Sero-surveillance provides the foundation for measuring the impact (or grand effect) of all programmes aimed at reducing the spread of HIV in a population. The mix of populations included in a surveillance system generally depends on the epidemic stage and on the populations most-at-risk of HIV. Where HIV is concentrated in populations practising higher risk behaviour, these populations should receive priority for inclusion in the surveillance system. As discussed previously, however, HIV prevalence as a measure of programme impact does have limitations. Unless there is a stable population trend in HIV over time, it is not possible to make incidence estimates from prevalence data – and getting stable populations is very difficult with most-at-risk populations. Improvements in current surveillance systems are needed if HIV prevalence is to be a valid measure of programme impact.

To better understand trends in HIV prevalence, UNAIDS and its partners promote second generation surveillance where behavioural data are integrated into sero-surveillance systems (see UNAIDS 2000). Second generation surveillance systems also focus more closely on those segments of the population where new infections are occurring, such as the most-at-risk populations discussed in this guide. Biological and behavioural data can be collected in the same population but through separate data collection exercises or can be combined into one data collection activity. The following summarizes the two main approaches to monitoring HIV prevalence in most-at-risk populations:

HIV sentinel surveillance systems (HSS)

Synopsis: Populations at risk of HIV infection are tested for HIV on a regular basis, usually annually.

Main Features: Populations tested may include STI clinic populations, IDUs, FSWs, military conscripts, pregnant women, etc. Among clinic populations, this can be conducted as anonymous, unlinked testing, where remnant blood specimens from routine testing (e.g., syphilis) are tested for HIV antibodies after all identifying information has been removed. Non-clinic populations of identifiable risk group members (e.g. IDUs) should be surveyed using probability sampling methods. Behavioural surveys would theoretically draw from these same populations but would not necessarily include the same individuals. Unlinked anonymous testing is only carried out in clinics where HIV Counselling and Testing (CT) are readily accessible, preferably in the clinic itself, or within a clinic a short distance away. Then only time that this is not true, is when HIV prevalence data are required for advocacy to increase CT availability in an area. Unlinked anonymous testing remains an important tool for measuring HIV prevalence. Unlinked anonymous testing is the only means by which unbiased data for prevalence estimates can be accrued. Most other available methods are subject to participants' refusals, which in areas with high levels of stigma, can lead to unusable data due to high refusal rates.

Assumptions: This assumes that the same populations will be surveyed at each point in time. Most HSS systems collect information and usually include age, gender, and risk group – as defined by where they were interviewed – and little else. This information is often insufficient to evaluate the success or failure of a programme.

Integrated Behavioural Biological Surveillance Systems (iBBS)

Synopsis: These are behavioural surveys that also include HIV testing.

Main Features: Biological specimens and behavioural information are collected concurrently. These surveys use the types of sampling methods discussed previously. Similar to HSS, iBSS should be implemented periodically with similar methods in similar populations. (See FHI, 2000.)

Assumptions: It is assumed that the inclusion of HIV testing does not cause respondents to refuse to participate. Non-response to both the survey questionnaire and the HIV testing should be tracked however to assess whether any bias is being introduced. Integrated surveys are more complex than behavioural surveys but have the benefit of costing less than two separate surveys and offer the potential to analyse behaviours and infection rates together more readily.

Greater validity of surveillance data should lead to sounder decision-making for the allocation of resources. To ensure maximum utility of these data, surveillance systems should be evaluated following every round so that lessons learned, gaps in the data and obstacles encountered can be studied, and alterations to the system can be made as needed.

Recommended outcome and impact indicators

Once the most relevant most-at-risk populations are identified and defined, indicators for these populations can be identified. These indicators should represent those behaviours believed to be most implicated in the transmission of HIV and which are expected to be changed as a result of HIV prevention programmes. In low-level and concentrated epidemics, the focus is on high-risk partnerships such as sex with a sex worker, unprotected sex with IDUs, unprotected anal sex among MSM, and using non-sterile injecting equipment. In addition to behavioural indicators, it may also be useful to monitor levels of knowledge about HIV prevention within these populations. The indicators presented below have been adopted from UNGASS. Detailed descriptions of these indicators are available in the Appendix. They represent the minimum set of indicators for programmes targeting most-at-risk populations. Programmes may wish to monitor other outcome indicators and are encouraged to do so.

2007 UNGASS outcome and impact indicators*

Outcome: Knowledge

- Percentage of [most-at-risk populations] who both correctly identify ways of preventing the sexual transmission of HIV and who reject major misconceptions about HIV transmission

Outcome: Behaviour

- Percentage of female and male sex workers reporting the use of a condom with their most recent client
- Percentage of men reporting the use of a condom the last time they had anal sex with a male partner
- Percentage of injecting drug users reporting the use of a condom the last time they had sexual intercourse
- Percentage of injecting drug users reporting the use of sterile injecting equipment the last time they injected

Impact

- Percentage of [most-at-risk populations] who are HIV infected

* Please refer to the UNAIDS website (www.UNAIDS.org) for updates of this list of UNGASS indicators for most-at-risk populations.

Some programmes may also opt to track STI prevalence as an impact indicator, particularly for high-risk men who are likely to be clients of sex workers. Where HIV prevention programmes aim to expand access to and quality of STI services (i.e. for FSWs and MSM), it can be difficult to interpret changing levels of STI prevalence as an increase may reflect increased use of services or better diagnosis rather than an increase in risk behaviour. However, in populations where access to STI services remains relatively constant, STI prevalence can be a useful proxy for sexual risk behaviour and as an early warning sign for increasing HIV incidence.

How to select the most appropriate methods

The selection of the most appropriate sampling methods for surveys of most-at-risk populations will depend on characteristics of the population, such as whether the population is hidden or visible, whether members of the population congregate in sites that can be identified, how closely their social networks are, and how dispersed they are geographically. In addition, how the survey data are to be used and the availability of resources should also be considered.

What are the specific challenges related to most-at-risk populations?

The issue of how to sample 'hard-to-reach' populations, such as FSWs, IDUs, and MSM, and in particular, mobile and migrating populations, is one of the most difficult challenges for those involved in behavioural surveys and surveillance activities. Although it can be difficult to implement random sampling with these 'moving targets', sound, systematic sampling approaches should be employed and can be effectively implemented in many settings. Such approaches, if used consistently from one round to the next, increase the likelihood of obtaining reliable estimates of indicators within these populations.

Providing monetary incentives may increase study participation in some communities, however, large monetary incentives should be strictly avoided as they can be coercive. Providing monetary incentives also presents additional challenges. As the number of studies offering financial incentives increases in a community, study participants may expect higher remuneration in order to participate. Additionally, the participants in one study may also be participants in other studies. This may contaminate the findings of one study with those of another.

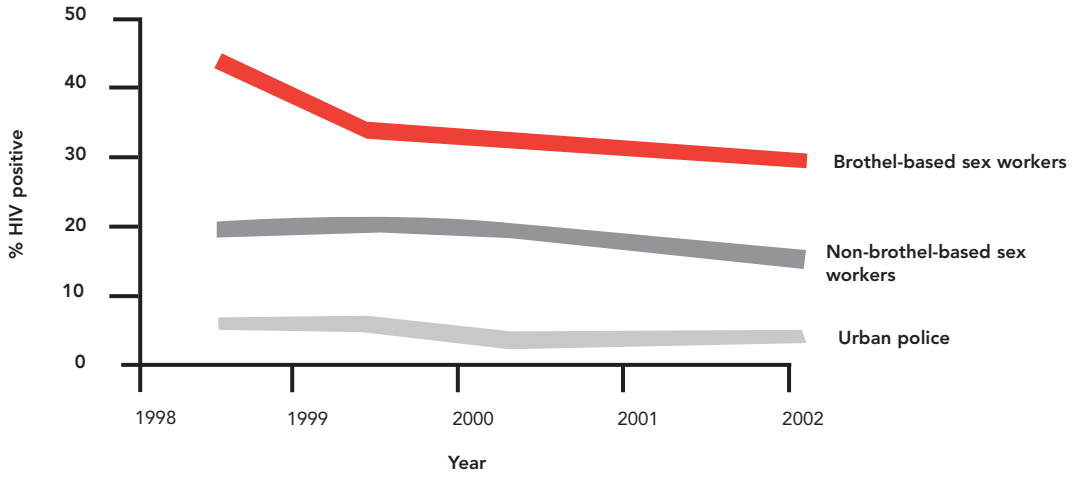
As with all other data collection exercises among most-at-risk populations, ethical research practices must be adhered to, including respect for privacy, confidentiality, anonymity, and the principle of 'do no harm'. In collecting data from most-at-risk adolescents under the legal age of majority, particular attention will need to be paid to any national and global ethical issues (see Ethical Approaches to Gathering Information from Children and Adolescents in International Settings: Guidelines and Resources, Population Council, 2005).

Whichever method is chosen for monitoring indicators in most-at-risk populations, instruments should be standardized by both population and geography. Steps to assess group membership of all respondents should be consistent across surveys, particularly when incentives are being offered to participants. Interviewers must be well trained, empathic and non-judgemental. Members of the population often make the best interviewers, though in smaller geographic areas interviewers should be chosen from outside the community to assure confidentiality. There may also be risks to members of at-risk populations themselves, as well as ethical issues concerning their employment. This can be seen, for example, when hiring former IDUs and asking them to return to the streets where drugs will be available and where they will experience situations that may have previously prompted them to relapse. Additionally, there is real danger to the lives and well-being of research staff involved in collecting information about illegal behaviours in certain settings. A number of innovative and unobtrusive measures can and have been used to try to obtain outcome and impact measures without placing staff at risk through direct interaction or observation (see Des Jarlais et al., and others).

How can the results of biological and behavioural surveillance be used?

Surveillance data are useful as part of problem identification and provide essential information to inform the national and subnational response. They also indicate whether collective efforts are being implemented on a large enough scale to have an impact on the epidemic and can indicate the success of a package of HIV prevention interventions (see Figure 14). However, to assess and substantiate the linkages between programme interventions and outcomes, integrated analyses are needed. Integrated analysis of biological and behavioural data are used at both ends of the public health questions approach framework presented in Chapter 1. Integrated analysis of behavioural and epidemiological data and the combination of these with programme-level data for evaluation are discussed in detail in the following chapter.

Figure 14. The Use Of HIV Prevalence Estimates In Female Sex Workers And Men Likely To Be Their Clients To Track Trends In The Epidemic In These Most-At-Risk Populations.



Source: Cambodia Surveillance Unit, National Center for HIV/AIDS, Dermatology and STDs (NCHADS),2004

Bibliography and references for further reading

Des Jarlis D, Dehne KL and Casabona J (2001). HIV surveillance among injecting drug users. AIDS 15 (suppl 3): S13-22.

FHI (1998). Meeting the behavioral needs of national HIV/AIDS and STD programmes. A joint impact/FHI/UNAIDS workshop: Report and Conclusions. Research Triangle Park, NC, FHI.

FHI (2000). Behavioral Surveillance Surveys: Guidelines for repeated behavioral surveys in populations at risk of HIV. Bangkok, FHI.

Heckathorn D (nd). What is respondent driven sampling?" Retrieved Dec 2, 2006 from http://www.respondentdrivensampling.org

MacLachlan EW, Baganizi E, Bougoudogo F, et al. (2002). The feasibility of integrated STI prevalence and behavioral surveys in developing countries.
Sexually Transmitted Infections 2002: 78:187-189.

Magnani R et al. (2005). Review of sampling hard to reach and hidden populations for HIV surveillance, AIDS 2005, 19 (suppl 2):S67–S72.

Pervilhac C, Stover J, Pisani E, et al. Using surveillance data: recent experiences and avenues for the future. AIDS 2005, 19 (suppl. 2): S53-S58.

UNAIDS and WHO (2000). Guidelines for second generation HIV surveillance. Geneva, Working Group on Global HIV/AIDS and STI surveillance: 48.

United States Centers for Disease Control (2001). Updated guidelines for evaluating public health surveillance systems. MMWR 2001;50(RR-13): 1-35. Atlanta, GA, CDC.

Determining Collective Effectiveness – the Use of Triangulation and Integrated Analysis

What questions do triangulation and integrated analysis answer?

The goal of triangulation is to increase the validity and reliability of programme evaluation by using and analysing data from multiple sources, often obtained from different methods. In this way, findings can be corroborated and the strengths of any one method or data source can compensate for the weakness (or bias) of another in assessing programme effectiveness, either individually or collectively in aggregate. Referring to the M&E organizational framework (See Chapter 1, Figure 2), triangulation can be used to address the following questions about effectiveness at both the outcome and impact levels:

- Are interventions working and are they making a difference?
- What changes in population-level outcome and impact indicators have been observed and what do they mean?
- Can the observed changes in outcomes and impact indicators be attributed to programme outputs? Are the collective efforts being implemented on a large enough scale to impact the course of the epidemic?

In most routine HIV programme intervention contexts, data are obtained from a variety of sources. As was described in the organizing framework in the introduction, a comprehensive M&E approach includes a sequential and cyclical process in which different methods are used to answer different questions.

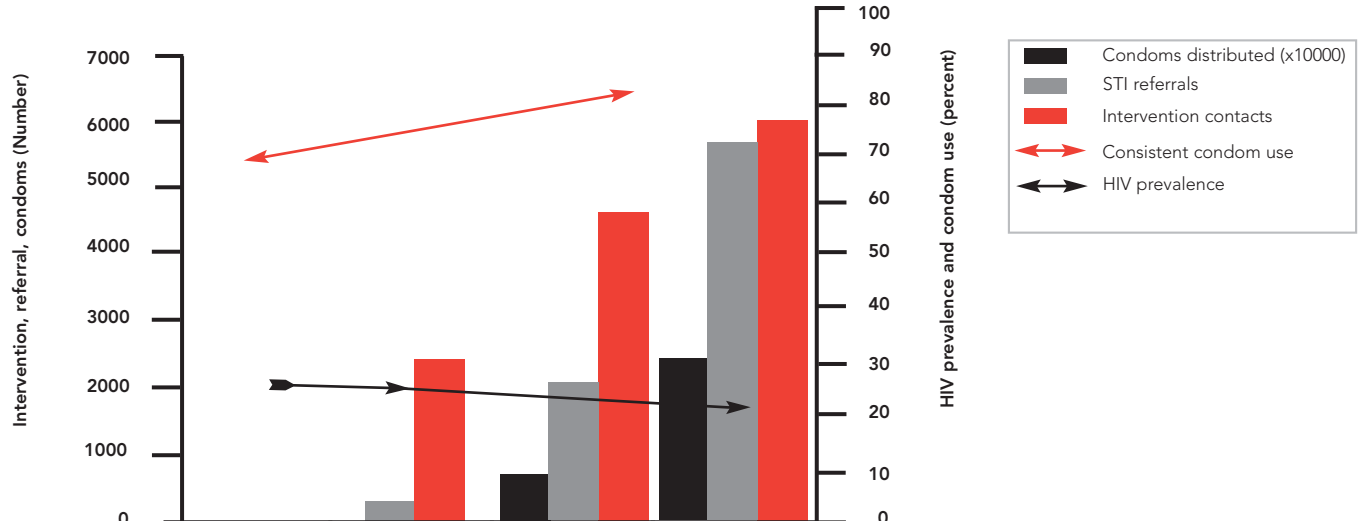
- Qualitative and quantitative observational studies, whether of cross-sectional or serial cross-sectional design, answer questions like 'is there a particular problem?' and if so, 'what is the size the problem?' and 'who does it affect?';
- Analytical studies, either case-control or cohort studies, answer questions like 'what is the cause of the identified problem?';
- Experimental studies answer the question 'is there an intervention and, if so, is it efficacious?';
- Output, outcome and impact monitoring, and process and outcome evaluation, are then primarily focused on assessing the implementation, effectiveness, efficiency, equity and acceptability of specific implemented interventions or programmes over time.

While each of the data collection methods has limitations in its own right, their combined and complementary use helps to overcome any individual limitations. From this perspective, there is no single hierarchy of research methods, and knowledge is gained by sequential use of complementary research methods (Beck et al, 2006).

Triangulated analysis is an especially important tool in routine programme settings. Here, the triangulation of data from a number of sources allows one to assess and substantiate the linkage between interventions and outcomes of interest in the target population. In the process of triangulation, outcome evaluation (discussed in Chapter 7) is strongly connected with process evaluation (discussed in Chapter 5). In fact, examining changes in outcome and impact indicators without first assessing prevention programme outputs may lead to erroneous conclusions about the effectiveness of a specific intervention or of the collective response. Figure 15 illustrates how both process-level data and outcome- and impact-level data need to be assessed together in making the case for a plausible cause-and-effect relationship between Cambodia's collective national response, and increasing condom use and HIV prevalence reductions.

Figure 15. Triangulation Of Process Data On Condom Sales, Number Of Peer Education Contacts, And STI Referrals Combined With Behaviour Outcome And HIV Prevalence Data From Surveillance.

HIV prevalence among brothel-based sex workers declined in Cambodia and condom use increased. Over the same period interventions for sex workers tripled and achieved high coverage



	1999	2000	2001	2002
Condoms distributed (x10,000)			489	2750
STI referrals		252	2032	5809
Intervention contacts		2582	4187	6191
Consistent condom use	80.3		89.8	
HIV prevalence	33.2	31.5		28.8

Source: Cambodia behavioural and biological surveillance surveys, 1999-2001, FHI Cambodia project monitoring data for women's health interventions. Family Health International, Thailand.

When is it necessary to conduct triangulation analysis?

Triangulated analysis for effectiveness evaluation should only be conducted in specific limited circumstances. Listed below are some criteria to determine whether it makes sense to conduct a triangulated analysis:

- When interventions have been in place for a sufficient duration of time to reasonably expect that changes at the population level may be attributable to programme interventions. For behaviour change, this period should be roughly two to three years. For HIV prevalence, ideally five to seven years is needed to attribute changes in HIV prevalence to a prevention programme.
- When interventions have been implemented with sufficient intensity and with high enough coverage to reasonably expect effects to be observed in the target population.
- When process programme-level data including programme outputs, coverage estimates, and the quality of programme implementation are available, complete, of high quality and accessible for the interventions.
- If the results of a programme's process evaluation indicate that programme activities are being realized as planned. If this is not the case, it does not make sense to conduct a triangulated effectiveness evaluation.

What methods are available to conduct triangulated analysis?

Cross-sectional behavioural and biological outcome and impact data are generally the primary data sources of interest for triangulated analyses. These data sources have the advantage of being generalizable to the populations targeted by the prevention programme, so that inferences can be made from the results of these surveys. When combined with programme-level data from programmes targeting the same population, they can help link changes in population-level measures with programme effort. In addition to these quantitative data, the incorporation of qualitative data into these analyses can provide contextual information and aid in interpretation of the findings.

Common sources of triangulation data for programme evaluation

- Repeated HIV and STI prevalence and behavioural surveys
- Routine programme service delivery process outputs
- Quality of service assurance and quality improvement assessments
- Qualitative research such as in-depth interviews, focus group discussions, key-informant interviews or rapid ethnographic research

Cross-sectional survey data from surveillance or programme-specific knowledge, attitude, beliefs and practices (KABP) surveys should be available, at a minimum, at the start of the programme (baseline) and after the intervention. Ideally, multiple round time-series data will be available. Additionally, standardized survey questionnaires should include questions on exposure to interventions in order to assess the type, degree and duration of exposure to HIV prevention programmes. Survey data on exposure to intervention can be used to validate the programme-level data.

Triangulation is generally used to determine the effectiveness of a specific programme or the collective effectiveness of multiple programmes. It will not, however, yield precise quantitative estimates of a programme's effect, as this requires more rigorous controlled experimental approaches. Still, in the absence of such approaches, typical for routine HIV programming, triangulation is a useful approach for making use of available data to assess programme effectiveness to the extent possible.

How to select the most appropriate methods

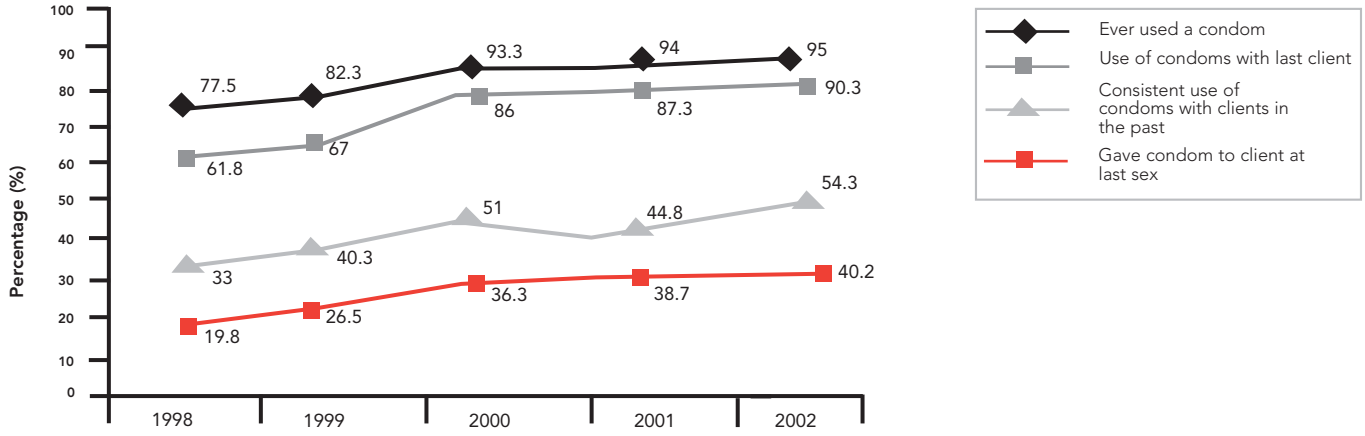
There is no standardized triangulation methodology that can be applied for integrated triangulated analysis, nor should there be. The specific methodological approaches that are used must be customized to the context of the programme implementation and the sources and quality of data available. Nevertheless, the following broad analytical framework may be a useful guide:

1. Examine time trends in population-based behavioural indicators (see Figure 17) and impact measures such as HIV or STI prevalence in the programme catchment area. Before using such data, however, it is important to assess their suitability by asking: Do the inclusion criteria of surveys of most-at-risk populations match the intervention target population adequately? Are representative data of a sufficient sample size available in the geographic catchment areas of interest?

Outcome data are generally more suitable for triangulation with programme-level data than are HIV prevalence data (often used as a proxy for HIV incidence). Changes in HIV prevalence may reflect the natural history of the epidemic or be influenced by other factors such as mortality and migration. Interpretation of these data are becoming even more challenging with the scaling-up of antiretroviral therapy services, as widespread use of antiretroviral therapy will increase the survival time of individuals infected with HIV (in addition to other potential epidemiological effects), which may in turn increase HIV prevalence. Even the interpretation of behavioural outcome trends can be complex, as they may represent spontaneous background societal changes that are independent of programme effort or diffusion of information not directly attributable to programme interventions.

2. Examine trends over time in programme coverage and intensity over the duration of the programme (see Figure 18). These trends can then be compared with trends in outcome and impact indicators from relevant population-based surveys. Note that there will be a time-lag between the former and the latter that will need to be considered in the juxtaposition of these data. In addition to the programme output and survey data sources, data on the quality of services should be examined as well. It is useful to assess whether the quality of programme activities is adequate, in addition to the quantity of process outputs.

Figure 17. Condom Use Behavioral Indicators Among FSWs Are Increasing Steadily Over Time, Terai Highway Districts, Nepal, 1998-2002

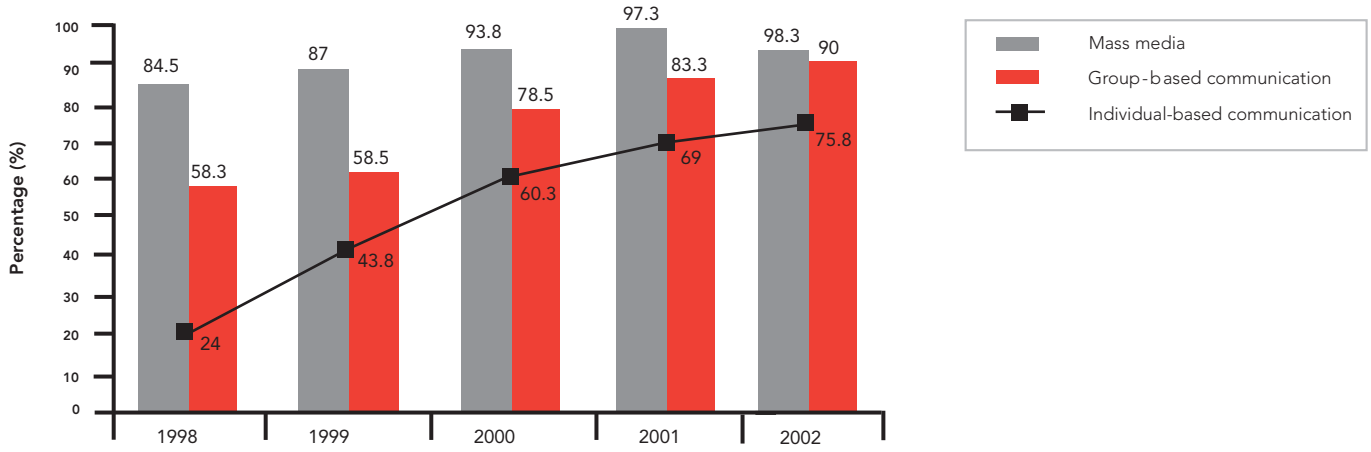


Source: New Era and FHI. Behavioural surveillance surveys along the Terai highway routes of Nepal, Rounds 1-5, 1998-2002.

3. Examine the association between (a) population-based knowledge, attitudinal, and behavioural variables, and (b) specific 'exposure to intervention' variables related to the types of programme exposure (peer education contacts, outreach, condom distribution, targeted media, HIV testing, access to STI services, etc.) and the duration and intensity of this exposure. Do those who are exposed to the programming differ with respect to knowledge, attitudes, and behaviours compared to those who have not been exposed? If so, in what ways? Do the differences reflect the intervention programme logic? The demonstration of dose-response relationships between the type, intensity or duration of programme exposure and behavioural indicators is useful for assessing potential programme attribution as well (see Figures 19 and 20).

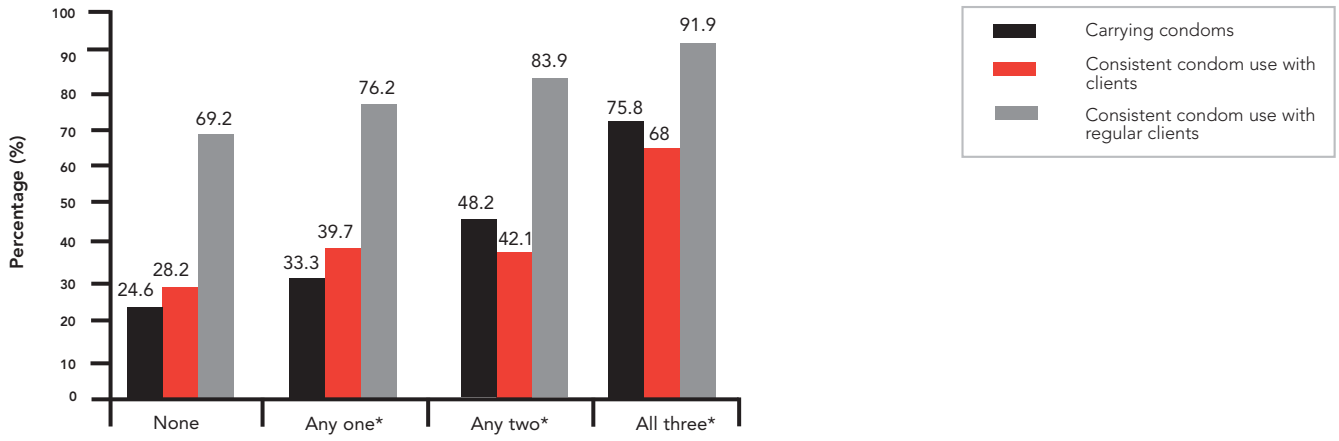
To help address gaps in understanding the relationships between the programme and population-based outcome and impact data described in steps 1 to 3, qualitative research conducted among programme beneficiaries and members of the target population is extremely useful. It helps to provide further details and contextual data to help ascertain potential programme effects and questions relating to what is working and what is not (i.e., the why's and how's).

Figure 18. Exposure To Various Types Of NGO-Related Information Sources About HIV Among FSWs Is High And Increasing Over Time, Terai Highway Districts, Nepal, 1998-2002.



Source: New Era and FHI. Behavioural surveillance surveys along the Terai highway routes of Nepal, Rounds 1-5, 1998-2002.

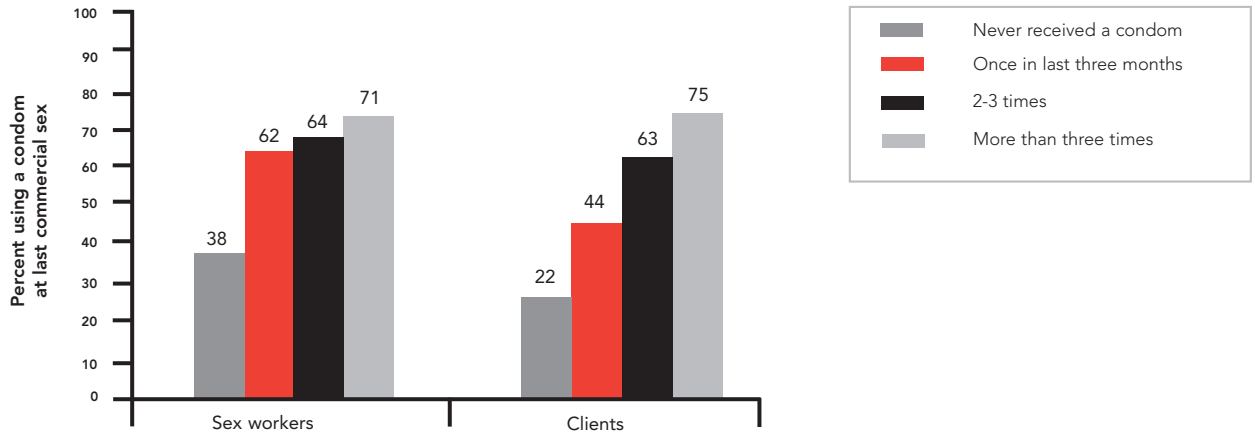
Figure 19. Greater Exposure To Multiple NGO-Related Activities Among FSWs Is Associated With Better Condom Use Behavior, Terai Highway Districts, Nepal 2002.



*1) Received condoms, 2) received brochures/materials, 3) received IPC information about HIV

Source: New Era and FHI. Behavioural surveillance surveys along the Terai highway routes of Nepal, Rounds 1-5, 1998-2002.

Figure 20. There Is A Strong Dose-Response Relationship, Suggesting That More "Intense" Contact Will Have More Of An Effect On Condom Use, Especially For Male Clients, Manado, Indonesia



Source: Directorate of Communicable Disease Control and Environmental Health, Ministry of Health and Central Bureau of Statistics, Behavioural Surveillance Surveys, 2003.

Who should conduct triangulation analysis?

Given the diverse methods and data sources involved in performing triangulation analysis, a participatory team approach is strongly advocated. One of the strengths of triangulation is that multiple investigators should be involved to minimize the bias associated with any one investigator's technical and experiential background. Researchers with strong quantitative and qualitative backgrounds should be involved in assessing data availability and quality, as well as the methods and approaches for integrating and synthesizing the data. Programme managers, relevant stakeholders and representatives of most-at-risk populations should be involved in framing and defining the questions to be answered and the scope of the effectiveness evaluation so that the findings have the greatest value. In order to minimize any biases associated with framing the results in a 'desirable' way, it is also recommended that the lead investigators not be directly involved in the programme's design or implementation. Although this is not always possible, it does help to maintain objectivity.

What are the challenges related to most-at-risk populations?

It is crucial that members of most-at-risk populations participate in the evaluation process to ensure that those communities receive feedback on the findings, and about the behaviours that have changed, as well as those that have not. In addition, participation is needed to ensure that the results will not have any negative repercussions on the populations being targeted by the interventions. Rather, the results should be used constructively to best inform the design and implementation of future interventions targeting high-risk populations. At the collective level, determining the effectiveness of the national response to the epidemic is critical for policy and advocacy, programme planning and M&E.

Bibliography and references for further reading

Beck EJ and Mays N (2006). *Some Lessons Learned.* In: Beck EJ Mays N, Whiteside A and Zugina J (Eds.). *The HIV pandemic: local and global implications.* Oxford, Oxford University Press.

FHI (2003). *Evaluating programmes for HIV/AIDS prevention and care in developing countries.* Research Triangle Park, NC, FHI.

Greene JC and Caracelli VJ (Eds.) (1997). Advances in mixed-method evaluation: The challenges and benefits of integrating diverse paradigms. *New Directions for Evaluation,* No. 74, 1997.

Patton MQ (Ed.) (1990). *Qualitative evaluation and research methods.* 2nd edition. Newbury Park, CA, Sage Publications, p.11-12.

Appendix. UNGASS Indicators

Important note:
This guide does not provide a comprehensive inventory of indicators to track programmes for most-at-risk populations. The below included indicators are the UNGASS indicators relevant to most-at-risk populations that are part of the requirements for monitoring the Declaration of Commitment on HIV/AIDS [see Monitoring the Declaration of Commitment on HIV/AIDS. Guidelines on construction of core indicators. UNAIDS 2007]. Please refer to the UNAIDS website (www.UNAIDS.org) for updates of this guide including any revisions in the UNGASS indicators for most-at-risk populations.

Indicator	Measurement Method
Coverage	
1. Percentage of [most-at-risk populations] reached with HIV prevention programmes	Behavioural surveillance or other special surveys
2. Percentage of [most-at-risk populations] who received an HIV test in the last 12 months and who know their results	Behavioural surveillance or other special surveys
Outcome: Knowledge	
3. Percentage of [most-at-risk populations] who both correctly identify ways of preventing the sexual transmission of HIV and who reject major misconceptions about HIV transmission	Special surveys such as the FHI Behavioural Surveillance Survey
Outcome: Behaviour	
4. Percentage of female and male sex workers reporting the use of a condom with their most recent client	Special surveys, including the FHI Behavioural Surveillance Survey for sex workers
5. Percentage of men reporting the use of a condom the last time they had anal sex with a male partner	Special surveys, including the FHI Behavioural Surveillance Survey for men who have sex with men
6. Percentage of injecting drug users reporting the use of a condom the last time they had sexual intercourse	Special surveys, including the FHI Behavioural Surveillance Survey for injecting drug users
7. Percentage of the injecting drug users reporting the use of sterile injecting equipment the last time they injected	Special surveys, including the FHI Behavioural Surveillance Survey for injecting drug users
Impact	
8. Percentage of [most-at-risk populations] who are HIV infected	*Annual UNAIDS/WHO Guidelines for Second Generation HIV Surveillance*; FHI guidelines on sampling in population groups

1. Most-at-risk populations: prevention programmes

Definition	Percentage of [most-at-risk population(s)] reached with HIV-prevention programmes
Purpose	To assess progress in implementing HIV prevention programmes for most-at-risk populations
Applicability	Countries with concentrated or low-prevalence epidemics, including countries with concentrated sub-epidemics within a generalized epidemic
Measurement tools	Behavioural surveillance or other special surveys
Method of measurement	Respondents are asked the following questions: 1. Do you know where you can go if you wish to receive an HIV test? 2. In the last twelve months, have you been given condoms? (e.g. through an outreach service, drop-in centre or sexual health clinic) Injecting drug users (IDUs) should be asked the following additional question: 3. In the last twelve months, have you been given sterile needles and syringes? (e.g. by an outreach worker, a peer educator or from a needle exchange programme) *Numerator:* Number of most-at-risk population respondents who replied "yes" to both (all three for IDUs) questions *Denominator:* Total number of respondents surveyed Scores for each of the individual questions – based on the same denominator – are required in addition to the score for the composite indicator. Data collected for this indicator should be reported separately for each most-at-risk population and disaggregated by sex and age (<25/25+). Whenever possible, data for most-at-risk populations should be collected through civil society organizations that have worked closely with this population in the field. Access to survey respondents as well as the data collected from them must remain confidential.
Interpretation	• Accessing and/or surveying most-at-risk populations can be challenging. Consequently, data obtained may not be based on a representative sample of the national [most-at-risk population] being surveyed. If there are concerns that the data are not based on a representative sample, these concerns should be reflected in the interpretation of the survey data. Where different sources of data exist, the best available estimate should be used. Information on the sample size, the quality/reliability of the data and any related issues should be included in the report submitted with this indicator. • The inclusion of these indicators for reporting purposes should not be interpreted to mean that these services alone are sufficient for HIV prevention programmes for these populations. The set of key interventions described above should be part of a comprehensive HIV prevention programme, which also includes elements such as provision of HIV prevention messages (e.g. through outreach programmes and peer education), and opioid substitution therapy for injecting drug users. • Since the Global Progress Report in 2006, it has been recommended that the issue of quality and intensity of reported services among most-at-risk populations be addressed more explicitly in terms of criteria for the measurement of the components of provided services. Taking into account the complexity of this element of measurement, particularly within the context of

most-at-risk populations, the development of such criteria requires an intensive process of information gathering, synthesis and recommendations formulation. This was difficult to address between the reporting processes of 2005 and 2007. However, the process has been initiated and is expected to have recommendations for the next reporting round. In the meantime, it is recommended that the guidelines mentioned below be referred to as reference documents that can facilitate interpretation of the collected data from a quality and intensity perspective.

- UNAIDS (2006). A Framework for Monitoring and Evaluating HIV Prevention Programmes for Most-at-Risk Populations.
- UNAIDS (2006). Practical Guidelines for Intensifying HIV Prevention: Towards Universal Access.
- WHO (2006). Technical Guide for Countries to Set Targets for Universal Access to HIV Prevention, Treatment and Care for Injecting Drug Users.

2. HIV testing in most-at-risk populations

Definition	Percentage of [most-at-risk population(s)] who received an HIV test in the last 12 months and who know their results
Purpose	To assess progress in implementing HIV testing and counselling among most-at-risk populations
Applicability	Countries with concentrated or low-prevalence epidemics, including countries with concentrated sub-epidemics within a generalized epidemic
Measurement tool	Behavioural surveillance or other special surveys
Method of measurement	Respondents are asked the following questions: 1. Have you been tested for HIV in the last 12 months? If yes: 2. I don't want to know the results, but did you receive the results of that test? Numerator: Number of most-at-risk population respondents who have been tested for HIV during the last 12 months and who know the results Denominator: Number of most-at-risk population included in the sample Data for this indicator should be disaggregated by sex and age (<25/25+). Whenever possible, data for most-at-risk populations should be collected through civil society organizations that have worked closely with this population in the field. Access to survey respondents as well as the data collected from them must remain confidential.
Interpretation	• Accessing and/or surveying most-at-risk populations can be challenging. Consequently, data obtained may not be based on a representative sample of the national most-at-risk population being surveyed. If there are concerns that the data are not based on a representative sample, these concerns should be reflected in the interpretation of the survey data. Where different sources of data exist, the best available estimate should be used. Information on the sample size, the quality/reliability of the data and any related issues should be included in the report submitted with this indicator. • Tracking most-at-risk populations over time to measure progress may be difficult due to mobility and the hard-to-reach nature of these populations with many groups being hidden populations. Thus, information about the nature of the sample should be reported in the narrative to facilitate interpretation and analysis over time.

3. Most-at-risk populations: knowledge about HIV prevention

Definition	Percentage of (most-at-risk) populations who both correctly identify ways of preventing the sexual transmission of HIV and who reject major misconceptions about HIV transmission
Purpose	To assess progress in building knowledge of the essential facts about HIV transmission among most-at-risk populations
Applicability	Countries with concentrated or low-prevalence epidemics, including countries with concentrated sub-epidemics within a generalized epidemic
Measurement tool	Special behavioural surveys such as the Family Health International Behavioural Surveillance Survey for most-at-risk populations
Method of measurement	Respondents are asked the following five questions. 1. Can having sex with only one faithful, uninfected partner reduce the risk of HIV transmission? 2. Can using condoms reduce the risk of HIV transmission? 3. Can a healthy-looking person have HIV? 4. Can a person get HIV from mosquito bite? 5. Can a person get HIV by sharing a meal with someone who is infected? Numerator: Number of most-at-risk population respondents who gave the correct answers to all five questions. Denominator: Number of most-at-risk population respondents who gave answers, including "don't know", to all five questions. Indicator scores are required for all respondents and should be disaggregated by sex and age (<25; 25+). The first three questions should not be altered. Questions 4 and 5 may be replaced by the most common misconceptions in the country. Respondents who have never heard of HIV and AIDS should be excluded from the numerator but included in the denominator. Scores for each of the individual questions – based on the same denominator – are required in addition to the score for the composite indicator. Whenever possible, data for most-at-risk populations should be collected through civil society organizations that have worked closely with this population in the field. Access to survey respondents as well as the data collected from them must remain confidential.
Interpretation	• The belief that a healthy-looking person cannot be infected with HIV is a common misconception that can result in unprotected sexual intercourse with infected partners. Correct knowledge about false beliefs of possible modes of HIV transmission is as important as correct knowledge of true modes of transmission. For example, the belief that HIV is transmitted through mosquito bites can weaken motivation to adopt safer sexual behaviour, while the belief that HIV can be transmitted through sharing food reinforces the stigma faced by people living with HIV.

Interpretation	• This indicator is particularly useful in countries where knowledge about HIV and AIDS is poor because it allows for easy measurement of incremental improvements over time. However, it is also important in other countries because it can be used to ensure that pre-existing high levels of knowledge are maintained. • Surveying most-at-risk populations can be challenging. Consequently, data obtained may not be based on a representative sample of the national [most-at-risk population] being surveyed. If there are concerns that the data are not based on a representative sample, these concerns should be reflected in the interpretation of the survey data. Where different sources of data exist, the best available estimate should be used. Information on the sample size, the quality/reliability of the data and any related issues should be included in the report submitted with this indicator.

4. Sex workers: condom use

Definition	Percentage of female and male sex workers reporting the use of a condom with their most recent client
Purpose	To assess progress in preventing exposure to HIV among sex workers through unprotected sex with clients
Applicability	Countries with concentrated or low-prevalence epidemics, including countries with concentrated sub-epidemics within a generalized epidemic
Measurement tool	Special surveys including the Family Health International Behaviour Surveillance Survey for sex workers
Method of measurement	Respondents are asked the following question: Did you use a condom with your most recent client in the last 12 months? Numerator: Number of respondents who reported that a condom was used with their last client in the last 12 months. Denominator: Number of respondents who reported having commercial sex in the last 12 months. Data for this indicator should be disaggregated by sex and age (<25; 25+). Whenever possible, data for sex workers should be collected through civil society organizations that have worked closely with this population in the field. Access to survey respondents as well as the data collected from them must remain confidential.
Interpretation	• Condoms are most effective when their use is consistent, rather than occasional. The current indicator will provide an overestimate of the level of consistent condom use. However, the alternative method of asking whether condoms are always/sometimes/never used in sexual encounters with clients in a specified period is subject to recall bias. Furthermore, the trend in condom use in the most recent sexual act will generally reflect the trend in consistent condom use. • Surveying sex workers can be challenging. Consequently, data obtained may not be based on a representative sample of the national, most-at-risk population being surveyed. If there are concerns that the data are not based on a representative sample, these concerns should be reflected in the interpretation of the survey data. Where different sources of data exist, the best available estimate should be used. Information on the sample size, the quality and reliability of the data and any related issues should be included in the report submitted with this indicator.

5. Men who have sex with men: condom use

Definition	Percentage of men reporting the use of a condom the last time they had anal sex with a male partner
Purpose	To assess progress in preventing exposure to HIV among men who have unprotected anal sex with a male partner
Applicability	Countries with concentrated or low-prevalence epidemics, including countries with concentrated sub-epidemics within a generalized epidemic
Measurement tool	Special surveys including the FHI Behavioural Surveillance Survey for men who have sex with men
Method of measurement	In a behavioural survey of a sample of men who have sex with men, respondents are asked about sexual partnerships in the preceding six months, about anal sex within those partnerships, and about condom use at last anal sex. Numerator: Number of respondents who reported that a condom was used the last time they had anal sex. Denominator: Number of respondents who reported having had anal sex with a male partner in the last 6 months. Data for this indicator should be disaggregated by age (<25/25+). Whenever possible, data for men who have sex with men should be collected through civil society organizations that have worked closely with this population in the field. Access to survey respondents as well as the data collected from them must remain confidential.
Interpretation	• For men who have sex with men, condom use at last anal sex with any partner gives a good indication of overall levels and trends of protected and unprotected sex in this population. This indicator does not give any idea of risk behaviour in sex with women among men who have sex with both women and men. In countries where men in the sub-population surveyed are likely to have partners of both sexes, condom use with female as well as male partners should be investigated. In these cases, data on condom use should always be presented separately for female and male partners. • Surveying men who have sex with men can be challenging. Consequently, data obtained may not be based on a representative sample of the national most-at-risk population being surveyed. If there are concerns that the data are not based on a representative sample, these concerns should be reflected in the interpretation of the survey data. Where different sources of data exist, the best available estimate should be used. Information on the sample size, the quality/reliability of the data and any related issues should be included in the report submitted with this indicator.

6. Injecting drug users: condom use

Definition	Percentage of injecting drug users reporting the use of a condom the last time they had sexual intercourse
Purpose	To assess progress in preventing sexual transmission of HIV
Applicability	Countries where injecting drug use is an established mode of HIV transmission
Measurement tool	Special surveys including the Family Health International Behavioural Surveillance Survey for injecting drug users
Method of measurement	Respondents are asked the following sequence of questions: 1. Have you injected drugs at any time in the last month? 2. If yes: Have you had sexual intercourse in the last month? 3. If yes in answer to both 1 and 2: Did you use a condom when you last had sexual intercourse? Numerator: Number of respondents who reported that a condom was used the last time they had sex Denominator: Number of respondents who report having had sexual intercourse in the last month. Indicator scores are required for all respondents and should be disaggregated by gender and age (<25/25+). Whenever possible, data for injecting drug users should be collected through civil society organizations that have worked closely with this population in the field. Access to survey respondents as well as the data collected from them must remain confidential.
Interpretation	• Surveying injecting drug users can be challenging. Consequently, data obtained may not be based on a representative sample of the national injecting drug user population being surveyed. If there are concerns that the data are not based on a representative sample, these concerns should be reflected in the interpretation of the survey data. Where different sources of data exist, the best available estimate should be use. Information on the sample size, the quality/reliability of the data and any related issues should be included in the report submitted with this indicator. • The extent of injecting drug use-associated HIV transmission within a country depends on four factors: (i) the size, stage and pattern of dissemination of the national AIDS epidemic; (ii) the extent of injecting drug use; (iii) the degree to which injecting drug users use contaminated injecting equipment; and (iv) the patterns of sexual mixing and condom use among injecting drug users and between injecting drug users and the wider population. This indicator provides information on the fourth factor.

7. Injecting drug users: safe injecting practices

Definition	Percentage of the injecting drug users reporting the use of sterile injecting equipment the last time they injected
Purpose	To assess progress in preventing injecting drug use-associated HIV transmission
Applicability	Countries where injecting drug use is an established mode of HIV transmission
Measurement tool	Special surveys including the Family Health International Behaviour Surveillance Survey for injecting drug users
Method of measurement	Respondents are asked the following questions: 1. Have you injected drugs at any time in the last month? 2. If yes: The last time you injected drugs, did you use a sterile needle and syringe? Numerator: Number of respondents who report using sterile injecting equipment the last time they injected drugs. Denominator: Number of respondents who report injecting drugs in the last month. Indicator scores are required for all respondents and should be disaggregated by sex and age (<25/25+). Whenever possible, data for injecting drug users should be collected through civil society organizations that have worked closely with this population in the field. Access to survey respondents as well as the data collected from them must remain confidential.
Interpretation	• Surveying injecting drug users can be challenging. Consequently, data obtained may not be based on a representative sample of the national injecting drug user population being surveyed. If there are concerns that the data are not based on a representative sample, these concerns should be reflected in the interpretation of the survey data. Where different sources of data exist, the best available estimate should be used. Information on the sample size, the quality and reliability of the data, and any related issues should be included in the report submitted with this indicator. • The extent of injecting drug use-associated HIV transmission within a country depends on four factors: (i) the size, stage and pattern of dissemination of the national AIDS epidemic; (ii) the extent of injecting drug use; (iii) the degree to which injecting drug users use contaminated injecting equipment; and (iv) the patterns of sexual mixing and condom use among injecting drug users and between injecting drug users and the wider population. This indicator provides information on the third factor.

8. Most-at-risk populations: reduction in HIV prevalence

Definition	Percentage of [most-at-risk population] who are HIV-infected
Purpose	To assess progress on reducing HIV prevalence among most-at-risk populations
Applicability	Countries with concentrated or low-prevalence epidemics, where routine surveillance among pregnant women is not recommended; also includes countries with concentrated sub-epidemics within a generalized epidemic
Measurement tool	UNAIDS/WHO *Second Generation Surveillance Guidelines*; Family Health International guidelines on sampling in population groups
Method of measurement	This indicator is calculated using data from HIV tests conducted among members of most-at-risk population groups in the capital city. Numerator: Number of members of the most-at-risk population who test positive for HIV. Denominator: Number of members of the most-at-risk population tested for HIV. Prevalence estimates should be disaggregated by sex and age (<25/25+). To avoid biases in trends over time, this indicator should be reported for the capital city only. In recent years, many countries have expanded the number of sentinel sites to include more rural ones, leading to biased trends resulting from aggregation of data from these sites. In theory, assessing progress in reducing the occurrence of new infections is best done through monitoring changes in incidence over time. However, in practice, prevalence data rather than incidence data are available. In analysing prevalence data of most-at-risk-populations for the assessment of prevention programme impact, it is desirable not to restrict analysis to young people but to report on those persons who are newly initiated to behaviours that put them at risk for infection (e.g. by restricting the analysis to people who have initiated injecting drug use within the last year or participated in sex work for less than one year, etc.) This type of restricted analysis will also have the advantage of not being affected by the effect of antiretroviral treatment in increasing survival and thereby increasing prevalence. In the Country Progress Report, it is imperative to indicate whether this type of analysis is used to allow for meaningful global analysis.
Interpretation	• Due to difficulties in accessing most-at-risk populations, biases in serosurveillance data are likely to be far more significant than in data from a more generalized population, such as women attending antenatal clinics. If there are concerns about the data, these concerns should be reflected in its interpretation. • An understanding of how the sampled population(s) relate to any larger population(s) sharing similar risk behaviours is critical to the interpretation of this indicator. The period during which people belong to a most-at-risk population is more closely associated with the risk of acquiring HIV than age. Therefore, it is desirable not to restrict analysis to young people but to report on other age groups as well. • Trends in HIV prevalence among most-at-risk populations in the capital city will provide a useful indication of HIV-prevention programme performance in that city. However, it will not be representative of the situation in the country as a whole.

The Joint United Nations Programme on HIV/AIDS (UNAIDS) brings together ten UN agencies in a common effort to fight the epidemic: the Office of the United Nations High Commissioner for Refugees (UNHCR), the United Nations Children's Fund (UNICEF), the World Food Programme (WFP), the United Nations Development Programme (UNDP), the United Nations Population Fund (UNFPA), the United Nations Office on Drugs and Crime (UNODC), the International Labour Organization (ILO), the United Nations Educational, Scientific and Cultural Organization (UNESCO), the World Health Organization (WHO), and the World Bank.

UNAIDS, as a cosponsored programme, unites the responses to the epidemic of its ten cosponsoring organizations and supplements these efforts with special initiatives. Its purpose is to lead and assist an expansion of the international response to HIV/AIDS on all fronts. UNAIDS works with a broad range of partners – governmental and nongovernmental, business, scientific and lay – to share knowledge, skills and best practices across boundaries.

Produced with environment-friendly materials