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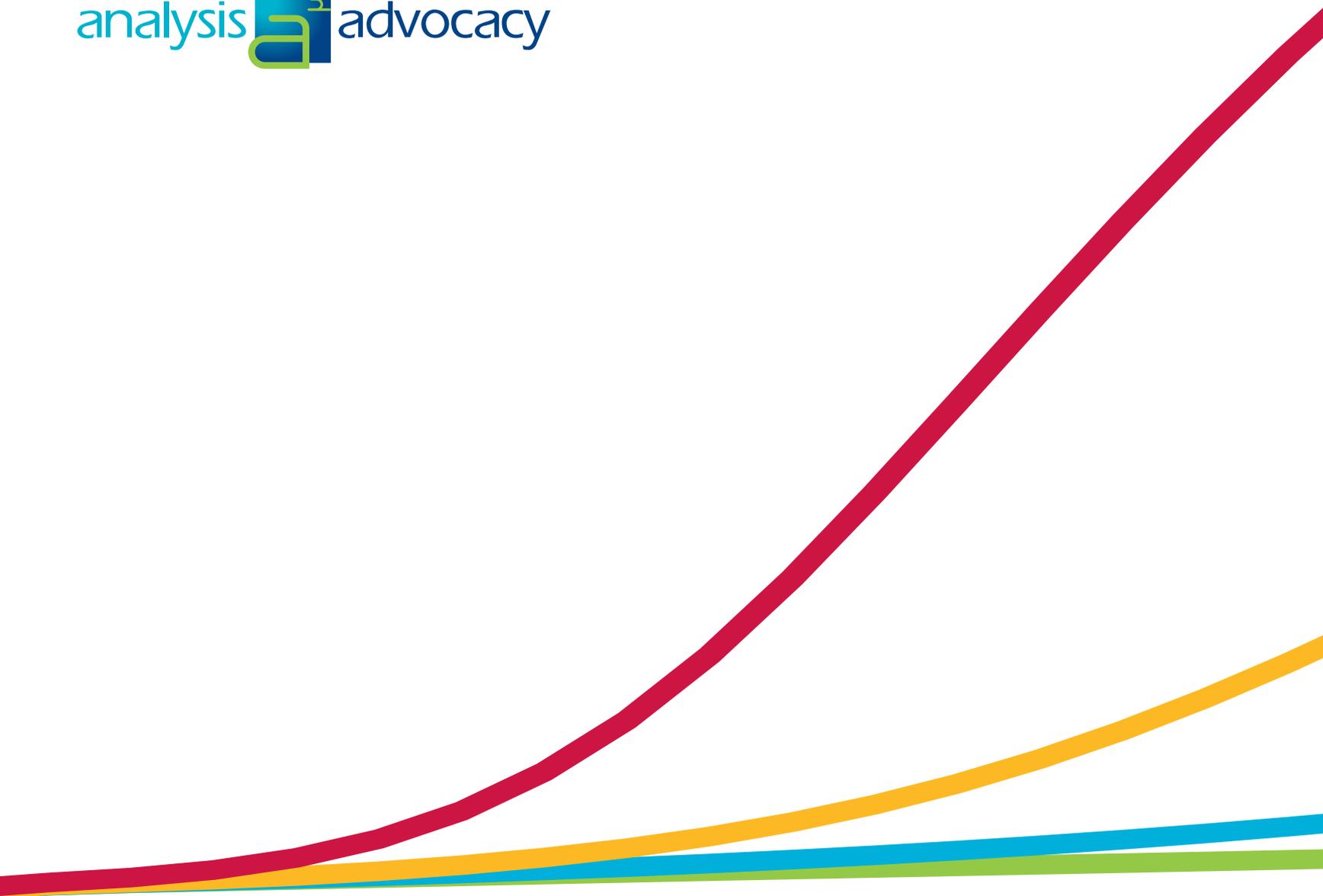
from analysis to action:

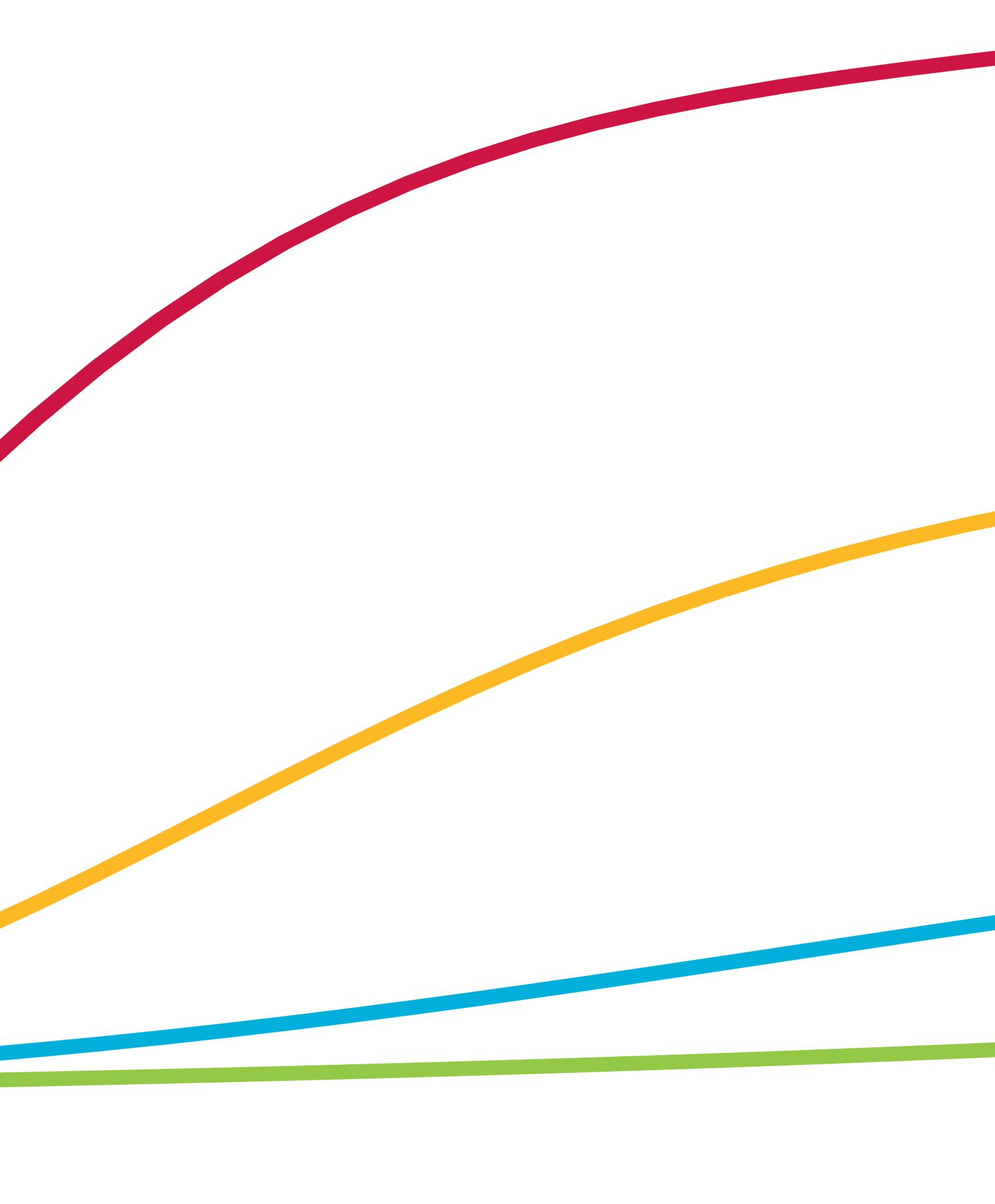
the  approach

from analysis to action:

the A² approach

analysis  advocacy







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A² PARTNERS

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Country partners

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China

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Yunnan Provincial Bureau of HIV/AIDS Prevention and Control

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FHI | Thailand

Vietnam

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analysis  advocacy



Foreword

Analysis and Advocacy (A²) is an ambitious project aimed at improving responses to HIV in Asia. Its primary objective is to build sustainable in-country capacity to develop a clear understanding of the local HIV/AIDS epidemic and to translate that understanding into effective national policies and appropriately targeted and resourced programs. In short, it seeks to carefully synthesize existing data to identify the actions needed to expand and strengthen responses to HIV, leading to more effective and more efficient responses.

Started in 2004 with USAID funding, the project rapidly expanded to five sites and has produced real world policy and program change. These guidelines detail that process with the goal of helping those interested in strengthening their HIV responses to carry out similar efforts. It is our belief that many countries can benefit from implementation of A², both at the national and sub-national levels.

It is our hope that these guidelines will help to encourage other national and international partners to adopt the tools and approaches of A² as a central part of their strategic planning process. We believe this will lead to more targeted and appropriately focused responses that will allow us to contain the epidemics of Asia at low levels and fulfill the promises of access to prevention, antiretrovirals and quality care for all in need.

Organization of these guidelines

Those interested in getting a quick picture of the entire project can read through the first and last chapters. The book is divided into color-coded sections that describe the important components of the project. These sections are:

Intro

Colored in yellow, this section provides a quick overview of the entire process and what it seeks to achieve (Chapter 1).

Data

Colored green, this section discusses the questions to be answered with data to improve responses, how that data is collected and how its quality is assessed (Chapters 2 to 4).

Analysis

Colored orange, this next section focuses on using data to target and direct responses and the tool used to link epidemiological and behavioral data, the Asian Epidemic Model (Chapters 5 to 7).

Responses

Colored purple, this section turns its attention to gathering information on current responses and their costs and the tool used to link resources, program choices and behavior change, the Goals Model (Chapters 8 and 9).

Discovery

Colored blue, this crucial section discusses how we combine the information collected with the AEM and Goals models to evaluate alternative responses and discover which will be most effective given the resources available (Chapter 10).

Change

Colored red, this essential section covers how to understand policy processes and use that understanding to turn data and analyses into effective advocacy for change (Chapters 11 to 13).

Experience

Colored in the turquoise of the A² logo, this final section presents real world experiences in implementing this process and their accomplishments (Chapter 14).



Color coded content

For the most part, these guidelines are targeted at technical people - those who would actually put the A² process into practice. As such, they provide step by step guidance on what needs to be done, things to keep in mind as you go through those steps, and what outcomes can be expected. However, as the reader will soon see, a process such as A² will involve large numbers of people with different skills sets and interests at different stages of the process. No one person needs to know the full details of each stage of the process. The color coding discussed earlier has been added for precisely this reason. It allows people to quickly locate the material of interest to them. If you're national program staff charged with building models for your local epidemic, you'll turn to the green and orange sections on data and analysis, respectively. If you're an NGO worker interested in advocating for more action on issues of concern to your service community, you would jump to the red section on promoting change. If you're a member of the National AIDS Committee secretariat who wants to understand the tools consultants are using to evaluate possible national strategies, you'll turn to the purple and blue sections on understanding responses and choosing the best response.

Overview

However, just because you may not read the other sections in detail doesn't mean you can ignore their content, especially if you're part of a team implementing an A²-type process. You still need to have a clear picture of what part you play and how you link up to the others involved in the process. That's where the "Overview" sections come in. Each chapter opens with a 3 to 4 page overview of its most important content. These are written at the non-specialist level. If you're going to manage an A²-like process, reading through each chapter's overview will give you a good picture of what the process is trying to do and how it works.

Concepts and content

Following the overview is a much more detailed "Concepts and content" section. This section is intended for the person who will actually be responsible for that part of the process. It is detailed, and to the extent possible, complete. We've tried to provide the important background on the topic that one needs and to

give sufficient detail on how that part of the process is done to allow a person to implement it.

Implementer's track

Even armed with the level of detail in these sections, someone intent on implementing A² may still need more information on some of the topics discussed and access to the tools of A². For this purpose there is an "Implementer's track". This will be made available on CD after December 2009 and will be included in versions of the guidelines distributed after that time. The Implementer's track CD will contain sets of checklists for the various steps, more detailed instructions on how to do things, spreadsheets and templates to assist in carrying out the A² process, the A² tools, tutorials and instructions for the tools, and examples of A² application and products at the country level. It will also include pointers to related non-A² Internet resources that will assist those trying to implement the process. The CD will be updated as new versions of the tools are developed or additional guidelines and examples become available.

Historical overview of the A² partners

The A² concept was originally formulated in late 2003 by the three institutional partners East-West Center (EWC), Family Health International (FHI) and The Futures Group International/POLICY Project. Over the life of the project, USAID contractual mechanisms evolved with the implementation of the USAID I Health Policy Initiative, resulting in several changes in the regional partners. EWC and FHI have remained throughout. In 2005, the Futures Group International became Constella Futures and from September 2005 to September 2007 it carried out advocacy components of the A² project at the regional level and in China under Task Order 1 of the USAID I Health Policy Initiative (HPI). From June 2006 to July 2008, Constella Futures implemented the Goals modeling and advocacy component of A² in Bangladesh under an agreement with FHI I Bangladesh. In September 2007, regional oversight of the A² advocacy components and country level advocacy work in Yunnan and Guangxi continued under the new USAID I





Health Policy Initiative – Greater Mekong Region-China (HPI/GMR-C) task order implemented by RTI International. Then in November 2008, A² work in Vietnam continued under a new HPI task order implemented by Abt Associates. Constella Futures has now once again become the Futures Group International. To avoid any confusion, Constella Futures and Futures Group International will be referred to as Futures Group International throughout this document.

Acknowledgements

The A² project has been a team effort since the start and the A² Regional Team wishes to acknowledge the active participation of all those involved. First and foremost, thanks need to go to all of the A² country team members in Bangladesh, China, Thailand and Vietnam. Without their hard work and willingness to try out a new concept in their own sites, the project never could have been done. They also supplied the examples we use throughout this volume. We also extend our thanks to the A² Regional Team members from FHI, EWC, HPI and Futures Group. They produced the tools and training materials that formed the basis of the project and provided the technical and advocacy support so essential to making the process work in the sites. Special recognition is owed to the USAID Regional Development Mission for Asia, who have actively supported the concept and provided steady moral and financial support since the very start. Finally, our deepest appreciation goes to all of those who participated directly or indirectly in A² activities in-country. This includes the members of the A² working groups in-country; those who generated the data the process builds on; the policymakers and decision-makers that took the time to talk with us and to attend A² meetings; and the communities, NGOs and people living with HIV who dedicate their efforts to overcoming this epidemic and shared their time with us to become part of the process.

We'd like to thank the authors of this volume, listed on the author's page, for their hard work in documenting and sharing their experiences through these guidelines. In preparing each chapter, they have drawn on actual work in the field supporting

A² in the country sites, but they have also brought a wealth of past knowledge and experience in the areas on which they write. We'd like to express our gratitude to those who reviewed and edited the chapters including the authors themselves, who often reviewed one another's chapters, the A² Country Teams, Guy Morineau, Celine Daly, Cristina Garces, Chris Parker, and Nalyn Siripong. Very special thanks to Ben Viwatmanitsakul, who designed a dynamic and innovative layout for the volume to reflect the nature of A².

Before closing, we would also like to express our profound appreciation to a number of specific individuals by acknowledging their roles at key junctures in the project's life. The original concept arose from the concerns of Tobi Saidel and Tim Brown that rising HIV trends in Asia were not producing expanded responses. On the USAID side, Lois Bradshaw and Matt Friedman shared these concerns, actively encouraged expansion of the initial concept and promoted strengthening of the advocacy component by bringing together EWC, FHI and Futures Group. Their colleagues Patchara Rumakom, Clif Cortez, Nithya Mani and Cameron Wolf continued this strong support for the project in subsequent years. On the institutional side, Jeanine Bardon of FHI and Felicity Young, then Warrior Goddess of Futures Group, overcame existing institutional barriers and worked tirelessly to make this innovative multi-partner collaboration work. They received strong support from the FHI Country Directors, Associate Country Directors and regional consultants over the years: Steve Mills, Cheng Feng, Pam Baatsen, Robert Kelly, Somchai Sriplienchan, Pratin Dhamarak, Tony Bennett and Amala Reddy. On the Futures Group and HPI side steady support for the project came from Country Directors and Senior Advisors Tran Tien Duc, David Stephens, Gao Yuan, Hu Bin and Shicun Cui. Jeremy Ross and Chris Ward supported the project through its early adulthood as Regional A² Coordinators, as did Chen Yaohong as China A² Coordinator. John Stover, Gayle Martin, Naline Sangrujee and Wiwat Peerapatapanokin were instrumental in the initial development and ongoing adaptation of the Goals and AEM Models to meet project demands. The A² Regional Team wishes to offer its special thanks to them and to everyone else involved for making the A² project successful.

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Glossary A-I

A²	Analysis and Advocacy
A² RST	Analysis and Advocacy Regional Support Team
ADUG	Advocacy and Data Use Group
AEM	Asian Epidemic Model
AIDS	Acquired immunodeficiency syndrome
ANC	Antenatal clinic
ARV	Antiretroviral drugs
ART	Antiretroviral therapy
ASI	AIDS Strategic Information Center (Chonburi, Thailand)
AusAID	Australian Agency for International Development
AZT	Azidothymidine (more commonly known as zidovudine)
BAP	Bangladesh AIDS Project (FHI project, funded by USAID)
BSS	Behavioral Surveillance Surveys
BUCEN	U.S. Bureau of the Census
CBO	Community-based organization
CCM	Country Coordinating Mechanism (of the Global Fund)
CDC	Centers for Disease Control and Prevention (China)
CI	Confidence interval
DFID	Department for International Development (United Kingdom)
DG of DDC	Director General of the Department of Disease Control (Thailand)
DHS	Demographic and Health Survey
DHS+	Demographic and Health Survey with HIV testing
DS	Drug substitution
ELISA	Enzyme Linked Immunosorbent Assay
EWC	East-West Center
FHI	Family Health International
FP/RH	Family Planning and Reproductive Health
FSW	Female sex workers
GAP	Global AIDS Program (United States Centers for Disease Control and Prevention)
GFATM	The Global Fund to Fight AIDS, Tuberculosis and Malaria
GIPA	Greater Involvement of People living with AIDS
GIS	Geographical information systems
GXCDC	Guangxi Centers for Disease Control and Prevention (China)
HAART	Highly Active Antiretroviral Treatment (ART)
HAPP	HIV/AIDS Prevention Project (Bangladesh)
HCMC	Ho Chi Minh City (Vietnam)
HIV	Human immunodeficiency virus
HKD	Hong Kong Dollars
HPI	USAID I Health Policy Institute
HPV	Human papilloma virus
HSV	Herpes simplex virus
IBBS	Integrated Biological and Behavioral Surveillance
ICDDR,B	International Centre for Diarrheal Disease Research, Bangladesh
ICMR	Indian Council of Medical Research
IDU	Injecting drug users

Glossary K-Y

KABP	Knowledge, attitudes, beliefs and practices
KSW	Karaoke-based sex workers
LRP	Low-risk population
MARP	Most-at-risk population
MOPH	Ministry of Public Health (Thailand)
MSM	Men who have sex with men
MSW	Male sex workers
NAC	National AIDS Committee
NASP	National AIDS/STD Programme (Bangladesh)
NGO	Non-governmental organization
NHSO	National Health Security Office (Thailand)
NIHE	National Institute of Hygiene and Epidemiology (Vietnam)
NLM	National Library of Medicine (United States of America)
NSEP	Needle and syringe exchange program
OI	Opportunistic infection
PAC	Provincial AIDS Committee (Vietnam)
PDF	Portable document format (a file format for Adobe Acrobat)
PEPFAR	President's Emergency Plan For AIDS Relief (United States)
PID	Pelvic inflammatory disease
PLWHA	People living with HIV or AIDS
PMTCT	Prevention of mother-to-child transmission
PPP\$	Purchasing Power Parity Dollars
PRI	Policy Research and Development Institute Foundation (Thailand)
RDMA	USAID Regional Development Mission for Asia
RDS	Respondent-driven sampling
RMB	Chinese Renminbi
RNM	Resource Needs Module
RTI	Research Triangle Institute
SDI	WHO Sexually transmitted diseases Diagnostics Initiative
SSW	Street-based sex workers
STD	Sexually transmitted disease
STI	Sexually transmitted infection
TC-NAC	Technical Committee-National AIDS Committee (Bangladesh)
TRCS	Thai Red Cross Society (Thailand)
TWG	Technical Working Group
UNAIDS	Joint United Nations Programme on AIDS
UNDP	United Nations Development Program
UNGASS	United Nations General Assembly Special Session
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
UTI	Urinary tract infection
VCT	Voluntary counseling and testing
VND	Vietnam Dong
WHO	World Health Organization
YNCDC	Yunnan Centers for Disease Control and Prevention (China)

INTRO

Chapter 1

MOTIVATION, PHILOSOPHY AND
APPROACH OF THE A² PROCESS

[an overview]

[an overview]

Chapter 1

MOTIVATION, PHILOSOPHY AND APPROACH OF THE A² PROCESS

Why aren't Asian epidemics under control?

On a global basis Asia is home to some of the world's earliest and most impressive HIV success stories. Thailand, Cambodia and states such as Tamil Nadu in India have successfully reversed the growth of their HIV epidemics by focusing their resources where new infections were occurring. Valuable lessons have been learned from their experiences about how Asian epidemics develop, what works to combat them, the best ways to focus responses for impact, and how to take those responses to scale in an Asian context. Yet, despite these successes and the lessons learned, HIV epidemics continue to grow and emerge in other countries throughout the region.

What's gone wrong? Why do the epidemics continue to expand?

Essentially, we have failed to apply the lessons learned from our early successes. We haven't used the information that exists in every country to target and improve our responses. We haven't corrected weaknesses in our data systems so that they can provide better guidance about what's needed locally. We haven't taken our responses to a scale that can turn the tide. We have frequently chosen approaches more appropriate to Africa than to Asia because an outside expert or donor recommended them. In short, we don't operate from a shared, evidence-based understanding of the epidemic, the responses to it, and an evaluation of their effectiveness. Thus, we misdirect responses, we consistently under-resource them, and we don't make mid-course corrections when they're not working. Meanwhile, too many epidemics continue to grow.

This failure to contain epidemics calls for a new approach.

A close consideration of the problems outlined above gives some ideas on how to address them. First, we need to make better use of the data that are available and the lessons learned. Second, we need to strengthen our data systems to get good data not only on epidemiology and behavior, but also on response coverage and effectiveness. Third, we need to translate these data into evidence-based recommendations on targeting, required resource allocations, and appropriate program and policy choices to produce a maximally effective response. Fourth, we need to work with key stakeholders to convert these recommendations into actions – that is, to advocate for sustainable, effective and dynamic responses that appropriately address evolving epidemics.

The A² process – shining a spotlight on what will work.

The A² (Analysis and Advocacy) process, outlined in this document, has been developed to address our past failures to respond effectively. The A² process is a collaborative, inclusive process that engages multiple partners in:

- Pulling together available information and identifying gaps in what we know
- Using that data to build locally relevant models of the epidemic that help to build a common understanding of the local situation and the effectiveness, or lack thereof, of current responses
- Exploring the costs and effectiveness of alternative responses with those models, and interactively working with policymakers and program planners to raise their awareness of the impact of the choices they make
- Developing and implementing an advocacy plan to build a common understanding of the critical issues influencing the local epidemic, to help people understand what constitutes an effective response in the local context, and to translate this knowledge into specific programs and policies and the resource mobilization efforts needed to staff and fund them
- Working with all partners – government, communities, people living with HIV, non-governmental organizations, donors, researchers – to translate this evidence-centered, improved understanding into coordinated, effective responses that will reverse the epidemic's growth

What's needed to bring this process about?

As might be expected, this process will not happen spontaneously. It is generally built around a core A² team, charged with implementing the process in an open, collaborative and interactive fashion. Normally this team is affiliated with some locally appropriate organization for sustainability. The team usually will have one or more synthesis specialists responsible for data and analysis and one or more advocacy specialists who work actively to engage and involve others. The team does not work alone. Local Technical Working Groups and Advocacy and Data Use Groups are organized to draw in the extensive local expertise on issues related to HIV, review the technical merit of the models and response alternatives developed, and ensure appropriate linkages to program and policy processes. The team is also backstopped by the Regional A² team, a collaboration of Family Health International (FHI), East-West Center (EWC), and the USAID | Health Policy Initiative (HPI), implemented by RTI International and Futures Group International, which does ongoing tools development and provides training and technical support for analysis and advocacy activities.



Who are the targets of A²? The people A² engages.

Throughout the process, the team actively engages and interactively coordinates with policymakers, program managers, government, communities, people living with HIV, local and international non-governmental organizations, donors and other interested parties to ensure that the results are technically sound, relevant to local needs and concerns, and able to influence decision-makers. These people are also the targets of A². Through involvement in the process, they become more aware of the implications of the data for programs and policies and can see the consequences of the choices they make.

What are the benefits?

The A² process offers a number of benefits, including:

- HIV relevant information from multiple and diverse sources is pulled together and analyzed coherently for the first time and gaps in data systems are highlighted and filled.
- A data-informed, shared understanding of the local epidemic and the factors contributing to its growth is built, serving as a basis for collective action.
- National or provincial programs, donors and communities have a clearer picture of the effectiveness of their responses to date and can systematically explore the impact of future response alternatives.
- Affected communities are empowered with data and projections of needs to better advocate for prevention, treatment and impact mitigation services.
- Resource allocation decisions move to a more systematic basis, are less likely to be affected by stigma and discrimination, and are more likely to have a significant impact on the epidemic.
- National and provincial responses become more effective, the number of new infections falls, and the treatment and impact mitigations needs of affected populations are anticipated and met.

JEREMY ROSS

TIM BROWN

Chapter 1

MOTIVATION, PHILOSOPHY AND
APPROACH OF THE A² PROCESS

[concepts and content]

Chapter 1

MOTIVATION, PHILOSOPHY AND APPROACH OF THE A² PROCESS

Jeremy Ross and Tim Brown

Why did A² come about? Its origins and motivations

The countries hit by HIV early provided valuable lessons on what works in Asia

The human immunodeficiency virus (HIV) came late to Asia; however, the region proved fertile ground for its spread. By the late 1980s, major epidemics were emerging in India, Thailand and Myanmar with Cambodia soon to follow. By the mid-1990s new epidemics were emerging around the region: China, Vietnam, Indonesia – the list of affected countries continued to grow. Most of these epidemics started with an explosive rise in HIV among IDUs. Two to three years later levels of HIV among sex workers and their clients began to rise; and, after a few more years HIV was being found consistently in pregnant women. The same pattern repeated in country after country.

However even as the virus spread, some of the countries hit earliest, e.g., Thailand, Cambodia and Tamil Nadu in India, were studying the epidemic with hopes of finding ways to mount effective responses. These studies taught us much about Asian HIV epidemics, their evolution and their prevention. Most new infections were found to occur in a focused manner in specific populations with behaviors that carry a high risk for HIV transmission: female sex workers (FSW) and their clients, injecting drug users (IDUs), and men who have sex with men (MSM) (Mapping the AIDS Pandemic Network 2004). Over time members of these populations transmitted HIV to their lower risk sexual partners, primarily monogamous wives as shown in Figure 1.1.

Armed with this research, Thailand, Cambodia and Tamil Nadu realized that focusing their prevention efforts on the primary sources of new infections would allow them to reverse the epidemic. After the studies identified sex work as the main source of new infections, each country undertook aggressive prevention education, condom promotion and expanded treatment for sexually transmitted infections (STIs) among clients and sex workers (Brown et al. 1994, Phalla et al. 1998, Weniger et al. 1991). Valuable lessons were learned about how to implement and scale up effective prevention programs. The tide began to turn. By the early 2000s, all of these places were seeing HIV prevalence in sex workers and pregnant women decline. The course of the epidemic had been reversed and the levels of HIV started to fall (Phoolcharoen et al. 1998).

But those lessons don't seem to be used in many of the countries of the region

But despite these examples of effective Asian responses to HIV, in much of Asia responses remain weak, unable to turn the epidemics around. In many countries the epidemics continue their steady climb upward, as in China, Indonesia and Vietnam. In still other places, new epidemics continue to emerge – for example, the recent epidemic among injecting drug users in Bangladesh. And in recent years, major HIV growth has been seen among men having sex with men in virtually every country

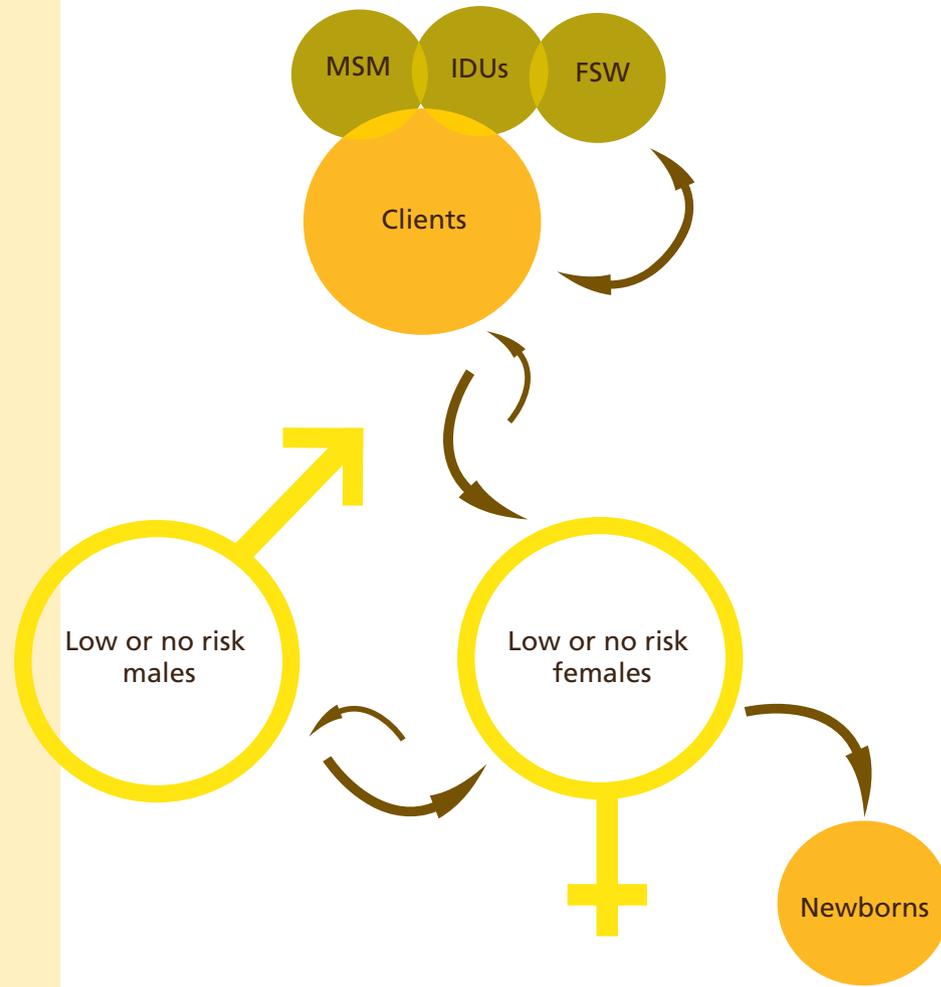


Figure 1.1.
HIV transmission in Asia remains very focused as the epidemics grow.

in the region. But the constrained and unfocused responses of most countries have failed to contain these rising epidemics. As staff from FHI, EWC, and HPI (RTI and Futures Group), who constitute the A² regional partners, travel around the region to provide technical support to countries, it has become evident that data showing steadily growing epidemics and high levels of risk behavior are frequently not producing appropriately directed and effective responses.

In country after country, annual surveillance meetings have become an exercise in adding new points to graphs of growing epidemics, and not the much needed effort to redirect responses for effectiveness and impact. Many estimates and projections in the region are being prepared in short consensus meetings or brief hit-and-run epidemiology strikes. This short time frame for analysis makes it impossible to draw on the wealth of other data that are available in-country outside of the surveillance system. It also doesn't provide time for analyzing HIV, behavioral and program/policy linkages.

Despite an appearance of adequacy, the relatively static surveillance systems of the region suffer from quality issues, inability to access important populations and estimate their sizes, failure to adapt as the epidemic evolves, and limited dissemination to key decision-makers and affected communities to promote improved responses. Nobody takes the time to document and explore the weaknesses in these data systems and suggest ways to improve their quality or fill gaps in them. Given that surveillance data are central to any systematic monitoring and evaluation, these weaknesses may seriously impede our future ability to evaluate responses.

Many different factors contribute to this state of affairs. Data are often compartmentalized, with different branches of government or other agencies having responsibility for HIV surveillance data, behavioral data collection and prevention planning. No one is responsible for correlating epidemiological and behavioral data to understand what impact behavior changes are having on the epidemic. While there are programs for sex workers and clients in every country, rarely is it possible to assess the actual coverage of those programs, because nobody pulls together data on the responses in-country and reviews it. This allows people to say "oh, but we have a program for that" and to disregard the fact that it only addresses 1 percent of the problem. Most countries do not even have an assessment of the actual financial, personnel and other resources needed to achieve effective levels of coverage of their epidemics, thus making it difficult to advocate for those expanded resources.

In short, the available data are not being analyzed and used to improve responses. Nobody has the charge to regularly pull the data together to give "the big picture" of the epidemic and where it is going. Nobody is actually evaluating the impact of the current response because they don't have access to data on the responses and they can't easily see where the new infections are occurring. There is a lack of tools to link HIV, behaviors, and program coverage and effectiveness. Evaluations occur, but they are not rigorous and cannot make good use of data that are scattered about and of varying quality. To do so takes specific skills, a lot of time, and resources – things that are often in short supply in already overburdened national programs.

There is a real data-policy divide in much of Asia

As a result, data often remain peripheral to decision-making processes. The failure to carefully analyze local data and their implications for policy and programs means programmatic decisions and resource allocations are made with limited ability to quantify or evaluate their relative impact on the epidemic. In most countries in Asia, existing data show that the epidemic continues to largely affect marginalized populations including clients and sex workers, injecting drug users, and men who have sex with men. Yet, in the majority of countries the true political commitment and strong leadership needed to ensure appropriate prioritization of prevention and care services for these stigmatized populations are lacking or completely absent. Decision-makers and gate keepers need to more fully understand the rationale behind what many see as “controversial” programs so that they can use their influence to inform their constituencies why it is necessary to implement strategies such as harm reduction, mobilization of affected communities, protecting the human rights of vulnerable communities, and promoting behavior change messages related to safe sex and injection drug use, which may, on face value, be seen as undermining societal values.

For all these reasons, there is a real divide between what the data are telling us and the programs and policies implemented in Asian countries. Prevention coverage of key populations driving the epidemic remains extremely limited; and yet, substantial resources are often devoted to mass media campaigns and programs for lower-risk populations that prevent few of the new infections in the country. In the absence of a solid idea of which programs will be most effective, countries often fall

back on global prescriptions, which are largely formulated for African, not Asian, epidemics. As a result, responses in the region remain anemic at best, lacking proper focus and adequate coverage and despite lots of talk, “evidence-based” decision-making just is not happening.

The genesis of A² – addressing the data-policy divide

Millions of dollars are spent in the region annually on HIV-related data collection by governments, national AIDS programs, international organizations, local non-governmental organizations, and researchers. Thus, it was clear to the A² regional partners that there was a substantial amount of information out there that could help to clarify the epidemic situation in each Asian country. In addition, tools existed that could make some of the linkages needed. The Asian Epidemic Model, produced by the East-West Center, could link behaviors to HIV prevalence. The Goals Model, from the Futures Group, allowed programs to be translated into behavior change, and simultaneously linked in financial resources and levels of programmatic effort to expected results. The question then was how to pull these pieces together at the national or sub-national level to make evidence-based policy recommendations and then use them to make responses more effective and efficient. In 2004, a proposal for doing this was put forward to the USAID Regional Development Mission for Asia to undertake a process then known as “Integrated Analysis and Advocacy” to pilot a new approach to linking analysis and policy in four sites: 1) Bangladesh, 2) Thailand, 3) Ho Chi Minh City, Vietnam, and 4) Yunnan, China. Today this has become the Analysis and Advocacy (A²) process, which will be described in the remainder of this chapter.

The A² objective – stronger, more effective and more efficient HIV responses

The overall objective of the Analysis and Advocacy (A²) Project is:

To build sustainable in-country capacity to develop a clear understanding of local HIV/AIDS epidemics and to translate that understanding into effective national policies and appropriately targeted and resourced programs.

This clarity of understanding will enable both countries and international donors to move decision-making to a stronger, more logical and empirically informed base. This improved and evidence-based understanding will be used to strengthen political commitment and to ensure that adequate resources to address HIV are made available. It will further ensure that those resources are directed in ways that can truly make a difference. At its core, the A² process aims to bring about stronger, more effective and more efficient HIV responses.

The A² process – making the data talk to the decision-makers

The A² process provides a practical approach to gathering, analyzing and using local HIV-related information, extracting relevant and evidence-based recommendations for policies and programs from it, and proactively advocating for these recommendations to be mobilized into more effective policies and

practice. This involves answering a number of key questions about the epidemic and the response to it, which are discussed in Chapter 2. At each stage the process seeks to engage multiple partners and stakeholders, and help build a common and shared understanding of the local epidemic that can guide decision-making by all concerned. The essential steps in the A² process are:

Pulling together available information and identifying gaps in our knowledge

Information is the life's blood of the A² process, as all recommendations should be grounded, to the maximum extent possible, in the best locally relevant, reliable information. The process begins by collecting and critically analyzing existing HIV-related biological and behavioral data on HIV and STIs, along with data on the sizes of key populations, information on policy and program responses, and current intervention coverage and costs.

Because data are held by a number of different stakeholders, the information collection process inherently involves building trust and enlisting cooperation from multiple partners. Meetings may need to be held to bring key partners to the table to discuss their data, identify its strengths and weaknesses, and come to consensus on what values are appropriate. The process of collecting and organizing available data and other sources of information is discussed in Chapter 3. In this process, major data gaps and surveillance system shortcomings can be identified and strategies recommended for improving national data collection systems and filling the gaps.

An analysis is only as good as the data used to conduct it. This means that all the information collected must be reviewed crit-

ically and triangulated from multiple sources to determine the realities of the local HIV situation. Chapter 4 reviews the factors to be considered in assessing quality of data and discusses the use of multiple data sources to resolve inconsistencies.

The data collected are then synthesized to provide a picture of the current state of the epidemic in a particular location and illuminate key trends in HIV, behaviors and responses. This synthesis, in and of itself, provides essential inputs to policy and planning. Chapter 5 provides examples of how such synthesis can provide valuable guidance, even before models and more quantitative analyses are done. In the A² process, the overall “big picture” of the epidemic is normally summarized in project synthesis reports (see Figure 1.2). Examples of these reports from some A² project sites are included in the CD-ROM provided with this document under Chapter 4.

Using that information to build locally relevant models (AEM and Goals)

Unlike other epidemics that play out in months, HIV epidemics evolve over years or decades. In order to understand an HIV

epidemic today, you must understand its past and how the behaviors that drive it have changed over the years. This requires extracting trends in HIV and in key behaviors over time. These trends must be extracted from the data collected in the first step, a process that will be discussed in Chapter 6. The chapter also addresses how gaps in these trends can be filled using the wealth of information available combined with informed and well-documented assumptions.

The trends generated are plugged into the Asian Epidemic Model (AEM), which is then tuned to produce a close match to the past history of the epidemic (i.e., a realistic model of the local epidemic based on local data). The AEM and the process of fitting it are described in Chapter 7. AEM not only shows the probable future course of the epidemic, but also allows the user to assess the comparative contribution of different populations to the epidemic, providing concrete guidance on prioritization (see Figure 1.3).

As data are collected for input to the AEM, information on responses to the epidemic needed to run the Goals Model is also collected. This includes estimates of program coverage,

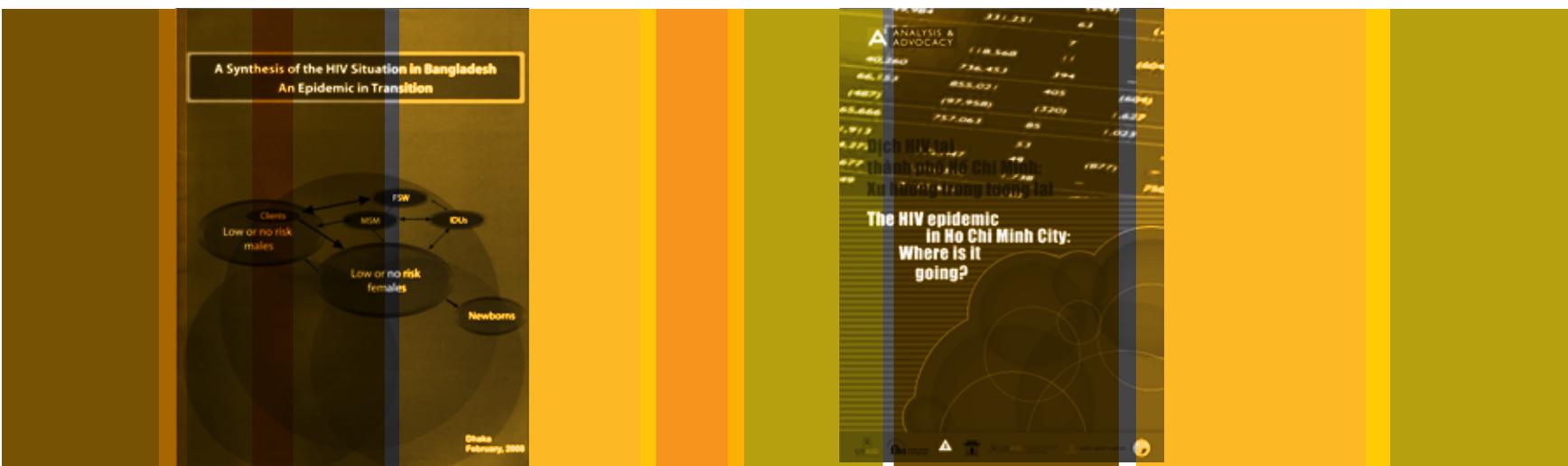


Figure 1.2. Examples of synthesis reports from A² sites.

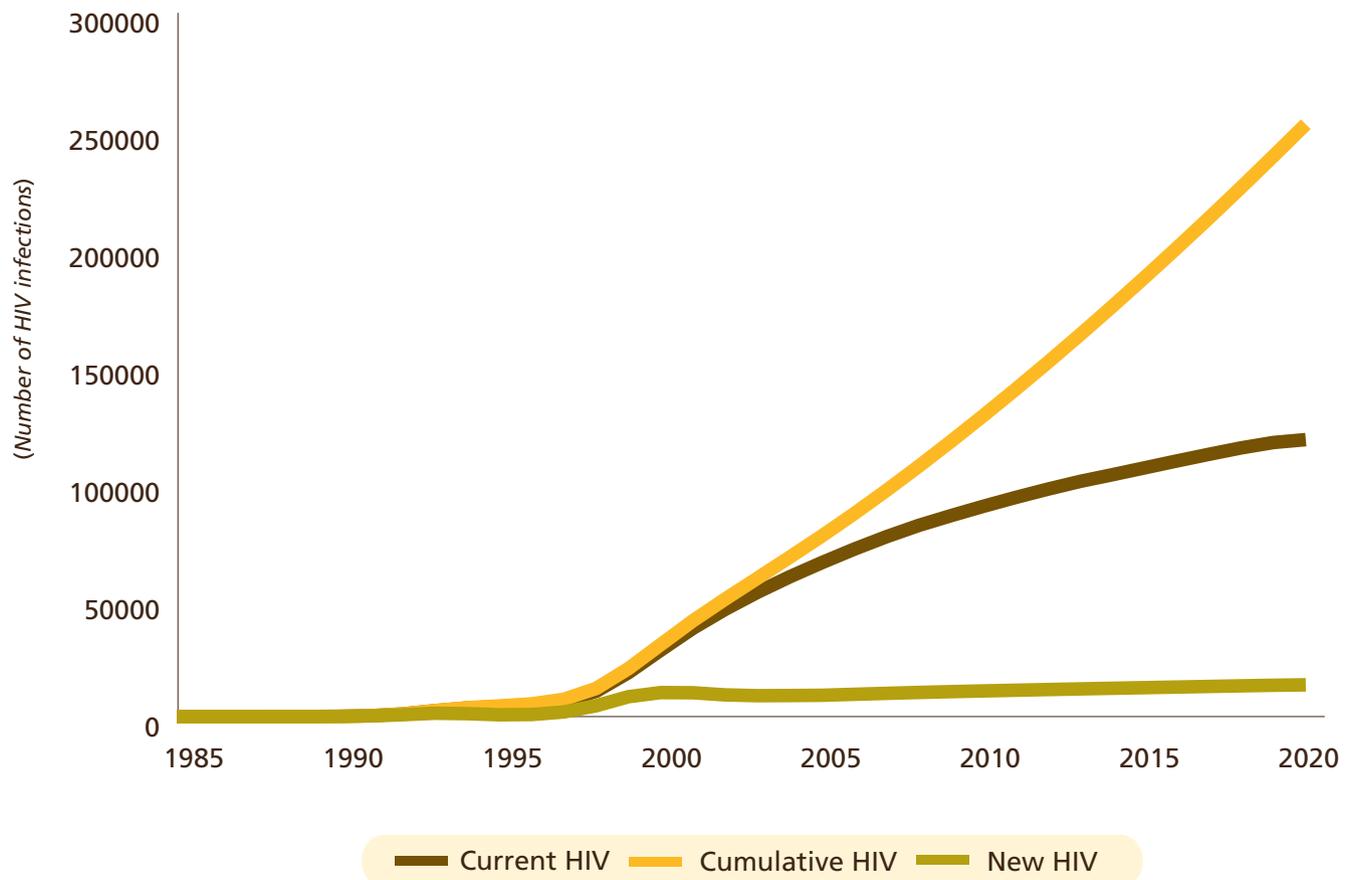


Figure 1.3a.
The new, current and cumulative HIV infections in a projection of the epidemic for Ho Chi Minh City obtained from the Asian Epidemic Model (data from A² Vietnam team for HCMC).

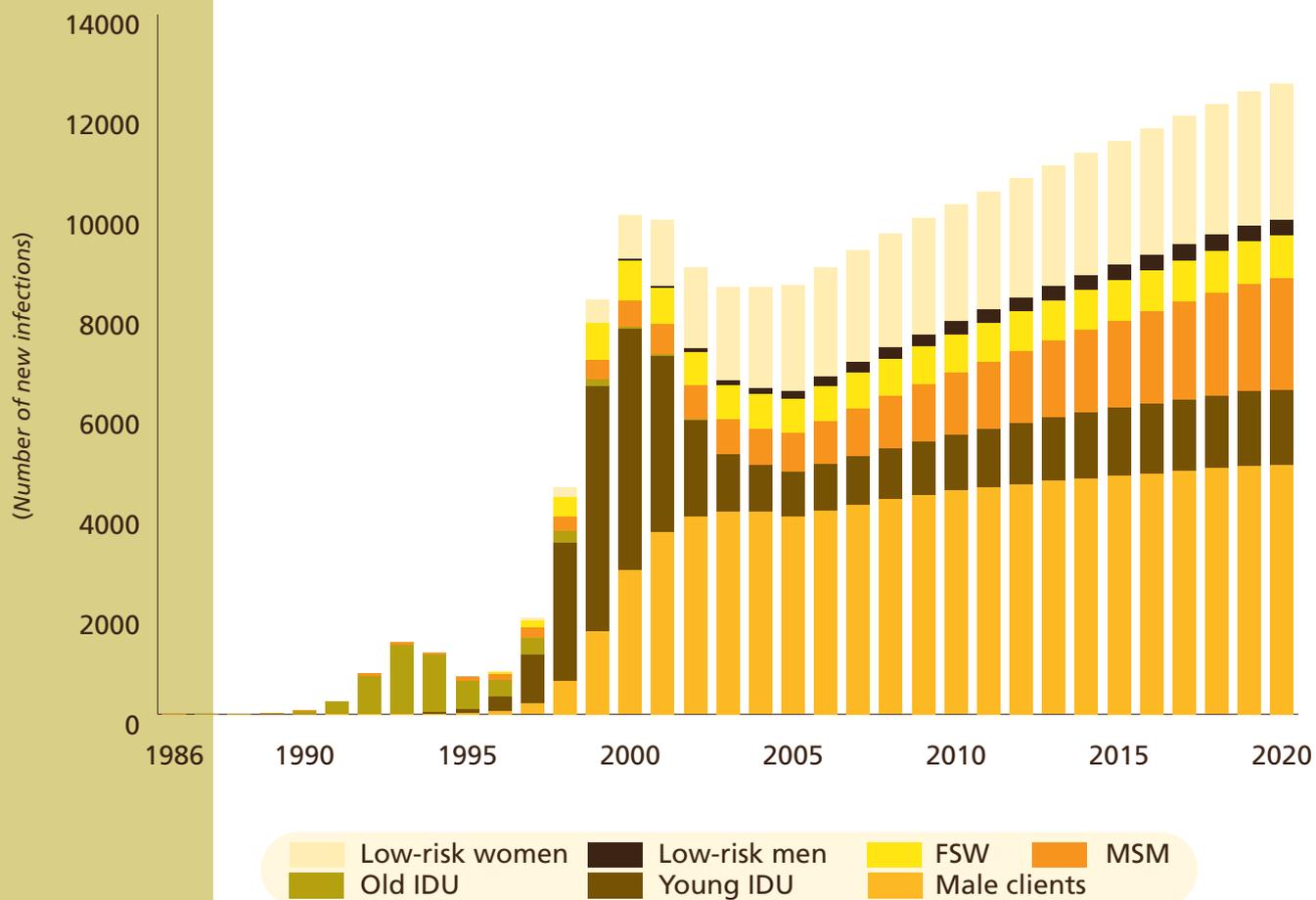


Figure 1.3b.
 Based on the same projection, the contribution of different at-risk subpopulations to the number of annual new infections in Ho Chi Minh City (data from A² Vietnam team for HCMC).



unit costs of interventions, the sizes of affected populations, and the observed effectiveness of responses. The response data needed and potential sources of this data are explained in Chapter 8.

The Resource Needs Module of the Goals Model, covered in Chapter 9, then provides estimates of the costs of intervention in each key affected population based on unit costs and the level of coverage expected. The Goals Impact Module provides the expected level of behavior change for a given coverage level. These two Goals components together can be used to directly assess the level of behavior change expected for a specified level of financial resources.

This step of the process is also a collaborative one. In order to ensure the quality of the inputs, assess the validity of the outputs, and promote the acceptance of the results of the modeling work, consensus among local experts on data inputs and the results is sought. The inputs and results of the AEM and Goals work are written up in inputs documents and technical reports. These are provided to a local Technical Working Group of HIV experts for review, comment and feedback (examples of these documents are included in the CD-ROM under Chapters 7 and 9). This open and transparent process helps to build ownership of the results and a common, shared understanding of the local epidemic.

Exploring alternative policy and program choices using those models

One of the unique features of A² is that it has linked the AEM and the Goals models to produce a complete package that illustrates how the proposed programs or financial inputs can potentially impact the future epidemic in an Asian country.

Thus, you can specifically model the effect of a particular choice of resource allocations among different programs and populations on the future course of the epidemic.

By building policy scenarios (i.e., alternative futures for the epidemic based on different program choices in the present), decision-makers can see the impact of the choices they make today in their programs (see Figure 1.4). This is the subject of Chapter 10. Working closely with local communities, policy-makers, program managers and other decision-makers, you can define a set of realistic and achievable program alternatives. The linked AEM-Goals Model is then used to show them the impact their choices will have on the future of the epidemic. It also provides estimates of the cost of those alternatives. This results in a clear set of recommendations on what constitutes the most effective response among the choices defined and the level of resources required to implement it. If working under a fixed budget, the AEM-Goals combination can be used to explore different choices given the budget constraints. This allows decision-makers to determine which of those choices will make the most effective and efficient use of the limited resources available.

Advocating for improved responses with key decision-makers

In the next step, the strategic information generated by the A² process (data collected and outputs from the modeling analyses) is used to influence HIV/AIDS strategic planning processes, promote implementation of the most effective policies and programs, and mobilize adequate resources. In reality, advocacy in A² does not just occur after the analyses are finished. Advocacy in the A² process has been underway from the start of the process. By engaging the various stakeholders

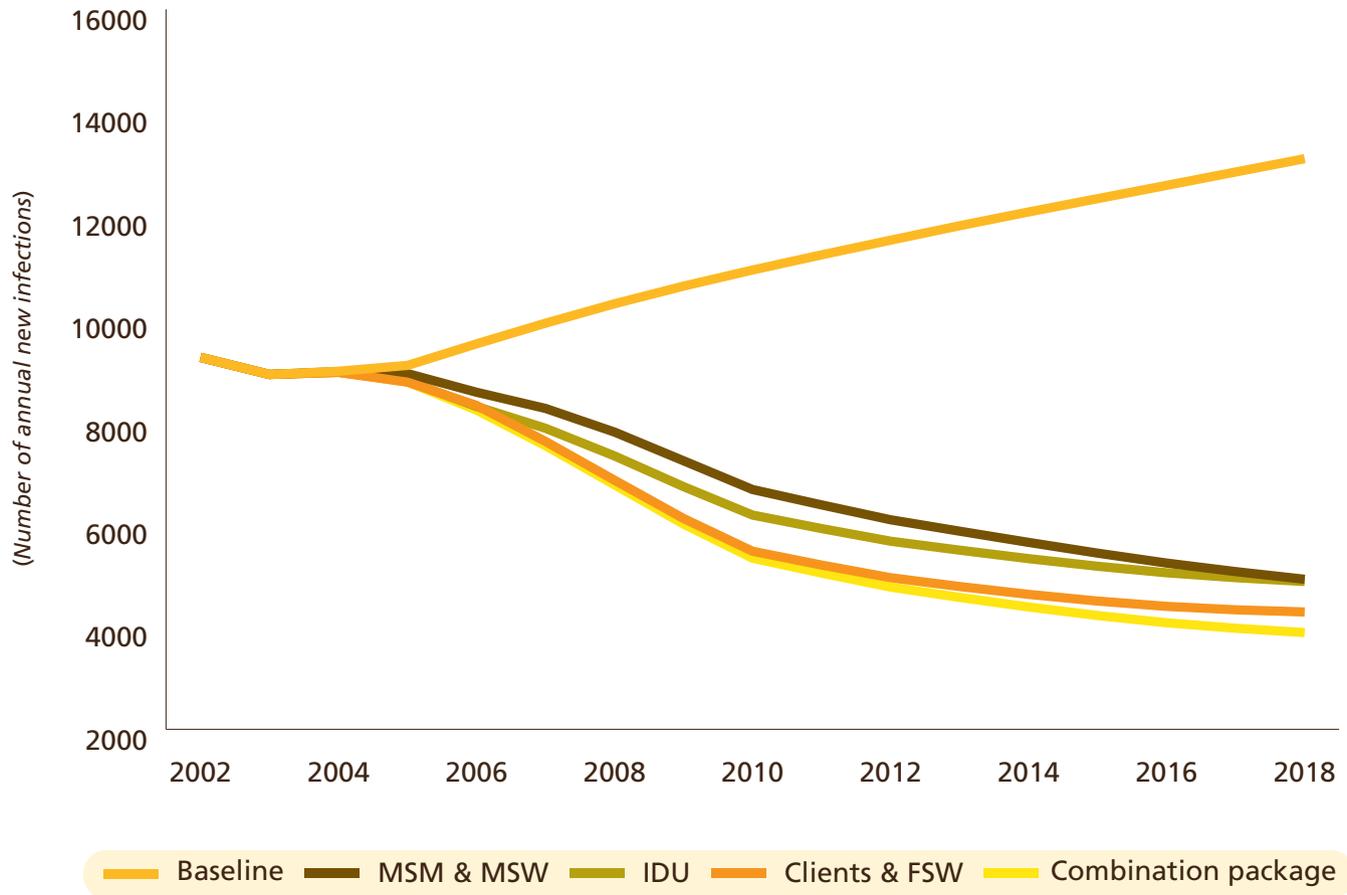


Figure 1.4.
Impact of alternative prevention packages on new HIV infections in Ho Chi Minh City (A² Vietnam country team).

in information collection and review, analysis and scenario building, and discussions of response alternatives, awareness has already been raised about what the data tells us, and stakeholders have a shared understanding of the epidemic and what's needed to respond to it.

At this later stage, the advocacy focus is not just on building understanding, but on moving responses in the right directions. This is done in a systematic and strategic way. The process starts by identifying the key advocacy issues. These issues may arise from the data collected, from the analyses done, from reviews of the appropriateness of the current response, or from discussions with key stakeholders (see Figure 1.5). Chapter 11 covers this process of identifying key advocacy issues in an Asian context.

As issues are identified, the HIV/AIDS-related policy and program terrain is mapped to identify who (actors, institutions

and processes) needs to be influenced to produce stronger responses, what influences them, and any potential obstacles or opportunities. This mapping becomes the starting point for active engagement with key decision-makers. Barriers and facilitators to taking action are also identified including social, legal, and economic factors that may affect risk and susceptibility to HIV. Chapter 12 covers these issues in depth.

This mapping and contextual understanding become essential inputs for developing and implementing a locally appropriate advocacy plan to put the evidence-based recommendations on the response coming from the A² process into practice. Prioritization of advocacy issues, the development of advocacy objectives and communication, and the preparation and content of an advocacy action plan form the contents of Chapter 13. (Examples from A² project sites in the form of policy briefs can be found in the CD-ROM under Chapter 11.)



Figure 1.5.
Senior Policy Symposium held in Yunnan, China to present A² findings and gather input on issues from key decision-makers.

Working with all partners to translate understanding into action

The last step in the A² process is to work closely with various partners to disseminate the key data and analyses relevant to improving the response and to implement the advocacy action plan so that recommendations are turned into actual policies and programs with the resources to implement them. Again, this needs to be a collaborative process in which governments, communities, people living with HIV, donors and others active in the HIV field work together to achieve the policy changes laid out in the advocacy action plan.

Chapter 14 discusses the actual country experiences in implementation of A² and gives examples of the resulting policy and program impacts. To date, the process has been done at the national level (Bangladesh and Thailand), major city level (Ho Chi Minh City, Vietnam) and provincial level (Guangxi and Yunnan provinces in China). As each chapter discusses the various

essential elements of the A² process, experiences from these places will be used to illustrate this process.

The A² team and partners – a collaborative model

Implementing the A² process requires a coordinated effort between various national/provincial and regional partners. As outlined above, it involves engaging large numbers of other stakeholders at each stage in an open, inclusive and transparent process. National or provincial capacity for synthesis, modeling, engagement of partners, advocacy development and proactive data use does not exist at present in many of the countries of the region and must be built and supported in a sustainable fashion. This is essential as the activities proposed above cannot be undertaken at a regional level because access to information, data use, and advocacy efforts are by their very

nature local. Thus, while the A² process is inherently a national or provincial one, it is supported by and engages both local and regional/international partners as shown in Figure 1.6.

A² country/provincial core teams

At the local level, an A² country/provincial core team consists of one or more synthesis specialists and one or more advocacy and data use specialists. They are supported by local advisory groups that draw in available national and provincial expertise. This combination of a core team with advisory groups provides the dedicated staff to carry out the sometimes time-consuming efforts of data collection, analysis, and preparing advocacy strategies, while actively engaging additional partners to implement advocacy activities effectively. The use of advisory groups brings in the extensive local expertise in HIV that exists in national programs, NGOs, affected communities, groups of people living with HIV and research institutions. As discussed in Chapter 14, the actual composition of the country teams and supporting structures may need to be adapted to fit local circumstances.

Synthesis specialist

The central individual for data collection, synthesis and analysis is a local synthesis specialist, attached to a sustainable local institution. This might be a government office, an NGO umbrella organization, a university or some other body. This individual must have the capacity to collect information from multiple sources, evaluate its quality, and synthesize the epidemiological, behavioral and response data into a clear and compelling picture of the epidemic. Working closely with the A² Regional Support Team, the synthesis specialist helps to develop locally

appropriate epidemic (AEM) and costing (Goals) models and policy and program analyses. He or she also assists program planners, advocates and policymakers in developing evidence-based recommendations on what constitutes the best response and what it will cost. In addition, the synthesis specialist backstops advocacy efforts by preparing the information needed to advocate from the evidence and help policymakers make decisions that make the best use of available resources.

Advocacy specialist

Once informed analyses are prepared and it is clear what information is available, these must be translated into policies and programs. The advocacy specialist on the A² team develops a strategy to mobilize leadership at all levels, build participation of affected communities, increase political commitment, ensure that strategic planning processes are informed by local data and analyses, and address stigma and discrimination. This individual works with other partners to identify key decision-makers, program planners and key community representatives, to determine their data and analysis needs, and coordinates with the synthesis specialist to meet their advocacy, policy and program data needs. The advocacy specialist receives active support from a local Advocacy and Data Use Group, the synthesis specialist and the A² Regional Support Team.

The Technical Working Group

The analysis conducted by the country/provincial team is supported by a local expert Technical Working Group (TWG), with a core group drawn from knowledgeable technical experts from key governmental agencies, non-governmental and academic organizations, and affected communities who have HIV

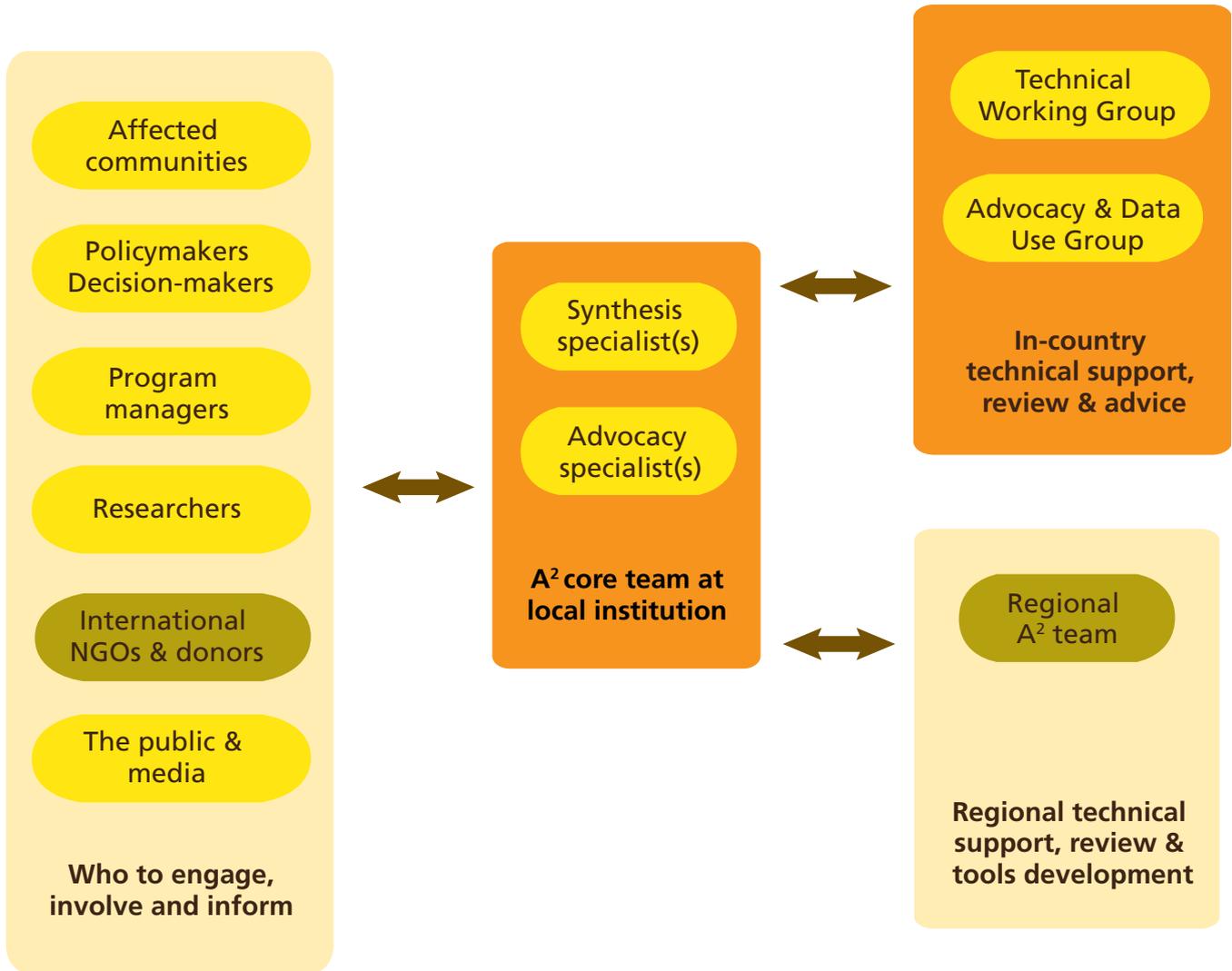


Figure 1.6. Key agencies and actors involved in national A² processes. In-country participants are shown in yellow ovals, while regional and international participants are in olive. The orange boxes contain the core elements of the in-country A² process: the A² team and its advisory groups.

expertise. Local experts from other fields supplement this core membership as issues arise that call for additional expertise. The TWG ensures input of the best local expertise into the process, reviews the inputs and technical merit of the models and policy analyses prepared, provides links to those making decisions nationally and internationally, assists in developing appropriate local advocacy strategies, and helps to confer legitimacy on the process. The A² Regional Support Team assists in coordinating with national programs and other agencies in establishing the TWG.

The Advocacy and Data Use Group

Every country's situation and policymaking process is different, and local expertise is needed to influence the policy and program planning process. In each country an Advocacy and Data Use Group is organized, consisting of key multi-sectoral policymakers, affected community representatives, program managers, communications and marketing specialists, and influential individuals. This group assists in developing locally relevant data use and advocacy strategies, identifying who they need to target, and assisting in their implementation. This group advises the advocacy specialist and guides his/her activities to maximize the advocacy, policy and program impact.

To ensure sustainability, these teams are attached to a suitable local institution with a plan for phase out of regional support as local resources are mobilized and capacities built. This allows the process to continue beyond the life of the project. From

the start, the process is closely coordinated with, and actively involves national HIV/AIDS programs, other important governmental partners, and civil society.

The A² Regional Support Team

A small, skilled Regional Support Team (A² RST) provides overall coordination for the regional project. The team develops and improves tools and techniques needed for the process, trains the country teams in synthesis, modeling, response analysis, costing, and advocacy, and provides technical support as necessary. They also serve the essential function of coordinating and liaising with international partners to avoid duplication of existing efforts and ensure maximum use of the analyses and tools developed at the regional level.

This team draws on the decades of experience of the East-West Center (EWC), Family Health International (FHI), and the Health Policy Initiative (HPI) project staff working in Asia (implemented through RTI International and Futures Group International). This regional team works closely with in-country partners to ensure the integrity of the process, adapt tools to meet specific country needs, strengthen advocacy champions, and document policy and programmatic progress in the countries. They also synthesize results regionally and provide international partners with a stronger evidence base for making informed funding decisions, identifying which activities to support, and advocating more broadly for effective responses in Asia.

The unique characteristics of A²

As highlighted above, the A² approach exhibits a number of unique characteristics that distinguish it from many previous data analysis and advocacy efforts:

It is inclusive

At each stage of the process, the A² approach attempts to involve large numbers of individuals and institutions, including data specialists, program managers, community members, people living with HIV, and policymakers. This is true at all stages: from data collection and model building to policy advocacy. It is part of specific efforts to reach consensus on data collated and inputted into the models, in efforts to seek policymaker input and involvement in the modeling of alternative policy scenarios, and in efforts to engage other partners in advocacy plan development and advocacy activities. It is inherently an inclusive and transparent process.

It leverages existing capacities and existing information

The benefits of leveraging the capacities of other national and international partners and making use of what already exists are well recognized. The Regional Support Team has modified and extended existing models and tools to increase their utility to the policy analysis process. The A² process in-country uses a small number of dedicated staff who engage support from the capacities and skills of a large number of external experts, community members, policymakers, and the Regional Support Team. It also uses existing information sources, rather than undertaking extensive data collection exercises of its own.

It ensures local relevance by using local data

Access to information, data use and advocacy are local in nature, and are invariably influenced by factors specific to the locale in which data are gathered, analyzed, disseminated, and used. Under the A² approach, local data serve as inputs for the modeling and costing done and the policy analyses conducted, and advocacy activities take specific account of local players and processes. The results are more likely to influence local policymakers than “examples” from other places or generic advocacy approaches that are not tuned to the local landscape.

It is action oriented

The A² approach stresses the importance of keeping primary focus on moving responses in the right direction, developing and implementing effective national policies, and appropriately targeting and resourcing programs. Constant attention is needed to maintain this action orientation and avoid getting bogged down in technical details relating to the models used or the data analysis conducted. The primary goal is to improve responses.

It is cyclical and adapts to an evolving situation as time goes on

Epidemics and responses evolve. The important advocacy issues change. Thus, the last step listed above of working with partners is not the end of the A² process, but is the beginning of the next cycle of analysis and advocacy. As the response shuts down one avenue of HIV spread, others grow in importance. This will create new data needs, bring new issues to the fore, and require continued vigilance to maintain the effectiveness

of the response. Thus, it is essential that the process continue collecting data on emerging issues, assessing evolving response needs, and developing and implementing ever more effective approaches to respond to a changing epidemic.

It aims for sustainability from the start

A number of features of the A² approach seek to ensure sustainability of project effects, not least of which is forming close linkages with appropriate local institutions. Sustainability is further promoted through capacity building efforts for local partners including modeling and advocacy skills training, and through a phased approach to implementation that envisions a diminishing role for the regional team and increasing influence of country/provincial teams in mobilizing resources and determining project direction or focus. The Regional Support Team continues to simplify the tools, making them easier to use and more applicable to the country situation.

The A² process builds a shared understanding of the epidemic

In order to narrow the gap between operational research and policy, and to influence HIV policy, programming and resource allocation decisions, the A² project at various stages engages the following key stakeholders:

- HIV policymakers and decision-makers, who ultimately have responsibility for adopting an effective response
- National/provincial AIDS programs and AIDS committees responsible for setting directions and developing action plans
- HIV program managers, who make the choices on what gets done and how it is done
- Affected communities, including people living with HIV, who are the experts on their own needs and on what works
- NGOs working with affected communities, who often bring decades of prevention and care experience to the table
- Local HIV data analysts including epidemiologists, behavioral scientists, epidemic modelers, costing experts, and prevention scientists who bring their expertise
- International agencies and donors, who influence the policies and programs adopted in-country and provide substantial resources for both national and provincial responses

Involving these stakeholders in the collection, analysis and use of data to assess alternative policies, helps them to internalize the lessons inherent in the data and see the relevance of the analyses to them. This in itself is a profound act of advocacy. It brings people to a common understanding of the epidemic and contributes to building a better coordinated and more effective response.

The benefits of A²

HIV is a complex epidemic, calling for complex responses adapted to fit local circumstances. By synthesizing data from all available sources, the A² process offers an opportunity to understand this complexity at the national or provincial level and decide between alternative responses on the basis of effectiveness and impact. The benefits of this process both nationally and regionally are numerous:

- HIV information of all types from multiple sources is collected in one place for the first time.
- Data gaps are identified and filled, and a clearer understanding is obtained of the national or provincial epidemic situation and the forces driving it.
- A data-informed, shared understanding of the local epidemic and the factors contributing to its growth is built, which serves as the basis for coordinated, collective action.
- National or provincial programs, donors and communities have a clearer picture of the effectiveness of their responses to date and can systematically evaluate future alternatives.
- Affected communities are empowered with data and projections of needs to advocate for better prevention, treatment and impact mitigation services.
- Resource allocations decisions move to a more systematic basis, are less likely to be affected by stigma

and discrimination, and are more likely to have a significant impact on the epidemic.

- National and provincial responses become more effective, the number of new infections falls, and the treatment and impact mitigations needs of affected populations are anticipated and met.

Millions of dollars are spent in each country on data collection annually, and millions more are today spent on ineffective programs with limited impact on the epidemic. The Analysis and Advocacy process offers an opportunity to redirect that investment in ways that provide an even greater return in infections averted and lives saved.



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DATA

Chapter 2

HOW DOES A² HELP US GET
AHEAD OF ASIAN EPIDEMICS?

[an overview]

[an overview]

Chapter 2

HOW DOES A² HELP US GET AHEAD OF ASIAN EPIDEMICS?

The purpose of the A² process is to translate existing information into more effective and timely responses to the HIV epidemic. As a starting point then, you must: 1) understand the nature of the epidemics you are trying to address; and 2) starting from the characteristics of these epidemics, formulate the set of questions you must answer to get ahead of your epidemic and implement locally effective responses on the ground.

How do Asian epidemics play out?

A recurring pattern for HIV is seen in Asia: the epidemic begins among men who have sex with men (MSM) and injecting drug users (IDUs), a few years later HIV begins climbing among female sex workers (FSWs) and their clients, and then starts to rise among pregnant women. Some of these women transmit HIV to their newborns. Because few Asian women have premarital or extramarital sex, extensive spread through casual, non-commercial heterosexual intercourse does not occur. So, for the most part, HIV risk in Asia remains confined to a limited number of key populations: clients and FSWs, MSM, IDUs, and their wives or other regular sexual partners. Numerous studies in the region have shown that other sexually transmitted infections (STIs) enhance HIV transmission and contribute greatly to the number of HIV infections.

However, substantial diversity in the epidemic in different Asian countries creates a need for custom responses addressing the local situation.

Despite the similarity in the overall pattern of the epidemics in Asian countries, the levels of risk behaviors for HIV, the size of the affected populations, the contribution of these populations to the epidemic, and the impacts of responses all vary greatly from country to country. While in most countries clients and sex workers make up the bulk of the epidemic, in others injecting drug users or men who have sex with men contribute more heavily. In some countries, prevention efforts have reduced transmission in sex work, but failed to stop it among IDU or MSM. And in others, risk behaviors remain high in all affected populations. This diversity in country circumstances requires that responses be tailored to your local situation, addressing the risks actually seen in your country and your distribution of new infections among different populations.

To anticipate the epidemic and respond more effectively, several key questions must be answered.

If we are to get ahead of the epidemic rather than racing behind it, we must know where the epidemic is today and proactively respond to where it will be tomorrow. To do this, you must gather various types of information and use it to answer a number of key questions in the context of your country's epidemic:

- How many people are at risk of becoming infected with HIV and who are they?
- What is the source of past and current HIV infections?
- Where is the epidemic going in the next several years?
- Are current HIV prevention and care efforts having an effect and are they positioned for maximum impact both now and in the future?
- How much will prevention and care cost and do you currently have the capacity to do it?
- What information is missing and what do you need to get a more complete picture of the epidemic and the impact of responses?
- Who do you have to influence to improve the response and what affects the choices they make?

The answers to these questions will vary from country to country, province to province, and district to district, especially given the diverse epidemics and policymaking environments of Asia; but these answers will allow you to get ahead of the epidemic. You will know where to focus your responses for impact and know what approaches will work. You will know what it costs to reverse the epidemic and care for those affected. And you will know who you have to reach and how you can influence them to improve the current responses. The remainder of these guidelines will focus on the A² approach for using available evidence to answer these questions and then translate those answers into better responses on the ground.

TOBI SAIDEL

TIM BROWN

Chapter 2

HOW DOES A² HELP US GET
AHEAD OF ASIAN EPIDEMICS?

[concepts and content]

Chapter 2

HOW DOES A² HELP US GET AHEAD OF ASIAN EPIDEMICS?

Tobi Saidel and Tim Brown

Why A²? To get ahead of the epidemic

The purpose of the A² process is to provide information that will allow for better and more timely responses to the HIV epidemic and to translate that information into action. In terms of HIV prevention and care, that means understanding how HIV is spreading, knowing who has contracted HIV thus far, and anticipating where the virus is likely to spread in the future. It also means knowing whether current responses are adequate and appropriately directed for averting the maximum number of new HIV infections. But to address these issues, you must first have a general understanding of the epidemics to which you're responding that can help you to formulate more specific questions and guide your search for the information needed to answer them. This chapter explores the nature of Asian epidemics and formulates more specific questions whose answers can help you to get ahead of your epidemics rather than racing along behind them.

Knowing what to look for - Asian epidemic patterns

Much is already known about how Asian HIV epidemics progress. Early in the Thai epidemic, Weniger and colleagues (1991) pointed out that Asian epidemics proceeded in "waves." The first infections detected almost always occur among people who have traveled outside of the country, or who have had sexual contact with foreigners who have come to the country. But the number of such infections remained relatively small in

most countries. It was instead the types and levels of HIV-related risk behaviors in the country that determined the subsequent speed and severity of the epidemic.

The first wave – IDUs and/or MSM

Following the introduction of HIV into a country, the earliest local spread is usually among injecting drug users (IDUs) or men who have sex with men (MSM) because needle sharing and unprotected anal sex are among the most efficient ways of transmitting HIV. With high transmission efficiency and the high frequency of injection often seen among IDUs, epidemics among them can accelerate quite rapidly. It is not uncommon for an IDU epidemic to rise from zero percent to sustained levels of 40-80 percent within one to two years. Epidemics among MSM usually grow more gradually than those among IDUs at first, but can also reach high levels after several years.

In most Asian countries, the first HIV was found among MSM as early as 1985 or 1986. For example, in 1984 and 1985 in Thailand, 14 of the first 15 detected HIV infections were among MSM. Through the mid-1980s, MSM dominated reported cases in Hong Kong and Singapore. But, as epidemics among IDUs, sex workers and their clients took off, the MSM component of the epidemic was increasingly neglected as data collection efforts shifted to other groups. In the absence of systematic surveillance data on MSM, an undetected and unobserved undercurrent of HIV among MSM has been growing for the last two decades in most Asian countries.

Only in the last three to four years have data once again been collected on these men. In all cases it shows substantial levels of HIV, even in places such as the Lao PDR and Hong Kong, with quite low prevalence in other populations at risk of HIV. Some of the levels measured to date are shown in Table 2.1. This growing epidemic among MSM deserves specific attention in all HIV programs in Asia today. It has become a major component of epidemics throughout Asia, but has been largely ignored until now.

Location	Year	% of MSM HIV+	Reference
Jakarta, Indonesia	2002	2.5%	(Pisani, Girault et al. 2004)
Beijing, China	2001-2	3.1%	(Choi, Liu et al. 2003)
Hong Kong	2007	4.0%	(Special Preventive Programme 2007)
Chennai, India	2006	4.4%	(Nandan and Bhattacharya 2007)
HCMC, Vietnam	2005-6	5.3%	(Hoang, Tuan et al. 2006)
Vientiane, Lao PDR	2007	5.6%	(Phimphachanh 2008)
Mumbai, India	2006	7.6%	(Nandan and Bhattacharya 2007)
Taipei, Taiwan	2004	8.0%	(Nai-Ying, Hsin-Chun et al. 2006)
Hanoi, Vietnam	2005-6	9.4%	(Hoang, Tuan et al. 2006)
Phnom Penh, Cambodia	2000	14.4%	(Girault, Saidel et al. 2004)
Bangkok, Thailand	2003	17.3%	(van Griensven, Thanprasertsuk et al. 2005)
	2005	28.3%	
Delhi NE, India	2006	32.8%	(Nandan and Bhattacharya 2007)

Table 2.1.

HIV prevalence measured among MSM populations in various Asian countries in recent years.

The second and third waves – FSWs and their clients

Usually within two to three years of the first wave, HIV prevalence starts climbing among female sex workers (FSWs) and clients, creating the second and third waves. The sex worker epidemic can be detected in HIV sentinel surveillance (HSS) of female sex workers if HIV is tracked in that population. Detecting it in clients is usually done through HIV testing in sexually transmitted infection (STI) clinics, where many, if not most, of the male attendees are clients of sex workers.

The speed and timing of the second and third waves depend on the proportion of adult men in the country who buy sex, and the corresponding number of clients per night per sex worker (Chin, Bennett et al. 1998). Table 2.2 shows the percentage of adult males visiting sex workers in the last year from various large scale surveys in Asian countries. In countries or regions where a large percentage of adult men (15-20%) buy sex, epidemics rise more rapidly and to higher levels. Examples of this include Thailand, Cambodia and parts of South India (e.g., Maharashtra and Tamil Nadu). In the early days of the epidemic, these places usually have a group of sex workers with two to three clients per night, most often working out of brothels or guest houses. HIV levels grow rapidly among these women. For example, in Thailand HIV among brothel-based sex workers rose to over 30 percent by 1993, to over 40 percent in Cambodia by 1998, and to more than 60 percent in Mumbai by 1996 (see Figure 2.1). Data on HIV prevalence among sex workers in Tamil Nadu are sparse, but there is evidence that HIV prevalence among some FSWs in Tamil Nadu had reached 29 percent by 1990 (Jain, John et al. 1994).

If the size of the client population was somewhat smaller and sex workers had fewer clients per night, as in China, Hong Kong, and Vietnam, the second epidemic wave proceeded more gradually. In those places perhaps 10 percent of men purchased sex and female sex workers were more likely to average one client per night rather than two or three. As a result, HIV among sex workers grew much more gradually, usually reaching only 5-10 percent a few years after the first wave (IDU) epidemic took off, instead of the 30-60 percent seen in countries with more clients. In countries where there has been no IDU epidemic (e.g., Bangladesh), or where fewer than 10 percent of the men visit sex workers (e.g., the Philippines), HIV among sex workers remains at extremely low levels even today. The intensity of sex work, as measured through the size of the client population and frequency of selling sex, is the most important factor in explaining the differences in HIV epidemics between Asian countries. We will explore the origins of this finding more completely in later chapters.

Numerous studies in the region have also shown that men who have a history of STIs (e.g., syphilis, gonorrhea, chancroid, etc.) have a much higher probability of contracting HIV. For example, in early studies in Thailand, men who had an STI history were 2.3 to 13.4 times as likely to have contracted HIV as men who had not (UNAIDS 1998). Sex workers throughout Asia tend to have high levels of STIs because they have many sexual partners and limited access to appropriate STI treatment. As a consequence of these co-infections with other STIs, increased HIV transmission occurs between sex workers and clients, producing rapid growth of HIV in both populations.

Location	Year	% adult men visit FSW last year	Reference
Thailand	1990	22.3%	(Sittitrai, Phanuphak et al. 1994; Thongthai and Guest 1995)
	1993	10.1%	
Cambodia	2000	Urban 19.4%	(Sopheab, Phalkun et al. 2001)
		Rural 11.0%	
Hong Kong	2002-4	11-14%	(Lau and Tsui 2003)
Bangladesh	2006	11.7%	(Chowdhury, Anwar et al. 2006)
Japan	1999	11.0%	(Kihara et al. 2000 unpublished)
China	1999-2000	9.0%	(Parish, Laumann et al. 2003)
Singapore	1989	7.6%	(Heng, Lee et al. 1992)
Philippines	1999	5.1%	(Ramos-Jimenez and Lee 2000)

Table 2.2.

Client populations in Asian countries. Percent of adult men reporting visiting sex workers during the last year in general population surveys.

The fourth and fifth waves – wives of clients and their children

Many of the clients, IDUs and MSM who contract HIV transmit it to their wives over the next few years, creating the fourth wave of the epidemic. Husband-to-wife transmission has historically been detected through HIV surveillance among women attending antenatal clinics, where it manifests as a slow, steady growth in HIV prevalence, usually reaching detectable levels a few years after the rates in clients of sex workers start to climb. In more advanced stages of the epidemic, as in Cambodia and Thailand today, husband-to-wife transmission can become the most important source of new infections. The newborn children of these women constitute the fifth wave of the epidemic.

Outside of these populations, there will be little HIV transmission in Asia

Many assume that once levels of HIV in IDUs, sex workers and clients rise high enough that a larger scale epidemic will follow driven by casual sex. However, this is not the case in Asia – the epidemics of the region are unlikely to become dominated by sex between non-commercial casual sex partners as is often seen in sub-Saharan African countries (Commission on AIDS in Asia 2008). The reason for this is that few Asian women have sex before marriage or outside of marriage. Even the women who do have premarital sex normally do so only with their future husbands. It is these low levels of casual sex that prevent wider spread of the epidemic among lower risk populations, even as they create the demand for sex work, since cultural norms do not similarly constrain men's sexuality.

However, this does not mean there is no transmission through casual sex. It will occur, but it will not be of the same magnitude as HIV transmission through sex work, needle sharing, and male-male sex. In some countries, where young people are becoming sexually active, such as Japan, the contribution of casual sex may be increasing.

It also does not mean that Asian epidemics cannot become serious or reach high levels. The large percentages of clients in most Asian countries mean large numbers of men have high risk for contracting HIV unless protective measures are taken. Epidemics of a few percent are possible in most countries in the absence of expanded prevention, and there are pockets in Asia where prevalence peaked at 10 percent or more (e.g., in Phayao province in Northern Thailand).

Watching the waves roll in – diversity in Asian HIV epidemics calls for local data and analysis to guide locally relevant responses

While the pattern of HIV transmission is similar in Asian countries, with initial rapid growth among IDUs and/or MSM, followed by HIV growth among sex workers and clients and subsequent HIV growth among wives of clients, there is great variation in the epidemic timing and severity in different populations from place to place. In general, the epidemic among IDUs precedes the growth of HIV in other populations, but there are exceptions. In Cambodia, Tamil Nadu and Mumbai, the epidemic among sex workers and clients started first, most likely spurred by the large number of clients per night among sex workers. But in places where the sex workers have fewer clients per night, the IDU epidemic invariably occurs first, hinting that it may be sparking the sex work epidemic (discussed further in Chapter 6).

Figure 2.1 illustrates how the four waves have played out in surveillance data from a number of cities around the region. The "typical" wave pattern is apparent, but huge differences in the speed with which the epidemic grows and the level to which it grows in each population are apparent. Variations in the timing of the IDU epidemic, differences in the levels and frequencies of sexual and injecting risk, varying sizes of the at-risk populations, different levels of other STIs, and other factors make each epidemic unique. Each grows at a different speed, and they typically reach different levels. It is this wide

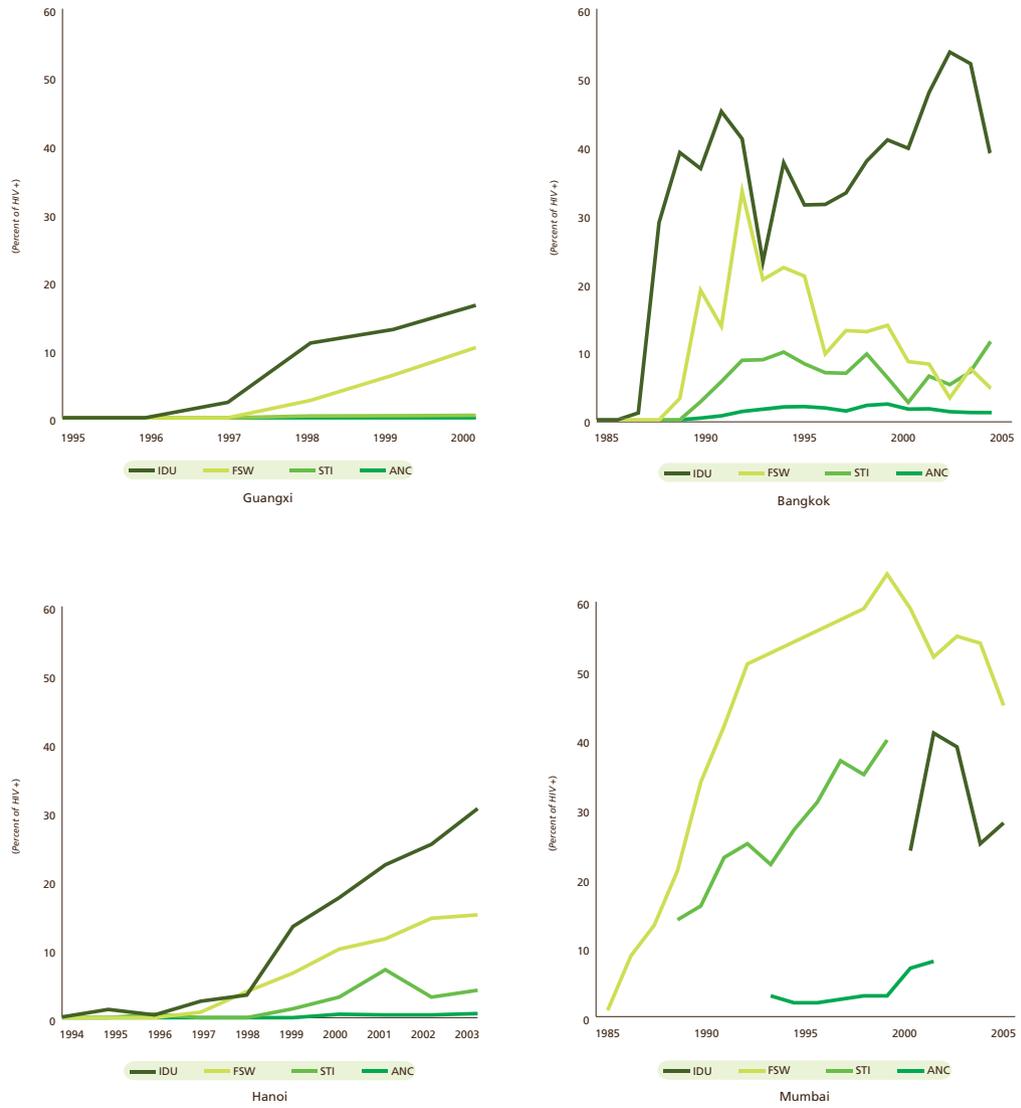


Figure 2.1.
The waves of the Asian epidemic as seen in HIV surveillance data from four Asian locations.

variation that makes local analysis using local data essential if we are to truly understand the epidemics in different places in Asia. Unless decisions on allocation of prevention and care resources are based on understanding of the local situation and directed to the populations contributing to the local epidemic, resources will be expended on ineffective programs with little impact and the overall response will fail to reverse the epidemic.

But, changes in behavior can change the course of the epidemic

It is also important to stress that an ever increasing epidemic progressing through the different waves is not inevitable. While Thailand, Cambodia and parts of India had potential for epidemics of 10-15 percent among adults (Thai Working Group on HIV Projection 2001, Cambodia Working Group on HIV Projection 2002), they never reached those levels. As outlined in Chapter 1, when surveillance systems revealed a growing HIV problem, sex work was identified as the major source of transmission and condom use and treatment of STIs were aggres-

sively promoted. The net result was that condom use between sex workers and clients went up rapidly and HIV levels began to fall within a few years. Figure 2.2 shows the relationship between increasing condom use and HIV levels among direct female sex workers in Cambodia.

These increases in condom use and improvements in STI treatment had the effect of reversing the growth of the epidemic as can be seen in the sex worker HIV data for Bangkok and Mumbai in Figure 2.1. Without access to data on condom use between sex workers and their clients, it would be impossible to understand this fall in HIV prevalence, and it might mistakenly be attributed to natural declines in HIV prevalence that are seen in long running epidemics in Africa. This highlights the importance of gathering not just HIV and STI data, but also data on the behaviors driving the epidemic and the way they change over time. The same applies to injecting drug use. Places such as Hong Kong and Australia kept sharing of needles low and have been able to effectively contain their IDU epidemics at extremely low levels.

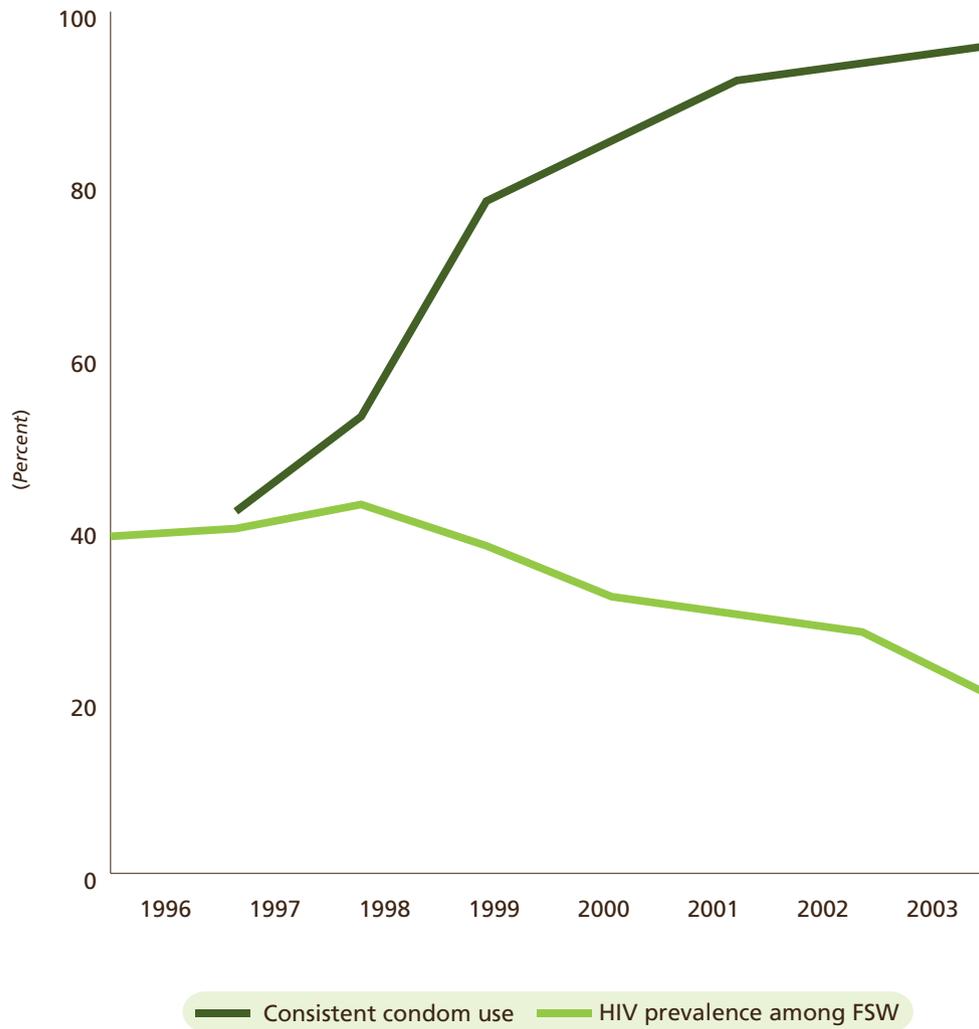


Figure 2.2.
*Increasing condom use produced a subsequent decline in HIV levels among
brothel-based sex workers in Cambodia (Cambodian HIV Sentinel Surveillance and
Behavioral Surveillance data, National Center for HIV/AIDS, Dermatology and STD)*

How can A² help you stay ahead of your own epidemic? By answering key questions

As we have seen, epidemics in Asia tend to follow typical patterns, and to proceed in waves. But watching the waves roll in is not the way to prevent epidemics, although far too often that seems to be the approach taken. Instead we must get ahead of the waves and prevent them from gaining momentum or cause them to break early.

That is, you must know where our own epidemic is today, anticipate where it will go tomorrow, and take appropriate steps to stop it, making program and policy choices that will be effective in your specific location. You might define that location to be a country, a province, or a district; but, whichever you choose, you must build a very clear and specific understanding of the factors influencing the epidemic in that location.

The questions you must answer to improve your local responses

Given the varying contributions of different groups to the epidemic, the varying levels of risk behavior, and the different contexts of risk from place to place, a number of questions must be answered to come to an understanding of what's really important in your local epidemic. These key questions include:

- How many people are at risk of becoming infected with HIV and who are they?
- What is the source of past and current HIV infections?
- Where is the epidemic going in the next several years?
- Are current HIV prevention and care efforts having an

effect and are they positioned for maximum impact both now and in the future?

- How much will prevention and care cost and do you currently have the capacity to do it?
- What information is missing and what do you need to get a more complete picture of the epidemic and the impact of responses?
- Who do you have to influence to improve the response and what affects the choices they make?

These questions must be answered with careful attention to the unique features of Asian epidemics. That is, they must be asked in reference to the primary groups contributing to epidemics in Asia. They must be focused on the behaviors that drive HIV transmission in Asian settings. They must examine prevention effectiveness in changing behaviors in affected populations and the access to and quality of care and treatment services for the affected. They must look at the costs of prevention, care and treatment in local currency, using local prevention and care partners. They must determine how policy is made in the chosen location. And the answers must take into account the social, cultural and economic contexts of HIV risk and the uniqueness of each location's policymaking apparatus and approach.

Table 2.3 elaborates some of the key issues that must be examined to answer these questions in an Asian context. This will require collecting many types of relevant information, triangulating and synthesizing it, and analyzing it using a number of analysis tools and approaches, including the AEM and Goals models. In the next chapter we will turn our focus to collecting the data needed to answer these questions.

Key Questions

How many people are at risk of becoming HIV infected and who are they?	What is the source of past and current HIV infections?	Where is the epidemic going in the next several years?	Are current HIV prevention and care efforts having an effect and are they positioned for maximum impact both now and in the future?	How much will prevention and care cost and do we have the capacity to do it?	What information is missing and what additional information do we need?	Who do we have to influence and what will affect the choices they make?	
<p>Number of Most-at-Risk People (MARP)</p> <ul style="list-style-type: none"> Female sex workers (FSWs) Types of FSWs Comparative risk Men who have sex with men (MSM) Male sex workers (MSWs) Male clients of MSWs Other MSM with high # of partners Male clients of sex workers Local In-migrant Returned migrant Injecting drug users (IDUs) Number of Lower Risk People (LRP) at risk Sexual partners of MARPs (male and female) 	<p>Number/proportion of past/current HIV infections among:</p> <p>Most-at-Risk Populations</p> <ul style="list-style-type: none"> Unprotected paid sex FSW/MSW/clients Local In-migrant Returned migrant Unprotected sex between men (MSW, MSM) Sharing of injecting equipment (IDU) Crossover between IDUs and FSWs and/or MSM Lower Risk Populations Unprotected sex between MARPs and lower risk sexual partners (male and female) Mother-to-child transmission from MARPs and LRP 	<p>Number/proportion of future (incident) HIV infections stemming from:</p> <p>Most-at-Risk Populations</p> <ul style="list-style-type: none"> Unprotected paid sex FSW/MSW/clients Local In-migrant Returned migrant Unprotected sex between men (MSW, MSM) Sharing of injecting equipment (IDU) Lower Risk populations Unprotected sex between MARPs and lower risk sexual partners (male and female) Vertical transmission from MARPs and LRP 	<p>Now</p> <ul style="list-style-type: none"> Are prevention activities directed toward hotspots where risk behavior or HIV infection have been detected? Are prevention and care interventions well matched to what is currently known about Sizes of risk groups? Amount of risk behavior? Levels of prevalent infection? Is risky behavior decreasing? And is there biological evidence? Is coverage high enough? 	<p>In the future</p> <ul style="list-style-type: none"> Will the response make a difference in preventing future HIV spread? (Averting infections?) Is the current mix of interventions appropriate? Or will a different mix result in more averted infections? 	<p>Are the available resources sufficient to finance the appropriate response?</p> <ul style="list-style-type: none"> If not, what is the best use of available money? Is current prevention capacity adequate for each affected community? Is training or mobilization work needed? What are the anticipated care and treatment costs? Is local care and treatment infrastructure adequate? How much will I save if I avert infections now? 	<p>Has the source of reported HIV and AIDS cases been identified?</p> <ul style="list-style-type: none"> Is there a reliable system for identifying hotspots? Are reliable estimates of MARPs available? Is it clear whether people got infected locally or somewhere else? Is behavioral data available for MARPs? Over time? Is biological (HIV/STI) data available for MARPs with identified risk behavior? Over time? Are there adequate data on responses and coverage? Do we understand the context of risk? 	<ul style="list-style-type: none"> What are the policy processes? Who makes HIV policy and program decisions? What is important to these decision-makers? Who influences them? Who influences them? aware of HIV? Have they mobilized to address it? What barriers and facilitators influence HIV prevention and care? Who affects them? Is the public well informed about the HIV situation? Are media knowledgeable about HIV and do they report accurately? What types of advocacy and information do these groups need?

Analytical Tools Required

Synthesis Triangulation	Synthesis Triangulation	Synthesis Triangulation AEM	Synthesis Triangulation	Synthesis Triangulation AEM/Goals	Synthesis Triangulation	Synthesis Triangulation
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Table 2.3.

What do we need to know about an epidemic in a given geographical area? Key questions

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DATA

Chapter 3

PULLING TOGETHER WHAT'S THERE:
COLLECTING AND ORGANIZING INFORMATION
ON HIV AND BEHAVIORS

[an overview]

[an overview]

Chapter 3

PULLING TOGETHER WHAT'S THERE:

COLLECTING AND ORGANIZING INFORMATION

ON HIV AND BEHAVIORS

What principles guide information collection in A²?

Several principles guide the process of gathering sources of information:

- **Allocate sufficient staff and time to do a thorough job.**
Pulling together the far flung sources of information needed takes time and effort. Be sure to have sufficient staff dedicated to the process and allow adequate time.
- **Be inclusive – engage interested parties from the start.**
Use the process of collecting information to introduce the A² process and engage people in providing their interpretations and knowledge of the data and the data's limitations.
- **Be aware of the sensitivities around “sharing information.”**
Information is power. Consequently, a large number of institutional, professional and personal concerns surround data and their use. These sensitivities must be taken into account or the process of collecting data can alienate rather than engage.
- **Whenever possible, obtain full reports.**
Interpreting findings and evaluating data quality requires information on study design, field implementation and analysis frameworks. Context is important to interpreting results, and the social, economic and other factors that affect risk, vulnerability and access to treatment and care must be understood. This requires access to full reports.
- **Cast a wide and inclusive net in collecting information.**
Full understanding requires not only numerical data and studies, but also qualitative ones such as case studies, field observations, service reports, etc. Do not disregard a potential source of information unless review raises quality questions.

- **Read everything collected carefully and understand the situations in which HIV is transmitted.**

Just pulling numbers out of a paper is not enough. Understanding HIV transmission, which occurs through some of the most sensitive of human behaviors, requires considering the contexts in which those behaviors play out. Evaluating a study's quality and identifying policy and program relevant factors and issues requires carefully reading the entire document. In addition to pulling out the numbers, you must seek to extract the wisdom and knowledge contained in a report on the environmental factors influencing HIV risk, prevention and care. This is time-consuming, but helps to build complete understanding.

What do Asian epidemic patterns say about the information we need to stay ahead of epidemics in Asia?

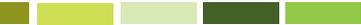
Based on the discussion in Chapter 2, the essential information to be gathered to build understanding of an epidemic in an Asian country falls into three categories:

- **Epidemiological information.**

This information includes the levels of HIV and STIs among FSWs and clients (using STI patients as a proxy), IDUs, MSM and pregnant women. If available, data should be collected on prevalence in men and women in the population at large. Because HIV epidemics show geographic diversity and affect different populations, information is also needed on prevalence by location, such as geographic sub-units (e.g., province or district) and case reporting data by location and transmission mode.

- **Behavioral information.**

This includes information on the levels, frequency and duration of the primary behaviors transmitting HIV in Asia including: vaginal and anal intercourse (within relationships and with casual or commercial partners) and needle sharing among the primary affected groups (FSWs and clients, MSM, IDUs). In addition information should be gathered on the levels of protective behaviors such as condom use or use of clean injecting equipment.



- **Sizes of the affected populations.**

This includes the size of the key populations affected by Asian epidemics: namely clients, FSWs, MSM and IDUs. In addition, clear definitions and size estimates are needed for any specific subpopulations within these groups that may be relevant to their risk or to prevention program design, such as brothel- or street-based sex workers (also epidemiological and behavioral data for these subpopulations).

What are the steps in the A² information collection process?

Collecting and digesting the large volume of information on HIV and associated risks requires a systematic and organized approach. The steps used in A² are:

- **Clearly lay out a framework for collecting the data needed.**

Before you start, make a list of what you need and identify those who can help you find it.

- **Conduct a thorough sweep of existing resources to learn what's out there.**

A good place to start is with a search of online databases such as MEDLINE or POPLINE, a review of conference abstracts, and a search of the World Wide Web. As you locate papers and reports, they will link you to other useful sources of information. During this process, maintain a comprehensive prioritized list of what you still have to collect.

- **Set up a good organizational system for storing reports and extracting information.**

Being able to find information quickly will speed the analysis process later. This means using computer tools such as bibliography managers, online scans or PDF files of documents, and spreadsheets and Microsoft Word files for extracting relevant data and information.

- **Test your organizational system with the more readily accessible documents.**

Get the bugs out of your system by entering the readily available published documents or reports into it. Extract the information from them and use that to refine your data extraction tools to fit your needs. This will increase your efficiency later.

- **Keep track of what you don't know in the form of a list of gaps.**
Sometimes our picture of the epidemic is unclear because essential information is missing. It is important to know what these gaps are as a basis for focusing our data gathering efforts and advocating for expanded data collection.
- **Gather the documents on your prioritized list of things to collect and introduce A² to people as you go.**
When you go into the field to meet with people, collect documents, or seek interpretation of what you've read, take the opportunity to introduce the A² process to people and engage them as partners in it.
- **Organize a Technical Working Group to assist you.**
When you start to have questions about things that are unclear, need to search for difficult to find sources of information, or find conflicting results, organize a group to help you. Bring a core group of local HIV experts to provide informed input, help in interpretation, review your work and help you find things.
- **When necessary bring people together to review the information and come to consensus.**
An important part of the A² process is raising people's knowledge levels regarding the local epidemic. When something is uncertain, there is great value in bringing people around the table to review available data, resolve contradictions, and come to consensus. This act alone will contribute to better responses by building a common understanding of HIV-related issues.

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Chapter 3

PULLING TOGETHER WHAT'S THERE:
COLLECTING AND ORGANIZING INFORMATION

ON HIV AND BEHAVIORS

[concepts and content]

Chapter 3

PULLING TOGETHER WHAT'S THERE: COLLECTING AND ORGANIZING INFORMATION ON HIV AND BEHAVIORS

Amala Reddy, Dimitri Prybylski, Tobi Saidel and Tim Brown

This chapter outlines some general concepts and considerations to keep in mind as you collect the different kinds of epidemiological, behavioral and population size information needed to understand the HIV epidemic in a specified geographic area (e.g., country, state or province, district). It suggests possible sources of this information and provides some general background on the types of information likely to be available. The Implementer's Track on the CD-ROM provides pointers to other useful material and organizational tools, and includes several sets of useful guidelines on these topics.

Guiding principles of A² data gathering

The A² data collection process is the first step in trying to understand the local epidemic, but even at this stage there is a characteristic underlying philosophy to the approach that is integral to the process, as described below.

Plan according to the magnitude of the task, allowing adequate time and staffing

Information is the lifeblood of the A² process. In general, the work of collecting detailed information to feed into the process is the job of the synthesis specialist. This is the person in the A² process who collects information, constructs models, and works with policymakers to use those models to generate policy scenarios. Thus, it is critical that the synthesis specialist be familiar with the local epidemic, with the issues that are of concern to those working locally with HIV, and with the different organizations and individuals working in the field.

The very diffused, distributed and disorganized nature of the knowledge base makes it no small task to pull information together. Accordingly, gathering, evaluating and synthesizing information becomes the primary activity of the A² process for the first several months, and later drops back to a lower level of ongoing activity as new studies and sources of information appear. If the organization implementing A² already has good access to relevant information and local experts, this process might be largely completed in as little as 3 to 4 months of intensive activity. However, in places where there is a lot of undigested information, this first phase may take up to a year.

It is important for implementers to understand that although it is time-consuming, the data collection process is an essential part of the process on which the validity of the subsequent analyses depends. Hence, it cannot be rushed. Plans must be made at the outset to designate adequate personnel and time to this activity. In many of the A² sites, the synthesis specialist has recruited assistants or worked with his or her organization's administrative staff to cast the information collection net more widely and speed up the data collection process.

Be inclusive—engage interested parties from the start

In many cases, gathering information will involve having to contact people or visit their offices to be briefed on data sources and availability, collect copies of reports, and, in some cases, ask if they can do additional analyses or share data sets. This actually presents a good opportunity for the synthesis specialist to visit the organizations working on HIV, familiarize him/herself with the communities affected by HIV, and meet many of the program managers, community members, researchers

and policymakers working to address the epidemic. The A² advocacy specialist should also be involved in this initial collection of information because it provides an opportunity for him/her to meet the people with whom they will later need to work closely. Learning about the issues and concerns of potential collaborators at this early stage allows the team to become familiar with the policy environment and local political landscape, and reduces the likelihood of future missteps.

Furthermore, the initial information collection also offers an opportunity to introduce the A² project to people and raise awareness of how the process works, what it hopes to accomplish, and to explain to them how they can be involved. This, in and of itself, is essential advocacy. It allows the A² team to solicit inputs from people who have a good local perspective on the epidemic or of those who have built their own understanding of what the data indicate for program planning purposes – the inputs of the very people the process is intended to include and influence. This will help prepare the ground and ensure that these people's knowledge and concerns are addressed as the process moves forward. It can start to build a sense of ownership of the process and should increase people's willingness to accept the outputs and the recommendations coming from the A² team. In all such contacts, it is important that the A² team members be open, transparent and willing to listen and learn.

Be aware of sensitivities around “sharing information”

The A² team must be sensitive to the concerns of those in possession of information. Information can be a source of power, which can make data collection one of the most sensitive parts of the A² process. Agencies frequently have approval

hierarchies and various levels of permission must be obtained before data can be released. Researchers are sometimes reluctant to share data sets because they fear that they will lose ownership or their right to publish, and in turn suffer impacts on their careers. Intervention programs can be sensitive about data that tell the “real story” about effectiveness of their interventions, because of its obvious funding implications. Data are sometimes “modified” or “adjusted” in various ways to meet the demands and targets of managers, donors or government agencies within existing monitoring and evaluation frameworks. An additional barrier is the potentially damaging effect HIV-related information can have on groups that already suffer discrimination (e.g., FSWs, IDUs, MSM) when that information becomes public. The concerns are valid, and sensitivity to them is crucial for building trust. Careful attention to diplomacy and good networking skills are therefore critical. Without them the A² process will have difficulties moving forward.

Obtain full reports and data sets when possible

Whenever possible, try to obtain the full report of the study generating the numbers you use, and discuss how the data were collected with those who have knowledge of the details. Papers published in journals are subject to length constraints that limit the amount of detail they can present. Full reports, including those prepared for donors, frequently contain much more information and present it in greater detail. Ideally, it is also desirable to obtain data sets in electronic format and the associated questionnaires, so that more detailed analysis can be done if necessary. In practice this is usually difficult given the proprietary nature of many data sets.



Cast a wide net when deciding what to collect

Cast a wide and inclusive net when collecting information. Seek out not only reports with numerical data, but also qualitative studies, case studies, field observations and other sources of information that can help put the numbers in context. No source of information should be totally disregarded. They should all be collected and reviewed, and then disregarded later if the quality is not adequate.

Read everything collected carefully, understanding both the numbers presented and their context

Without reading through each report carefully, it is difficult to assess the quality of the data it contains. If you look only at numbers and don't understand their limitations and their context in relation to prevention and care, then your numerical understanding will be devoid of the essential contextual understanding needed to advise decision-makers on appropriate responses. Thus, it is critical that you read each study or report carefully, absorb its key lessons, and note important policy and program relevant details for future reference.

More often than not in this set of guidelines the term "information" is used instead of the term "data" to describe what is needed to build understanding of an HIV epidemic. When most people think of data, they think of numbers. However, your needs in terms of using available data correctly and coming to a good understanding of the epidemic and the factors influencing it go far beyond just the numbers. When looking at individual risk or potential susceptibility to HIV infection, numbers alone are not enough. You must understand the context of risk and the environmental factors that influence people's behaviors. Specific factors related to context that should be explored include, among many others:

- **Economic factors that influence behavior.**
For example, do sex workers take more risks because

clients pay more if they don't use a condom? Are the motivations to be in sex work economic in origin? Do young MSM not use condoms because there is no lubricant available, and would condom use go up if lubricant and condoms were provided free?

- **Social factors influencing behavior.**
For example, what are the local norms on protective behaviors? Do men in local MSM community support use of condoms or do they think it shows you don't trust your partner? Are the workers at the local social hygiene clinic supportive when young sex workers come for treatment for STIs? Do young men avoid buying condoms when they come to the brothel because they're embarrassed to buy them?
- **Stigma and discrimination.**
Are services denied at STI treatment clinics to male sex workers? Do families of those dying of AIDS lose their ability to raise income and support themselves? Are young sex workers prevented from taking other forms of employment because of their past? Are people with HIV systematically denied hospital care?
- **Legal and institutional barriers to safe behavior.**
For example, can a condom in the purse be used as proof of sex work in trials of young women? Do stiff penalties for possession of a needle encourage people to share rather than carry a needle and risk getting caught? Are single young people denied access to family planning services including condoms?

In fact, some would argue that we need to shift the focus from individual risk to the situations that support or discourage risk. Factory workers sometimes sell sex because the conditions under which they live do not allow them to earn enough to survive. Sex workers don't use condoms because the brothel owners will beat them if they refuse a client. MSM can't carry a condom with them when they go to the park because the police will harass them if they find it. Many of these issues are

amenable to policy solutions if the people in a position to make changes are aware of them. But if you ignore them as you collect your data or fail to convey them to those with decision-making authority for prevention or care, you may miss major opportunities to improve responses. In fact, both individual and situational factors need to be considered in coming to an understanding of HIV risk and vulnerability that can help guide the formulation of good policies and programs.

In short, numbers alone are not enough to fully understand epidemics and the behaviors of people affected by them – and they are certainly not enough to guide policies and programs. You must have substantial qualitative understanding to supplement the quantitative numbers. You must also be able to assess the quality of the numbers you’re using and put them into the proper context.

What information do you need to understand Asian epidemics?

As noted in Chapter 1, the A² process arose from concerns that existing data, collected at significant expense, were not adequately informing policies and programs. This state of affairs results at least in part, because of the relative ease of analyzing and interpreting single data sources, as compared to the more difficult process of simultaneously analyzing numerous data sources in relation to one another. The latter requires far more effort, but is ultimately the process from which a more comprehensive, logical and well thought-out plan of action can emerge. The A² approach seeks to pull together biological, behavioral, and response data/information from diverse sources and analyze it in an integrated fashion. The details of that analysis will be the topic of later chapters. For now, this chapter discusses what information you must systematically compile to conduct the analysis, and how to go about gathering and organizing that information.

General categories of data required

Based on the discussion of Asian epidemics and their driving forces presented in Chapter 2, a number of key sets of information are needed to come to a good understanding of an epidemic at the country level or for a smaller region within the country. This essential information for evaluating epidemics in Asia and for planning responses falls into three general categories:

- **Epidemiological information.**
In Asia, HIV primarily affects very specific populations. It also shows substantial geographic variability. As a result, at a minimum, the epidemiological data you gather should include:
 - Levels of HIV and STIs among FSWs and clients, IDUs, MSM and pregnant women
 - Detailed information about the surveillance system or studies from which those data come
 - Data on HIV levels in men and women in the population at large, if available,
 - Data on reported HIV and AIDS cases by mode of transmission
 - Geographically specific breakdowns on all of these HIV and STI data.
- **Behavioral data.**
The primary behaviors that contribute to HIV transmission in Asia are apparent from the groups most affected. The information needed thus includes what proportion of each affected group engages in the following behaviors and how often they do so:
 - Vaginal intercourse, both within longer-term relationships and with casual or commercial partners,
 - Anal intercourse with regular, casual or commercial partners

- Sharing of needles or injection equipment
 - Medical practices increasing risk of transmission, including failing to access prophylaxis for mother-to-child transmission, reusing needles and syringes, or receiving untested blood.
 - Protective practices such as condom use, use of clean injecting equipment, or STI treatment.
- **Sizes of affected populations.**
In order to assess the magnitude of the HIV problem, in addition to HIV levels you must also know the sizes of each of the key affected populations: (FSWs, clients, MSM and IDUs). It is also important to characterize and estimate the size of specific subsets of these populations particularly if they have different levels of risk, such as brothel versus street-based sex workers or occasional versus regular clients of sex workers.

Although the four groups mentioned above (FSWs, clients, MSM and IDUs) are of primary importance for tracking trends in HIV transmission in Asia, there may be other locally specific vulnerable populations such as migrants, highly mobile individuals or higher-risk occupational groups (e.g., the uniformed services, police, long distance truck drivers, construction workers or miners). These groups are not always at elevated risk – local data must always be considered in making this determination. Where they do have higher risk, it is usually because they practice behaviors that place them in one of the major categories discussed earlier, such as being clients of sex workers or being more likely to inject drugs. However, if substantial information on these populations is available, it may be worthwhile to categorize them as a separate population

group for the purposes of data gathering, analysis, or focusing attention on their prevention and care needs. That needs to be a judgment made locally based on their size, level of risk, and overall contribution to the epidemic.

Epidemiological data: What do you collect and where can you get it?

You need to assemble information on who is affected by HIV, where the epidemic is, and how it is changing over time. The types of epidemiological data of interest and potential data sources are described in the sub-sections below. The close links between HIV transmission and the existing levels of other sexually transmitted infections (STIs) call for gathering similar information about them as well. The data categories include HIV and STI incidence and prevalence, and HIV, AIDS and STI case reporting.

HIV incidence - the most useful information, but hard to find

Data on HIV incidence, or the rate of new infections occurring in a population during a specified period of time, are valuable epidemiological data because they provide direct information about HIV transmission itself. They are most commonly expressed as the percentage of the uninfected members of a population contracting HIV in a year, although some studies report them as percentage of the total population becoming infected in a year – an important distinction. Suppose we have

a population of 10,000 people, 2,000 of whom are currently living with HIV. An incidence of 5% per year expressed as a percent of total population translates into 500 people infected in the year (5% times 10,000). The same incidence expressed as percent of the uninfected population implies only 400 people became infected (5% times 8,000 uninfected individuals).

Incidence data are important to obtain from any population for which they are available – most often these data are collected primarily among most-at-risk populations such as IDUs and FSWs. Unfortunately, HIV incidence data are rarely available. The most direct source of incidence data are randomized clinical trials or cohort studies that enroll large numbers of at-risk uninfected individuals and follow them longitudinally over time to see if and when they become infected with HIV. These studies are expensive, technically sophisticated, time-consuming, and require long periods of follow-up and are thus only available on a very limited basis. If transmission is low, incidence is impossible to measure without huge sample sizes, which are costly – one of the reasons most incidence studies focus on most-at-risk populations.

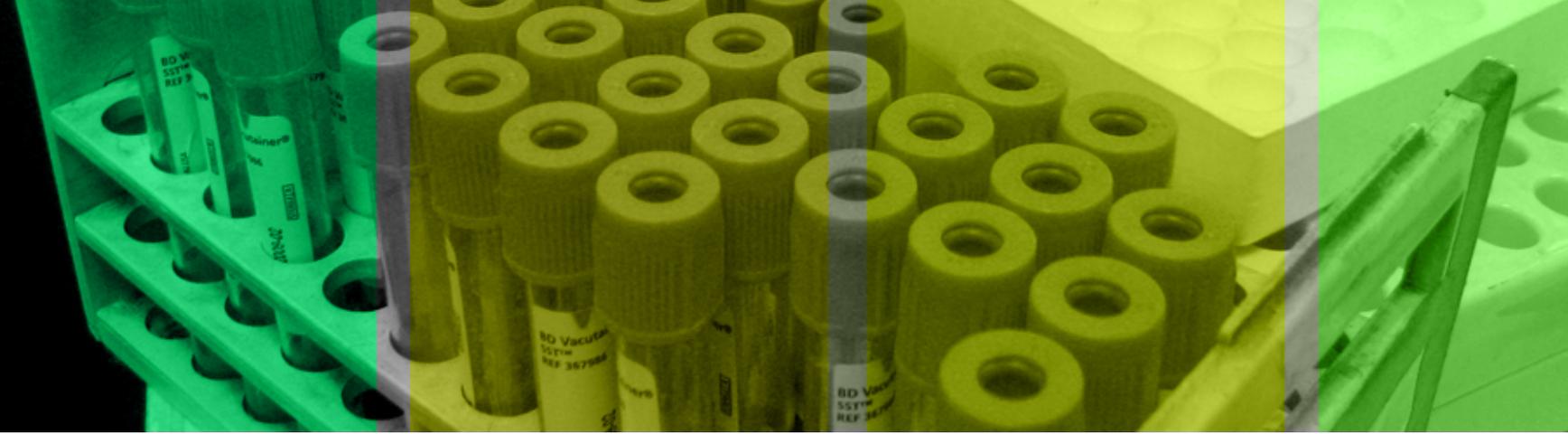
In recent years, laboratory tests have been developed that aim to identify recently acquired HIV infections from cross-sectional studies. Such measurement techniques would be a major breakthrough in being able to measure incidence directly in a practical and inexpensive manner. However, their current usefulness in routine settings has been limited by technical issues and high costs (Parekh and McDougal 2005; UNAIDS Reference Group 2005; Hargrove et al. 2008). For available studies, it is important to document the measure of effect used (e.g., per person-years is a typical standard) including reported confi-

dence intervals. Studies that attempt to measure HIV incidence directly are typically published in peer-reviewed journal articles but may also be found in unpublished technical reports.

HIV prevalence - most often collected, but be aware of its limitations

Data on HIV prevalence, the proportion of a population infected at a point in time, are much more readily available than HIV incidence data because they can come from cross-sectional surveys or studies that are much more straightforward to conduct. HIV infection is only detectable through a test on some body fluids, most often blood, saliva or urine. The standard tests that are used check for antibodies to HIV not for HIV itself, that is, they measure the body's immune system reaction to infection. It takes several weeks to develop antibodies after infection with HIV, which means there is a so-called "window period" in which a person can be infected, but still test negative because they have not yet developed antibodies (see Chapter 6 for more details on this). Other, more expensive tests, which test for the virus itself, are occasionally used in research studies and these can detect infection earlier than the standard antibody tests.

The most common source of HIV prevalence data comes from national and provincial surveillance systems that conduct repeated cross-sectional HIV surveys over time. There are typically two-broad classes of HIV surveillance data: community-based or clinic/institution-based, and it is important to document what data sources and sampling methods were used since the precision and validity of the data will vary depending on the data collection methods used (see Chapter 4). For community-



based sampling it is important to ascertain whether rigorous probability-based sampling or convenience sampling methods were used (Magnani et al. 2005).

When examining surveillance data in specific groups, keep the following issues in mind:

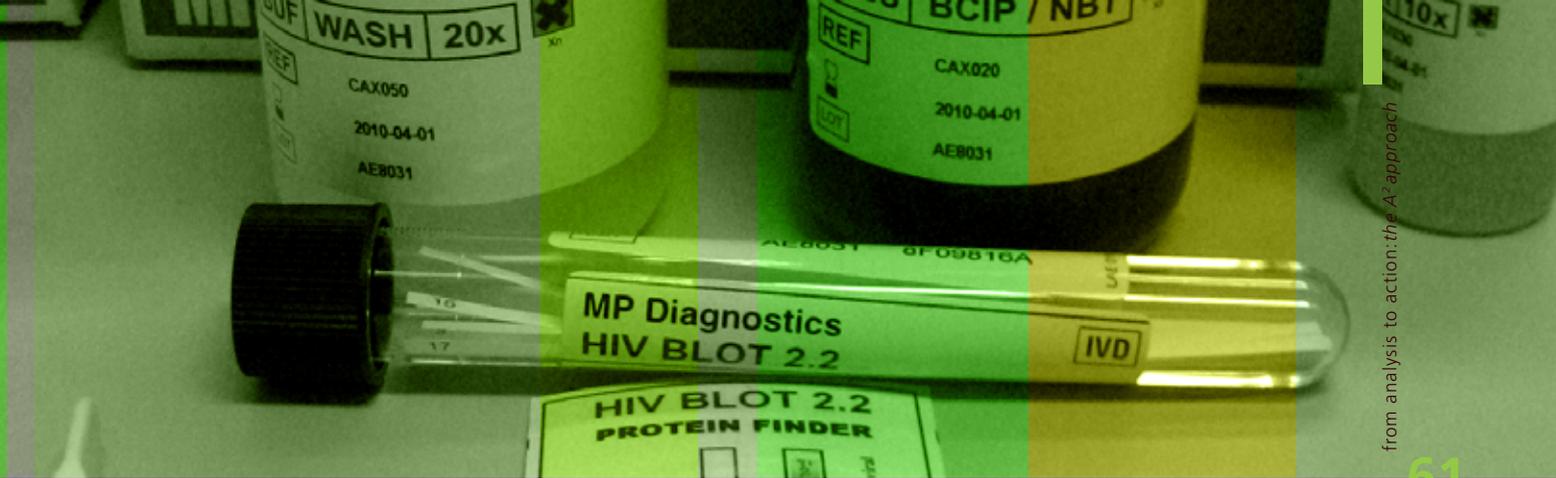
- For **FSWs**, national or provincial surveillance data should be stratified by the type of sex worker where possible (e.g., brothel-based, street-based, karaoke, etc.) as the risk of infection often varies by type.
- For **injecting drug users**, IDU-specific data may need to be segregated out when surveillance is done among “drug users” that include both injectors and non-injectors. This makes it critical to read studies carefully to ascertain which population is actually tested. Minimally, the proportion of the sample that injects should be reported.
- For **MSM**, it will be important to determine whether the sample includes MSW as well and if so, the results should be separated into MSM who are and are not MSW.
- Broadly representative HIV prevalence data on **clients of FSW** are rarely available. Proxy occupational groups who are commonly clients of FSWs are used instead (e.g., uniformed services such as military or police, truckers, miners, laborers). In some cases, males attending STI clinics are used as a proxy, but it is important to remember that such men will probably have elevated risk of HIV compared to the entire client population. The fact that they have another STI indicates they are most likely not using condoms and the STI itself may increase their risk of contracting HIV.

In all these populations, the inclusion/eligibility criteria used for the study population will be important to document.

In addition to surveillance data, HIV prevalence may also be reported in smaller scale “one-off” (ad hoc) epidemiological studies. These are typically conducted by academic or research institutions, donors sponsoring assessment surveys, and NGOs who conduct the surveys for program evaluations.

For the male and female populations at large, HIV prevalence data may be available from Demographic Health Surveys, which include HIV testing (i.e., DHS+) or other national or sub-national household surveys that include HIV testing (e.g., national health surveys or AIDS Indicator Surveys). HIV testing conducted routinely among military recruits in some countries can provide useful HIV time-trend prevalence data that may be a useful proxy for the general population of young men. However, it is important to look at who is actually tested in these systems. Is it conscripts (i.e., new recruits) only or the entire military population? Are they a random sample of the adult male population (e.g., selected by lottery), or are they recruited from specific socio-economic or educational classes? Are they of all ages, or only in a narrow age band? These are important questions in interpreting the findings of testing among the military.

Other sources of HIV prevalence data are typically less representative of specific populations of interest but are still useful to triangulate with the more desirable data sources described above. Commonly available additional sources of information include prevalence among 1) STI clinic patients, 2) VCT clinic attendees, 3) pregnant women in antenatal care clinics, 4) migrant populations, and 5) blood donors. Again, in examining data from these sources, there are issues to be kept in mind.



STI clinics that perform HIV testing can be a useful data source, particularly if HIV-positivity results are reported by age and sex. The limitation of these data is that STI patients are a heterogeneous group that are not representative of any specific population so the results cannot be directly generalized to any specific high-risk subpopulation. Still, STI clinic data are often used to broadly represent individuals practicing higher-risk sexual behaviors because they are the only thing available.

VCT clinics are also a self-selected data source but where data are available they should be assessed. It can be useful to assess time-trends in these data although it should be kept in mind that changes in the composition of VCT clients may bias this analysis. For both STI and VCT data sources, it is important to get data on the number of clients tested, the number testing HIV+, characteristics of the population and the testing methodology used.

HIV testing conducted among **pregnant women at antenatal care (ANC) clinics** can be a useful proxy for data on the female general population although there are important biases to consider. In addition, if PMTCT programming is being conducted in antenatal settings, these HIV screening results can be a useful data source. When using PMTCT program data it is important to consider possible biases related to the referral of high-risk pregnant women to PMTCT clinics and changes to the population sampled at PMTCT services as they expand to reach more women. In Asia, you need to be very careful in generalizing ANC or PMTCT results to the female population at large as age-specific fertility patterns vary widely. In low fertility

settings, where women have children early, it can upward bias the ANC or PMTCT data relative to the larger female population. You should also not generalize ANC data to men, as in Asia males often have two to three times the prevalence levels of females due to gender differences in risk behavior.

Data on migrants may come from routine HIV testing among migrants leaving or returning to their country of origin or from HIV surveillance surveys that include specific questions about migration status. Special studies such as “source-and-destination” surveys that try to document HIV prevalence among specific migrant populations will be important to obtain where they are available

Routine blood donor screening data should be used with extreme caution as there are usually biases that can go in either direction, and the composition of the donor population often changes over time. Biases result from self-selection and from screening done by behavioral assessments to rule out persons who might be HIV-infected. These biases may change greatly from year to year. In many places, donors tend to be drawn disproportionately from young males, who may have higher risk, while in others they may include many lower risk populations such as monks. Changes in the characteristics of blood donors over time, or of the screening procedures, can bias time-trend analysis of the rates of HIV positivity, but examining the breakdown of HIV positivity by age and gender can be useful, particularly when data on voluntary and paid donors are available separately.

Images:

Courtesy of Genesis Samonte.

HIV and AIDS case reporting - underestimates, but still useful information

Routine HIV and AIDS case reporting data are typically collected as part of the national notifiable disease reporting system, although with widespread under-reporting they usually vastly underestimate the number of actual persons infected with HIV. Still, they can be used cautiously to examine patterns and trends over time. HIV and AIDS case reporting data are especially useful where data are available by gender, age, occupational status, geographic location (also urban/rural), suspected mode of transmission and reporting source.

While HIV case reporting data are more reflective of the current state of the epidemic, AIDS case reporting reflects the epidemic in the past due to the long latency period between HIV infection and AIDS-related clinical presentation. However, AIDS case reporting is less likely than HIV reporting to be biased by issues related to differential access to health services or variations in who receives HIV tests. For example, in Malaysia the majority of reported HIV infections are among IDUs, but AIDS cases tend to show a larger proportion of heterosexual infection. This results from extensive HIV testing among IDUs, prisoners and drug clinic attendees, while there is little testing of at-risk heterosexuals in the country. This artificially increases the contribution of IDUs to the tested population, thus overestimating their contribution to the epidemic at large.

STI incidence and prevalence - tracking the facilitators of HIV transmission

Some STIs greatly enhance the transmission of HIV. STIs are also transmitted by the same sexual behaviors that transmit HIV and can serve as a proxy for sexual risk.

STIs comprise a broad array of specific etiological pathogens including gonorrhea, syphilis, chlamydia, herpes simplex virus (HSV), and human papilloma virus (HPV) among many others. They are also sometimes studied more broadly using broad non-etiological syndromic case definitions such as genital ulcer and urethral discharge syndromes. The types of epidemiological data sources on STI incidence and prevalence are similar to those for HIV.

STI incidence data sources include longitudinal cohort studies that follow most-at-risk populations over time to measure rates of new STI infections. Recent technological developments have led to a proliferation of new rapid STI diagnostic tests that will increasingly help to distinguish persons who have current and pre-existing current infections. The WHO Sexually Transmitted Diseases Diagnostics Initiative (SDI) maintains a website containing literature reviews and other useful documents and links at http://csde.washington.edu/WHOSTI/literature_reviews/.

The major sources of population-based STI prevalence data among most-at-risk populations are national or provincial surveillance surveys. These surveys are sometimes conducted in tandem with HIV testing and sometimes independently of HIV testing.

Population-based STI data also come from “one-time” surveys of either most-at-risk or general populations, often using rigorous sampling and testing methodologies. As with ad hoc HIV surveys, these surveys are typically conducted in conjunction with donor-funded NGO programs, or for research purposes by local or international universities or research institutions.

As described for HIV, STI testing conducted among pregnant women at ANC clinics can be another useful data source. Prenatal screening for syphilis and gonorrhea is the most common STI testing in this setting.

STI case reporting - useful data, but watch for underreporting and biases

As with HIV and AIDS, STI case reporting is typically part of the national notifiable disease reporting system done for a limited number of STIs using standardized case report forms that often include additional data such as age, gender, geographic location and reporting source. Depending on the country-specific reporting system, data may be reported from government STI clinics, hospitals and health centers, NGO clinics and private

clinics, although by far the majority of data usually comes from public sources. These case reports typically include only a small fraction of actual diagnosed STIs (especially those diagnosed in the private sector) but examining trends in the reported number of STIs, especially by type of STI, can be useful.

Moreover, examining the distribution of STI cases by sociodemographic category and place of residence can be useful for identifying patterns of interest and how these patterns are changing over time. In using STI case report data it is important to understand how the reporting system is being implemented, how it may be changing over time (e.g., expansion or contraction of the system, inclusion or exclusion of private clinics, etc.), what the actual reporting sources are, and what laboratory tests are being used (including confirmatory procedures). If available, studies that analyze treatment-seeking behaviors for STI in the local populations of interest can help in interpreting these data.

Another critical issue to consider in examining STI reporting data is potential overlap in the categories used for reporting to the national level. For example, in some places there may be categories such as genital ulcers and early syphilis, urinary tract infection (UTI) and urethritis, or abdominal pain and pelvic inflammatory disease (PID) that may overlap. As a result, unless diagnostic criteria are extremely specific, there may be considerable differences in the levels recorded by various providers with different interpretation of the reporting criteria.

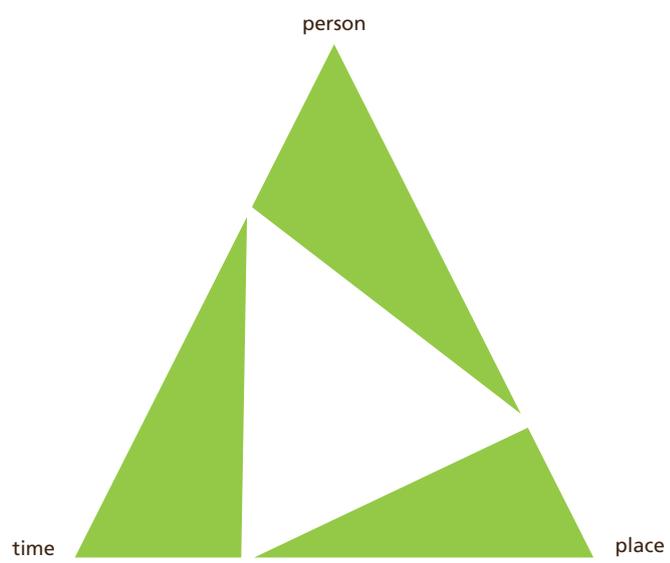


Figure 3.1.
The Basic triad of descriptive epidemiology

Always examine person, place and time in the data collected

Data on HIV, AIDS and STI should always be examined according to their distribution in terms of person, place and time.

- **Person.**

It is important to assess how infections detected are distributed according to personal characteristics of affected individuals, such as gender, age and other sociodemographic factors such as occupation, educational status and ethnicity. Analyzing trends in the reported modes of transmission from HIV and AIDS cases can help understand how HIV is being disseminated. Changes in HIV trends among subpopulations can be used to identify epidemiological linkages between subpopulations that may prove amenable to intervention.

- **Place.**

The geographical patterns in the distribution of disease can be examined by using geographical information systems (GIS) to visually display epidemiological data. This is done at the provincial level in many countries but can also be done at the county or district level for large countries. Describing urban and rural patterns is also important for understanding how HIV is spreading, as rural epidemics often occur later and at lower levels than urban epidemics.

- **Time.**

Looking at time-trends in HIV and STIs among the affected populations (and by the characteristics of these populations) and by geographical area provides more detailed and specific information about the

epidemic. When HIV and STI data are examined over time, it may be possible to identify epidemiological linkages among subpopulations. Mapping the diffusion of HIV geographically over time can help in identifying current and future problem areas in need of expanded prevention efforts.

Therefore, for all of the types of data listed in the previous section, it is important to collect the following information where applicable and available:

- The specific population for which the results are applicable (i.e., the study inclusion criteria).
- Sociodemographic characteristics of the populations such as gender and age range and distribution.
- The year(s) that the data were *collected*. Note that this often substantially earlier than the year the data were reported or published.
- For data sources with time-trend data – report as many years as possible with values specified for each year.
- The geographical location(s) where the data collection was conducted. Urban and rural areas should be identified as well.
- How many people were tested or studied (the sample size)
- The number of HIV or STI infections found in the sample and/or the prevalence (as a percentage of sample) of HIV or STI infections.
- The HIV testing methods used (e.g., single ELISA, double ELISA, confirmatory Western Blot, etc.). Where direct HIV incidence assays were used, it is especially important that the laboratory testing method(s) are given.
- For STIs, the specific etiologic pathogen(s) studied including the laboratory testing methods used.

Behavioral data: What do you collect and where can you get it?

HIV in Asia is transmitted by very specific behaviors that dominate HIV transmission in the region: primarily vaginal and anal sex and sharing of needles. We can put these behaviors into even more specific contexts of:

- Vaginal sex between clients and sex workers,
- Anal sex between men,
- Vaginal sex between husbands and wives,
- Vaginal sex between non-commercial casual partners, and
- Needle sharing among injecting drug users.

These are the behaviors you must characterize and track. For each behavior, you need information about:

- How common that particular behavior is (the level of the behavior), and
- How often it occurs (the frequency of the behavior).
- How long individuals have been practicing the behavior.

For most at-risk populations in Asia, this last item translates into the duration of membership in the group. For example, how long have women been in sex work? How long do men remain clients of sex workers? What is the duration of injecting drug use? These questions may not always have simple answers, as people may move in and out of at-risk populations many times during their lifetime. However, understanding these lifestyle changes is important to good prevention and care program design.

There are also related protective behaviors in each of these contexts that can reduce or prevent HIV transmission: condom use, use of clean injecting equipment, and refusal to share needles. Because STIs enhance the transmission of HIV, it is valuable to have information about STI levels and STI treatment-seeking behavior (i.e., how often do they contract an STI; and, when they do, how promptly do they treat it and where?). A final category of important behaviors is that related to treatment seeking for antiretroviral therapy (ART) of HIV and for health care.

Key behavioral data needs, categorized by specific most-at-risk groups, include:

- **Sex workers and clients.**

Sex work largely determines the speed of growth and severity of an Asian epidemic. Essential information includes:

- the *percentage of adult men visiting sex workers*, usually specified in the last year,
- the *frequency with which men purchase sex* (specified as sex worker visits per month),
- the *size of the sex worker population*,
- the *number of clients per night* for sex workers,
- the *levels of condom use between sex workers and clients*,
- *levels and treatment practices for STIs* and *measures taken to avoid STI* for both sex workers and clients, and
- *average time in sex work or as a client*

A number of additional behavioral items may be of value in planning prevention, including information about regular partners of sex workers, demographic and occupational cross tabulations of data for both the client and the sex workers, and information about the mix of regular and one-time clients. If sex workers or clients inject drugs, data on those behaviors are essential.

- **Casual sex (heterosexual).**

While this is not a major route of transmission in Asia, it may be growing in importance as youth behaviors shift and transmission in sex work is reduced. It is important to know:

- the *percentage of adult men and adult women with extramarital or premarital sex* and
- *how often they engage in extramarital or premarital sex.*
- *condom use with casual sexual partners.*

- **Sex between husband and wife.**

The majority of women in Asia contract HIV from their husbands. To calculate how much this contributes, you need to know:

- the *percentage of married clients of sex workers, IDUs and MSM,*
- *how often husbands and wives have sex,*
- *whether they use condoms when they do so, and*
- *the level of STIs in the population at large and information on how they get treated.*

- **Men who have sex with men.**

For MSM, anal sex is the primary route of HIV transmission. While some transmission can occur through oral sex, this occurs at relatively low rates. This means it is most important to know:

- the *percentage of MSM having anal sex with regular male partners, casual male partners and MSW,*
- the *frequency of anal sex with different partner types ,*
- the *percentage having vaginal sex with FSW,*
- the *percentage of MSM married,*
- the *percentage of MSM having sex with casual female partners,*
- *levels of condom use with different partner types, and*
- *STI levels and treatment practices (both anal and urethral STIs).*

- **Injecting drug users.**

IDUs have both injecting and sexual risk. This means you need information on:

- the *frequency with which they inject (i.e., number of injections per day),*
- the *percentage of IDUs who share needles or equipment,*
- the *percentage of all injections that are shared,*
- the *use of new equipment or cleaning practices for equipment, and*
- *number of people with whom they share needles (size of their sharing network),*
- *how long the person has been injecting (duration of injection)*
- information about *sexual risk behaviors (level, frequency, and condom use) with commercial, casual and regular partners.*

This is by no means an exhaustive list. While the data outlined above will describe the bulk of HIV infection in Asia, there will be other behavioral indicators that prove relevant from time to time depending on the location, local practices and setting (e.g., frequency of tattooing and use of clean tattooing equipment, use of medical injections in non-health-care settings or in unsanitary health-care settings, or frequency of blood transfusion). As you collect behavioral data, keep in mind that if a behavior can transmit HIV or result in acquiring HIV for a substantial number of people, it is valuable to gather information about it to inform policy formulation. If there are other at-risk populations in a particular country setting, then behavioral data on their sexual and injecting risks should also be gathered.

Sources of behavioral information

In the context of HIV in Asia, a large number of studies and reports have been generated that have measured the behaviors that transmit HIV. Some of these have been done as part of major epidemiological studies exploring the roots of the HIV epidemic in Asia. Other studies or measurements of behavior have been done as baselines or evaluations of specific prevention or care programs. Behaviors are also often tracked as part of national surveillance systems and are seen as an integral part of second-generation surveillance (UNAIDS/WHO Surveillance Working Group 2000).

There are a number of possible sources of behavioral data:

- **Papers published in the peer reviewed literature.** Some of the results of behavioral studies, especially those conducted by academics, have been published in the scientific literature. These can be found by searching online databases, both those related to HIV and those dealing with the social and behavioral sciences. Often these papers are comparatively high quality, although sometimes it is difficult to include sufficient detail about a study in a short paper given a journal's length restrictions. Often you will need to go back to the original authors to see if they have a more complete report on that study available for distribution.
- **Behavioral surveillance systems.** One extremely valuable source of behavioral data is national behavioral surveillance systems (FHI 2000).

These were first set up in the early 1990s in Thailand, followed by several other countries throughout the 1990s. They tend to collect a few key behavioral indicators from the populations most-at-risk of HIV. They are also usually done in a repeatable fashion, so that behavioral trends can be ascertained. Generally, annual reports are generated by these systems that summarize behavioral trends since the system was first established.

- **National or general population behavioral surveys.** Over the years a number of large-scale surveys collecting behavioral data have been carried out in the countries of Asia. These include the original set of Partner Relations and KABP surveys supported by WHO in the early 1990s (Cleland and Ferry 1995), national behavioral surveys in countries such as Bangladesh, India and Thailand, and the series of Demographic and Health Surveys (DHS) that have started collecting HIV-related behavioral data in recent years. Usually when a large survey of this sort is undertaken, there is a formal report containing a description of the methodology and the detailed results. Sometimes full data sets may also be available from the sponsoring organization.
- **NGO and CBO reports.** Many NGOs and other AIDS service organizations undertake baseline and follow-up evaluations of their prevention and care programs that have strong behavioral components because behavior change is their objective. Many international NGOs working in-country have quite rigorous standards for the evaluation of

programs they support and collect good data using sound methodologies (e.g., CARE International and Save the Children). These reports are often not published, but fall in the category commonly called “gray literature.” Many are initially reported at conferences, and information on who to contact is available in the abstracts; or often these reports are available in-country from the appropriate agencies.

- **International databases.**

Many of the major international organizations and donors maintain online data-bases of the studies and reports they have funded. Some of these will have behavioral data. The first places that should be checked are the online databases of UNAIDS, UNDP, World Bank, WHO, Measure DHS, and USAID funded groups, such as Futures Group, Futures Institute, Population Council, and Family Health International. A list of links to online resources is included on the CD-ROM.

Factors to keep in mind when using and interpreting behavioral data

You should keep in mind a number of factors when using and interpreting behavioral data. Some of these factors are related to what is actually measured and reported in a study; others are related to which specific segments of the population are being studied or to specific risk settings; and still others are related to contextual issues associated with risk.

MEASUREMENT ISSUES: WHAT WAS MEASURED AND OVER WHAT TIME FRAME?

You must understand exactly what is being measured in a behavioral study. Because human behavior is complex, those conducting surveys do not always define things in the same way.

Watch for variations in the definitions used from one study to the next. Some particular issues that arise include:

- **Definitions of types of sexual partners vary from study to study, e.g., “regular partners”.**

The term “regular partner” is often used in behavioral studies, but it means different things in different studies. Some studies may include wives or legal spouses in the definition; others do not, and ask about them separately. Some may define a regular partner as someone that one has had sex with for a specific period of time (e.g., for more than one year). Some may include whether or not one actually lives in residence with this partner in the definition. If you are trying to compare two studies that report on regular partners, but the definitions are different, then the comparison is invalid. Similar problems can affect definitions of other types of partners, e.g., sometimes the term “female casual” partners in a study includes sex workers and other times it does not. This makes it essential that readers of behavioral studies be clear on the definitions of all terms used

in a study and understand how they compare with the same terms when used in other studies.

- **Be clear about the definitions of sexual behaviors used.**

Some studies assume “sexual intercourse” or “having sex” to include the full range of sexual behavior including kissing, foreplay, masturbation, and vaginal, oral or anal intercourse. Other studies restrict the definition to “major routes” of penetrative sexual contact (i.e., vaginal or anal intercourse with insertion of the penis). Others will include oral sex in this. For MSM, there is sometimes no distinction made between mutual masturbation and oral or anal sex in the definition of sexual contact, but there is a substantial difference in terms of HIV risk. If studies are to be compared, and you need to understand their implications for HIV transmission, then you must know exactly what is being measured in a particular study and extract that definition for analysis alongside the actual number reported.

- **Learn exactly what is meant by “needle sharing”,** one of the most difficult things to quantify. Another difficulty that often shows up in interpreting behavioral studies is what is meant by “sharing” among injecting drug users? Some questionnaires will ask if one has shared a needle in a given time frame. However, there

are many other ways in which risk can be associated with injecting equipment. It is possible that while the needle is not shared, the syringe is. In some cases, drugs are drawn out of a common pool into separate persons’ needles. Should that pool become contaminated there is substantial risk of HIV infection. There are even situations in which a needle used by one person is left for use by another person at a later time in the day, and this may not be viewed as sharing but it carries substantial HIV risk. It also needs to be recalled that the risk associated with sharing also depends on with whom you are sharing. If two individuals share with each other, but with no one else, then there is low risk of HIV. However, if a person “shares” with 30 other people in a shooting gallery, the risk is astronomical if HIV is in the community. A well-designed instrument will deal with these complexities, and they need to be considered carefully in extracting and interpreting the findings on injecting behavior.

Always record the time frames reported for a specific behavior. Even when you have the definitions of the behavior in question clarified, direct comparison of different studies may be prevented by the use of different time frames for that behavior. For example, some studies ask about the number of times one had penetrative vaginal sex in the last week. Others will specify a time frame of one month. And still others

will give time frames of one year. Two studies, one of which asked about behavior in the last year and another which asked about behavior in the last month, cannot be directly compared, especially in light of an individual's difficulties in assessing such behaviors over long time frames. This is also often an issue with reports of consistent condom use. Some studies will specify "used condoms in all sexual acts in the last month;" others will say "used condoms all the time," specifying no time frame; and still others will say "used condoms with the last three clients." These are not comparable measures. Thus, when you are extracting information on condom use, it is critical to record the exact wording and the time frame used.

Whenever possible, get a copy of the questionnaire or survey form. Given these issues, it is always best to get the original questionnaire or other behavioral instrument used to see exactly how the question was asked. In some cases, especially in published reports where you do not have access to the instrument used to collect data, these definitions may remain unclear. In this case, attempts should be made to contact the authors of the original study for clarification, or else the incompleteness of the study as a source of information must be acknowledged in the data synthesis.

STRATIFICATION ISSUES: THE IMPORTANCE OF GENDER, LOCATION AND AGE BREAKDOWNS

In Asia, always explore and quantify gender, residence and age breakdowns. Keep the following in mind while reading through behavioral studies:

- **Gender** differences must be characterized. In the Asia region, levels of male and female sexual risk vary greatly. This makes it essential to extract all sexual behavior variables by gender. Studies that fail to do this are going to be extremely difficult to interpret. For example, a study in Asia that says 10 percent of all respondents (both male and female) visited sex workers in the last year almost certainly refers to roughly 20 percent of the men visiting sex workers and very few, if any, of the women. Again, if the study does not give gender breakdowns on risk, the original study authors must be contacted to obtain this information.
- **Urban-rural differences** in behavior are important to understanding the epidemic. In most cases, but not all, urban levels of sex work are higher than those observed in rural areas. At the same time, it is not uncommon for levels of protective behavior such as condom use in sex work to be higher in the urban areas because of better access to prevention programs and higher education levels. Whenever possible, information on urban-rural differentials in behavior should be extracted from the available studies.
- **The age of the respondents** in a given study or survey is extremely important. Male sexual behavior carrying risk for HIV tends to be highest in the 20 to 30 year age range. Thus, a study which only recruits male participants between the ages of 15 and 30 cannot be compared directly with a study that recruits between 15 and 49 or 15 and 60. It is possible to do age-specific breakdowns

of the data in the studies and compare them, but often this sacrifices substantial statistical power.

- **The duration of a relationship** affects sexual frequency. New relationships tend to have high levels of sexual contact, maybe as often as daily, while relationships of long duration are lower, perhaps once a week.

VARIATIONS WITHIN GROUPS: THE IMPORTANCE OF KNOWING YOUR "SEGMENT"

Know exactly what population is being studied. Within each subpopulation, there are some members who are at higher risk and there are some members who are at lower risk. If you conduct focus group studies with MSM, for example, you might find that they divide themselves into several groups by where they meet sexual partners. Some primarily meet partners at the bars; others meet them at the parks; some go to saunas; and some find partners on the Internet. The MSM who meet partners in different places may vary substantially in number of partners, type of sexual contacts, frequency of sexual contact, use of condoms, and other key factors influencing HIV transmission.

Social marketers have a term for this; they call it segmentation. To them, it is critical to define the target audience in terms of different segments that have similar needs, similar preferences, and similar buying power. They develop separate strategies to reach different segments, with strategies that meet their individual needs and desires. If we think of "marketing" HIV prevention, the same principle applies. We must understand how to break the MSM, FSWs, clients or IDUs into different segments.

Some of these segments will have higher risk; they may have different education levels; they may use different levels of protection; they may be reached through different mechanisms. These differences require appropriately designed prevention programs that fit their situation and are acceptable to them. Segmentation applies to all populations, and may be based on any number of different factors by which people characterize themselves or which determine their friends and associates. Youth can be divided into school kids, street children, working out-of-school youth, etc. IDUs may divide by social class, by type of drug injected, by type of injection site or other factors.

Examine variations in risk by setting type. Among populations at risk for HIV, it is not uncommon for segments to be defined by the particular setting, which is the type of location in which risk behavior occurs. Very often there is a substantial difference in risk between setting types. Sex workers can be divided into brothel-based workers, bar-based workers, street-based workers, massage parlor workers, and many other groups, which can vary from country to country. Some may meet clients on the Internet, through their cell phones, or through intermediaries. In general, but not always, sex workers in brothel settings have more clients per night. Depending on the country and the reach of prevention programs, brothel workers may have higher or lower condom use than sex workers in other settings. In many countries, sex workers operating out of bars and nightclubs have fewer clients per night, but also lower condom use, especially when sex occurs off-site. However, there are no fixed rules on these behavioral variations, and it is critically important that local data be used to determine the relative risk in different locally defined settings.



For practical reasons, many behavioral and epidemiological studies select a particular segment of an at-risk population or some setting to which they have ready access. You need to read the report very carefully to understand exactly what the characteristics of the study population are, how they were sampled, where they were recruited, and other study design features that can help in understanding exactly which population is being studied. This will tell you which particular segment of the population is being studied and will help you in terms of identifying risk characteristics of that particular setting. Looking at all the studies in the aggregate gives you some idea of the risk profile of the entire at-risk population.

Be aware of advantages and limitations in different approaches to studying behavior

Many different approaches are used to collect behavioral data. The methodology used for data collection may influence the findings, the depth of understanding they provide, and whether the data can be generalized to the larger at-risk population. Usually behavioral data come in two forms: quantitative and qualitative. Quantitative data are numerical in form, and can provide direct inputs

to understanding the extent, levels and frequencies of risk behaviors. Qualitative data are intended to put behaviors in context, that is, to give us deeper insight into the factors that influence behavior. Quantitative data answer questions related to how many; qualitative data answer the why and how. Both forms of data are important in assessing an HIV situation and in determining how best to address that situation with prevention and care efforts.

The following is a list of the more common forms of behavioral data collection that a synthesis specialist is likely to encounter in gathering behavioral information:

QUANTITATIVE APPROACHES: NUMBERS

Because quantitative surveys are intended to collect numerical results, they must be quite structured. Occasionally, they may ask some open-ended questions, but in practice the number is usually quite limited because of the time required to code them so they can be analyzed. Normally, a survey instrument (i.e., a questionnaire) is defined after an initial period of formative qualitative work with the survey population to understand the situations of risk, identify factors that may influence behavior, develop structured questions that provide quantitative insight into the levels and forms

of different behaviors and related factors, and pre-test the instrument for appropriateness of wording and acceptability to the target population. Once this is done, a sample frame is defined and the survey is administered.

TYPES OF QUANTITATIVE TOOLS AND INSTRUMENTS

- **Structured face-to-face interview.**
Face-to-face interviews are the most commonly used form of gathering quantitative data. They do not require that the respondent be able to read or write. They allow a well-trained interviewer to answer any questions the respondent may have about the meaning of the questions, helping to ensure the respondents understand what is being asked. The drawback to face-to-face interviews is that respondents are sometimes reluctant to answer questions on sensitive behaviors from a stranger, and many of the sexual or drug using behaviors associated with HIV are sensitive. Sometimes this is worked around by having the more sensitive questions put on a separate short questionnaire, which is then answered by the respondent in private, or by having the respondent listen to these questions on a pre-recorded audio track and respond on slips of paper put into a ballot box. In other cases, the sensitivity can be reduced by having interviewers drawn from the sample population (e.g., former IDUs), who are less likely to be off-putting to the respondent.
- **Self-administered questionnaire.**
Another often used approach is the self-administered questionnaire. This is a written questionnaire filled out directly by the respondent. There are two major drawbacks to this approach. First, it requires the respondent be able to read and write. Second, if the questionnaire is complex with questions whose answer is contingent on the answer to a previous question (known as a "skip pattern"), it is not uncommon for respondents to make mistakes and omit entire parts of the questionnaire or answer irrelevant questions. The advantage is that it reduces issues of sensitivity if adequate privacy is ensured during administration.
- **Computer-assisted interview.**
More recently, computer-aided approaches have been used. These often remove the sensitivity associated with talking to another person, and they allow for more complex questionnaires to be administered with fewer errors. A major advantage of these approaches

is that they have been shown to give higher rates of reporting of recent risk behaviors. However, the primary disadvantages are that they have somewhat higher cost and that the respondent population must be comfortable working with computers, which is not always possible, especially in rural areas. Sometimes these can be combined with audio versions of the questions administered through headsets, ensuring privacy and removing literacy requirements.

TYPES OF QUANTITATIVE SURVEYS

Other ways to categorize quantitative approaches to behavioral data collection include looking at their scale, their length, the quality of sampling, and their repeatability. Some of the approaches generally found in the literature include:

- **General population or national surveys.**
These are large-scale surveys, typically with several thousand respondents. They are intended to be nationally representative, that is, they use sampling approaches that give representative and generalizable results. Most often they are administered on a household basis. Because they tend to be very high cost, the questionnaires tend to be rather lengthy and in-depth, allowing substantial amounts of information to be gathered in interviews that may last an hour or more.
- **Ad hoc surveys and rapid surveys.**
Smaller one-time surveys done in specific subpopulations are sometimes referred to as ad hoc surveys. These vary widely in their characteristics. Some put substantial effort into obtaining a good sample of the subpopulation

being studied. These often start with a mapping exercise to create a sample frame that will produce generalizable results for that subpopulation. When this much effort is put in, quite often the questionnaire gets lengthy. Others make use of convenience sampling approaches, that is, they do not attempt to get a truly representative sample but use a simplified way of recruiting members of the population. More often than not, these will use shorter questionnaires. At the extreme end will be rapid surveys, which are typically administered to several hundred people in a matter of weeks, usually do not seek a representative population, and generally use short questionnaires to get information about a few key issues of concern.

- **Repeated cross-sectional surveys.**
Surveys that are done on a regular basis and use a consistent sampling frame can allow assessment of behavioral trends over time. Usually, because they will be repeated often, the questionnaire is only of moderate length. Behavioral surveillance systems are normally set up this way. Many more details on behavioral surveillance can be found in the BSS guidelines on the CD-ROM.

QUALITATIVE APPROACHES: CONTEXT

As mentioned earlier in this chapter, the context in which risk behaviors occur is important to understanding those behaviors and to planning effective prevention and care programs. Qualitative approaches allow us to get at the context of risk and vulnerability to HIV infection and also to understand the motivations of people in engaging in risk or adopting measures to reduce that risk. They can also be used to understand the

contextual environment surrounding care and support issues, adherence to antiretroviral therapy, and impact mitigation; the approach is broadly applicable to almost any topic. They can explore the factors facilitating risk and vulnerability or limiting access to treatment and care, and thus build a more complete understanding of the complex and varied settings in which risk and treatment-seeking behaviors occur.

As mentioned earlier, it is important that information about these contextual issues be extracted as the synthesis specialists read through the reports and gather documents. Often they form the basis and motivation for new and innovative approaches to better prevention and improved access to care and support.

The advantage to most qualitative approaches is that they are open-ended in nature. If an interesting item occurs during the discussion or the interview, the interviewer is free to pursue it in more depth. This flexibility does not exist in structured quantitative approaches, where the questionnaire must be well-defined and pre-tested well in advance of administration.

The disadvantages to qualitative approaches are: 1) because they are open-ended, they are considerably more difficult to analyze and summarize; 2) because they usually require transcripts, which even for a one hour interview can be quite lengthy, they generate huge amounts of written data. This limits the amount of qualitative work that can be done and still be analyzed in a rigorous fashion in a reasonable time; 3) generally, the respondents in qualitative studies are recruited to be "typical" members of the subpopulation in question, and generally they are selected by convenience methods. This means the results are not generalizable, although far too

often people do attempt to generalize the results in published papers. If you want generalizable results, the key issues arising in qualitative work must be put in closed question form and administered using quantitative methodologies.

TYPES OF QUALITATIVE DATA COLLECTION METHODS

- **Focus group discussions.**
In the focus group discussion, a set of open-ended questions is administered by an interviewer to a group of 6 to 10 people sharing common characteristics. The goal is to encourage discussion among this group, so that a sense of peoples' beliefs about the topics and their feelings are brought out. The major advantage to focus groups is that they often bring out issues that the research team may not have been aware of beforehand, because they are really a discussion among members of the study population, who know their own situation best. Normally, a large number of focus groups, perhaps 20 to 30, will be done and then analyzed systematically to extract common themes, beliefs and perceptions of the topic in question.
- **In-depth interviews.**
In an in-depth interview, a limited number of open-ended questions are asked of respondents from the study population. Normally, they are designed to evoke more extended answers that encourage the person to provide more detail, more context, and a better explanation of what he or she feels and believes about the topic. The advantage, as with other qualitative approaches, is that, once again, new ideas can be raised by the respondent regardless of whether the interviewer is aware of them.



The disadvantage is that generally transcripts are made and there is a lot of information to analyze.

- **Key informant interviews.**

The key informant interview is similar to the in-depth interview, except that it questions people who work closely with the study population rather than members of the study population itself. For example, key informant interviews might be done with the owners of bars, the bartenders, and the managers of bars from which sex workers operate. Working closely with the sex workers, these interviews can provide a more in depth understanding of the actual work environment and the factors that are influencing sex workers behavior.

Population size information: What do you collect and where can you get it?

The size of at-risk populations in a country or province is one of the key determinants of the course of an HIV epidemic. At-risk population sizes are essential for policy and programming

purposes to inform decisions on allocation of HIV prevention efforts and to assess care and treatment demands. Policy decisions regarding the need for different types of services, the required scale of various interventions, and the level of resources required to do HIV prevention, both in terms of funding and personnel, are all contingent on the “denominator” – the total number of people who need to be reached. In concentrated epidemics the size of at-risk populations is a key input for spreadsheets such as the UNAIDS Workbook used to estimate the number of people living with HIV. It is also a required input, along with behaviors and prevalence trends, for the Asian Epidemic Model, which is discussed in Chapter 7.

What groups do we need size estimates for?

Selecting populations for size estimation in a specific country or province starts with examining whose behavior or profession puts them at significant risk of HIV infection. In most Asian countries these are predominantly the groups mentioned previously: female sex workers and their clients, injecting drug users, and men who have sex with men. However, even among these populations there are often subpopulations with different levels of risk, whose sizes need to be estimated separately. For example, among IDUs it is those who share needles who are

really at risk of HIV infection. Thus, upper class users who can afford and access new needles may not be at risk, while those who live on the street may not be able to afford new needles or may need to inject in a sharing group to reduce the risk that police arrest them carrying a needle. Among MSM there are often different subpopulations defined by behavior or location of risk behavior, such as male sex workers, MSM at bars, sauna attendees, etc. Size estimations of each of these sub-groups are usually required since they ultimately have different needs for HIV prevention and care services.

Where and how to collect information on the size of at-risk populations?

Far too often, the size information most frequently used in a country is anecdotal in form. Different estimates are made that reflect the vested interests of different agencies or interest groups (see box on size estimation in Bangladesh on next page), which range from the negligibly small to the highly exaggerated. Information is limited by the reality that the people most at risk of HIV infection are usually discriminated against and stigmatized, and cannot and do not practice their risk behaviors in the open. However with sufficient effort, various sources for this kind of information can be found.

The most common access points for data on at-risk populations are institutional and community-based. Institutional records are often available from service delivery points such as government or non-government interventions for risk groups, STI clinics, VCT services, and drug rehabilitation or detoxification centers. The criminal justice system may have records on drug seizures, drug-related arrests, or on women picked up for prostitution. Educational institutions or youth detention facilities may keep records on youth at risk. Mapping exercises or observations at community-based sites such as gay bars or cruising areas for sex or drug spots can yield useful information on the size of the populations frequenting them. In all cases, it is important to find out which segments of an at-risk population are covered at a given access point so that the size estimates for the overall population reflect that. It is also important to not double count. That is, if the same individuals go to multiple sites, methods should be found to avoid counting them many times.

Similar considerations apply to combining regional size estimates for a particular group. Many high-risk behaviors are situational or region specific, such as injecting drug use, which may be much higher along drug trading routes or in major cities and low or non-existent in some rural areas. Estimates from one city/region cannot be generalized to the rest. In



Population Sizes by Consensus in Bangladesh

The process of size estimation in Bangladesh was initiated in 2003 by a UNAIDS request for countries to estimate the number of people living with HIV locally. The Government requested FHI to provide the lead technical assistance. A decision was made that the estimation could best be done through a collaborative process since that would ensure transparency and a national consensus, and facilitate data collection. Accordingly, the ICDDR,B: Centre for Health and Population Research was involved, an informal group of technical experts and program managers from various agencies was assembled, and they began to meet regularly.

The first and most difficult step was to estimate the sizes of the at-risk groups in the country, which had been largely anecdotal until that point. All size-related information available on each group was obtained through a series of data-centered discussion meetings, which were attended by representatives from the groups, government, NGOs, and research and private institutions. This proved to be a very successful mechanism for collecting data. All stakeholders were interested in the results for different reasons and saw the mutual benefits of collaboration. The government wished to meet its commitment to UNAIDS, the donors and NGOs needed sizes for policy, planning and programming decisions, and researchers and A² wanted them for HIV projections. Encouraged by the transparent, participatory process, everyone was generous in providing any data they had.

FHI checked the information collected, and annotated and compiled it for analysis. Then the informal estimates group reviewed the data on each group, assessed it for potential biases and inconsistencies, triangulated the information, and finally decided on appropriate size estimation methods, which were then carried through by FHI. At the size estimation meetings it was clear that there were conflicting vested interests; some agencies wanted to minimize the numbers of at-risk people for socio-cultural or political reasons, while other agencies wanted to exaggerate

the sizes for funding reasons. These problems were handled by lengthy discussion guided by the data available, and a choice was made to come to consensus on each data set, assumption and decision before proceeding to the next. This slowed the process, but was worthwhile for national acceptance in the long run. The result was a full set of estimated ranges for the size of the key affected populations.

In order to secure national-level acceptance, the informal estimates group presented their progress to the national Surveillance Advisory Committee in February 2004. It was decided further work would be the activity of a formal sub-committee of the Technical Committee-National AIDS Committee (TC-NAC), the highest advisory body in the country, with the National AIDS/STD Programme (NASP) as the focal point and chair of the sub-committee. The core membership included experts from NASP, ICDDR,B, FHI, UNICEF, WHO and UNAIDS, and other local experts were secured as required. The estimates were finalized by the sub-committee and presented to the TC-NAC at a meeting in November 2004 attended by the Additional Health Secretary on behalf of the Ministry of Health and Family Welfare. The TC-NAC gave their technical input and accepted the size estimations. Based on their endorsement, the numbers were approved and announced by the Health Ministry on World AIDS Day 2004.

Thus, a year of work in-country led to information-based size estimates of vulnerable people produced by consensus, for the first time in Bangladesh. The involvement of the NASP through the entire size estimation process was invaluable in securing government legitimacy and fast-track approval. The involvement of the various stakeholders in the process ensured national acceptance. The estimates are the results of a government committee, donor partners and researchers who know they are technically sound, and NGOs who know they are underpinned by field-level data they provided.

practice, city or regional estimates are often combined to get national estimates. But many of the at-risk populations, such as sex workers, are highly mobile in order to lessen their chances of being caught by the authorities, and hence aggregation of sub-regional estimates may lead to double-counting of individuals and over-estimation of the size. The methodologies used should try to account for this.

The first step in size estimation is to understand the local situation of a particular at-risk population, the settings where this population can be found, and the variations in prevalence of this group in the country or province and its sub-divisions. This allows you to determine how to go about collecting accurate information. Often members of the risk populations can be enlisted to help in accessing hidden populations. In the end, some groups cannot be accessed easily, and the size estimates have to exclude them or be adjusted to account for them based on anecdotal or contextual information. Typically, some of the groups that are more difficult to access for estimation include female injectors, residence-based sex workers, and men who do not cruise for male-to-male sex but meet through alternate networks.

There is no one “best” methodology for assessing the size of populations at risk since the contexts and sources of information vary so much, but various approaches have been commonly used to good effect to get concrete numbers. These are discussed extensively in the references provided for this chapter on the CD-ROM, and are listed briefly below for completeness:

Types of size estimation techniques

CENSUS AND ENUMERATION METHODS

Census methods count every individual in a population. Censuses can yield accurate size estimates for discrete populations at well-defined locations. Censuses can be difficult,

however, especially if the population in question is more hidden and not accessible through a well-defined number of sites. Enumeration methods count only a sub-set of individuals selected from a defined sample frame, and then the count is multiplied according to the size and structure of the sample frame.

POPULATION SURVEYS

Population surveys can be surveys of the general population or subsets of it and include national or regional household surveys of the general population or in the second category, health or reproductive health surveys of males only. These are needed to assess the size of some populations (e.g., clients of sex workers) that are difficult to determine from other methods. However, they are also potentially subject to serious reporting biases if people do not wish to admit to a given behavior in the survey setting, which is often their own home. The methodology used to ensure confidentiality may seriously alter the levels of risk reporting.

Alternately, information can be derived from surveys of only those subpopulations at risk for HIV. For example, behavioral surveillance can be used to assess risk behaviors such as male-to-male sex, injecting drug use, or the proportion of men who visit female sex workers. These data cannot be used directly for estimation of population size, but can be used in combination with other data (e.g., to provide data needed for multiplier methods).

MULTIPLIER METHODS

Multiplier methods are based on information from two sources that overlap in a known way. Using data on extent of the overlap, it is possible to assess the size of the overall populations. Often institution-based data are combined with population-based data. Suppose, for example, that a survey among IDUs shows that a certain percentage attended clinics in the city in a specified time frame, say the

last month. If the number of actual people obtaining clinic services is available, the size of the total population can be calculated by multiplying the number of people attending the clinics during the last month by the inverse of the proportion in a survey who said they attended those clinics over the last month. Any two surveys with overlap can be used, as long as the size of one is relatively well known.

NOMINATION METHODS

Nomination methods include snowball sampling and respondent-driven methods where individuals are asked to provide contacts for others who share the same risk behavior. The nominated individuals are contacted and asked to provide additional contacts. This process is repeated for several rounds. These methods often need to be combined with multiplier methods to get a measure of the actual size of the population.

CAPTURE-RECAPTURE

Capture-recapture approaches are adapted from methods used for size estimation of animal populations in the wild. First a “capture” is conducted; for example, all the sex workers at a cruising site are located and given some kind of identifying tag or token. Then after a short interval of time another independent “recapture” is conducted (i.e., all the sex workers at the same site on another day are located and asked whether they had received the token previously). Then, the size estimate of the total population at this site can be calculated using the formula: $\text{Size of the population} = (\# \text{ in first capture} * \# \text{ in second capture}) / (\# \text{ in both captures})$.

Data from two institutions or services with which the population has contact can also be used. Although this method appears simple there are several essential conditions that must be met to use it successfully: a closed population system is required, with minimal in- or out-migration; each sample has to be independent of the other; people have to be identified

accurately in each capture; and people must have an equal selection probability in each sample. The rationales for these assumptions are described fully in the references.

Cautions when doing size estimates

When making size estimates by combining different pieces of information or methods, it is critical to ensure that the population definitions are precise and comparable, and that the time periods being considered when combining data are the same. Whenever possible, information from different sources should be triangulated to validate data. Generally an exact size determination is not possible for each key population, but a size range is obtained.

Finally, reality checks should be done on the sizes derived. For example, when the sizes of the national or regional female sex worker and client populations are estimated independently, it is then useful to check whether the “supply and demand” match (i.e., do the number of commercial sex acts performed by the sex workers equal the number of sex acts performed by clients over a particular time period). Similarly, common sense checking should be applied to size estimates. If the size estimate requires that 20 percent of adult females be sex workers or that 50 percent of adult men be injecting drug users, it is probably not reasonable. Overall percentages in key populations can be checked against the values measured in studies in other countries in the region (STI Special Supplement 2006).

If different methodologies can be applied, it is good to make multiple size estimates for a given population using different methods, so that they can be validated by cross-checking that they are all within a similar range. It is generally recommended to present the results of size estimations with lower and higher bounds or confidence intervals. This makes explicit the inherent lack of precision of such estimates. It will also aid in the proper interpretation of such data.

Step-by-step guidelines for collecting and organizing information the A² way

The information collection process is by far one of the most time-consuming and difficult parts of A² as there is generally no central repository of HIV-related reports, documents and data in a country. The information is instead dispersed among different organizations, held by different researchers, and controlled by different agencies. Some of it is in the public domain (e.g., in published journals), and some of it is not. Some groups or people are quite open to sharing, while others are not. A lot of information is presented at conferences, but never actually written up and published.

Keeping in mind the importance of engaging people even at this early step of the process, we will now lay out a set of steps that provide for an orderly and efficient information collection and organization process that will:

- build an understanding of what the information you have gathered is telling you and
- store information in an easily accessible format for the next steps in the A² process
- build support for the A² process and increase the ultimate acceptance of the recommendations it generates.

Lay out the framework of the information you need

Before actually starting to collect information:

Create a checklist of the data you need to gather.

Having a checklist makes it easier to quickly determine what you have and what you still need to collect. Pages 90 to 91 present a brief checklist of the types of material you need to have on hand to analyze an Asian epidemic.



Identify additional local information needs.

For the most part in Asia, your focus in information collection will be on FSWs and clients, MSM and IDUs. However, if there are other local groups that are important to the dynamics of the epidemic, then you may want to add them to the list and define the appropriate epidemiological, behavioral, size estimation, and related contextual information needs for this group. Review recent reports, reviews and situation assessments on the epidemic in your country or province to help you identify the relevant issues in your own setting.

Familiarize yourself with the information needed for policy modeling.

Some of the information you will have to collect is dictated by the needs of the AEM and Goals models. Thus, it is a good idea to review the input requirements for these models before starting. A list of what is needed is contained in the supplementary material for this chapter on the CD-ROM.

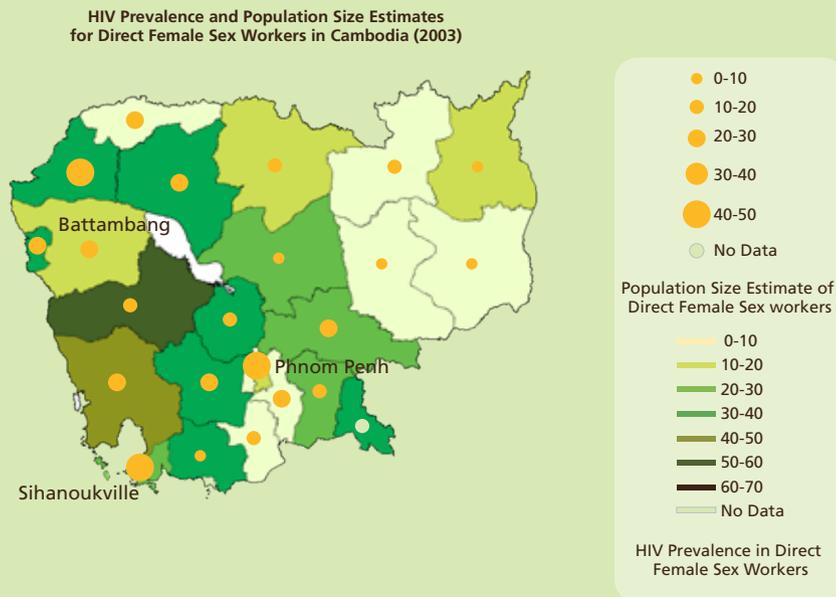
Identify experts you can turn to for help in finding information and to answer questions on the data and information collected.

As you collect information, you're going to find that there are some things you don't understand – the data may be incomplete, the report may be poorly written, or the source may use unfamiliar terminology. You're going to have questions about how a particular piece of data was collected or what it means. You're going to hear about sources of data that you can't find. Before beginning, it is a good idea to identify people who can help you to address these issues. These will generally be the local AIDS experts—people who've been working with HIV in your country/province for some time and are familiar with the situation, the data, and the others working in the field. This is also a good opportunity to start locating people who can later serve on your Technical Working Group. This group will assist you in making assumptions regarding missing data, reviewing your models, and building the legitimacy of the A² process' outputs and recommendations.

A brief checklist of the most important data needed

In the A² process you normally wish to be as exhaustive as possible in collecting existing information on epidemiology, behaviors and responses. As you collect this information, keep the epidemiological triad of person, place and time in mind:

- You need information for each population affected by the country's epidemic. Collect and consolidate information for those populations relevant to Asian epidemics: FSW and clients, MSM and IDUs. If other groups are important in your local epidemic, e.g., truckers or overseas workers, include them as well. To assess the current or potential extent of the epidemic, include information on HIV, STIs and risk behaviors in the population at large if it is available.
- You need information for different geographical areas. The growth and extent of HIV epidemics often vary greatly from place to place within a country. Figure 3.2 shows how HIV prevalence varies among direct female sex workers in Cambodia. To explore this geographical variation later, be sure to note the location where each set of data was collected.
- You need information for different times. HIV epidemics are not static in time. HIV prevalence rises and falls. Epidemics in different subpopulations or geographic areas can grow at different rates. Make certain you note the time at which each study was done so that you can later explore the changes in the epidemic over time.



(source: HIV Prevalence BUCEN HIV/AIDS Database Population/Size Estimates: FHI Cambodia Country Office)

Figure 3.2.
Geographic distribution of HIV prevalence among direct sex workers and estimated size of the direct FSW population in Cambodia by province from 2003.

The following is a brief checklist of the most important sources of data to collect and have available before you begin analyzing your epidemic:

HIV prevalence data

- HIV surveillance data** (from national/provincial surveillance systems - both community and facility-based)
- National surveys that include HIV testing** (DHS+) or other national or sub-national household surveys/studies
- Ad hoc one-time HIV prevalence research** or program evaluation surveys/studies
- HIV testing data** from facilities such as STI clinics, VCT centers, hospitals (inpatient/outpatient data)
- HIV testing results among pregnant women** (e.g., HIV screening for PMTCT programs) or from voluntary counseling and testing (VCT) centers for men and women
- Military recruit HIV testing**
- Blood donor screening data**

HIV incidence data

- Randomized controlled trials or longitudinal cohort studies**
- Acute infection laboratory measurement studies**

STI prevalence data

- STI surveillance data** (from national/provincial surveillance systems - both community and facility-based)
- Ad hoc one-time STI prevalence research** or program evaluation surveys/studies
- STI testing data from facilities** such as STI clinics, VCT centers, hospitals (inpatient/outpatient data)

Case reporting

- HIV and AIDS case reporting**
- STI case reporting**

Behavioral data

- Behavioral surveillance data** (from national/provincial surveillance systems - both community and facility-based)
- Large scale population surveys.** Demographic Health Surveys (DHS) or other national or sub-national household surveys/studies on sexual and injecting behaviors
- Ad hoc one-time behavioral studies** in the various most-at-risk populations
- Baseline and follow-up surveys with behavioral data** that may have been done to justify or evaluate prevention programs by NGOs or other agencies
- Condom distribution data** from governments, NGOs and private companies

Population size estimation data

- Censuses, mapping or enumeration data** on specific populations
- Behavioral surveys of the general population** containing information on the level of specific risk behaviors for HIV (e.g., percent of men visiting FSWs last year)
- Ad hoc studies to estimate population sizes** using multiplier methods, nomination methods or capture-recapture methods
- Best estimates from those working with the populations in question** - estimates based on key informant interviews, service statistics or expert opinion

Develop a clear picture of what's out there

Before going out there and starting to collect information, it's important to understand what's out there. This is not a difficult step, but it is an important one. Here's what we recommend:

Conduct a comprehensive review of online scientific literature databases.

Access MEDLINE, POPLINE, PsycINFO, Sociological Abstracts and other locally relevant academic and scientific databases (e.g., the China Academic Journals database). Conduct a thorough search on HIV and HIV-related behaviors with a focus on your country/province. The objective here is to locate as much published literature as you can containing information about your local HIV epidemic. In general, you'll find this process is easier if you use established tools for managing bibliographic data. The current A² country teams use Endnote, which is a computer program to manage bibliographies that has the capacity to directly search databases such as MEDLINE and download and store the results. It can also be used to link its own entries on a specific article to an electronic copy of the article on your computer. This makes for very quick and easy access to documents later on.

Check out conference proceedings for articles on HIV in your country/province.

Many countries hold their own annual AIDS conferences.

For finding local information, the best place to start is the abstract books for the last several years of your national AIDS Conferences. In addition, many people working in HIV in your country also attend the international AIDS conferences and meetings to present their work or discuss their programs. The United States National Library of Medicine maintains a set of conference abstracts from these meetings online at the NLM Gateway: <http://gateway.nlm.nih.gov>. You can search easily by country name. These conference-related resources will help you identify research and scientific studies, prevention and care programs, and NGOs and community groups actively working in HIV. While many national conference reports and the NLM Gateway only have the abstracts, these will provide you with the names, the organizations, and an idea of the content associated with each conference presentation. In some cases, you can then use this to search the scientific literature or the Internet to find a more complete report. In most cases, it provides you a pointer to a study or program that has not yet been written up in the published literature and tells you who to contact for more information. It is worth noting that the vast majority of what is presented at AIDS conferences has not yet found its way into the published literature. That makes this an incredibly valuable resource for locating unpublished materials.

Search the World Wide Web for relevant information.

Increasingly today, a wealth of information is available on the World Wide Web. Most of the major international organizations and donors that work with countries (e.g., UNAIDS,

USAID, the Global Fund, WHO, World Bank, AusAID, UNICEF and others) maintain websites that contain substantial amounts of HIV information. Often they publish the results of situation analyses that they do in preparation for major projects. They frequently provide the full reports and findings of major studies or programs that they fund. These resources, in particular the situation analyses, can be extremely useful when you're trying to familiarize yourself with the local HIV situation and identify people and organizations who might have a lot of information available. In addition, many universities and many NGOs publish many of their studies, conference presentations, and project and annual reports on the Web. Check if any of your local universities, NGOs or NGO umbrella organizations have such resources.

Generate a comprehensive checklist of the reports you hope to collect.

As you begin the process of going through these resources, you should download or obtain copies of any relevant resources you find. However, many may not be immediately available. In this case, you should maintain a list of the ones that you hope to collect. This list may get quite long, and at some point it will be necessary to prioritize it. Therefore it is important that you not only list the name of the report and the responsible author or organization, but also keep notes about what type of information it has that is relevant to your work. This will make the process of prioritizing the collection of these reports later much easier.

Set up a system to organize the materials collected, extract useful information from them, and store it for ready access in the future

A good organization system for the data is essential. During the A² process a substantial number of reports, publications, data sets, presentations and other forms of documentation are likely to be collected. These materials must be stored in such a way that they can be easily accessed for reference as needed. It is important that the database is constructed in a form that is easy to update periodically and that makes trends in the HIV-related indicators apparent. A well-organized database also allows for sustainability and data-sharing, so that the whole process is not wholly dependent on any single individual or organization continuing to be involved. It stores currently low priority data for possible later use.

Store papers on a computer, and index them using bibliographic software for quick search and access.

Today, much of the documentation that you will use is already available in electronic form – often as PDF files, sometimes as Microsoft Word documents or PowerPoint presentations, and sometimes in other formats. Journal documents are often directly downloadable from publisher websites or online repositories. Paper documents, such as baseline survey reports from some projects, photocopies of

papers that were not available electronically, or trip reports, can also be made electronically accessible through modern scanning and optical text recognition software. Scanners have become relatively inexpensive and we strongly recommend that A² teams use a scanner to put all documentation into electronic form. Normally for scanning, we use Adobe Acrobat software, which can also do text recognition to make electronic documents easier to search. Some of the guidelines the current A² teams have used for organizing this computerized database of documents are included on the CD-ROM, but you should feel free to modify them to meet your own specific needs. As mentioned earlier, we also index each document using bibliographic software, such as Endnote. Setting up this system takes some time, but the investment will save even more time in the long run by giving you extremely rapid access to your information once you begin in-depth analyses.

If such modern electronic tools are not available, handling the volume of documents likely to be found still makes it critical that you organize these documents systematically. Even without computers, this can be done the old-fashioned way. That is, use a set of file folders and keep a comprehensive list of what you have and a brief summary of the contents of each entry.

Maintain a set of spreadsheets and text files to store extracted information in an accessible format.

Much of the information or data that will feed into the modeling components of the A² process is very well-defined and specific. This makes it possible to establish a set of spreadsheets or text documents for extracting that subset

of information. As mentioned earlier in this chapter, you also often want to know more details about the study from which the information comes. The way this is normally done in the A² process is to put the information into Microsoft Excel sheets or Microsoft Word documents that collect data from many different and diverse sources into one really accessible place.

Specific spreadsheets and text files that we recommend keeping include:

- **One or more Excel files containing epidemiological data.**
This file needs to include person, place and time – that is, a description of the population from which the data were collected, the geographic location of the data, and exactly when they were collected. The file usually also includes details of the particular study design, the authors, the data source, etc. In the comments section, you should enter any concerns about the sampling, biases, quality or representativeness of the data or any other issues related to how it was collected. If information is available on interventions, note which programs were active in the area at the time of the study. In particular, if the study gathered data on intervention exposure and its effects on HIV, STIs or behavior, be sure to record that. An example is included on the CD-ROM.
- **One of more Excel files containing behavioral data.**
For behavioral data you also need to know the population, the geographic location, the time of

collection, the study design, the specific behavioral indicators and their associated time frames, and other details about each piece of data. As with the epidemiological data, you should note any concerns or issues regarding these data in the comments. As with epidemiological data, note any active interventions in the study area and their impacts on behaviors. The CD-ROM also contains an example of a file for behavioral data extraction.

- **A Word document containing a list of lessons learned.** As mentioned earlier, as you go through documents you also want to keep track of things that you learn that may not be numerical in form. These may be lessons about how best to collect data, about the biases associated with the data, about the special needs or concerns of a given population in terms of prevention or care, about stigma and discrimination, about programs that have worked or failed, or about any number of other issues that are relevant to HIV policy and programs. You should keep a file or files that provide a central place to record such findings and a pointer to their original source document in your document database.
- **Word documents containing lists of contextual issues.** Barriers and facilitators to HIV prevention and care are often highlighted in different studies. Factors that influence HIV risk behavior and vulnerability are often mentioned, such as social, economic, legal or religious factors. Studies often comment on the difficulties or problems they have in accessing a

particular population or on their concerns that no programs currently in the field are working with a specific population. Information on these types of qualitative issues should be noted in one or more files and brief notes taken about the relevance to prevention or care along with a pointer to the original document source. This will make it easier to come back later and put the numerical data you've extracted into proper context.

As each document or information source comes in: read it, enter it into your organizational system, and extract the information you need.

As mentioned earlier in the chapter, it does little good to collect documents if you don't read them and make use of their information. Thus, it is essential that the synthesis specialist review every document collected, ensure it is appropriately entered into an organizational system, and then extract relevant information into the Excel and Word documents that summarize what you know. And, of course, update your prioritized list of documents to be collected.

Start the process and test out your organizational system working with the easily accessible documents

Pull in the documents from online databases and the Web first.

We generally recommend that a synthesis specialist in training start the process using the easier to access documents. This serves several purposes. First, it brings you up to speed on what information is already out there and is readily

accessible. Second, it helps to build your understanding of the local epidemic and the factors influencing it using materials that are more scientifically rigorous. Published papers have usually undergone peer review, which generally makes them of higher quality.

Use the published papers to identify other sources of information.

In most published papers there is an extensive list of references. These may point you to documents that were not captured in your online database searches. They may also point you to so-called “gray” literature documents – these are items that have not been published, but often have substantive content. These can be added to your list of documents to be collected.

Use the published papers and the conference abstracts to identify organizations and researchers who have the information you may need.

By looking at the institutional affiliations of the authors or researchers, you gain a sense of who is working in HIV locally. From conference abstracts in particular, you can often find an organization or group that has collected information that may not yet be in the published literature. People who show up repeatedly in this literature may well be people worth talking to, as they’re likely to have extensive knowledge of the local HIV epidemic.

In A² for the most part you’re relying on existing information. Usually you will not have access to the original data set. One thing you’ll discover fairly early is that many of the published

papers or gray literature documents are far from complete and often omit essential information and details about the study design or the data. If the study contains particularly useful or critical information, then you may find it worthwhile to track down the original author or study group and ask them for more comprehensive documentation on their study. Very often they have extremely detailed full reports that are distilled into journal articles. Even should they lack such a report, it is often extremely valuable to talk to them to understand the limitations of the study, the problems they may have had in the field, and their own interpretation of the findings and the situation on the ground.

Use the accessible documents to familiarize yourself with study designs, limitations of the data, and limitations of the reporting.

Synthesis specialists often have epidemiological training or behavioral training, but few have both. However, it is essential that they be able to read and correctly interpret papers from both fields. One additional benefit of starting with the more readily accessible documents is that it gives the new synthesis specialist the opportunity to familiarize him or herself with the various study designs that are used in these fields. It also helps in understanding that the available data often have major limitations, whether geographically, in terms of sampling, or in terms of the instruments used to collect the data. Going through the first documents collected and extracting information on study designs, reported findings, and issues raised helps the synthesis specialist to learn using documents that are often of higher quality than those that are not published.



As gaps in information are found, keep a regularly updated list of them in Word or Excel

In all cases, as information collection proceeds you will discover some critical information is missing, i.e., there are information gaps. These gaps may take several forms:

- **A particular type of data is missing** (e.g., HIV prevalence among MSM or size estimates of the FSW population)
- **Geographic coverage of the data is limited** (e.g., a lack of information on HIV prevalence among pregnant women in rural areas or in a subset of provinces)
- **Temporal coverage of the data is incomplete** (e.g., in India there are gaps in HIV prevalence among most-at-risk populations in the national system as it shifted to an emphasis on ANC and STI clinics in the late 1990s)

Some of this missing information is critical to program planning, such as estimates of the number of sex workers or clients. Others are important to assessing the magnitude of the HIV problem on a national basis, such as the HIV prevalence among MSM or the HIV prevalence in rural areas. Some you may want to use to validate other sources of information (e.g., condom distribution figures that could be used to validate reported levels of condom use).

Keeping a regularly updated list of these information gaps is critical. At a later stage you can review this list and identify the most important gaps affecting your understanding of

the epidemic. This allows you to prioritize your data collection efforts and helps to give direction to the planning of future studies. It also helps mobilize resources for filling these gaps and provides essential information for improving national HIV strategic information systems. Having such a list keeps the gaps on the national agenda even if they cannot be remedied immediately.

Gather the documents and data on your prioritized list of things to be collected and introduce the A² process as you do so

The idea behind A² is to move away from the paradigm of one or two external experts undertaking quick and dirty analysis of limited data and making projections of a country's epidemic for them. In fact it takes the opposite approach of having local experts, policymakers, and program designers participate in the process of collecting, synthesizing and analyzing the information available in-country and thereby improving their understanding of their own epidemic. Even at this initial data collection phase, one of the overarching principles of A² comes into play: inclusiveness.

A practical aspect of the data collection process is the follow-up to get important sources of data. Sometimes getting access to a document is as simple as sending an e-mail or making a phone call. However, in other cases this may not be sufficient. If a document is of particular value or if an author or organization has been involved in many studies, it may be worth paying them a visit. As you go around and meet these people, you

should take this as an opportunity to explain the A² process and to explore how they might become involved if they are interested.

Solicit inputs on issues of concern as you collect documents and information.

As you visit various people, it is important that you start to build support for a more evidence-based approach to AIDS policy and programming. This will be particularly important with national programs, government officials, donors, affected communities and NGOs. Unless they buy into the concept of using information more effectively, any recommendations resulting from the process may have little impact. It is also important at this stage that you encourage people to explore the implications of their own data for programs and policy. Seek their inputs on what they think is important, and what they think should be done, and why they believe this. Challenge them if you see something in their data that they've missed or haven't considered – encourage them to look more closely at the program and policy implications. Be prepared to learn if they have a clearer understanding of the situation or a better, more informed interpretation of the data. Try to learn their motivations and major concerns. Understanding where people are coming from will help identify what is needed to alter misconceptions about the epidemic and to find a way to bring people to a common understanding of the epidemic once more analysis is done.

Consider prioritizing data collection efforts as you get to the more difficult to obtain items.

At the start of the A² process there is a tendency to collect whatever information is offered by different organizations

or individuals being approached. This is in fact part of the process of building partnerships. In order to get their involvement in A², stakeholders at all levels need to feel that the information they have access to is important in understanding the HIV epidemic. But as your list of documents to be collected expands or specific items become more difficult to obtain, it rapidly becomes evident that some prioritization and organization is necessary to give direction to the data collection. Thus, you need to periodically review your list and prioritize collection of the information that will be most useful or is most immediately needed.

Organize the Technical Working Group to support the A² process as you move ahead

Once some progress has been made in pulling together the various documents and sources of information needed, reading through them, and extracting information into the Excel and Word files summarizing the findings, the synthesis specialists will usually reach a point where they start to have questions. Often they will find that there are contradictory data, with different studies reaching different conclusions.

Sometimes they will find that there is very little information on a very important topic. Other times they may find conflicting interpretations of the same set of data. When they reach the point where these types of questions come up, it is time to organize the Technical Working Group.

The Technical Working Group is composed of national/provincial AIDS experts who assist the local A² team on technical issues. Normally, this group will draw upon people

with expertise in the different areas relevant to understanding HIV epidemics. For example, it might include one or more epidemiologists, behavioral scientists, program managers, members of affected communities, policymakers or university researchers.

The primary purposes of the Technical Working Group (TWG) are:

- To bring together local AIDS experts to ensure the technical quality of the inputs and outputs of the A² process.
- To help in locating and gaining access to important sets of information in the country/province.
- To assist in reviewing and interpreting the information collected, so that the inputs to the process reflect the best informed local knowledge of the epidemic.
- To review the inputs, models, and recommendations and conclusions of the A² process for quality and consistency.
- To vet the models, results and recommendations coming out of the process to build their legitimacy and to help in gaining any necessary approvals.
- To build active involvement and awareness of the key people working in HIV of the A² process and what it hopes to accomplish.

The actual form that the Technical Working Group takes has varied from country to country. In Thailand, a group of middle level and experienced epidemiologists, behavioral scientists and government officials working with HIV represented the core of the Working Group. In Yunnan, an existing AIDS expert advisory group to the Yunnan CDC took on

these responsibilities. In Bangladesh, these activities were put under the Technical Committee of the National AIDS Council (TC-NAC) in the specific context of a national effort to prepare size estimates for key affected populations.

Where a technical working group is being organized for the first time, we make several recommendations based on our experiences:

- **Build the TWG around a core of dedicated and interested people.**
First, the group should be organized around a small core of 5 to 6 technical experts. These should be people who are chosen because they are strongly motivated and interested in HIV issues, have the necessary technical skills, and are willing to support the process. They will be expected to attend all meetings. The TWG core members should have a mix of skills on HIV including epidemiology, behavioral and prevention science, prevention and care in affected communities, and program design and management. In general, for the core members it is better to get middle level people with several years of experience, rather than to try to recruit the highest level experts who may be too busy to attend meetings. It is useful to provide a small stipend to these people in appreciation of their participation and support.
- **Base membership on knowledge and skills, not institutional or community affiliation.**
Membership on the TWG or attendance at any TWG meeting should not be based on being the “representative” of a particular agency, community

or organization, but instead based on that person's having knowledge and skills that can contribute to the process of understanding the local epidemic and improving responses to it. For example, somebody should not be brought in as "representative" of the MSM community. Instead, they should be enlisted because they have been active in prevention in that community for years and can contribute that prevention experience and expertise. Somebody should not be recruited from the National AIDS Program to represent that program, but instead to bring their years of program management experience and knowledge of the epidemic to bear.

- **Organize meetings around specific topics or needs that arise and engage other experts as necessary.**

In practice, whenever possible TWG meetings should be organized around specific issues. If issues arise that fall outside the skills set of the core group, then other local experts should be engaged for those specific meetings, but not necessarily made members of the TWG. For example, if the issue is the size of the IDU population, you might engage university researchers who have studied IDU, police who have access to

arrest records, staff from drug treatment clinics, NGO staff who may have been mapping and working extensively with IDUs, and those current or former IDUs engaged in prevention efforts within the community. Each of these can bring specific expertise on that topic, but might not be able to contribute if the topic of the meeting was instead MSM. Having a central core to the TWG provides continuity, but supplementing this core with topical experts is a more productive model for getting the best advice on the broad range of different issues that arise in HIV prevention and care.

In practice, the A² team should be free to contact individual core TWG members or other experts outside of meeting settings when specific issues arise in their areas of expertise. Meetings should only be held when there is a specific need, such as to review contradictory data, identify possible sources of data to fill an important knowledge gap, reach consensus on a topic, or undertake a specific activity such as reviewing projections for the local epidemic before submitting them for approval to local authorities. Organized this way, the Technical Working Group will make a major contribution to the quality of the A² outcomes and also confer legitimacy on the process through the direct involvement of local experts.

Where things are unclear, bring people together to reach consensus on what the data are saying

In some cases when you find “problems” (e.g., contradictory data, data gaps or widely varying estimates), you may want to move beyond just your Technical Working Group to draw on more sources, encourage sharing of knowledge, and build consensus. This is especially common in size estimation, where many stakeholders have different data sets and consensus has often been elusive. These “problems” offer a major opportunity to involve people in the process, while at the same time allowing people to examine each others’ data and come to a consensus. This can be accomplished in many different ways, and you are encouraged to use any of them when circumstances merit.

- **Hold meetings to review available data on an issue.**
For example, in Bangladesh, meetings on size estimation were held for each of the key populations in which all the data were brought to the table and consensus achieved (on page 84 “Population sizes by consensus”).
- **Have the A² team or TWG members prepare reviews of specific areas where information is weak or unclear to inform broader meetings involving others.**
In Thailand, the A² team and the Technical Working Group were engaged to prepare reviews of available

information and identify data gaps and unclear data on issues as diverse as changes in the number of injecting drug users, the current levels of condom use, and the size of the MSM population. These then served as the basis for broader meetings bringing in people with additional knowledge to discuss issues in their areas of expertise.

- **Use existing data to engage others in collecting new data.**

In Hong Kong, where information on HIV prevalence among MSM was missing, the MSM community’s awareness of a growing HIV problem was raised using reported data. This then motivated the community to work with the Department of Health to gather more comprehensive epidemiological and behavioral data in a community-based survey. The advantage to these inclusive approaches to reviewing and analyzing data is that they help to familiarize people with the full range of current data and their limitations. They simultaneously raise awareness of data gaps. And, if a consensus is reached on some data-related issue, they ensure that people will be operating from a common understanding of that issue or that they at least understand other people’s points of view. This will make the policy and program dialogue easier later on.

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DATA

Chapter 4

ASSESSING WHAT YOU DO AND DON'T
KNOW AND FILLING THE GAPS

[an overview]

[an overview]

Chapter 4

ASSESSING WHAT YOU DO AND DON'T KNOW AND FILLING THE GAPS

If you're advising people on strategies for responding to HIV, you need to get it right.

The A² process is an evidence-based one. Your goal is to improve HIV responses by providing informed advice to decision-makers and leaders in affected communities, government, donor agencies, NGOs and CBOs. This means you have to get it right. If you give bad advice, you can shift responses in the wrong direction. This will have a cost in new HIV infections and, ultimately, increased numbers of people feeling the impacts of HIV, as well as higher prevention and care costs in the future. If you start from bad information, chances are you will give bad advice. Thus, you have a responsibility to make sure the information and data you're using for analysis is complete, valid and reliable.

Start by assessing the completeness of information in your country's context and identifying data gaps that may exist.

Chapter 2 explored the important populations in Asian epidemics, namely FSW and clients, MSM and IDUs. If you are to build a comprehensive picture of the epidemics in your country, province or district, then you will need epidemiological and behavioral information for each of those populations. If analysis shows that other groups in your site (e.g., truckers or migrants) are disproportionately at risk or significantly affected by HIV, you must also gather such information for them. In addition, as discussed in Chapter 8 in more detail, you'll need information on current responses to the epidemic and the coverage and effectiveness of programs for each of these key populations. If you're missing the full set of information on any of these populations, your picture will be incomplete and may not properly reflect the true distribution of risk, HIV and current responses in your country. This may result in the loss of major prevention opportunities, wasting of resources on programs with little impact, and a failure to anticipate and provide adequate care and treatment. The first step then is to run a quick check on whether you have all the information you need, and in the process identify any data gaps.

Review the quality of the information you've collected – keep the good information for future analysis, put the questionable information aside.

All information is not created equal. There are many factors that can influence whether the information collected is an accurate representation of the true situation. Some things to consider in determining the validity and usefulness of a particular data set or piece of information include:

- Was the information collected in a way that makes it representative of the group in question or is it biased in some way?
- Are there bias or capacity concerns about the person or persons who collected the information? Were the staff gathering and processing the information properly trained and supervised?
- Has the information been properly processed and analyzed?
- Are the information and analyses based on it reported in a clear and correct manner, and does the report provide the subsets of the information that you need?
- Is the information consistent with other sources of similar information, and if not, why not?

Answering these questions will give you a good idea of the quality and value of a particular study or piece of information.

Use multiple information sources and triangulate to improve your understanding.

There is no such thing as perfect data and a quest for perfection should not become the enemy of understanding. Fortunately, if some care is taken, most of your data are not too bad and can be used if you understand their limitations and take them into account. In addition, you generally have multiple

sources of data available to you. In triangulation, you consider all available pieces of information on a given topic and look for consistency. Some may be incomplete or biased in one way or the other, but when taken in the aggregate, multiple inputs often provide a reasonable idea of where the correct value falls or what the true situation is. If, after analyzing everything, significant data gaps and uncertainty remain about a key piece of information needed to understand the epidemic and the responses to it, then you must take further steps, in particular...

Make a prioritized plan to fill the information gaps and replace poor quality data.

As you search for information, you invariably find some gaps – key pieces of information you need, but don't have. In addition, if a careful review of the available information reveals problems, you may have things that are effectively “missing” because the data quality is so poor. Add these to the list of missing information and then prioritize it. Once you have identified the most important gaps, there are numerous ways of resolving them including:

- Contact the people who collected the data or generated the information to provide more in-depth information on their findings
- Expand your efforts to collect more sources of information for important topics
- Seek advice and input from local experts or from your Technical Working Group
- Collect additional information using rapid assessment methodologies
- Make informed assumptions based on available country and regional data, but make plans to validate these assumptions in future data collection efforts

Implement your plan.

Starting with the most important gaps, work with others to track down additional information, undertake expanded data collection efforts, or build the missing elements into future project and survey efforts. Over time, the gaps will be filled and a complete picture of the epidemic will emerge.

Keep in mind that information collection is an ongoing activity in A², not a one-time event.

New sources of information become available all the time. Your A² team needs to periodically do a systematic collection and review of these new sources and use them to improve their models, analyses and advocacy activities. This way, as you get a clearer picture of the epidemic or as the epidemic evolves, you can recommend responses that adapt and become more and more effective over time.

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WIWAT PEERAPATANAPOKIN
TIM BROWN

Chapter 4

ASSESSING WHAT YOU DO AND DON'T
KNOW AND FILLING THE GAPS

[concepts and content]

Chapter 4

ASSESSING WHAT YOU DO AND DON'T KNOW AND FILLING THE GAPS

Dimitri Prybylski, Wiwat Peerapatanapokin and Tim Brown

The responsibility to get it right requires careful assessment of the information you use

The primary objective of the A² process is to build stronger, more effective, and more efficient responses to HIV, which are grounded in an evidence-based understanding of the local epidemic. This is done by building models from local data to analyze the effectiveness and costs of alternative strategies for responding to the epidemic and dealing with its impacts. If your understanding of the epidemic or the models you build are incorrect or incomplete, the policy and program advice offered may misdirect the responses, weakening them rather than strengthening them. This will result in more people contracting HIV, more people becoming ill and dying of HIV related causes, more people in need of treatment, care and support, and greater financial and social costs for families and society as a whole. In addition, if your advice is not solidly based on the evidence, you will undermine your future ability to have an impact on the decision-making process because people will lose faith in your objectivity. As a result, those engaged in the A² process have a responsibility and a need to build a realistic picture of the epidemic that will produce locally appropriate, correct advice to decision-makers and leaders in affected communities, government, donor agencies, NGOs and CBOs.

This picture and the models used in A² will be constructed primarily from existing data collected during the A² process. Considerable national and international financial and technical resources have been committed to collecting information about HIV epidemics but as with all public health issues there are gaps and limitations in this information. Not all desired epidemiological and behavioral data have been gathered. The available information is often of limited quality and has to be assessed carefully before being used. Data are sometimes

collected in only a few places, but you need to make decisions for the entire country, province or district. Even when the necessary data are collected, they frequently remain captive within the organizations and institutions collecting them, which often work within narrow disciplinary boundaries. Thus, epidemiological, behavioral and response data are rarely brought together and analyzed to get the “big” picture of the epidemic. However, in the A² process, you must bring this data together for your analyses. This means the A² team must be able to assess the quality of data across a wide range of disciplines.

Recognizing that the validity of the advice you give depends critically on the quality and completeness of the information used to build your understanding and to provide inputs for your epidemic models, you must answer three questions:

Do you have all the data you need to understand the epidemic?

You first determine the completeness of the information currently available. If things are missing that are essential to your understanding, you identify and list these as data gaps to be filled later.

Are the data good enough to be used and are they painting a consistent picture?

You then review the available data with an eye to quality issues. You need to make sure the data you use are a reasonable representation of reality. This requires considering factors such as how the data were collected, their biases, the quality of the analysis and reporting, etc. These determine the validity and generalizability of the available data.

How do you fill the gaps?

If there are things you need to know, but don't have any information on them, you must address this through expanded collection efforts for existing data, new data collection efforts, triangulation from existing sources, or making informed assumptions.

The three step process of answering these questions before starting to build models is shown schematically in Figure 4.1. The remainder of this chapter will address these three steps in more depth.

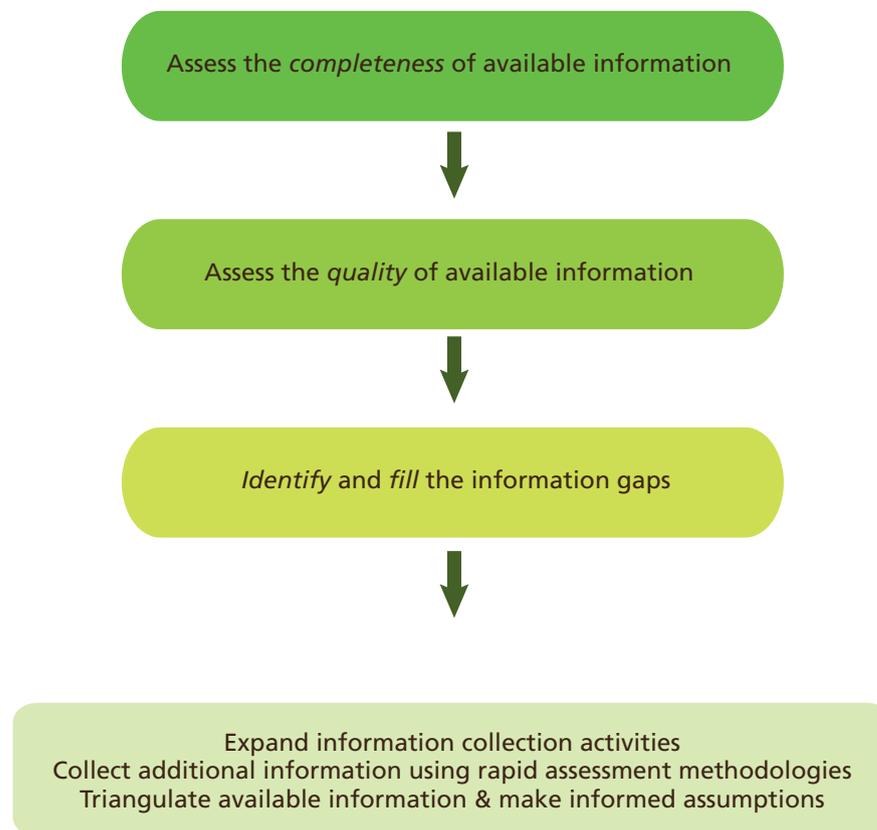


Figure 4.1.

The key steps to assessing available epidemiological, behavioral and response information and data and identifying and filling the gaps.

Assessing the completeness of available information

The three key categories of epidemiological and behavioral information that are important to collect were reviewed extensively in Chapter 3. They are:

- Epidemiological (HIV/STI) data
- Behavioral data
- Population size estimates

In Chapter 8, we will also identify several additional categories of information regarding the response which you will need to complete your response analyses and costing. These include: coverage, program effectiveness, quality and cost. Ideally, you would have all of this information before you start to do any analysis, but the reality is that you rarely do. There are always gaps; and, as you review what is available, it is critical that you keep these gaps in mind and systematically list and describe them so that the most important ones can be filled later on.

Before you start analysis, quickly review the checklist of information needed from Chapter 3 and the list of gaps you have identified. If essential items are missing, ask your local experts or Technical Working Group to assist you in finding them.

Assessing the quality of the available data

Once you consolidate the existing information, it is important to assess the quality of these materials. You want your analyses and advocacy to be based on the highest quality information you can find. When considering the quality of epidemiological and behavioral data, it is useful to think about the concept of accuracy. Accuracy may be defined as the degree which a measurement or an estimate based on measurements represents the true value of the attribute being measured.

Achieving accurate results requires two things in a set of repeated measurements:

- **Validity** – whether the average of a large set of measurements comes close to the true value. That is, if you measure the value repeatedly, how close will the average of those measurements be to the true value? Validity is inversely proportional to the level of bias, which is how much the average of the measurements deviates from the true value.
- **Precision or reliability** – the extent to which repeated measurements show the same or similar results. That is, how much do all of the measurements of the variable differ from one another?

A target analogy may be useful for understanding these concepts (see Figure 4.2). Validity (or the absence of bias) describes the closeness of the fired arrows to the bullseye center while precision or reliability is the degree to which fired arrows are clustered together. When all arrows are grouped tightly together the cluster is considered precise or reliable since they all struck close to the same spot, if not necessarily near the bullseye. Figure 4.3 illustrates some of the key areas where accuracy may be weakened during the various steps involved in the design, analysis and reporting of epidemiological and behavioral data.

Broadly speaking from a data abstraction perspective, there are two main types of error to be concerned about:

- Errors related to the way that *data are collected*, which is affected by the way surveys and studies are designed and carried out and by who do them.
- Errors related to the way that *data are processed, analyzed, reported and disseminated* – this relates to how data and analyses are done and described in documents you must use because you lack access to the raw data to do the analysis yourself.

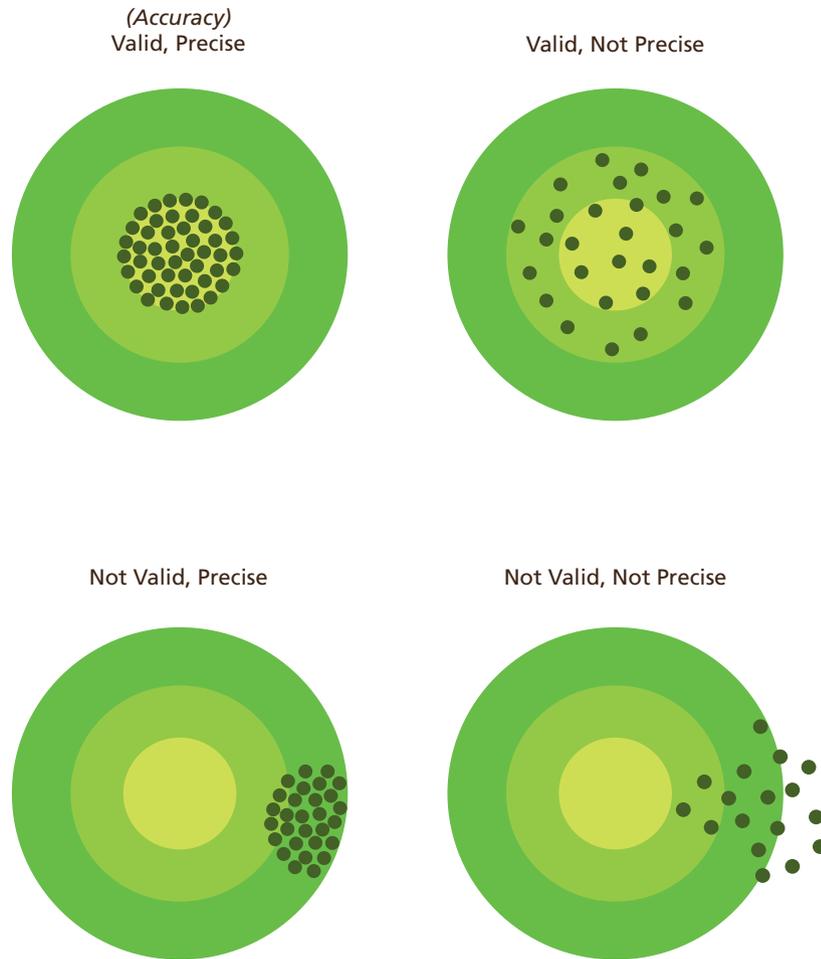


Figure 4.2.
The target analogy for understanding accuracy, validity and precision/reliability.

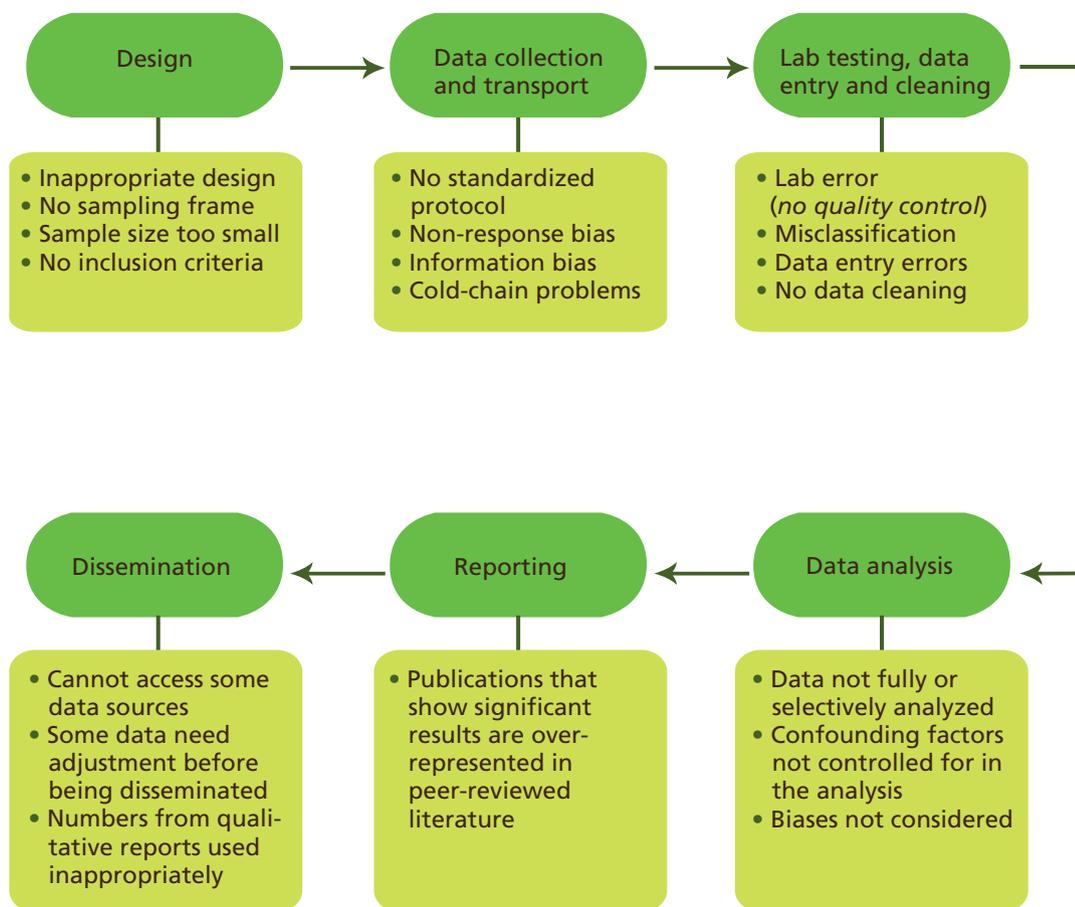


Figure 4.3.
Key factors influencing data quality during various survey or study phases.

Major sources of error related to the way that data are collected

The two major questions you must answer about errors related to the collection of data are:

- **Was the information collected in a way that makes it representative of the group in question or is it biased in some way?**
- **Are there biases or capacity concerns with the person or persons who collected the information? Were the staff gathering and processing the information properly trained and supervised?**

Answering these questions requires finding out about the population actually studied, the sampling sites, the sample design, the implementation of the field work, the analysis tools and techniques used, and the way the report was written. The first thing you need to ask when you pick up a particular study is:

How generalizable are the data? That is, can you assign the results of the population studied to the larger population they are intended to represent?

Assessing the generalizability or the external validity of available data is a key consideration. It involves determining to which specific populations the results of surveys, studies or

other data collection activities apply. As reviewed in Chapter 3, it is especially critical that you know how to appropriately generalize data from the sample taken in a study to the entire most-at-risk population of interest, which usually has different segments with different levels of risk behavior. This process is often complicated by the fact that there is considerable heterogeneity within each of these high-risk populations with respect to epidemiological and behavioral characteristics. For this reason, it is important that you carefully document the population case definition or inclusion criteria used in the study, which is one of the things you were advised to extract as you reviewed the reports collected. Unfortunately, this is sometimes not made explicit in protocols and data collection guidelines, nor is it always spelled out clearly in the resulting reports. In these circumstances, it is essential you review the sampling or data collection approach used to get a clear picture of the population from which the data were collected.

You will encounter two major types of epidemiological and behavioral studies in terms of how people are selected:

- **Facility-based sampling.** Surveillance and other studies are often conducted in clinic or institution-based settings for convenience purposes. Typical sites for HIV surveillance include STI clinics, drug treatment centers and rehabilitation centers. The main limitation of such site-based data is that they are usually not representative of the

population groups of interest and are typically biased in various ways. For example, those at STI clinics are almost always higher-risk individuals who are not using condoms consistently. IDUs visiting drug clinics may want to stop injecting, which is the very reason they go to the clinic. This can make them very different from IDUs in the communities, who have little interest in stopping. The differences in those attending clinics make generalizing the results of facility-based samples difficult and you should use these data with extreme caution. Ideally, you will find studies which compare the facility-based population with community-based samples of the population that will allow you to determine the relationships between the two before generalizing the findings.

- **Population-based sampling.**

The sampling of specific population groups in community settings is much more likely to yield representative data. This is particularly true if a specific population case definition is used and probability-based sampling techniques are used, which give all members of the target population a chance to be included in the survey. Non-probability-based or convenience sampling methods in community settings are less likely to be representative and are more likely to be biased than probability-based sampling methods such as multi-stage cluster sampling, time-location sampling or respondent-driven sampling (Mills, Saidel et al. 2004; Magnani, Sabin et al. 2005). One general piece of advice: if a paper or report says that probability-based methods were used but doesn't explain how this was done, you should consider its claims very skeptically. Researchers who go

through the trouble of using true probability-based methods usually want to talk at great length about the careful methodological steps they took.

In Asia population-specific factors can affect your ability to generalize the results of a study to the entire most-at-risk population of interest. Some of the more important ones to watch out for include:

- **There are many different definitions and groups of female sex workers.**

While there is widespread agreement that this term refers to women who "sell" sex, it is often not made explicit if this includes sex in exchange for economic incentives other than cash, such as goods. In some settings commercial sex is a direct monetary exchange while in other settings it may more broadly refer to indirect non-monetary transactions. It is also important that you document very specifically the subpopulation of FSWs among whom data were collected. Some common categories include brothel-based, street-based, entertainment-based (e.g., bars, discos), or hotel-based and residence-based – which frequently have varying levels of risk. If the data are collected from sex workers in one category, you can not generalize the findings to sex workers in the other categories.

- **Very few direct studies of clients of FSWs exist, instead we use proxy groups.**

You will rarely find data collected among a random sample of actual clients of sex workers. Instead, surveillance surveys and studies tend to be conducted among occupational groups serving as proxies for clients

such as the uniformed services (police, military), truckers, miners, factory workers, or laborers. For each study you should document the exact definition used for the study's participants, as well as the proportion of these men having sex with FSWs, levels of risk behaviors and STIs, and other demographic characteristics. It is especially important that you look at the inclusion criterion for the study. Behaviors are likely to be much riskier if the inclusion criterion is having sex with a FSW during the last one month than it will be if it is more broadly stated as in the last 12 months. They will also be riskier if the ages included in the study range from 20 to 29 than if they range from 15 to 49 because sexual risk is usually concentrated in that younger age range.

- **Injecting drug users and other drug users are sometimes mixed in studies.**

One commonly arising issue in data for IDUs is the inclusion of all "drug users" in a surveillance or study population, rather than just injecting drug users. Frequently, this important detail is missing or not clearly specified in the reports. While non-injecting drug users often still have elevated sexual risk for HIV, their overall level of risk is normally lower than that of IDUs and they may dilute HIV prevalence. Thus, if the proportion of non-injecting drug users in different samples varies or you can't determine it from the information provided, you may have a hard time making any direct comparisons of data sources. Another factor to consider: the type of drug used by different groups often significantly affects the frequency of injecting behavior, which in turn can influence the level of needle sharing and associated HIV risk. You should also examine the sharing practices

of each different study population – risk is generally higher among those who share in large groups, especially among those who inject in "shooting galleries" or go to paid injectors. As with clients, the time frame for inclusion in the study (e.g., "injected in the last month" or "ever injected"), may significantly affect the risk among those sampled.

- **There are many varieties of men who have sex with men and many ways of defining and accessing them in studies.**

MSM are perhaps the most diverse and heterogeneous of all the most-at-risk populations described above. Available studies are further complicated by a mix of inclusion criteria based on a number of factors including:

- self-identity (sees himself as "gay," "bisexual" or "heterosexual"),
- sexual contact with men in a specific time frame (had sex with men in "the last year," "ever," etc.),
- sexual preference (has desire for men, whether or not he acts on it), and,
- traditional forms of same-sex behavior in Asian societies (katoey in Thailand, waria in Indonesia, etc.)

In Asia, many men will have anal sex with these traditional same-sex groups without perceiving themselves as homosexual or bisexual. But they do have elevated HIV risk because of the anal sex and, from the point of view of HIV transmission, qualify as MSM.

Given these complexities you must always pay particularly close attention to the case definition or study inclusion criteria used in studies of MSM. You should also keep in

mind that data from self-identified “gay” men are not likely to be representative of the entire MSM community, which often also includes a number of heterosexually identified men who are married or have girlfriends, but sometimes have sex with men.

Furthermore, studies of MSM are most often done at sites where men “cruise” for male partners including parks, bars, saunas and nightclubs – and the men attending these places probably have higher risk than the entire universe of all men who have sex with other men. Such site-based studies also frequently fail to make a clear distinction between male sex workers (MSW) and non-commercial MSM; this sometimes results in substantial oversampling of MSW who may or may not be higher risk. You should keep all of these factors in mind as you consider the generalizability of results from studies of MSM.

- **Samples from the “general” population still have biases.** HIV and STI testing among pregnant women at antenatal clinics has been an important proxy data source for the population at large because they are often the only sample drawn from the larger population. However, ANC prevalence may overestimate HIV prevalence among all

women, especially in low fertility countries where women have children at relatively young ages. In some cases, ANC clinics that have incorporated PMTCT programming will have referrals of higher-risk women from other clinics, which will further inflate HIV/STI prevalence.

Male samples of the population at large (e.g., HIV testing among military conscripts or soldiers), have their own biases. Sometimes they over-recruit from poorer parts of the country or they are in a narrow age range. Given geographic and age-related variations in prevalence, you must carefully consider and adjust for any biases before generalizing results from these groups to the adult male population as a whole. More recently, DHS and DHS+ household surveys designed to be representative of the entire population in a country have become common. However, these studies also have biases that must be factored in. They may actually underestimate risk because most-at-risk populations are often hidden in nature, mobile, or not living in conventional households. As such, they may not be captured in a household survey. In addition, in some countries people are quite reluctant to admit to risk behavior in a household setting, resulting in significant underreporting.

After considering issues around generalizability of your results, the next question you should ask is:

Were there problems in the way the data were collected or related to the person or persons collecting the data?

In addition to biases associated with the definition of the population of interest, a number of other errors and biases can come into play. There are many kinds of **errors associated with the sampling**. Often there are very high non-response or refusal rates in a survey, for example, because the questionnaire was insensitive to the concerns of the study population, the interviewers were unable to address people's privacy concerns, or the interviewers were not properly trained to solicit participation. Sometimes the sample frame is poorly designed and does not obtain a true probability sample. Sometimes the field staff is not properly trained and skips sites or venues or fails to follow the recruitment protocol.

There are also a number of **non-sampling errors** that can come into play. These can include poorly chosen or poorly trained interviewers, who have sensitivities about the behaviors being studied that discourage study participants from

being honest. Several cases are known to us of interviewers filling out questionnaires themselves because of inadequate field supervision. On the side of the study participants, there are issues such as lying during the interviews, poor recall because the time frames are too long, social desirability biases (i.e., telling the interviewers what you think they want to hear), and observational biases (Hawthorne effect). If you see problems in any of these areas or high refusal rates, you should question how valid the results may be.

It is also crucial to consider the **qualifications and capacity of the organization doing the study**. Designing a good sampling frame, asking the right questions, and doing a good job collecting epidemiological and behavioral data in the field requires training and expertise. There is often a significant difference in quality between a study designed and implemented by a university researcher with a publication track record and one conducted by a small NGO of 10 people with limited computer skills. You must therefore look at the details of the study design, the staff training, the field supervision, and the quality of the analysis and reporting in evaluating a report or study to determine if the team had the right skills set to collect good data.

It is also important that you consider the **biases of the person collecting or reporting the data**. You need to look at the motivations of those collecting and reporting information and see if they have a conscious or subconscious motive to report higher or lower values – and then factor this in as you weigh the information they provide. This becomes a major issue when you do size estimates. Some groups (e.g., NGOs) have a vested interest in inflating the size of the at-risk populations they serve as a tool for advocating for more resources. Other groups (e.g., politicians or government officers) want to downplay the magnitude of social problems, so they may promulgate sizes that are much smaller than is realistic. This means you must always look carefully at the actual source data from which they derived their estimates. Biases can creep in subconsciously, as well. Problems of bias often occur subconsciously when health workers responsible for prevention programs are asked to collect evaluation data on condom use among their client populations. When they ask one of their clients if he or she used a condom, social desirability bias (and the desire to not sit through another long lecture) will result in a tendency to report affirmative answers. There may be no intention to mislead, but the positive bias on the condom use rate will be real nonetheless. If the same questions were asked by a neutral party, the results might be more valid.

One final set of factors related to how the data are collected are **issues surrounding the precision – in particular, the sample size**. The precision of the data is inversely related to the random sampling error – the lower the sampling error, the higher the precision. The major threats to precision are small or inadequate sample sizes that result in a high variability around the resulting point estimates. This is often indicated by wide confidence intervals. Small

samples will result in studies that have a difficult time confirming a relationship between variables of interest (in statistical terms, they are under-powered to detect associations of interest with statistical significance). Thus, you should always consider sample size in deciding how much to trust a data set. One specific issue that arises in this regard is the **incorrect use of numerical results taken from qualitative studies** – something that shows up in the literature from time to time. You should not accept quantitative results from qualitative studies. First, the samples in qualitative studies are purposive, that is, they have been chosen to be typical examples, usually using convenience methods, and are not random probability samples. This means they should not be generalized and analyzed statistically. Second, even if they are inappropriately analyzed numerically, the sample sizes are usually too small to have much meaning. Finally, people asked about risk behavior in the presence of a group are not likely to be too truthful. A good rule of thumb is: if somebody starts counting things in a qualitative study, it's time to look elsewhere.

It is not easy to gather information about these issues. However, as you meet with different organizations and experts working with HIV, you will hear things relevant to assessing their comparative importance. As you find unusual data points, e.g., outliers that are too high or too low, contact the staff who collected the data. Often they will be quite open about the problems they had. For example, in more than one A² country, calls to provincial surveillance staff identified problems with changes in sampling protocols from year to year related to who was tested as part of the "IDU" sample. If in doubt, turn to your Technical Working Group and ask questions of local experts. They'll often share their own opinions on reliability, quality and problems associated with any given study.

Major sources of error related to the way that data are analyzed and reported

The two questions you must answer regarding how data are analyzed and reported are:

- **Have the data been properly processed and analyzed?**
- **Are the information and analyses based on it reported in a clear and correct manner, and does the report provide the subsets of the information that you need?**

As if problems in the field were not enough, things can go wrong when you get the biological samples or the questionnaires back to the lab or office. There are often **problems with testing, data entry and data analysis**. With biological specimens there can be problems with storage and testing (e.g., not keeping the specimens at the right temperature, mislabeling the test tubes, allowing samples or lab equipment to become contaminated, or not training the lab staff to use the test properly). With any laboratory tests you should try to assess the HIV/STI tests and algorithms used and what kind of quality assurance/quality control approaches were used (e.g., getting a random sample of positive and negative tests analyzed at a reference laboratory). With questionnaires, field staff may not have made clear marks, the ink may have run when somebody spilled a drink, or the person reading the questionnaires may incorrectly enter the results. When the results of the biological testing or the questionnaire are entered into the computer there may be transcription errors or the data may not be adequately cleaned before being analyzed. You should look to see if the data were entered by two independent people and then compared, a technique commonly used by good researchers to reduce errors.

Even at the analysis stage, additional errors often creep in. Missing data may not be properly included in analyses, denominators may be poorly defined, outliers may not be adjusted for or corrected, and there may be mistakes in applying statistical packages or more complex software for weighting and cluster analysis.

Finally, there are many **problems in the actual reporting of the study's design and implementation and of the data**. It is often difficult to fully assess data collection and data quality issues because the author of the study has not fully described the methodological details. Sometimes, even when report or paper authors want to present more in-depth and specific results, they are unable to do so because of space restrictions or page limits so that only the results of more general data analysis are presented. Other times, selective reporting may cover up problems that were experienced in field operations, data management and analysis (see Figure 4.3). Another all too common problem is failure to report the time of data collection (i.e., the month and year when data collection activities were initiated and ended). Reports or papers typically will give the date of publication but the dates of data collection are frequently left out even though this is the most relevant information from our perspective. Given how things can change over time in HIV epidemics, this is an important omission.

More detailed sub-analyses, containing the things of interest to you, may not be included in the report and the summary data may not be statistically adjusted to control for confounding variables. Presented data in tables and figures often just shows proportions (i.e., percentages) and not the absolute numbers (i.e., the numerators and denominators from which the proportions are calculated). This makes it difficult to assess the precision of the results. The confidence



intervals (e.g., 95%) or p-values (e.g., $p < 0.05$) around point estimates or statistical associations of interest are frequently not presented, which makes it difficult to assess the precision of the estimates.

Often the known biases and limitations associated with the data collection activity may not be explicitly stated, which limits your ability to assess the quality. Publication bias is a well-known issue in conducting systematic reviews and data abstraction. Journals are much more likely to publish articles that contain positive findings, especially “new” results, in contrast to reports that do not yield “significant” results. What is less publicized is that this bias also relates to the selective choice of which data to present in both published and unpublished reports. This selective bias is often driven by preconceived notions about what the results should look like, and skews the findings by preferentially including results that agree with the preconceptions, while excluding findings that are judged to be “aberrations.”

You should keep all of these things in mind; and, if you see strange results, don’t be afraid to follow up with the original authors, try to obtain a more complete report, or ask an experienced colleague to take a look at the study.

Make regular consistency checks as new data become available

One final question you should always keep in mind as you review any study is:

- **Is the new information consistent with other sources of similar information, and if not, why not?**

Suppose, for example, you’ve been looking at condom use levels between sex workers and clients in 2002. In your behavioral surveillance (BSS) data the sex workers report 80 percent condom use at last sex with a client. In several occupational categories of clients in the BSS, 72 to 77

percent say they use condoms. These numbers are reasonably consistent. It is not uncommon for the clients to report slightly lower levels of condom use than the sex workers.

But now, you find a new study in which university students report only 30 percent used condoms last time they had sex with a sex worker. This should immediately raise red flags for you. This new number is completely inconsistent with the previous numbers you've seen. When you see this, you should immediately start to look at the conflicting studies in more depth. You should also look for other possible sources of information that might help you to understand the discrepancy or could provide additional perspectives on what's the reality. For example, what are the condom distribution figures in the country? If you can estimate the annual number of condoms needed by sex workers (e.g., by multiplying the number of clients per night by the number of sex workers by the average days worked in a year), then you can compare this with the reported numbers of

condoms distributed (after correcting for condoms used in family planning, of course). If this seems to agree with the 75 to 80 percent reported by the sex workers and clients, then that data are probably OK and you need to look into the university study more carefully.

When you do, maybe you discover that they were actually reporting condom use at last sex among all partners, casual and commercial, in which case condom use in casual sex is probably low and you need to investigate further. Perhaps you find out that the study defined "clients" among the university students as anyone who had ever gone to a sex worker, even once, but in the last year only a small fraction of these "clients" had actually visited sex workers, so most of them had no need to use condoms. Then it's a problem in the definition of "client" that was used as the denominator. And, maybe you can't find anything wrong. Maybe it is true that most university students are not using condoms when they visit sex workers. You do a little checking, and you find

that while there are prevention programs for the other occupational groups, nobody has done anything to address risk in college students. In that case you've got a major prevention issue on your hands. Running this type of constant consistency check as new data become available will help to build your understanding of the epidemic one data piece at a time. By the time you're done reviewing a large number of sources of information, you'll have built a pretty good idea of what's going on.

The HIV epidemic in your country is complex. As a result, there are a number of factors to consider in determining if two pieces of data are consistent. These include:

- **Are the data geographically consistent?**
HIV epidemics in Asia are characterized by considerable geographic heterogeneity, and it is highly useful to review geographical patterns and trends in the available epidemiological and behavioral data by geographic area. In doing so it may be useful to stratify a geographic area (e.g., country, province/district, city) into areas of epidemiological and behavioral similarity. These geographical categorizations should be firmly based on existing knowledge about what is driving the epidemic in different geographical areas and issues such as population density and population-mixing, transportation networks, mobility and migration patterns. Classifying and assessing

urban versus rural patterns are also important as HIV epidemics show variation by location of residence. If you get two pieces of data that seem to disagree, the first thing to consider is where they were collected. If the values are consistent with other values collected in that same area or in areas that are epidemiologically and behaviorally similar, then the data are geographically consistent.

- **Are the data consistent in similar populations?**
In synthesizing different data types and sources you need to keep mind the high degree of epidemiological and behavioral variation among the various segments of a given most-at-risk population. In this sense a major cross-cutting quality issue is determining how to match up and merge the data on these various population segments to get the current level of HIV or risk for the entire most-at-risk population. For example, it may turn out that population size estimates are only available for the entire MSM community from population-based surveys, while the only specific HIV prevalence data may come from studies conducted among MSM in high-risk settings such as "cruising" hotspots, e.g., bars and nightclubs. In turn, some key behavioral data may only be available from MSWs which is, by definition, a very high-risk MSM segment. Each of these MSM segments is likely to have different epidemiological and behavioral profiles and it will be

important to keep this in mind when you try to match up values from various data sources. Adjustments would likely be required to compare and combine these various data sources appropriately to get a value for the overall most-at-risk population.

- **Are inconsistent data from areas with different intervention intensity?**

Data are much more readily available in areas where interventions are being implemented than in non-intervention areas. This bias in information availability is important to assess in deciding how to generalize available data to geographic areas where data may not be available. For this purpose it's often useful to separate out results in intervention and non-intervention areas or groups and see how they vary. If you find inconsistent behavioral data (e.g., higher levels of condom use in two similar populations), consider whether they have had different levels and intensity of prevention. This will also prove helpful in determining if prevention efforts are having an impact on a large scale.

- **Is the inconsistency due to the demographic composition of the two populations?**

Many epidemiological and behavioral factors vary by gender, age or social status. For example, sexual activity is higher among those in their 20s than among

those in their 40s. Thus, having half the level of risk in a sample of 40-49 year olds may be perfectly consistent with the higher level of risk found in a sample of 20-29 year olds. Male samples will usually report higher levels of drug and alcohol use than female samples. You need to learn about such variations and be prepared to adjust for them in cross-checking the consistency of your data sets.

It is also important that you assess the **consistency and the reliability of data collection processes over time**, ensuring that the population is defined similarly and the sampling is being done in a repeatable fashion. There is a "forgiveness" factor associated with surveillance systems that collect data repeatedly over time. As long as the biases associated with data collection are consistent over time, then even if data are not entirely valid or precise the results can still generate trends that are valid in their shape (i.e., increasing, decreasing, stable). On the other hand, if methodological approaches to repeated data collection have changed, then the differential bias over time needs to be carefully considered. For example, respondent-driven sampling (RDS) is being increasingly used for the sampling of hidden segments of most-at-risk populations. You need to be cautious, however, if you try to compare the results of RDS to more conventional venue-based methods such as time-location sampling that typically reach the more "visible" segments of these populations (Johnston, Sabin et al. 2006; Kendall, Kerr et al. 2008).

There are some very important issues related to assessing consistency and trends in HIV/AIDS and STI case reporting. In general you will find HIV, AIDS and STI cases are vastly underreported even when they are mandatorily notifiable diseases. The reasons for this are multi-factorial and include issues such as the availability of test kits, equipment for laboratory diagnostic testing, case report forms, a lack of training and awareness of the protocol and procedures for reporting, overburdened physicians, bottlenecks in the reporting up of completed case report forms, and data processing and data management limitations. Tracking trends in the volume and geographical patterns in cases reported over time can still be done assuming there are no major changes to the way cases are being reported. This “forgiveness factor” no longer applies if there are major changes in the types of facilities reporting cases and their geographical distribution, interruptions in the reporting processes due to natural disasters, political instability, or stock-outs of diagnostic and other key supplies. In these

cases any consistency or trend analysis you do based on reported HIV, AIDS and STIs will have to be conducted with careful attention to the factors that influence the completeness and timeliness of reporting. If case definitions or associated reporting categories change over time, or the diagnostic performance characteristics (e.g., sensitivity, specificity) improve than this will also need to be reviewed and adjustments made for the impact of these factors.

Don't give up hope – a consistent picture will become apparent as more data come in

Now with everything we've just discussed, you may be thinking that it's impossible to make any sense out of the data. However, over the years people have gained a great deal of experience in collecting epidemiological and behavioral data, guidelines have been produced and in many cases followed, and the quality of data collection and



reporting have been improving. As you gain more experience by reading the reports and studies you've collected, you will come to instinctively take the types of problems and biases discussed in this section into account. You will automatically examine any new piece of data for consistency with what you've learned from other studies. You will form a picture in your mind of what the epidemic looks like, what's important in your epidemic, and what needs to be addressed. This mental gestalt of the epidemic is an important prerequisite for working on the models that are at the heart of the A² analysis. If you find your model disagrees with this mental picture, it usually means something's wrong with the model and it needs to be fixed.

NOTE: The Implementer's Track has many pointers to literature and guidelines on the assessment of quality of epidemiological and behavioral data and on use of that information to build understanding and inform responses.

Identifying and filling the data gaps found

In assessing the completeness and quality of the available information you have found:

- Specific gaps in the available data
- Some information you need, which probably exists, but wasn't included in the written reports or the information sources you managed to collect
- Additional data whose quality makes their use problematic or questionable
- Some data which conflict with each other or are extremely inconsistent

And, if you've been following these guidelines, you have a list of these gaps you need to fill.

Start by prioritizing missing information and developing a plan to collect it

If the missing information is particularly critical to your understanding of the epidemic or central to the modeling you're going to do later in the A² process, then you will need to find it. If the data are inconsistent, you must seek to resolve the inconsistency and figure out what the real situation is. If a particular piece of information is not particularly important in your local epidemic, you can use your time more productively by focusing on the more relevant information. Accordingly, you need to decide what's really important, so you can prioritize what you spend additional time tracking down and collecting.

There are no hard and fast rules as to how to do this. It depends on the situation in your country, province or district and what is showing up in your surveillance data and HIV/AIDS case reports and behavioral risk studies. Some general guidelines include:

- **Talk to local experts about what is important in your epidemic.**
If they've been working in the field for a time, they often have a good idea of who is at risk and what is important in the local epidemic.
- **Analyze your surveillance data and reported HIV and AIDS cases.**
Look at the absolute prevalence as measured in surveillance – if it's high, the group is a priority. Look at the transmission modes and occupational groups in your reported HIV and AIDS cases.

- **Look at what's contributing.**
If a particular transmission mode or group shows up frequently there, it is contributing substantially to the epidemic.
- **Look for changes over time.**
Explore how the contribution of each mode or group is changing over time. If more and more of the reported AIDS cases are coming from one particular group each year, they are a priority. If there is a high and sustained contribution, they are a priority. Similarly, if the proportion of reported HIV is going up, but the testing patterns remain the same, the group is becoming more important.
- **Look for geographic patterns.**
Are you finding some parts of the country which produce most of your cases? These areas then need to be prioritized in your responses. Again, look at changes over time – normally HIV diffuses out to more and more places as the epidemic evolves.
- **If HIV prevalence is low, look to the behavioral data for guidance.**
In low prevalence settings, you must often assess risk based on behavioral data. If you have groups with many men visiting sex workers frequently, high rates of anal sex between men, or injection practices with sharing, any related gaps on HIV and STIs need to be filled.

Based on our current knowledge of how HIV epidemics are playing out in Asia and the scientific findings of the modeling work we will highlight in the next two chapters, there are a number of items that you can **always characterize as high**

priority. If any of the following are missing, they are major gaps that need to be filled:

- **Sex work-related items:**
 - Size of the sex worker and client populations
 - Levels of condom use between clients and sex workers
 - Number of clients per night for the sex workers
 - HIV prevalence among sex workers
- **MSM-related items:**
 - Size of the MSM population, in particular, the higher risk part of that population that goes to cruising sites and has large numbers of partners
 - Levels of condom use in anal sex
- **IDU-related items:**
 - Size of the IDU population
 - Levels of needle sharing among IDUs
 - Frequency of injection (how many times per day or week) and fraction of all injections shared

The relative sizes of the sex worker and client populations and the frequency with which FSW have clients are the primary determinants of the rate of growth and ultimate severity of an Asian epidemic. Thus, they are essential information. Similarly, the high transmission associated with anal sex and sharing of injecting equipment puts MSM and IDUs at serious risk if condom use in anal sex and sharing of injecting equipment are low. These epidemics can also grow very rapidly. If HIV prevalence among them is low now, it presents a major prevention opportunity. In most Asian countries, they are already contrib-

uting substantially to new infections. It is worth noting that these specific pieces of information are not only important to conducting the analyses in A², but each of them is also an essential element in planning prevention efforts or evaluating their impacts on the behaviors that drive the epidemic. Thus, well managed programs should already be collecting all of them.

Taking these things into account, reorder your missing information list according to the priorities from the above analysis. Develop a plan for filling in these gaps using one of the following approaches:

- **Contact the authors of the original report or study to provide more in-depth information on their findings**
- **Expand your efforts to collect more sources of information for important topics**
- **Seek advice and input from local experts or from your Technical Working Group**
- **Collect additional information using rapid assessment methodologies**
- **Make informed assumptions based on available country and regional data, but make plans to validate these assumptions in future data collection efforts**

We will now discuss each of these in more depth.

Contact those doing the original study to get unpublished or detailed information

Sometimes the problem is a relatively simple one. In reading the written report or study or looking through a study's questionnaire, it is clear that the authors have collected the data you need. The problem is that they just haven't analyzed the data to extract a variable in the form you need, or they haven't included that particular variable in their written report. This often happens when results are presented as a subset of the entire sample (e.g., "of sexually active youth" or "of single females"), and you need the value expressed in terms of the entire male or female population, but don't have the proportion of youth sexually active or the proportion of females who are single. It also frequently happens that only a limited subset of the entire data collected or analysis done is in the published paper. This is common in the peer reviewed literature, where word or page limits restrict how much the author can present.

Often this type of problem can be resolved by just contacting the original author by phone or e-mail. When you do so, especially in the case of published reports or conference abstracts, it is often valuable to ask if they have a more complete written report on the study that may contain more detailed information about their findings. If the author or researcher

has published extensively in the field, it may prove valuable to set up a meeting with them to discuss their work and their understanding of the local epidemic. Often, they will have done other studies of value and may know of other useful sources of information of which you are unaware.

Expand efforts to collect existing information about the issues under consideration

Given the large volume of information and data that have been generated about HIV epidemics, it is virtually impossible for you to collect everything available. In those cases where you have identified:

- specific clearly defined gaps,
- data with quality issues, or
- discrepant or conflicting data,

you can undertake a more targeted search for additional information. There is always more information available on almost any topic than you were able to collect the first time around, so beating the bushes to locate additional sources of information is often quite productive, especially when you know exactly what you're looking for. Again, a systematic approach will be more effective. We recommend you take the following steps to find additional data in the desired area:

- **Identify additional possible data sources of interest** from the references listed in the reports and papers you already have, from citation lists in primary data sources, or from conference abstracts. Often a substantial number of additional data sources of interest can be identified this way and added to your list of things to collect.
- **Follow up with the authors and sponsors of data collection activities via e-mail, telephone calls or personal meetings**, to obtain more detailed reports or additional information to fill the gaps or resolve quality issues and conflicts in the data. Ask them if they know of other data sources relevant to the issue at hand or people within their networks who would have additional information.
- **Hold informational meetings with experts or other key informants** such as epidemiologists, behavioral scientists, public health officials, and community representatives in both government and NGO sectors. You should communicate with representatives of international agencies, universities, local research organizations, and donors to determine whether additional information is available and to get further guidance on what data sources may exist to address

outstanding issues. The Implementer's Track has an example of developing size estimates from Bangladesh by engaging multiple stakeholders with access to different types of data.

Seek advice and links to other sources of data from your Technical Working Group

Ask Technical Working Group members to link you to others having the information you need. The Technical Working Group introduced in earlier chapters serves several functions in A². One of the most important is to assist you in finding additional information. The members of the Technical Working Group have been chosen for their expertise, and those with expertise usually know those who collect and hold the various types of information you need. They frequently can identify the specific individuals or researchers who have the information you need; and, knowing these people, they can sometimes offer you an introduction or ask them to help you out.

Seek their advice on quality and inconsistency issues. They can also advise you on quality issues and inconsistencies in the data. Often, with their more extensive experience, they can explain inconsistencies to you or they may be able to advise you on which interpretation of the data is correct. Sometimes the apparent inconsistency occurs because populations that

seem similar in the report are actually quite different, are from different geographic areas, or vary in other characteristics of which you may not be aware. Those who have been working in the field for a long time may have a better understanding of what you're seeing.

Collect additional data using rapid assessment methodologies or by linking up with agencies doing data collection

Sometimes, even though you search and search and you ask the experts, data are still missing. There are actual gaps in our knowledge of HIV and related behaviors. This requires that additional data be collected.

In some cases, rapid assessment methodologies can be applied by your local A² team or by other interested parties (see the Implementer's Track for more guidance to references on these approaches). That is, you can use established rapid data collection methods to get the information you need quickly, for example:

- **Use rapid purposive sampling methods**, such as network, block and quota sampling among most-at-risk populations in high-risk settings. Often, these approaches can generate useful data in a few weeks or a few months. While it will often not be as accurate as data from more systematic studies, it is better to have some actual data than no data at all.
- **Conduct in-depth and key informant interviews and/or focus group discussions** among those who have in-depth knowledge and understanding of the issues of interest. Very often, these will be members of the specific most-at-risk populations where data are missing. Such interviews may provide access to sensitive or hidden contextual information that could not be captured using quantitative methods.

More often than not, the A² team has neither the staffing nor the resources to undertake its own data collection efforts, as even rapid approaches to data collection are personnel, time and resource intensive. In this case, it

may be possible to leverage the capacity of other partners to opportunistically fill the data gap by partnering with individuals or agencies that have the capacity and resources to undertake more extensive data collection efforts. This might be done by adding a limited number of additional questions to an already planned data collection activity. For example, when a major national health survey was being planned in Thailand in the late 1990s, they agreed to add a small number of questions on sexual behavior.

Another possibility is to advocate for data collection efforts to fill any particularly important gaps by partnering with individuals or agencies that have the capacity to undertake more extensive data collection efforts. You can help them make the case for conducting the survey they'd like to do, and they can help you by gathering some of the information you need. For example, if there is no information available on the percentage of clients in the adult male population, you may want to form a coalition with those interested in male reproductive health to advocate with donors for a large-scale reproductive health survey for men.

If data are still missing, triangulate from available data and make informed assumptions based on available country and regional data

Sometimes, despite your best efforts some information will remain elusive. If you are not to be stopped in your tracks, then you must address these remaining data gaps by making assumptions. However, you do not want to pull these assumptions out of thin air. Instead, you should make informed assumptions, that is, assumptions that can be justified and are realistic for the situation at hand. A number of approaches can be used to inform assumptions:

- **Triangulation from existing data sources**
- **Seeking expert opinion and input**
- **Using values from similar areas, populations or countries**

First, you can triangulate from available data.

Triangulation is the process of collecting and cross-checking information that is available from different methods and data sources to come to a conclusion about realistic values. For example, in Indonesia size estimates were needed for the IDU population (Ministry of Health of the Republic of Indonesia Directorate General of Communicable Disease Control and Environmental Health 2003). Estimates were prepared using three different sources and approaches: from the drug user registry, from expert opinion on how common drug use was, and from drug seizure data. When the results were compared, they gave reasonably comparable values. In any triangulation, the relative strengths and weakness of the available data need to be considered, and more weight should be given to the better data. By using this approach the ultimate validity and quality of the data will be improved. Pointers to references on triangulation are available in the Implementer's Track.

Second, you can seek expert opinion and input on the missing values.

One approach to this is to go around and ask different experts for their input, sometimes referred to as the Delphi method. However, sometimes you'll find quite divergent opinions among the "experts." We have found it more useful in the A² context to get people who know something about the situation around the table, and ask them to hold an open discussion on the issue. This approach was used in Bangladesh to reach consensus on the size of most-at-risk populations such as IDUs and FSWs. When we did this, we set a ground rule that each participant had to produce some data to back up any numbers they wished to present. This process is described in more detail in the Implementer's Track. As a result, more

information was made available and shared, and consensus was reached more easily.

The third approach that can be used is to set values based on similar populations or regions or to use regional values

if no data at all are available in-country. For example, if you are missing HIV prevalence data in a particular province, you might make an estimate based on values from nearby provinces. The other possibility is to use regional values from countries that are similar culturally or behaviorally. The Implementer's Track contains references to several documents on regional values for the size of specific most-at-risk populations. When A² started in Bangladesh, there were no estimates of the number of clients. Thus, by considering values from other countries and comparing the estimated number of sexual contacts from the sex worker side, it was decided to assume 10 percent of adult males had visited sex workers in the last year. Over the next two years a major Male Sexual Health survey collected data on this very topic (Chowdhury, Anwar et al. 2006). They found that slightly more than 11 percent of adult men had visited sex workers in the last year. Thus, the original assumption was in reasonable agreement with what was finally measured.

In any case, when you do make assumptions you should always have your Technical Working Group review them. Having good knowledge of the situation, they will be able to determine if your assumptions are reasonable. If after discussions they still have concerns, you should consider revising the assumptions. Having such an external review will also help to confer legitimacy on the assumptions made, making it easier for others to accept them.

In all cases, keep a concise list of the assumptions made and document how they were arrived at

It is critical that you be open and transparent when you do make assumptions. Nothing will destroy your credibility faster than being secretive about what goes into your models. Instead, you should keep a concise list of the assumptions you have made and a more detailed document that describes exactly how each of the assumptions was formulated. This will serve two purposes. The transparency will keep you honest – you'll be more cautious in making your assumptions because you know they may be examined and questioned. Documenting the reasons for the assumptions carefully will help in justifying the assumptions to others and will also be important when you come back a year from now and can't remember why you made that assumption. That assumption may seem obvious now, but you'll be amazed how obscure it seems in two or three months.

Information collection and advocacy to fill gaps are ongoing A² activities

It is important to keep in mind that the collection of additional data should be seen as an ongoing part of a cyclical A² process. More and more new information is being generated every year. As new studies come out, your A² team should gather them together, extract information to fill data gaps,

incrementally remove or improve the assumptions in the A² models, and apply the new information to make better analyses and inform new advocacy initiatives. In the Special Preventive Program of the Department of Health in Hong Kong, they have annually pulled together new data on HIV and behaviors to update their estimates and projections and improve their understanding of an evolving local epidemic. They have undertaken new data collection activities to fill major gaps, and they have modified their analyses based on the new findings. This helped them to identify an emerging epidemic among MSM and put prevention activities in place to address it (Brown 2006).

Information collection in A² is not just a passive process. The data gaps identified serve as a springboard to advocate for improved data systems. If serious information gaps are inhibiting the response or limiting the ability to evaluate it, the A² team takes a proactive role in filling them. By promoting active discussion of these gaps, the A² team can highlight quality and coverage problems in existing surveillance systems, enhance the focus on populations being ignored because data is absent, and build consensus to address weaknesses in existing national strategic information systems. Advocacy with the agencies collecting data, national program staff, international technical support agencies, and donors can correct these problems, mobilize additional resources for information gathering, and help to fill these gaps. This, in turn, will strengthen responses.

Data and analysis improving responses – that's what A² is all about.

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ANALYSIS

Chapter 5

[an overview]

MESSAGES FROM THE DATA:
WHAT CAN THE SYNTHESIS OF THE COLLECTED
DATA TELL US EVEN BEFORE MODELING?

[an overview]

Chapter 5

MESSAGES FROM THE DATA:

WHAT CAN THE SYNTHESIS OF THE COLLECTED

DATA TELL US EVEN BEFORE MODELING?

By this time, you've looked at an awful lot of reports and information. You're probably getting a pretty good idea of what's important in the epidemic and what's not. You know where the epidemic is most serious, who is most affected, and what's being done out there. Now you need to organize that knowledge and start using it for advocacy.

The next step is synthesis – putting together the “big picture” of the epidemic.

Now you must try to systematize the data you've collected, organize it for ready reference, and convert it into insights into the epidemic that you can share with others. This is the process called synthesis – combining disparate pieces of information into a unified whole. In this case, the unified whole is a clear and compelling picture of the epidemic that will help to guide policy and program formulation. It will also guide you as you build models that stay close to the data and accurately represent local realities.

Prepare a synthesis report that summarizes what you know and what you don't.

The insight you've gained won't help to improve responses if you keep it to yourself. You need to transfer that understanding to others so that it can help build a **common, shared understanding of the epidemic**. To do this, we normally generate a **synthesis report**: an evidence-based summary of the epidemiology and behaviors relevant to the epidemic. But this report goes one step further: it puts those pieces together to create an insightful, evidence-based picture of the epidemic and the response to date. Normally it will have:

- A description of the evolution of HIV prevalence over time
- A summary of the state of the STI epidemics and how they are changing
- A description of behaviors driving your epidemic and how they're changing

- Estimates of the size of populations having significant levels of behavioral risk and how they are changing with time
- A review of the responses to HIV and STIs to date
- An honest assessment of the current gaps in your knowledge
- An analysis of relationships between the epidemiology, behaviors and responses

If done properly, when somebody reads your synthesis report, they'll come away with a better understanding of how the local HIV epidemic and responses to it are playing out.

Have your synthesis report reviewed by the Technical Working Group.

Your Technical Working Group and/or local experts should review your synthesis report to ensure its interpretations are correct and to encourage an evidence-based discussion among the experts of the “big picture” presented in the report.

Even before you model, start advocating for better responses by listening to the data.

Armed with the data, and able to draw on your synthesis report to share the key findings from that data with others, you can now begin to extract answers to some of the questions raised in Chapter 2 – answers that you can use to start improving responses even before you finish your full A² model building and analysis. This chapter closes with some examples of what the data can tell you if you'll only listen.

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TIM BROWN

Chapter 5

MESSAGES FROM THE DATA:
WHAT CAN THE SYNTHESIS OF THE COLLECTED
DATA TELL US EVEN BEFORE MODELING?

[concepts and content]

Chapter 5

MESSAGES FROM THE DATA: WHAT CAN THE SYNTHESIS OF THE COLLECTED DATA TELL US EVEN BEFORE MODELING?

Tobi Sidel, Dimitri Prybylski and Tim Brown

The data talk – people just need to listen

The types of information described in the previous chapters, if collected and analyzed together, can help you build a good understanding of your local epidemic. Later chapters address more advanced approaches you can use to analyze epidemiological, behavioral and size information in a highly integrated fashion. However, as mentioned in Chapter 2, even before such advanced analyses are done, the information you have collected in this part of the A² process can be of great value in setting program directions, assessing where to focus resources, and supporting advocacy activities.

Information on the size and prevalence levels in different populations is suggestive of their relative contribution to the epidemic, and can inform decisions about where to focus resources. Data on prevalence by place, especially if it shows particular “hotspots,” provide some basis for prioritizing prevention resources geographically. Even when prevalence is low, behavioral information can show you where the risk is and aid in targeting responses. After prevalence has risen, this information can be used to monitor the impact of prevention programs on both levels of risk and the uptake of protective behaviors. Sadly, at present we far too often fail to use these data to direct prevention efforts to the right groups and the right places or to monitor the impact of prevention and make mid-course corrections to programs.

This chapter provides examples that illustrate how powerful pulling together and synthesizing the information you collected in the first phase of the A² process can be. These data have direct relevance to planning and evaluating effective responses to the epidemic. You can use them to start advocating for improved responses even before you finish your full A² model building and analysis. Making early and direct use of the data for advocacy is one of the best ways to avoid the dreaded “paralysis by analysis.”

This chapter presents some examples from real A² sites by systematically:

- Deciding what question you want to answer
- Identifying the data sources that can help you answer that question
- Examining the data to see what they can tell you, and then
- Extracting the immediate policy and response implications

But, before presenting the examples, we’d like to talk a little about how to pull together the extensive information you’ve gathered into a more cohesive understanding of the epidemic that can help you to share your insights with others.

Synthesis – putting together the “big picture” of the epidemic

By this stage in the A² process you have collected together, read and evaluated a large number of different documents, reports and data sets. In doing this, you have started to build an understanding of the epidemic: where it is most serious, who is most heavily affected, and what behaviors are driving it. You’ve also gotten a sense of how things are changing over time: where prevalence is rising and where it is falling; how behavioral risk is increasing or decreasing. And you’ve almost certainly subconsciously begun to make the links between the behaviors and the epidemiology. The next step then is to try to systematize the data you’ve collected, organize them for ready reference, and convert them into insights into the epidemic that you can share with others. This is the process we call synthesis – combining disparate pieces of information into a unified whole. In our case, the unified whole is a clear and compelling picture of the epidemic that will help to guide policy and program formulation. It will also guide you as you build models that do not wander too far from the data and are accurate representations of local realities.

The synthesis report – making what you’ve learned accessible to others

The insight you’ve gained won’t help to improve responses if you keep it to yourself. At this point, you’ve probably reviewed as much or more information in more disciplines than anyone else in your country, province or district. Your understanding of the epidemic is backed up by the data you’ve examined. But now you need to transfer that understanding so that it can be used to help others understand what you’ve learned and come to share your understanding.

To share your understanding, you generate a synthesis report

The **synthesis report** is a document that contains a summary, backed up by the information you’ve collected, of what has been happening epidemiologically and behaviorally. But it goes one step further: it puts those pieces together to create an insightful, evidence-based picture of the epidemic and the response to date. This report will normally have a number of major sections:

- A description of the evolution of HIV prevalence over time
- A summary of the state of the STI epidemics and how they are changing
- A description of the behaviors driving your epidemic and how they're changing
- Estimates of the size of populations having significant levels of behavioral risk and how they are changing with time
- A review of the responses to HIV and STI to date and their impacts on risk behaviors and the epidemic (covered in more depth in Chapter 8).
- An honest assessment of the current gaps in your knowledge
- An analysis of the relationship between the behaviors and the epidemiology

The synthesis report serves three major functions in A²:

- Preparing it requires you do a systematic examination of available data for all available years to come to conclusions about how epidemiology and behavior have changed over time.

- It serves as a summary of existing knowledge of the epidemic, allowing someone new to the field to quickly learn what is known and what is not known.
- It functions as a repository of reviewed information that is a valuable resource for advocacy in its own right.

If done properly, when somebody picks up your synthesis report, they'll come away with a better understanding of how the local HIV epidemic is evolving and of what is needed to respond to it.

What goes into a synthesis report? An evidence-based picture of the epidemic

The essential goal of a synthesis report is to generate a summary that helps people understand the epidemic, the factors driving it, and what they can do to most effectively contain it and minimize its impact on the country. The essential steps in doing the synthesis are:

- Decide what questions need to be answered
- Review the available data and answer each question as best you can

- Construct a picture of the epidemic by linking the answers to these questions

In this picture of the epidemic you will describe what the epidemic looks like, how it has changed over time, and the policy and program responses to it. Your picture will be based on the information you have collected (i.e., your synthesis report will be well referenced and its conclusions supported by the data).

The key questions you should answer in your synthesis report are:

- What do the HIV and STI epidemics look like and how have they changed over time? Which groups are affected? Where is the epidemic most concentrated?
- How big is the problem? How big are the populations at risk and how many people are living with HIV?
- What behaviors are driving the epidemic and how are they changing?
- What's been done to date and how well is it working?
- What information needed to better understand the epidemic is missing?

These are an important subset of the questions A² seeks to answer, which were outlined in Chapter 2. Answering these questions will normally generate a report of 40-50 pages with an extensive reference list. Examples of synthesis reports are included in the Implementer's Track for this chapter. Let's examine in a little more detail the pieces of the synthesis report and see what usually goes into one. Reviewing the relevant data and then preparing each of these different sections in sequence will help you to organize your thinking and prepare for the modeling work discussed in the next few chapters.

PART I. A DESCRIPTION OF THE HIV EPIDEMIC.

The first section of the report draws upon your HIV surveillance data, HIV and AIDS case reporting, and any additional ad hoc studies you may have containing HIV prevalence data. The description should tell the reader what the epidemic looks like in your country, province or district, such as:

- Which populations have been affected by HIV and how severely?
- How has the HIV prevalence in each affected population grown over time? How does the timing of epidemic growth in different groups vary?
- What are the geographic patterns in the epidemic?

You should feel free to use maps, graphs and other figures to illustrate the timing of the different waves of the epidemic and the geographic spread of HIV. In most cases, this section shows the trends in HIV surveillance data in the various populations followed, how the reported HIV infections and AIDS cases have been growing over time, and presents any data you have on transmission modes in reported HIV infections and AIDS cases. It should examine geographic variations in the epidemic, that is, are there “hotspots” – parts of the country, province or district where HIV prevalence is higher? It should also examine any variations in the timing of the epidemic’s start in different parts of the country (i.e., has the epidemic taken off earlier in some parts of your country, province or district than others?). You may want to present a short description of the surveillance and reporting systems, so the reader understands how the data are generated. You should discuss the way in which the ad hoc studies you have collected agree or disagree with the other sources of data, and try to explain any discrepancies. Someone who reads this section should come away with a good sense of what the epidemic in your location looks like and where the response needs to focus.

PART II. A DESCRIPTION OF THE STI EPIDEMIC.

In most of Asia, HIV is primarily transmitted through sexual contact. Even where the IDU epidemic is dominant, sexual transmission still occurs. However, as discussed in Chapter 6, HIV infection lasts a lifetime, so a person’s HIV status is not just a function of current risk behavior, but also of their past risk behavior. There are a number of other infectious agents, which are also transmitted through sexual contact, which are referred to as sexually transmitted infections (STIs).

Many of these, especially the ones that are bacterial in origin, such as syphilis, gonorrhea, or chancroid, are treatable. As a result, when someone contracts one and seeks treatment, it is usually more closely tied to current rather than past levels of risk behavior. This makes STI systems, such as surveillance and case reports, valuable tools for validating reports of behavior change. You also need information on STIs because they greatly increase the probability of HIV transmission. For these reasons, the second part of your report describes the STI epidemic in your country: which populations it affects, any geographic patterns observed in STI reporting data, and the trends in the various STIs. In this section you should strive to answer the questions:

- What does the STI epidemic look like? Which populations does it affect? Are there geographic patterns?
- What are the trends in reported STIs or in STI surveillance? Is the STI situation stable or is it getting worse, which might result from factors such as increasing risk behavior, changes in quality of care, or development of antibiotic resistance?
- How do the geographic patterns in HIV and STIs correlate?

The final question here helps you explore the overlaps between the IDU epidemic and the sexual components of the epidemic, which can have implications for prevention. If HIV is high and STIs low, there is a good possibility the epidemic is concentrated among IDUs, which is a fact you should confirm with other data sources. Once extensive sexual transmission between sex workers and clients has started in an Asian HIV epidemic, places with high STIs will also generally have

high HIV – indicating an urgent need for expanded condom promotion and STI treatment. However, as seen in Chapter 2, in most places in Asia an epidemic among IDUs precedes the epidemic among sex workers and clients. As Chapter 6 will discuss in detail, if an area has only “moderate” sex work risk (i.e., sex workers have a client per night or less), an IDU epidemic can greatly accelerate what would otherwise be a very slowly developing sex work component of the epidemic. A few years after the IDU epidemic takes off, HIV prevalence among sex workers and clients will usually rise. If you are finding high STIs but low HIV in some locations, you should check the data in these places to see if there is much injecting drug use. If there is, immediate attention should be given to initiating high coverage prevention among IDUs to prevent or delay the start of the IDU epidemic. This will buy time to raise condom use between sex workers and clients to high levels, potentially averting the sexual component of the epidemic. If there is not much injecting drug use, you should still quickly expand condom promotion and STI treatment as high STIs indicate substantial sexual risk. The combination of sexual risk and STIs creates fertile ground for rapid HIV spread.

PART III. SIZE ESTIMATES FOR KEY POPULATIONS.

Having now reviewed the populations contributing to your epidemic, the next thing you must present is how big those populations are. In this section, you will try to provide a range for the size of each important population in your location. This includes the usual FSWs and clients, IDUs, and MSM, along with any populations that are particularly important in your country, province or district. If these populations are increasing or decreasing due to evolving cultural values, expanding economic opportunities, strengthened law

enforcement, or other factors, you should take note of these changes here.

Using these sizes, you should then try to estimate the burden of HIV infection in each group (i.e., how many people in each group are currently living with HIV?). You may also want to consider how this burden has evolved over time based on the trends in your surveillance data. In this section you should also discuss any nationwide estimates of the number of people living with HIV, the number of people in need of treatment with antiretrovirals, or the number of children living with, affected by, and orphaned by HIV. A reader reviewing this section should come away with a good idea of the magnitude of the HIV problem.

PART IV. DESCRIPTION OF RISK BEHAVIORS AND THEIR TRENDS.

We know the behaviors that transmit HIV. You should begin writing this section with a general description of the sexual culture and drug-using culture in your location. Your description of the sexual culture will probably include a discussion of:

- **Sex work.**
How common is sex work? What forms does it take (i.e., what are the most popular settings where sex workers can be found)? Are there differences in risk among the different settings? Who are the clients and what are their occupations and other characteristics? Who are the sex workers? Where do they come from and what are their characteristics?
- **Non-commercial casual sex.**
How common is casual sex outside of sex work? What

are the proportions of single and married men and the women engaging in sex outside of relationships? What is the overlap between sex work and casual sex?

- **Same-sex behavior.**

What are the forms of same-sex behavior in your country? What are the settings or locations where it occurs? Are there variations in risk between these?

- **Youth sexual behaviors.**

Are youth changing their sexual behaviors compared to previous generations? Are more young women becoming sexual active and how is the age of their sexual partners changing? Are young men reducing their visits to sex workers? What fraction of clients, MSM and IDUs are youth?

Your description of the drug-using culture should outline the various forms and settings in which injecting drug use occurs. Are there particular injecting practices (e.g., drawing

blood back into the syringe before injection or sharing drugs from a common container) that could increase the risk of injecting? What are the drugs that are commonly injected, and how does that relate to the frequency of injection? What do the networks of drug users look like? Do they share in small groups or do they tend to go to shooting galleries or use paid injectors? Are there different subgroups within the drug users and do they vary in risk?

You should follow these descriptions with an exposition of the trends in the key risk behaviors that drive HIV transmission, that is, how are these behaviors changing over time? You should include the level and frequency of each of the HIV-relevant risk behaviors (heterosexual, same-sex and injecting, commercial and casual) and the level of protective behavior (use of condoms, seeking STI treatment, non-sharing or use of clean injection equipment, etc.). Any regional variations in the sexual culture or the level or frequency of risk behaviors should be noted.

PART V. DESCRIPTION OF THE RESPONSE.

This will be discussed in more detail in Chapter 8, but fundamentally this section of your report should include a description of what's actually been done in terms of prevention. Which populations have been the foci of prevention efforts? Where have those programs been done? What is their coverage? How effective have they been (i.e., have those exposed to the prevention programs reduced their risk behavior)? What has been the coverage of care and treatment programs? Are they distributed uniformly or are there particular groups or parts of the country where access is limited?

PART VI. A LISTING OF THE INFORMATION GAPS.

As you've gone through and collected data and information, you've certainly identified some things you don't know. This section should have a discussion of the most important missing pieces of information and why they are critical to understanding the epidemic better. In particular, this section

should focus on the detailed information that you want people to gather in the future. This way it can help you to mobilize efforts to fill the most crucial data gaps.

PART VII. INTERPRETATION AND LINKAGES BETWEEN EPIDEMIOLOGY, BEHAVIOR AND RESPONSE.

In the final section, you'll actually conduct a synthesis and paint a picture of the evolving epidemic and response. You should analyze and describe your epidemic in terms of the way Asian epidemics normally evolve – how is your epidemic similar or different from that standard pattern described in Chapter 2 and discussed in more depth in Chapter 6? Look for evidence in your country that behavior changes are affecting the spread of the epidemic or that responses are affecting behaviors. For example, you might explore the relationship between the trends in the levels of condom use and in STIs. You might look to see if there are geographic variations in the intensity of the response that seem to correlate with different levels of risk behavior. You could

look in your behavioral surveillance data to see if those exposed to interventions had lower levels of risk than those not exposed. The exact things you look at will depend upon what data you have and what your local epidemic looks like. Keep in mind that the idea of this section is to explore and document any relationships between behaviors, HIV and STIs, and responses. If you don't find any relationships between prevention programs and behaviors, maybe that means the programs are not working. If you find condom use is going up, but so are STIs, then maybe somebody isn't reporting accurately. If the picture doesn't seem quite right, you need to find out why. This stage really consists of detective work to:

- Identify where the epidemiological, behavioral and response data are consistent and where they are not consistent, and then
- Determine possible reasons for this, and then try to figure out which one is correct using other sources of information

This report can take some time to prepare. However, the time is well spent because generating this report forces you to look closely at your data, understand how the epidemic and the responses are changing over time, and develop a clearer picture of that epidemic. These are all essential prerequisites to doing the modeling work that will be discussed in the next two chapters.

Have your synthesis report reviewed by the Technical Working Group

As with other products of the A² process, this report should be vetted by your Technical Working Group and/or local experts before publication. This will ensure its interpretations are correct and encourage review and discussion among the experts of the information contained in the reports. Discussions and disagreements that may occur during this review will encourage people to look more closely at the data and incorporate it into their thinking. Because they will be reviewing multiple data sources together, sometimes for the first time, this can help to increase their own knowledge about and understanding of the epidemic. As people come to a common evidence-based understanding of what's important in the epidemic, you will also find it becomes easier to advocate for appropriately focused prevention and care efforts.

Disseminate the report widely, and update it periodically

You will find this report is valuable, especially to inform people coming to work on your epidemic for the first time, such as new team members, first-time consultants from within or outside the country, new program managers, incoming donor partners, and others. Many people will

appreciate the summary of the available information about your epidemic. Others will want to use it to help them to guide their program planning efforts or as an advocacy tool. You should encourage any such uses of the report, stressing that it contains a truly evidence-based analysis of the epidemic, which has been reviewed by local experts. You should also continue your data collection efforts and periodically update this report so that it reflects the latest data and the current understanding of the epidemic.

Examples of using synthesized data to plan and evaluate responses

You should always begin with the expectation that a careful review and synthesis of the data can provide urgently needed advice to improve current responses. This is true even before you do the more comprehensive modeling and analysis that will deepen your understanding of the epidemic, as discussed in the next several chapters. Given that epidemiological, behavioral and response data have been little used in most countries, you will find many places where a closer look at the data and the relationships hidden within them provide

valuable guidance for policies and programs. The remainder of this chapter provides some examples of how data can be used to answer some of the questions posed in Chapter 2 that will show the way to better responses.

EXAMPLE 5.1: USING THE DATA SYNTHESIS PROCESS TO EXPLORE WHETHER PREVENTION ACTIVITIES ARE WELL-MATCHED TO WHAT IS CURRENTLY KNOWN ABOUT RISK

Synthesis question:

Are HIV prevention and care efforts in Guangxi province, China being directed to where the HIV problem really is?

Background:

Many different types of information are needed to answer this question, and there are several steps in the synthesis process. In this example, you will explore two types of information. The first type is reported STI cases over time within the counties of Guangxi province in China. The STI case reporting system has been in existence since 1982. As outlined above, STIs are a marker for risky sexual behavior, so if STIs are present, and increasing over time, this is a red flag for potential HIV spread if and when HIV is introduced in the area. High and/or increasing rates of STIs, especially where there is no HIV, represent an opportunity for pre-emptive HIV prevention. The geo-spatial analysis over time helps pinpoint the potential

for HIV spread, and provides insights into how risk patterns may be growing or changing over time. The second type of information that is needed is the number and locations of reported HIV infections.

Synthesis sources:

1. Reported STI cases
2. Reported HIV infections

Synthesis step 1:

Generate maps of reported STI cases over time, by county within the province of Guangxi.

Observation:

In the early years of reporting, just after 1980, there were few STI cases, but the sequence of maps in Figure 5.1.1 displays the rapid geographic expansion of STIs throughout Guangxi after growth started in the late 1980s. During the

period from 1982 to 1986, only three prefectures reported STIs and the case loads were quite low. However, by the period of 1996 to 2004, almost all cities and prefectures reported large numbers of STIs.

Interpretation:

The expansion of STIs from the late 1980s onward was likely related to the resurgence of sex work in China. Although there are no “denominators” for these numbers, and China’s STI reporting system is known to miss a large proportion of patients who do not seek treatment in the public sector, this analysis nonetheless allows program managers to see where higher-risk areas are located.

Policy and response implications:

This analysis calls for a review of intervention activities to ensure that they are targeted, at a minimum, to those places with known high levels of risk as seen in reported STI cases.

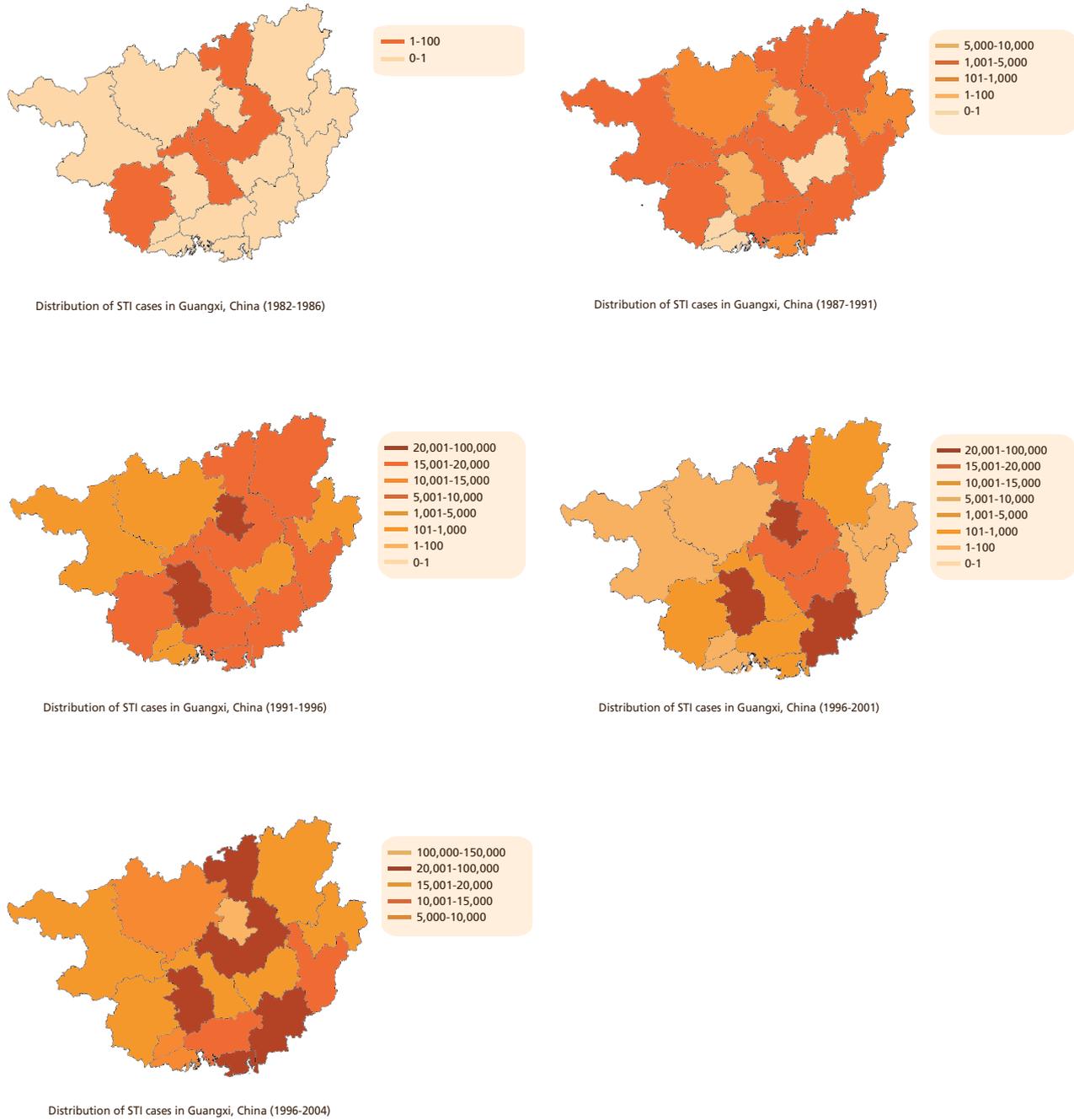
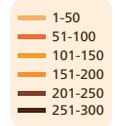
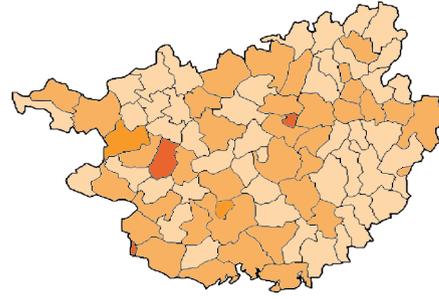


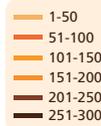
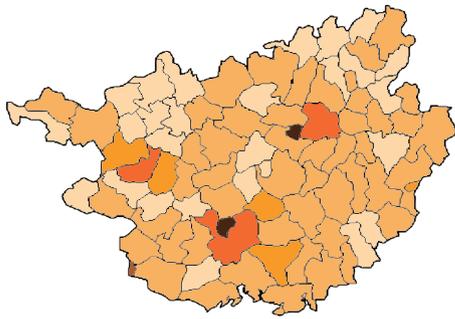
Figure 5.1.
Geographical distribution of reported STI cases in Guangxi, 1982-2004.
(source: Guangxi CDC)



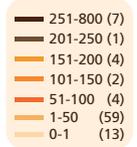
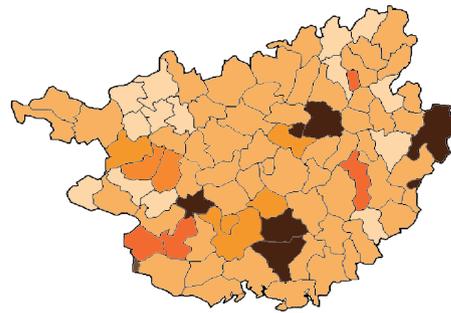
Distribution of HIV Infection in Guangxi, China (1996)



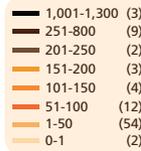
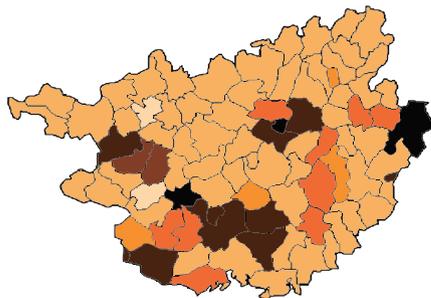
Distribution of HIV Infection in Guangxi, China (1998)



Distribution of HIV Infection in Guangxi, China (2000)



Distribution of HIV Infection in Guangxi, China (2002)



Distribution of HIV Infection in Guangxi, China (2004)

Figure 5.1.2.
Geographical distribution of reported HIV cases in Guangxi, 1996-2004.
(source: Guangxi CDC)

Synthesis step 2:

Generate maps of reported HIV infections by county, over time within the province of Guangxi.

Observation:

Figure 5.1.2 displays information from Guangxi, China on reported HIV infections by county over time. The information clearly illustrates how HIV infections have spread geospatially over time, both in terms of the number of counties reporting infections, and the number of infections reported in each affected county. By 2004 HIV had been reported in 88 of Guangxi's 90 counties and cities, and there was a strong concentration of reported infections in a handful of counties in six prefectures including Baise, Nanning, Qinzhou, Liuzhou, Hezhou and parts of Chongzuo. Several of the counties that had high numbers of reported STIs did not report high numbers of HIV infections, and a few areas with high numbers of reported HIV infections did not report large numbers of STIs.

Interpretation:

The lack of a complete correspondence between the places showing the largest numbers of HIV infections and those with the largest number of STIs illustrates the need to combine several sets of information to target responses. There are several situations where reported STIs and reported HIV may not be expected to go hand in hand, the most notable example being where HIV is heavily concentrated

among IDUs, who most often acquire HIV through sharing of needles. Therefore reported STI case information is not necessarily useful in detecting locations where IDUs are at-risk. Other situations where STI case reporting will be inadequate for characterizing potential risk include: places where STI services are inadequate and reporting is poor; places where the population at risk of STIs does not access the public STI services that are the basis of the reporting system; and places where there is substantial out-migration or mobility, in which case STI cases may be treated (and therefore reported) elsewhere.

Policy and response implications:

This type of data synthesis, which points to those areas with growing STI epidemics and growing numbers of reported HIV infections, provides justification for the immediate need to direct resources and target prevention efforts to those areas. At the same time, further research and analysis are needed to verify that the HIV and STI surveillance systems are not missing other geographically important areas, and that risk behaviors and other contextual factors support the concentration of resources in the identified hotspots. A good next step would be to closely examine modes of transmission and sources of infections in those places reporting HIV cases. This will allow you to examine the impact of IDUs on HIV infections and its implications for the response, as discussed earlier in the chapter.

EXAMPLE 5.2: USING THE DATA SYNTHESIS PROCESS TO EXPLORE SOURCES OF PAST AND CURRENT HIV INFECTIONS IN A GEOGRAPHIC AREA USING REPORTED HIV INFECTIONS AND REPORTED AIDS CASE DATA

Synthesis question:

What is the past and current source of HIV infection in Guangxi province in China, and how is it changing over time?

Background:

The first example demonstrated that one of the fundamental uses of data is to locate places where HIV epidemics are already underway, using geographical analysis to locate hotspots. But once you know where the HIV infections are located, you need to know the source of those infections, so that you can target prevention and care responses appropriately. Although you would like to know the source of future HIV infections so that you can take the right steps to prevent them, you must also understand the source of past and current infections to be able to target prevention and care services where you already know there's a need. One of the ways you can find this information is by looking at prevalence trends for specific most-at-risk populations (if it is available), as well as data on reported HIV and AIDS cases. Although there are well-known biases associated with HIV and AIDS case reporting as described earlier, when analyzed together over time, they can provide valuable

insights about changes in the epidemic that are relevant to prevention programming.

Synthesis sources:

1. Reported AIDS cases over time by mode of transmission
2. Reported HIV infections over time by mode of transmission
3. HIV prevalence trends among FSWs and STI patients

Synthesis step 1:

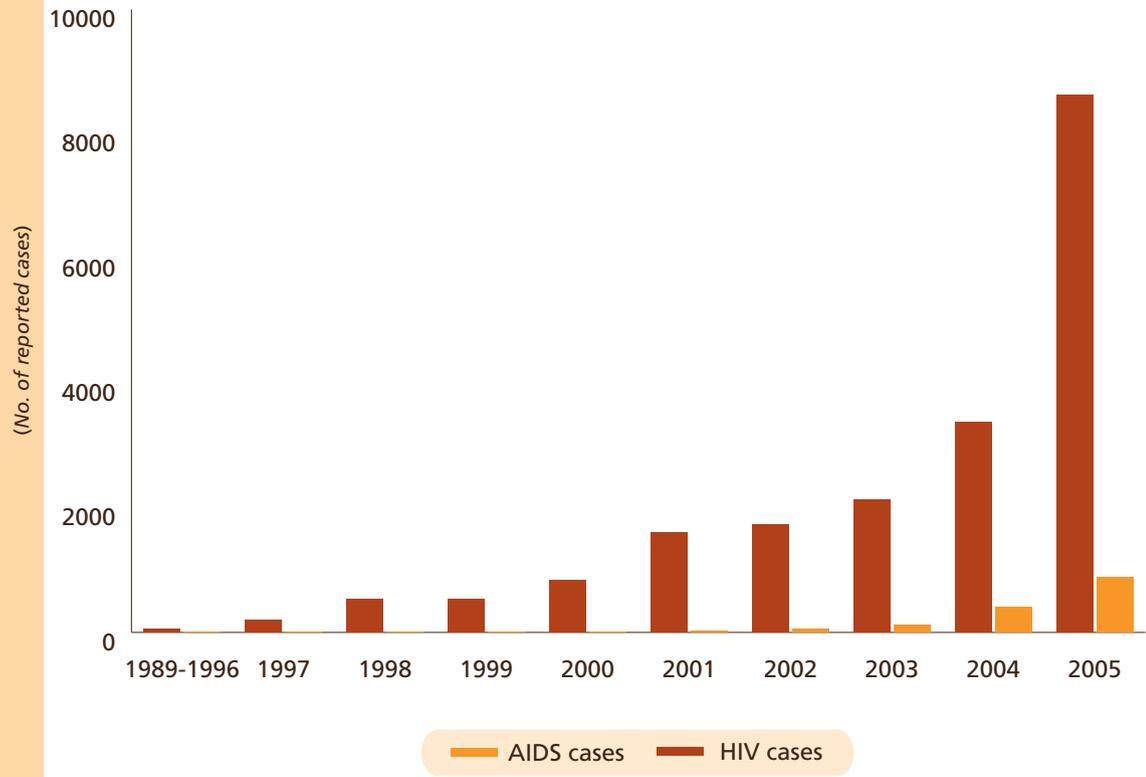
Examine AIDS cases and HIV infections by graphing them over time.

Observation:

Figure 5.2.1 shows the reported number of both AIDS cases and HIV infections between the mid-1990s and the mid-2000s. During this period the annual number of reported HIV cases increased exponentially from 530 cases in 1998 to 8,625 in 2005. AIDS cases also increased dramatically from 2 to 3 cases annually before 2001 to 883 by 2005.

Interpretation:

The HIV epidemic underwent rapid growth between 2000 and 2005. These numbers alone indicate a rapidly growing HIV problem and have substantial advocacy value in their own right. However, the data can be made even more useful if you also have information on the mode of transmission.



(source: guangxi CDC)

Figure 5.2.1.
Number of reported HIV and AIDS cases by year, Guangxi, China.

Synthesis step 2:

Examine reported modes of transmission in HIV infections by graphing the proportion of HIV infections attributed to different transmission modes over time

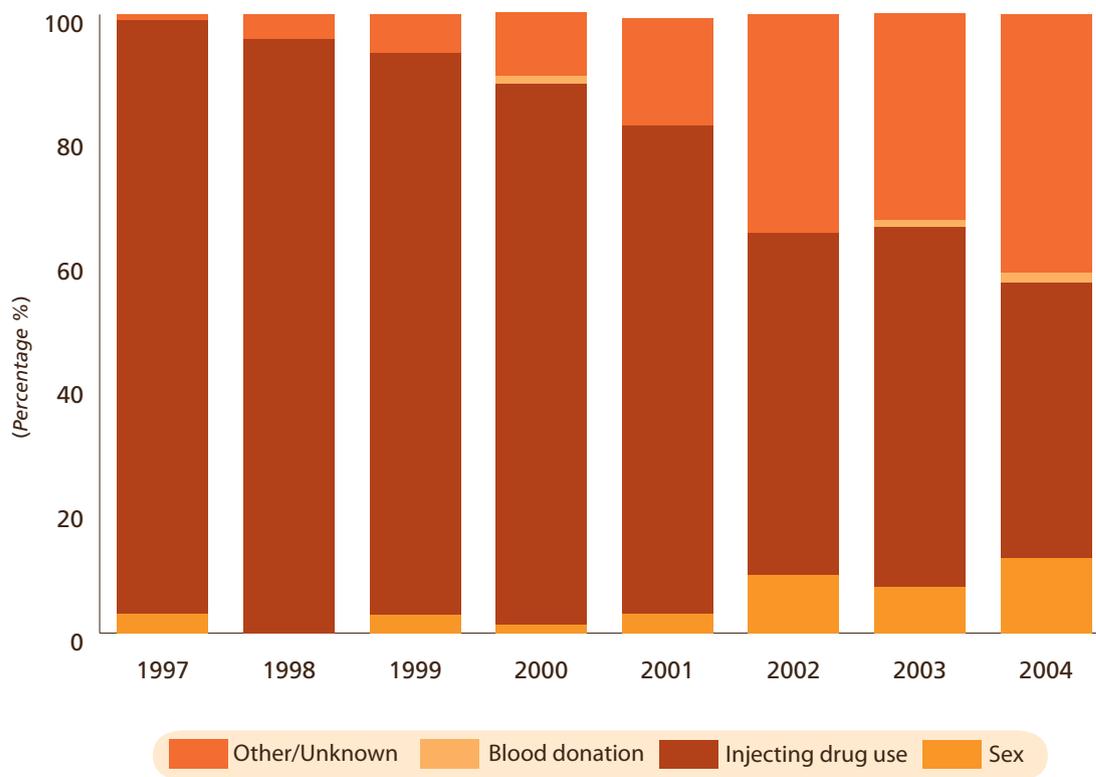
Observation:

Figure 5.2.2 is a time-trend analysis between 1997 and 2004 of reported modes of transmission of HIV infections in Guangxi. The analysis shows that while injecting drug use has been the predominant mode since 1997, the proportion of infections attributed to sexual transmission has also been increasing since 2000. The proportion of cases in the

“other/unknown” category has also increased dramatically during the same time.

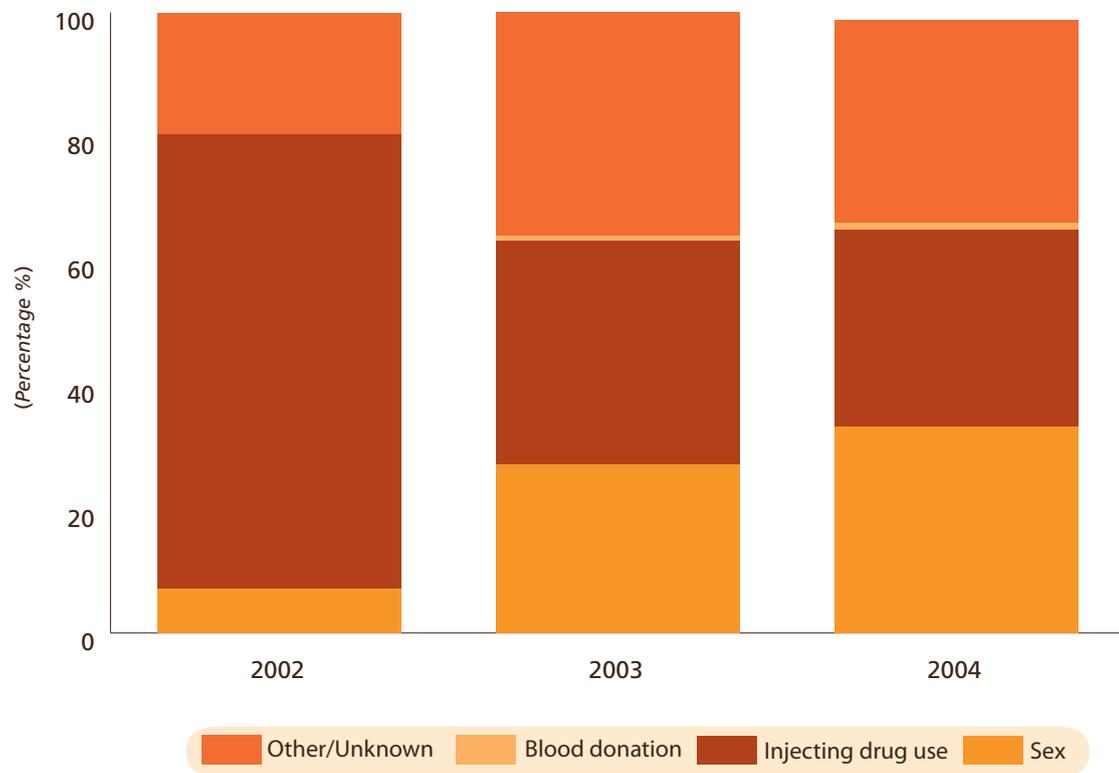
Interpretation:

Over time, the reported source of HIV infections appears to be shifting from injecting drug use to sex. The simultaneous increase in reported infections in the “other/unknown” category suggests that sexual transmission may be under-reported due to the high stigma associated with extramarital and commercial sexual activity. Those with knowledge of the HIV situation in Guangxi share this opinion.



(source: *guangxi CDC*)

Figure 5.2.2.
Changes in reported transmission modes in HIV infections by year, Guangxi, China.



(source: guangxi CDC)

Figure 5.2.3.
Changes in reported transmission modes among AIDS cases by year, Guangxi, China.

Synthesis step 3:

Examine reported modes of transmission in AIDS cases by graphing the proportion of AIDS cases attributed to different transmission modes over time.

Observation:

The same shift from injecting drug use to sexual transmission is evident from trends in reported transmission modes for AIDS cases (Figure 5.2.3) that were observed in the reported HIV infection trends. In fact, the effect is even more pronounced. The data show that the proportion of AIDS cases transmitted sexually increased almost five-fold from 7.1 percent in 2002 to 33.3 percent in 2004.

Interpretation:

The fact that reported AIDS cases indicate a higher relative proportion of sexual transmission than reported HIV infections, probably results from the focus on testing IDUs in Guangxi. Indeed, according to the Guangxi CDC, most HIV infections have been identified through surveillance and testing of IDUs. In contrast, AIDS cases tend to be reported only when the person is ill enough to seek treatment and receive a diagnosis. For this reason, trends in reported modes of transmission for AIDS cases are probably a better indicator of the changing source of infections, although they are more reflective of historical trends than current trends given the long lag-time between the time of HIV infection and receiving an AIDS diagnosis (see Chapter 6). The increasing trend in sexual transmission in the AIDS case reporting implies that sexual transmission was already increasing several years ago, and that it is a more significant component of the epidemic today than would be understood from the reported HIV infections alone, with

its bias toward detecting HIV-positive IDUs. This interpretation is further corroborated by the increasing prevalence among sex workers and STI clinic patients observed in HIV surveillance in Guangxi (Figure 5.2.4 and 5.2.5).

Synthesis step 4:

Examine gender distribution in reported HIV infections and AIDS cases by graphing the proportion of total reported HIV infections and AIDS cases identified in males versus females over time.

Observation:

Figure 5.2.6 shows the male-to-female ratio of reported HIV cases, which has decreased from about 9:1 between prior to 1996, to about 3:1 (22 percent female) in 2004. Figure 5.2.7 shows that all AIDS cases reported through 2000 were identified among males, and since 2001 the proportion of cases among females has increased to the point that by 2004 the ratio had decreased to around 3:1.

Interpretation:

This analysis corroborates the observed pattern in synthesis steps 2 and 3 that the epidemic is shifting from injecting drug use to sexual transmission, since the majority of IDUs in Guangxi are male.

Policy and response implications:

This analysis provides further evidence of the need to aggressively expand the focus of interventions beyond IDUs and toward FSWs and their clients since it confirms that sexual transmission of HIV has been in place for quite some time. The provincial level analysis should also be repeated at the county level for more specific targeting.

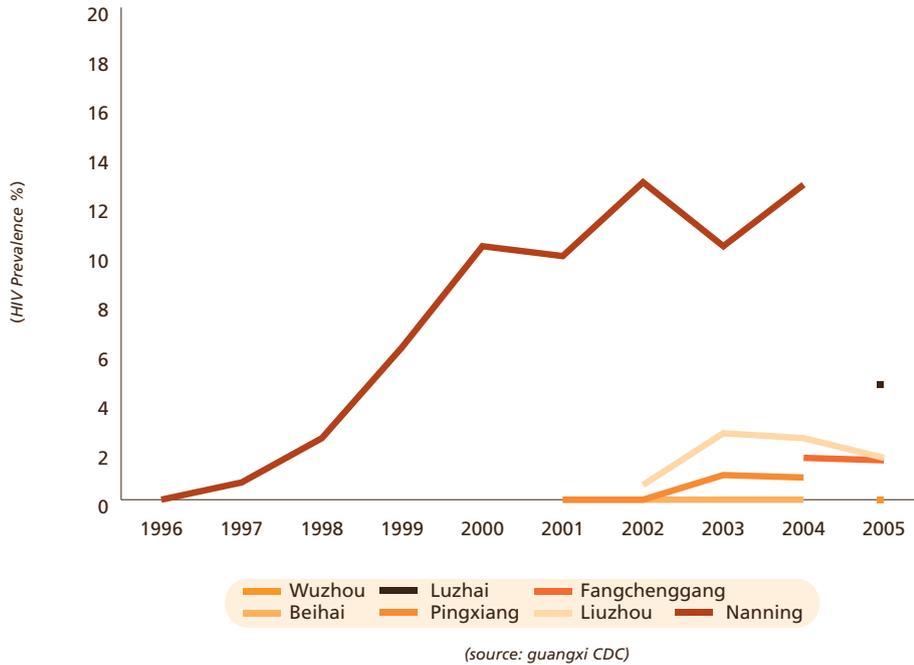


Figure 5.2.4.
Trends in HIV prevalence among FSWs by year at selected sentinel sites, Guangxi.

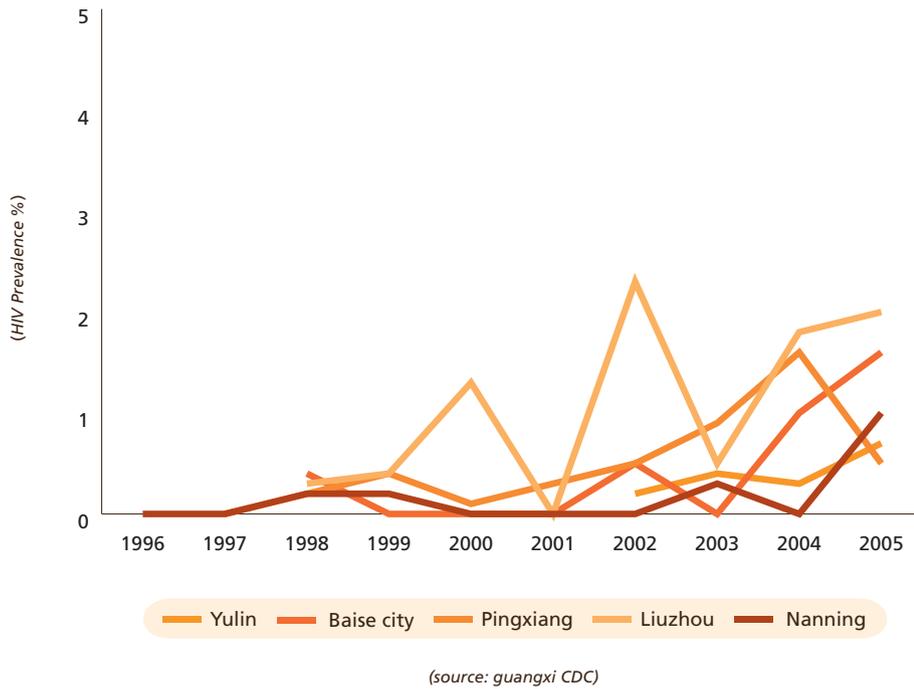


Figure 5.2.5.
Trends in HIV prevalence among STI patients by year at selected sentinel sites, Guangxi.

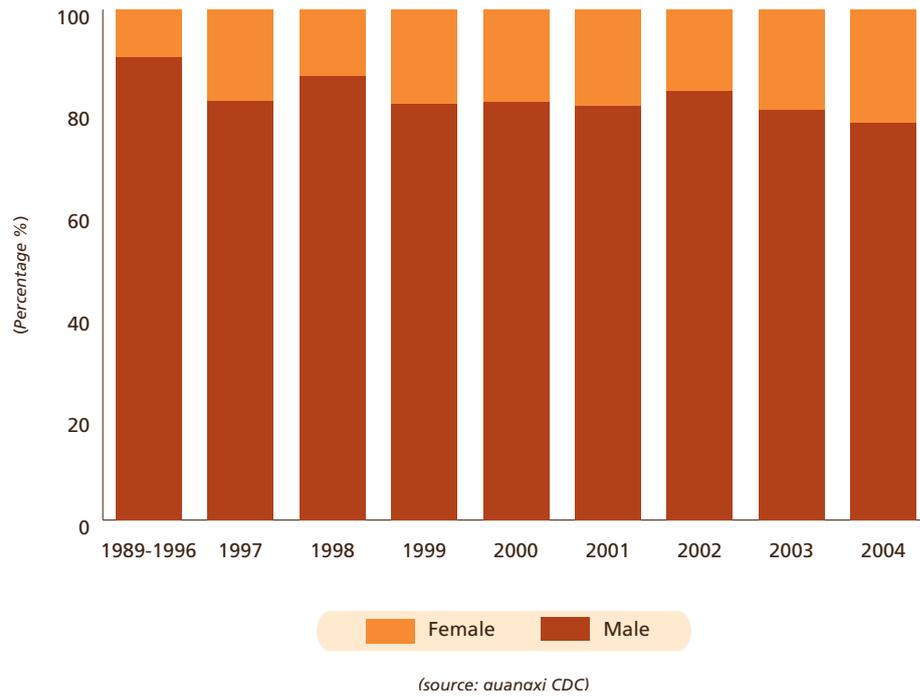


Figure 5.2.6
Gender distribution of reported HIV infections by year, Guangxi, China.

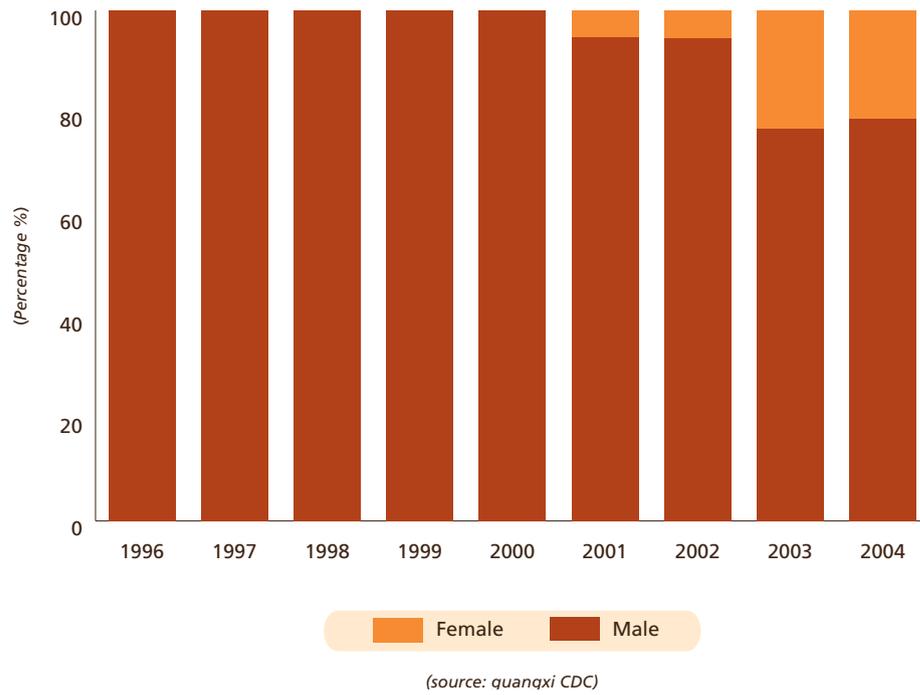


Figure 5.2.7
Gender distribution of reported AIDS cases by year, Guangxi, China.

EXAMPLE 5.3: USING THE SYNTHESIS PROCESS TO ASSESS PREVENTION SUCCESS BY CORRELATING EPIDEMIOLOGIC AND BIOLOGIC INFORMATION

Synthesis question:

Is there evidence that risky behavior in Thailand decreased between 1990 and 1995?

Background:

One of the purposes of collecting epidemiological and behavioral data is to monitor the epidemic and the effects of responses on the epidemic. The primary goal of responses is to change people's behavior in order to reduce the transmission of HIV. If you see risk behavior reduced, then you would expect to see HIV decline. However, for reasons to be discussed in Chapter 6, it generally takes several years after risk behavior declines before HIV starts to fall. Thus, it is helpful to have another biological marker to show the impact of programs on behavior. Given that the majority of HIV transmission in Asia is sexual in nature, sexually transmitted infections provide just such a marker. Bacterial STIs in males (e.g., gonorrhea and syphilis), or urethral discharge and genital ulcer disease if using syndromic reporting, tend to be treated when they do occur so that newly reported cases generally represent new infections. This makes them a reasonable biological measure of current or very recent sexual risk. HIV infection, on the other hand, is cumulative so it reflects a combination of both past risk and current risk.

Condoms are an extremely effective way of preventing HIV transmission, and they also prevent the vast majority of new STI infections. If condom use is going up, you expect STI rates to fall. The national reporting system for STIs in Thailand in the 1990s captured perhaps one-third of all STIs in the country. Studies also showed that over 90

percent of Thai men seeking treatment for STIs contracted them from a female sex worker. Accordingly, the number of new STIs should have been proportional to the level of unprotected sex with female sex workers (i.e., sex without condoms). The national HIV surveillance system for sex workers routinely collected information about recent condom use with clients.

Synthesis sources:

1. Reported STI cases over time nationally from the Thai Ministry of Public Health
2. National data on condom use collected from FSWs in the HIV surveillance system

Synthesis steps:

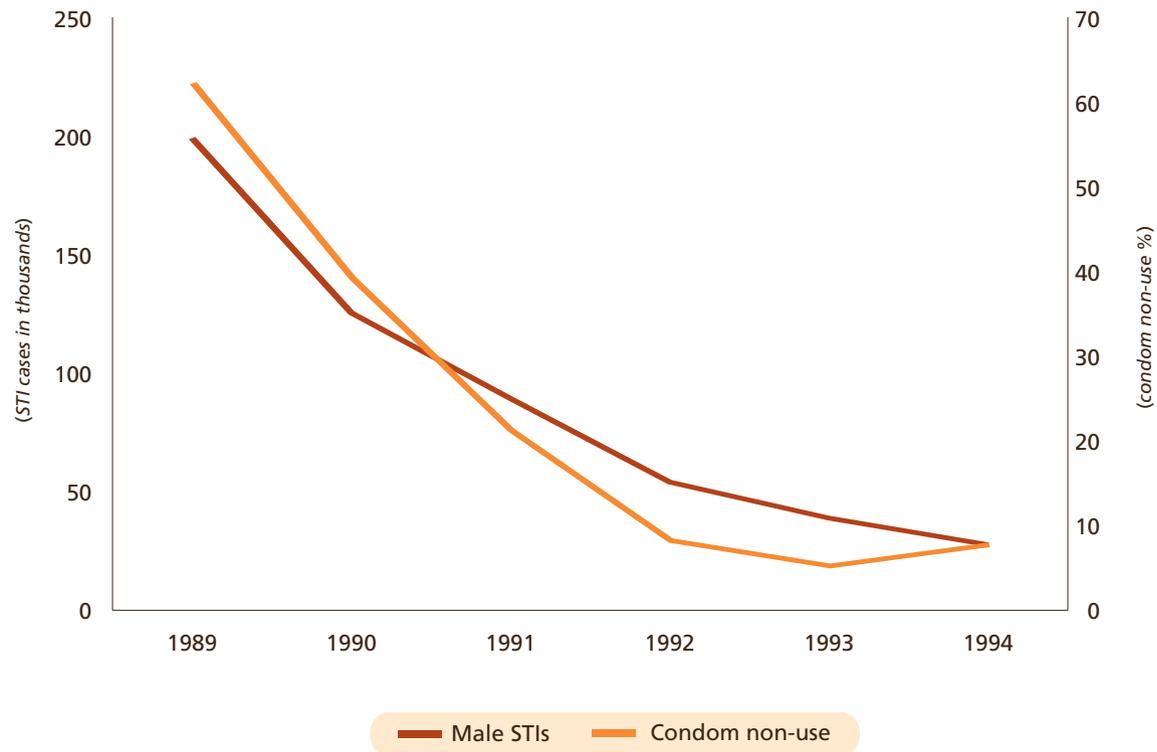
Graph number of reported STI cases among males between 1989 and 1994, and on the same chart, graph the proportion of FSWs saying they did not use condoms at last sex with a client during the same time period (1989-1994).

Observations:

Figure 5.3.1 shows the data for reported male STIs in Thailand in the early 1990s, when HIV prevention programs were scaled up nationwide. You can see that the trend in reported male STIs tracks very well with the decrease in non-use of condoms.

Policy and response implications:

These data have immediate advocacy value. When presented to policymakers, they can help assure them that the prevention efforts they are funding are having an impact. They can also be used to advocate for mobilizing resources to expand effective efforts of this type to larger scales.



(source: thailand ministry of public health)

Figure 5.3.1.
Decline in reported male STIs in Thailand as condom use was scaled up in the 1990s.

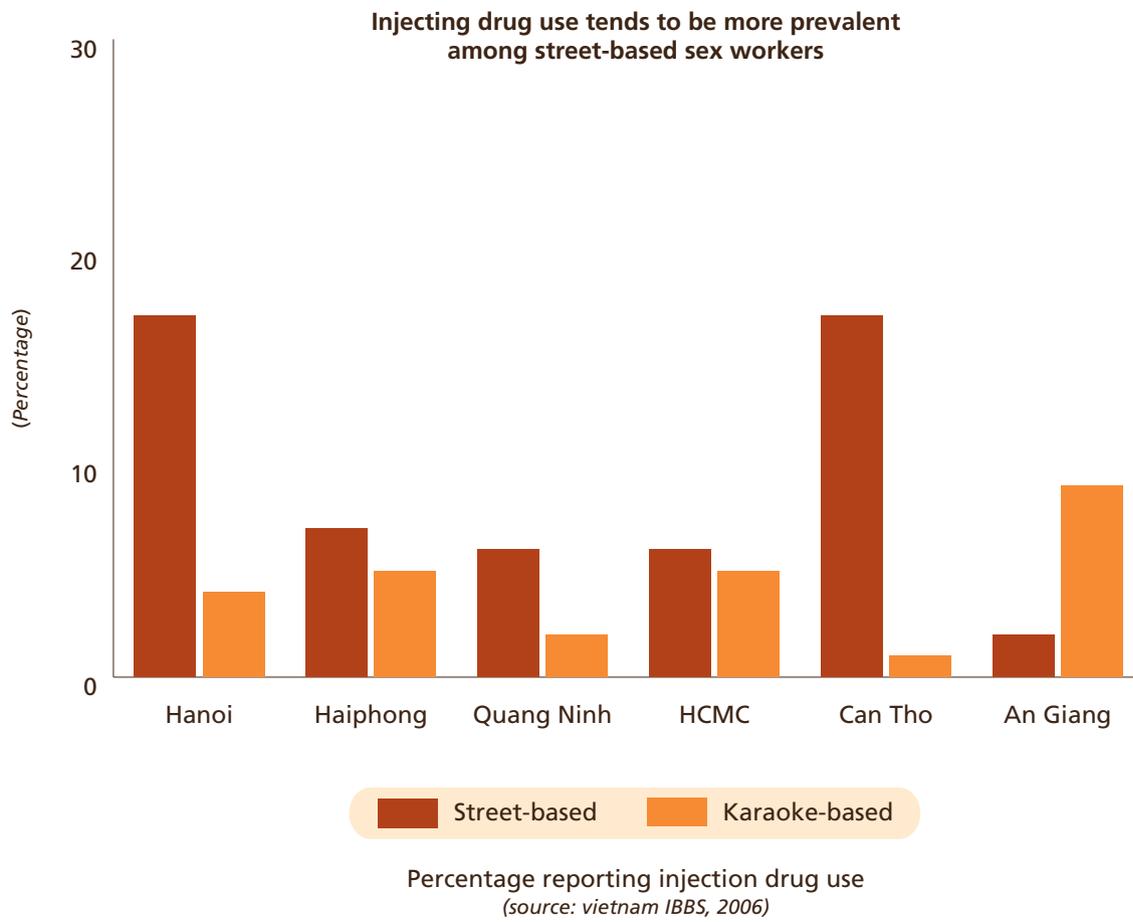


Figure 5.4.1.
Proportion of SSWs and KSWs reporting history of injecting drug use.

EXAMPLE 5.4: USING THE DATA SYNTHESIS PROCESS TO PRIORITIZE PREVENTION AND CARE ACTIVITIES WHERE THE RISK IS GREATEST

Background:

Female sex workers have high risk for HIV, but not always for the reasons expected. In Vietnam, data from the Integrated Biological and Behavioral Surveillance (IBBS) illustrate this quite well, while simultaneously providing an example of how behavioral data can assist in identifying and prioritizing the populations at highest risk of HIV (Hoang et al. 2006). In Vietnam, the two major categories of sex workers are street-based sex workers (SSW) and karaoke-based sex workers (KSW). In general, KSW have fewer clients per night than SSW and also have generally lower HIV prevalence, presumably because they have fewer clients.

HIV prevalence among female sex workers in Vietnam grew quite gradually through the 1990s to only a few percent. However, in Ho Chi Minh City (HCMC) in 1998 the prevalence suddenly jumped from 2 percent to 15 percent in a single year. Similar very rapid increases in prevalence among FSWs were observed in other locations around the country at different points in time. At first, this was difficult to understand. If the sex workers were contracting HIV from clients and most had less than one client per night, the prevalence would be expected to grow more gradually.

Trying to understand this observation, data were used from a study done among sex workers at a rehabilitation center in HCMC. The study found extremely high prevalence among female sex workers who had injected drugs, but relatively low prevalence among those who had not. This was the first indication that there was substantial injecting risk among female sex workers in some places in Vietnam. Not coincidentally, at this same time, surveillance detected a major IDU epidemic in HCMC, with HIV rising

to levels of 60 percent and above in less than two years. The growth in prevalence among sex workers who injected was part of a larger general epidemic among IDUs. The same pattern has been observed repeatedly around the country.

Synthesis question:

Knowing that once an HIV epidemic starts among sex workers, that a sex work driven epidemic follows soon after, how can the provinces where sex workers are at the highest risk be identified?

Synthesis sources:

1. IBBS data for SSWs and KSWs from key provinces in Vietnam

Synthesis step 1:

If you do not have HIV prevalence data, you could start by examining the history of injecting among street-based and karaoke-based sex workers in key provinces.

Observations:

Figure 5.4.1 shows that although in most places, street-based sex workers have much higher histories of injecting than karaoke-based sex workers, this is not true across the board. In fact, there is substantial geographic diversity in the behaviors.

Interpretation:

This means the actual priorities in responding may differ from place to place. For example, in Hanoi and Can Tho, SSWs appear to inject much more than KSWs. But in An Giang, it is the KSWs who are more likely to inject.

Policy and response implications:

Based solely on the behavioral data on the proportion of sex workers who inject, you might decide to prioritize SSWs in Hanoi and Can Tho, and KSWs in An Giang.

Synthesis step 2:

Since both HIV prevalence and behavioral data are available from the IBBS, you can further explore your assumptions about the extent to which injecting may be playing a role in HIV transmission in sex workers. Starting with the street-based sex workers, Figure 5.4.2 compares the prevalence of HIV among sex workers who inject and those who do not.

Observations:

A strong correlation between HIV and history of injecting among street-based sex workers is seen in these data.

Interpretation:

This correlation in multiple provinces strengthens the assumption that women who inject, whether in the present or in the past, are much more likely to be HIV positive. Therefore, it is probably reasonable to prioritize injecting street-based sex workers for prevention and care interventions on the basis of behavioral data alone.

Synthesis step 3:

The next step of the synthesis explores the relationship between reported history of injection and prevalence of HIV among KSWs. It turns out that in An Giang province, instead of street-based sex workers, it is the KSWs who report higher levels of injecting. Assuming that FSWs who inject are more likely to be HIV infected, do the prevalence data support this assumption?

Observation:

As seen in figure 5.4.3, the data do support this assumption. Both the reported use of injecting drugs and the prevalence of HIV are higher among KSWs than SSWs in An Giang province.

Interpretation:

This is consistent with the finding that sex workers who inject are more likely to be HIV positive, and in the case of An Giang, interventions among KSWs may be a higher priority than among SSWs.

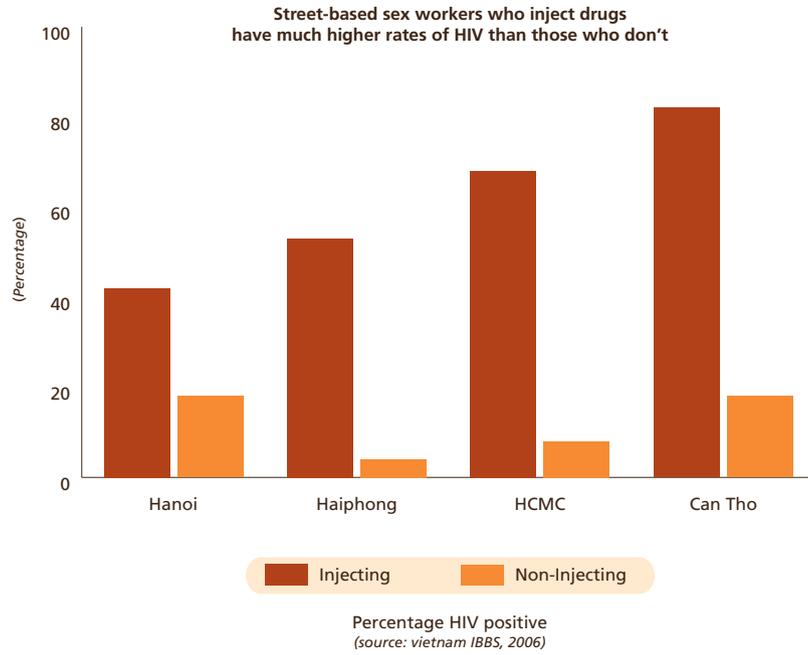


Figure 5.4.2.
HIV prevalence among SSWs by history of injecting.

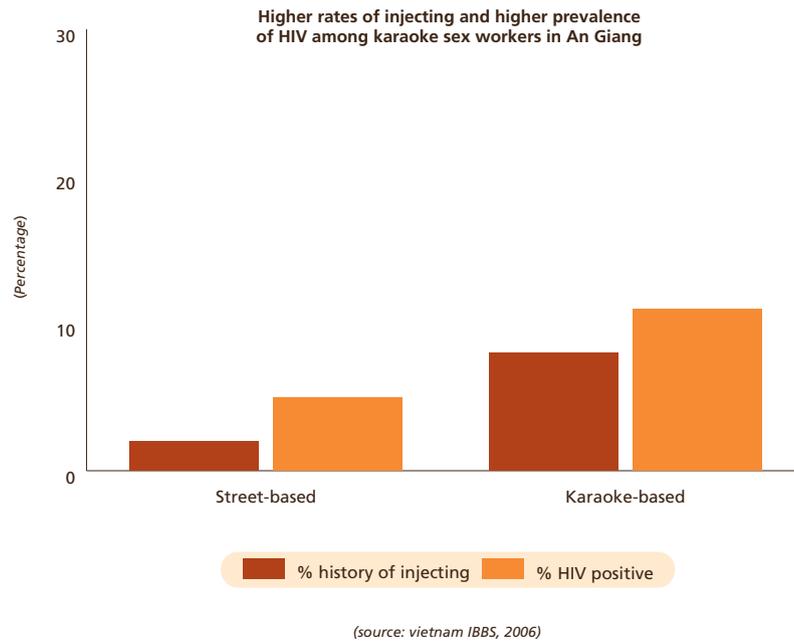


Figure 5.4.3.
HIV prevalence and rates of injecting among SSWs and KSWs in An Giang province.

Synthesis Step 4:

In the next step, look at the prevalence of HIV across the board among SSWs and KSWs and confirm how it relates to injecting behavior.

Observation:

In Figure 5.4.4 you see that in Hanoi and Can Tho, the prevalence of HIV was much higher among SSWs, and in An Giang, the KSWs had higher prevalence. In Haiphong and HCMC, the levels were more similar.

Interpretation:

These findings are very similar to what was already evident from the behavioral data, which showed that you could expect higher prevalence among SSWs in Hanoi and Can Tho, and in KSWs in An Giang. In Haiphong and HCMC, the prevalence of injecting is more similar for SSWs and KSWs, which implies that they should have similar prevalence of HIV (which they do), and therefore receive similar priority in terms of interventions.

Policy and response implications:

The analysis confirms that if you had prioritized interventions on the basis of behavioral data, they would have been pretty good, but not perfect.

Synthesis step 5:

The next step in the synthesis process is to confirm that in places where injecting is reported equally in both SSWs and KSWs, the epidemic is equally likely to take off in both groups.

Observations:

In Figure 5.4.5, data from Haiphong confirm that similar levels of injecting among SSWs and KSWs (seen in Figure 5.4.1) correlate with nearly equal levels of HIV prevalence among the injectors and the non-injectors.

Interpretation:

Again the evidence is strong that the behavioral data alone would have led to a similar conclusion as the HIV prevalence data, that both KSWs and SSWs should be prioritized in Haiphong.

Policy and response implications:

Up to this point, the analyses have led you to conclude that interventions should be targeted to sex workers who inject drugs, regardless of whether they are karaoke-based or street-based. However, to be complete, you should also factor in the overall numbers of SSWs and KSWs in each place, and also consider the average number of clients of the two groups of sex workers. This is important for understanding the comparative contribution to new infections in the future. Therefore size estimates are the next critical piece of information to examine in the process of prioritizing resources.



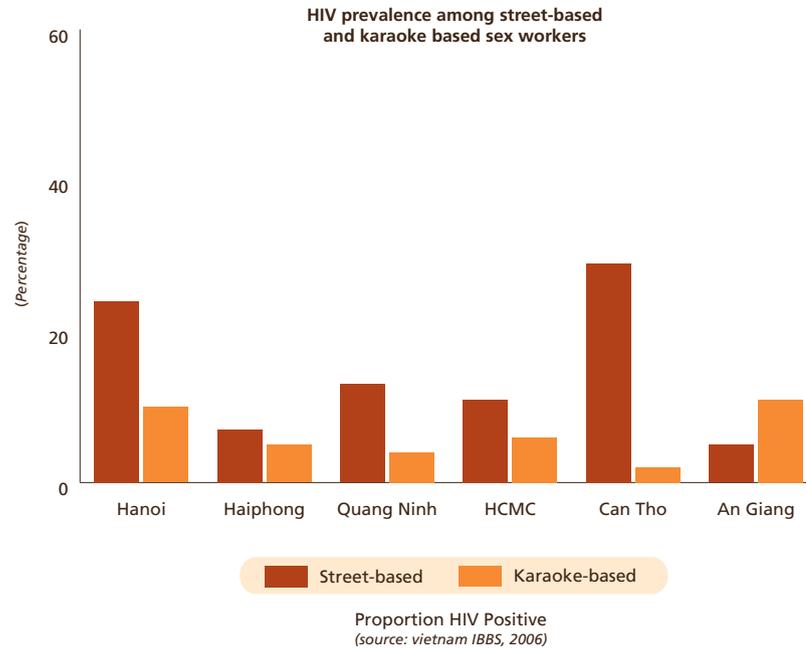


Figure 5.4.4.
HIV prevalence among FSWs in Vietnam by province.

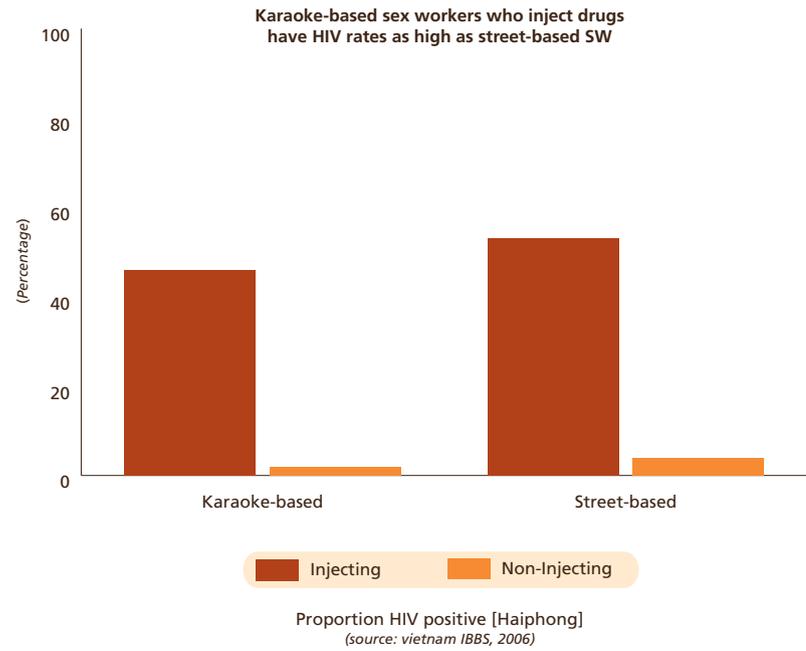


Figure 5.4.5.
HIV prevalence among sex workers in Haiphong by history of injecting drug use.

Synthesis step 6:

In this final step, you will look at the prevalence of injecting among KSWs and SSWs, but this time you will factor size into the equation. A rough estimate of the number of KSWs and SSWs provides the information.

Observation:

In Figure 5.4.6 it is apparent that the number of injecting sex workers is by far the highest in Ho Chi Minh City and Can Tho, and although SSWs are the predominant group in Can Tho, in HCMC there are a substantial number of both KSWs and SSWs who inject.

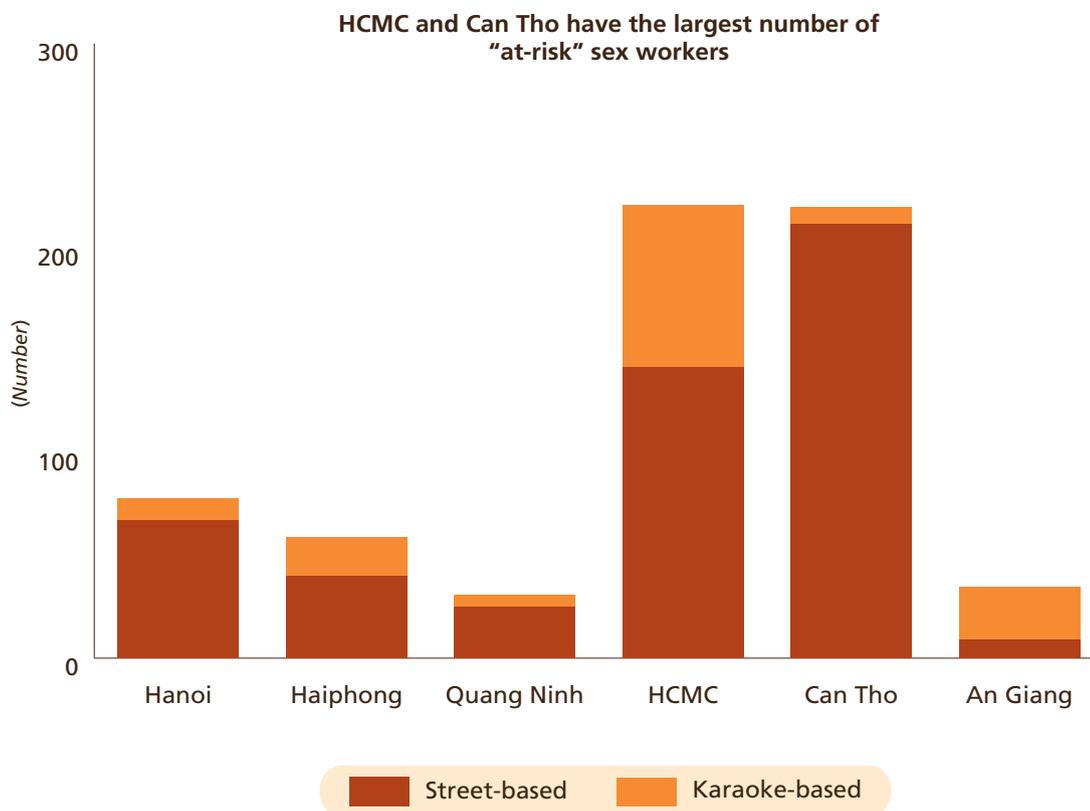
Interpretation:

In fact, the number of injecting SSWs in HCMC and Can Tho is by far larger than in Hanoi. Likewise, the number of KSWs in HCMC dwarfs the number in An Giang province.

Policy and response implications:

Does this last step of the synthesis process change the priorities identified in previous steps? Possibly, but not

necessarily. It depends on where you're sitting, or who you're trying to influence. For provincial level planning, certainly the earlier synthesis steps are important in helping set priorities at a local level. From a national perspective, if choices have to be made, then priority might rightly need to be placed where the problem is the largest, not just in terms of proportions, but in terms of absolute numbers of people at-risk. In any case, all factors must be weighed, including data quality. Accurate measures of size for at-risk populations are particularly hard to obtain, and size estimates are notorious for being over- or underestimated, depending on what information is available, and who is trying to advocate for what. The bottom line is that all sorts of information need to be triangulated and synthesized as part of the decision-making process. And the process of interpreting data needs to be a consensus process that draws on the base of local knowledge and information to make well-informed decisions.



Number of injecting sex workers
(source: national institute of hygiene and epidemiology, vietnam)

Figure 5.4.6.
Number of injecting and non-injecting KSWs and SSWs by province.

References

Hoang TV, Tuan NA, et al. *Results from the HIVISTI Integrated Biological and Behavioral Surveillance (IBBS) in Vietnam 2005-2006*. Hanoi: National Institute of Hygiene and Epidemiology, Family Health International Vietnam, 2006.

ANALYSIS

Chapter 6

THE TIME ELEMENT IN HIV EPIDEMICS:
THE NEED FOR TRENDS

[an overview]

Chapter 6

THE TIME ELEMENT IN HIV EPIDEMICS:

THE NEED FOR TRENDS

Why is time so important to understanding HIV epidemics?

Most infectious disease epidemics come and go in the space of a few months. HIV epidemics, on the other hand, sometimes develop gradually over decades, yet other times they explode in a year or less. This chapter examines a number of time-related factors that critically influence the evolution of national HIV epidemics and affect their rates of growth:

- **The HIV-related illness we know as AIDS takes many years to develop.**
The time from an individual contracting HIV until he or she displays the serious opportunistic illnesses associated with AIDS is on average 11 years. This long time delay can let the epidemic grow invisibly without raising concerns.
- **Epidemics in different populations develop at different rates.**
National epidemics are composed of multiple sub-epidemics in multiple populations. Epidemics among some populations (e.g., IDUs and MSM) can grow very rapidly; but HIV levels among others (e.g., pregnant women) usually grow very slowly. Thus, understanding a national HIV epidemic requires an understanding of the time profile of its various sub-components.
- **Epidemics evolve at different rates in different countries.**
Because the behavioral and biological factors driving HIV transmission vary from country to country, the evolution of the epidemic does as well. Factors such as the size of the sex industry, the levels of injection and needle sharing, and the frequency with which men have sex with other men shape the course of a national epidemic. This chapter discusses some of the key factors influencing this.
- **The state of the epidemic today depends on behaviors that happened in the past.**
A person's HIV state (i.e., whether he or she has contracted HIV) is not just a function of their behavior today. Instead, it is the accumulation over time of their past risk behaviors and their past exposures to HIV and other STIs while engaged in those behaviors. Similarly, the HIV prevalence in a population depends not just on the population's behaviors today, but on both past behaviors and HIV and STIs. Shifts in the size of at-risk populations, economic growth, and changes in demography can all contribute to changes over time in the level of behavioral risk in a population.

- **HIV prevalence declines very slowly.**

While HIV prevalence can sometimes grow very quickly, once it is high, it only declines slowly in response to behavior change. Even when risk behaviors drop precipitously in a country, it may be five to seven years before we see the HIV prevalence begin to decline.

The past is prologue to the future – you need to know trends and use models to project the future course of the epidemic.

This strong influence of time, especially the dependence on behaviors in the past, means that reconstructing the past and predicting the future of HIV epidemics require knowledge of both past trends in the epidemic and past trends in risk behaviors. It is not enough to know only about risk behaviors and the state of the epidemic today. Indeed, this dependence on the past makes it essential to use models, as discussed in Chapter 7, if you are to come to a true understanding of an HIV epidemic and project its likely future course.

However, due to data limitations, we most often must synthesize our trends from multiple data sources.

Most available data are cross-sectional in nature, and as you will see, cross-sectional data can sometimes be misleading. However, taken together, as part of a process of synthesizing together trends in behaviors, epidemiology, and responses, several studies at different points in time can form a solid basis for establishing trends. The steps in extracting such trends from the information collected during the A² process include:

- **Decide exactly what geographic area and subpopulations you are going to analyze.**

This determines the information sources used and makes the scope of the analysis more manageable. There must be clear and specific definitions of the places and populations under consideration so that consistent sets of data can be extracted to construct trends over time.

- **Develop a checklist of the trends needed – list your variables.**

Before embarking on a major trend extraction exercise, it is important to decide on and regularly review the trends needed. The models to be used and the analyses to be done largely determine what is needed. Armed with this knowledge, most of the needed information can be extracted from a paper or report on the first read, saving substantial time.

- **Review available studies and extract relevant measures into spreadsheets and documents.**

Using the spreadsheets and data extraction tools discussed in Chapter 3, extract the specific data items that are needed from the repository of reports and studies, keeping track of when they were collected. Carefully check that the time frames, variable definitions, and populations under study are the same so that what you are constructing is a trend.

- **Adjust as needed to make the results at different points in time comparable.**

With an understanding of the biases in the data, the limitations of the studies, and the geographic and demographic characteristics of the data set, make any adjustments necessary to ensure data comparability from one point in time to the next.

- **Review the data extraction spreadsheets and documents to construct the trends needed.**

Triangulate the available measurements for a specific variable in a specific year to estimate a “best” value for that variable at that time. Summarize these in a table along with their sources to reconstruct the past trend. In the next step of the process these data will be entered into an AEM workbook, described in the next chapter, to serve as the basis for modeling.

- **Plot the trends up, look for outliers and then adjust or delete them.**

Using your knowledge of prevention efforts on the ground, geographic variations in the epidemic, and other relevant factors, identify data points that are unrealistic or biased. If you know the biases, try to adjust for them. If you don’t and the point clearly disagrees with other data sources, drop it. Document what you have done, so you can explain it to others.

- **Fill in gaps for missing years. Usually data are available for a limited number of years on a given behavioral or epidemiological variable.**

Fill those gaps by “drawing straight lines” between the known values, soliciting input from local experts, or making an assumption based on experiences in similar settings and populations. Document all assumptions and the basis on which you make them.

Keep in mind that it is important to be open and transparent.

Document the inputs you use for modeling, and list any assumptions you make as an essential prerequisite to establishing credibility for the analyses done.

TIM BROWN

Chapter 6

THE TIME ELEMENT IN HIV EPIDEMICS:
THE NEED FOR TRENDS

[concepts and content]

Chapter 6

THE TIME ELEMENT IN HIV EPIDEMICS:

THE NEED FOR TRENDS

Tim Brown

Why is time so important to understanding HIV epidemics?

HIV operates on different time scales than most diseases – years or decades, not months

Under normal circumstances, any epidemic of an infectious disease has a time element. The infectious agent enters the population, causes illness for some period as it moves from person to person, and then most people recover as the immune system brings the disease under control. In some cases, people die from the infection, further limiting spread. For most diseases, this process plays out over a period of months. For example, a flu epidemic often begins late in the year and is over by early the next year. However, HIV is different. First, people do not recover from HIV infection; it is a lifelong infection. Second, the illness associated with HIV does not manifest for many years, on average 11 years. Until that time, the virus remains invisible unless we test for its presence. Thus, the time scales associated with the effects of HIV infection becoming apparent are much, much longer than for most other infectious agents. We measure them in years or decades, not in days, weeks or months.

HIV epidemics grow at different speeds in different populations and geographical areas – sometimes in months, other times over years

The primary indicator used for tracking HIV is prevalence, that is, the level of HIV in a population. However, the rate at which HIV prevalence grows varies greatly from population to population and from country to country. Even within a country, the speed with which epidemics grow may vary from place to place. Several factors contribute to these differences, including the ease with which different behaviors transmit HIV, the risk behaviors in the population in question, and the behavioral linkages among different populations. This chapter explores some of the factors that affect the rate of HIV spread, and therefore determine how quickly an epidemic spreads.

HIV risk is cumulative – HIV levels today are determined by behaviors long past

A further time element is introduced in that the risk of having contracted HIV is a function of a person's behaviors and a person's potential exposure to HIV in the past. It is possible, for example, for a person who is monogamous today to have contracted HIV while having unprotected sex with multiple partners in the past. Thus, current behaviors do not always correlate well with current HIV prevalence. It also means that the current state of an HIV epidemic on a population basis is a function of the past behaviors in that population, not just the current behaviors. Thus, understanding the current state of HIV epidemics requires understanding how behaviors in a population have changed over time, that is, on the **trends** in behaviors. And, because HIV can only be transmitted from an infected partner to an uninfected partner, the current levels of the epidemic also depend on the past trends in HIV prevalence itself.

When HIV prevalence does fall, it falls very slowly – on time scales of years

Most epidemics burn themselves out after a few months, and the prevalence of the pathogen subsequently declines very, very rapidly. However, the long incubation period of HIV, coupled with the lifelong nature of HIV infection, makes it much more difficult to bring HIV prevalence down. Because most of those now living with or recently contracting HIV will not die for many years, HIV levels tend to stay at current levels or continue to increase if new infections are ongoing. Even if new infections are completely halted by prevention efforts, prevalence can only begin to fall as people begin to die of HIV-related causes. Thus, even after major risk reduction begins, HIV levels will not generally decline for at least five to seven years, and then they will usually decline rather gradually.

To understand HIV, we must focus on past and future trends in behaviors and biology

Once we have explored the factors leading to these widely varying time scales for HIV epidemics, we will then discuss their implications for how we collect and analyze data. These time factors greatly influence the type of data you must collect to understand HIV epidemics, and they further affect the interpretation of the data you collect. This will naturally lead to the need to extract trends in both risk behaviors and biological factors such as HIV and STI if you are to be able to reconstruct and predict the course of an HIV epidemic. However, knowledge of the past is quite often incomplete. The chapter closes with a brief discussion of how to identify and fill gaps in knowledge of these trends.

The reasons why time scales are what they are in HIV epidemics

Natural history of HIV – people progress at different rates, most quite slowly

The first question that must be addressed is why HIV operates on time scales of years or decades. This follows from the natural history of HIV infection. As seen in Figure 6.1, after initial infection with HIV, the amount of virus (measured as viral load) in a person's body rises very rapidly. However, a few weeks later the person's immune system mounts its own

defenses and the level of HIV antibodies, which are what the usual HIV tests detect, rises. These antibodies, produced by cells known as CD4s, work with other components of the immune system to rapidly reduce the amount of HIV in the body.

In most infections, the immune system is quite effective at eliminating all the bacteria or viruses, and by five or six weeks, the invading agent is completely gone. However, HIV has evolved mechanisms for counteracting the immune system by actually infecting some of the immune cells and using them to replicate itself. Thus, as the immune system reacts to the infection, HIV hijacks some of those cells and uses them to make copies of itself. From the studies of Ho, Shaw and others, we now know that the body then settles into a steady state of conflict in which HIV kills billions of immune cells each day and the body replaces them almost as quickly as they disappear (Ho et al. 1995, Wei et al. 1995). However, for most people over time the immune system eventually loses out and the number of CD4s and the antibodies they produce steadily falls, as seen in Figure 6.1. When the number of CD4 cells falls below 200 cells/microliter, the immune system is so damaged that it can no longer deal effectively with other infections. At this stage the person is said to have developed AIDS (acquired immunodeficiency syndrome). With their weakened immune systems, people living with AIDS acquire infections that people with healthy immune systems fight off very easily. These are usually referred to as opportunistic infections. Normally, without treatment people die within a year after the first serious opportunistic infection.

For the "average" person the period between HIV infection

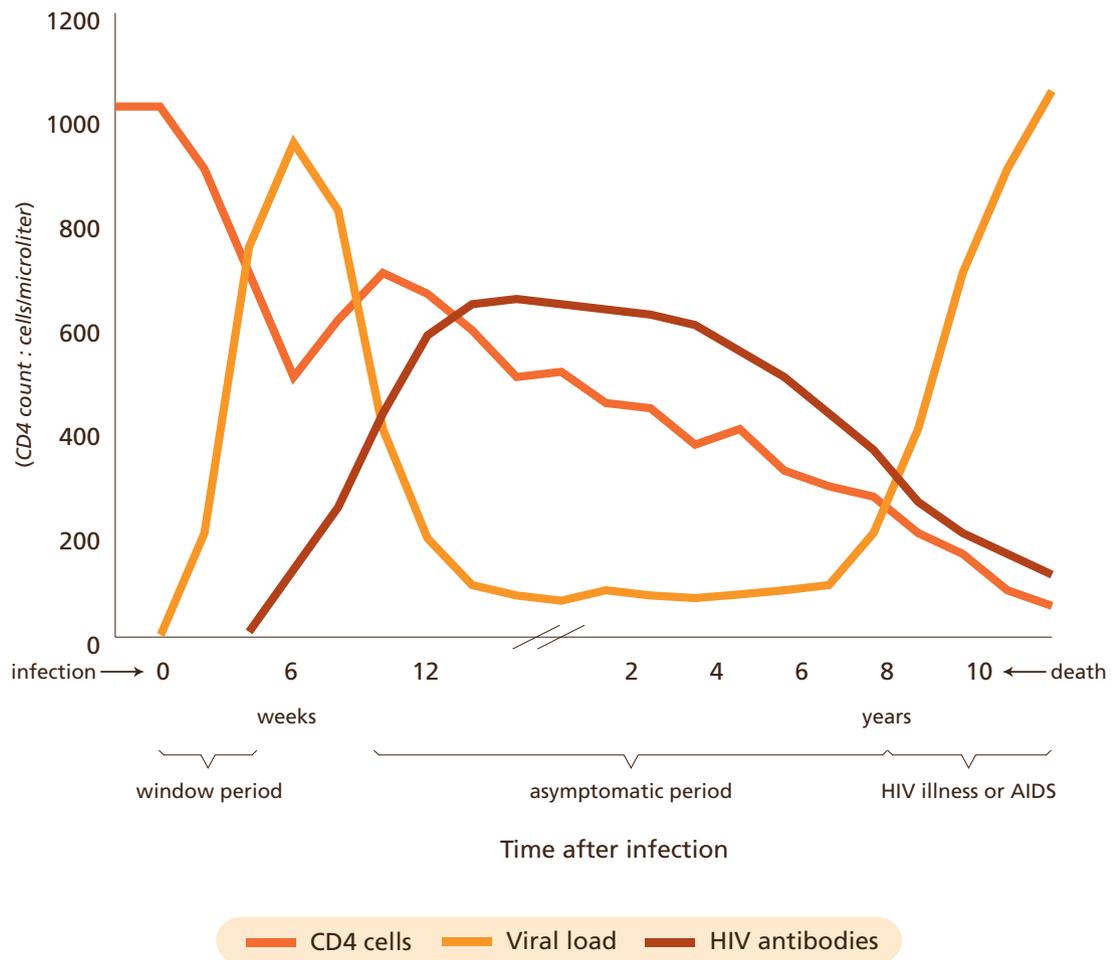


Figure 6.1. The change in a person's immune system's response to HIV (antibody levels and CD4 counts) and the amount of virus in the body (viral load) by time after initial infection with HIV (only CD4 counts shown to scale).

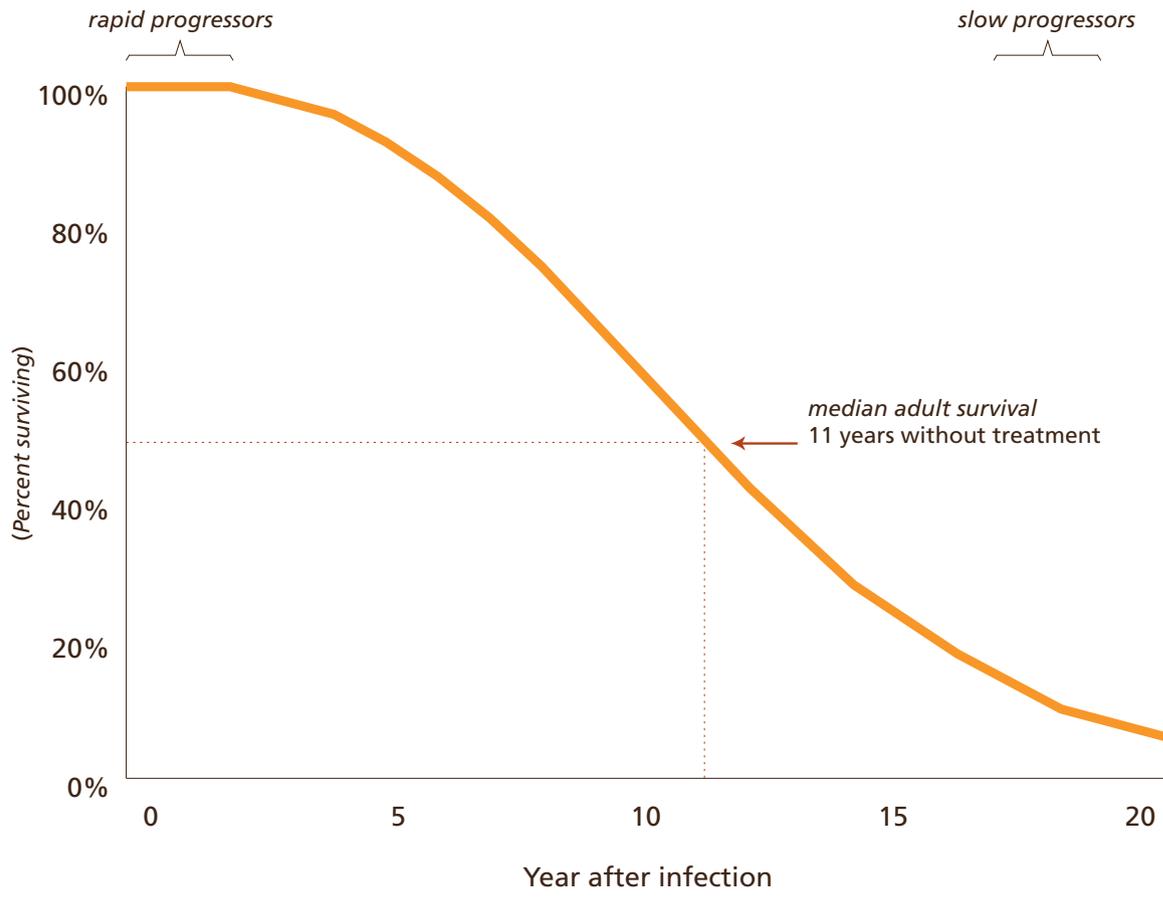


Figure 6.2.
The percent of adults living with HIV surviving by time since infection.

and symptomatic illness is about 8 to 10 years in the absence of treatment, with the number of CD4 cells declining steadily over this period. Overall survival time from HIV infection to death is approximately 11 years unless the person receives antiretrovirals or treatment for opportunistic infections. This extended period between infection and death explains the long time scales normally associated with HIV epidemics. The ongoing battle between the immune system and the virus delays the onset of HIV-related diseases and death, on average more than a decade. However, during that long asymptomatic period people can still transmit HIV to others. Thus, unless we are testing for antibodies, the virus spreads invisibly and undetected.

Not all people progress from HIV infection to illness at the same rate. Some people's immune systems are not very effective at fighting HIV or they are infected with a more aggressive form of the virus. In these people the number

of CD4 cells declines very rapidly. These people may develop symptomatic illness within a year or two of infection and are often referred to as rapid progressors. Others' immune systems are particularly good at fighting HIV, or they get infected with a weaker version of the virus. These people are usually referred to as slow progressors. A final group, perhaps 5 percent of all those living with HIV, tend to have a fairly stable CD4 level of around 500 or more, even many years after infection and are known as long-term non-progressors. For a large population of people infected with HIV but not receiving treatment, on average, about 5 percent of them per year develop AIDS and die within the next year. Figure 6.2 shows graphically the percentage of people who will still be alive a given number of years after HIV infection in the absence of treatment. At 11 years only 50 percent are still living. Models for HIV in a population need to take into account this varying survival.

Differences in ease of transmission change the speed with which HIV spreads in different populations

Three things explain the variations in how quickly HIV spreads in different groups of people:

PROBABILITIES OF HIV TRANSMISSION VARY WITH THE ROUTE OF TRANSMISSION.

Possible routes of HIV transmission include vaginal sex, anal sex, blood-borne transmission through shared needles or transfusion, and mother-to-child transmission. Not all of these routes transmit HIV at the same rates. Table 6.1 shows the range of probabilities of transmission associated with each of these routes.

THE FREQUENCY OF A PARTICULAR ACT AFFECTS HOW QUICKLY HIV WILL SPREAD IN A POPULATION.

While anal sex carries a higher probability of HIV transmission, in many heterosexual populations it is an uncommon act. However, among populations of MSM, anal sex is quite common. This explains why HIV spreads more rapidly among populations of MSM than among heterosexual populations in the absence of STIs.

OTHER FACTORS CAN GREATLY INCREASE HIV TRANSMISSION.

These transmission probabilities, in turn, are modified by other biological factors. Some of the most important factors are: early infection, co-infection with another STI, and circumcision. For several weeks after infection, when a

person's viral load is high, their probability of transmitting HIV increases greatly (Daar et al. 1991, Xiridou et al. 2004). Someone who has another STI also has a higher probability of both transmitting HIV to other sexual partners and contracting HIV from an infected partner (Cohen 2004, Fleming et al. 1999), and men who are circumcised are less likely to contract HIV (Auvert et al. 2005, Bailey et al. 2007, Gray et al. 2007). All of these can alter the rate of HIV transmission within a population.

These three factors combine to determine the rate of HIV transmission in a particular population. Taken together, they go a long way toward explaining the rate of growth of HIV seen in different populations and different places.

Of all populations, the most rapid growth of HIV has been observed among injecting drug users who share needles. It is not uncommon in cities to see HIV prevalence among IDUs grow from 0 percent to 40 to 50 percent in less than a year (Kitayaporn et al. 1994, Sarkar et al. 1993). Looking in Table 6.1 this might seem unexpected because the probability of transmission per act seems lower than that of anal sex. However, in this case the frequency of the act drives rapid transmission. Many IDUs inject two or three times per day, while sharing almost half of those injections. This means that in a year, they will share several hundred injections. Even if only five or six in a thousand of those injections transmit HIV, with the high frequency of shared injections those sharing needles will become infected quite rapidly.

Type of act	Probability of transmission in a single act	Source
Vaginal sex, male-to-female	0.0005 – 0.002	(Padian, Shiboski et al. 1997; Mastro and Kitayaporn 1998)
Vaginal sex, both male-to-female and female-to-male	0.0008 – 0.0015*	(Gray, Wawer et al. 2001)
Vaginal sex, female-to-male with STI	0.01 – 0.13	(Mastro, Satten et al. 1994)
Receptive anal intercourse	0.0024 – 0.028	(De Gruttola, Seage et al. 1989; Vittinghoff, Douglas et al. 1999)
Needle stick (occupational)	0.000 – 0.0046	(Baggaley, Boily et al. 2006)
Needle sharing	0.004 – 0.024	(Kaplan and Heimer 1992; Hudgens, Longini et al. 2002)
Blood transfusion	0.89 – 0.96	(Baggaley, Boily et al. 2006)
Vertical transmission from mother-to-child (no ART)	0.25 – 0.35 0.15 – 0.25	Developing countries Industrialized countries (Stoto and Goldman 2003)

Table 6.1.

*The probability of HIV transmission in a single instance of the specified act. *Gray, Wawer et al. (2001) found roughly comparable rates of male-to-female and female-to-male transmission in a study in Africa. Most studies find male-to-female to occur at a higher rate than female-to-male.*

Among MSM, HIV prevalence can also grow quite rapidly. In the early stages of the epidemic in cities with large, active populations of MSM, such as San Francisco, HIV prevalence reached 30 to 40 percent in just a few years. In many Asian cities today, prevalence is growing much more rapidly among MSM than among any other population. In Asia, transgenders are also at particularly high risk, because they primarily practice receptive anal sex and often sell sex. Once again, it is the combination of the high probability of transmission through anal sex, coupled with a large number of anal sex acts with different partners by some in the MSM and transgender communities.

Among heterosexual populations, there can be huge differences in the rate of HIV spread. In some countries, female sex workers have many clients per night. Over the course of a year this can translate into several hundred sexual contacts. With the relatively low probabilities of transmission through vaginal sex, between 1 chance in 500 and 1 in 1000, if only a small percentage of clients were initially infected, many sex workers could go several years without becoming infected. However, when sex workers have many clients, they also have high levels of other STIs, such as syphilis, gonorrhea, HSV-2 and chancroid. Many of these, particularly the STIs that produce genital ulcers, can greatly enhance the transmission of HIV. As a consequence, the probability of a sex worker contracting HIV increases substantially if she is carrying one or more STIs. This also increases the probability of transmission from the sex worker to the client, causing HIV prevalence among the clients to grow more rapidly than it would if there were no STIs.

On the other hand, heterosexual transmission from the clients to their wives tends to occur much more slowly. In most cases, sex between husband and wife occurs in the absence of other STIs, while on average, husbands and wives have sex about once per week. This comparatively low frequency, coupled with the relatively low probability of transmission through vaginal sex, causes husband-to-wife transmission to occur quite slowly. Thus, while heterosexual HIV transmission often occurs quite rapidly in sex work, it proceeds much more slowly within the marital relationship.

Levels and types of risk control how fast HIV spreads in Asian countries

While the factors outlined above influence the rate at which new HIV infections grow in a specific population, there are other things determining how quickly HIV spreads at the national level in Asian countries. National epidemics consist of multiple epidemics in different subpopulations. The size of these subpopulations, and the linkages between the epidemics in them, can significantly alter the growth rate and magnitude of a national epidemic.

Asia has substantial diversity in the epidemics from country to country. Some countries, such as Thailand and Cambodia, saw explosive growth of HIV in the late 1980s and early 1990s, reaching population levels of HIV above 1 percent in only

a few years. Other countries, such as China, Indonesia and Vietnam, have seen a much more gradual growth of national HIV prevalence; and, while HIV prevalence has grown steadily in these places, it has grown much more gradually than in Thailand or Cambodia. Still other countries, such as the Philippines or Bangladesh, have exceedingly low national HIV prevalence even today, and have yet to show evidence of a significant growing epidemic.

What explains these wide variations seen in HIV from country to country in Asia? A number of factors may be contributing:

- Varying levels of sexual and injecting risk from country to country in subpopulations such as heterosexuals, MSM and IDUs
- The size of the subpopulations and their comparative contribution to the national epidemic
- The linkages between these subpopulations
- The time of introduction and extent of external introduction of HIV to the country
- Biological factors, such as the prevalence of other STIs or the fraction of males circumcised
- Protective behaviors, such as condom use or use of clean injecting equipment
- The different subtypes of HIV in the country

With the large number of potential contributing factors, it seems like it may be difficult to understand the variations in HIV between Asian countries. However, over the last several years, our understanding of Asian epidemics has improved tremendously, and we have found a small number of critically

important determinants of the speed and extent to which HIV will spread. These most important factors are:

- The percentage of adult males visiting sex workers, and the number of clients per night for sex workers
- The presence of an epidemic among injecting drug users
- The presence of an epidemic among men who have sex with men

To understand its own situation, each Asian country needs to ask a number of key questions:

How big is the national sex industry and how busy are the sex workers?

The places that showed the earliest and most explosive HIV spread by the early 1990s (e.g., Cambodia, Thailand, and some of the high prevalence states in India) are the places in Asia where a large percentage of adult men visit sex workers. In the early 1990s in these places 15 to 20 percent of adult men had visited sex workers in the last year. In the early stages of their epidemics, most sex occurred in brothel-like settings, where sex workers commonly had two or more clients per night.

In other parts of Asia, the size of the adult male client population varies from 4-5 percent to 11-12 percent, and sex workers more commonly have one client per night or perhaps one client every other night. This includes countries such as Indonesia, China, Vietnam and Nepal. In these countries, after

epidemics among IDUs were seen in the mid-1990s, more gradual growth of the heterosexual HIV epidemic was seen.

This relationship between the size of the sex industry and the speed and severity of the HIV epidemic is no coincidence. Chin and colleagues first postulated a relationship between the size of the sex industry and the HIV prevalence in Asian countries in a paper in 1998 (Chin et al. 1998). In the late 1990s, with support from USAID, the East-West Center developed the Asian Epidemic Model (described in more detail in Chapter 7) to explore these variations in the factors driving HIV epidemics in Asia.

Careful application of this model showed that both the rate of growth of national epidemics in Asia and the prevalence to which they rose depended critically on the size of the client population and the number of clients per night of the sex workers.

Figure 6.3 illustrates the rate of growth and ultimate severity of an HIV epidemic in an average Asian country as a function of the size of the client populations and the frequency of commercial sex, assuming that condom use in sex work remains low.

NOTE: Chapter 7 will show that, instead of relying on generic models such as this, individual country models must be built so analyses accurately reflect the local behavioral situation.

FINDING 1A. THE TIME SCALE FOR NATIONAL HIV GROWTH IN COUNTRIES DEPENDS ON THE NUMBER OF CLIENTS. THE LARGER THE CLIENT POPULATION, THE FASTER THE GROWTH.

If we measure the time scale for HIV growth by the time from the start of the epidemic to when HIV prevalence first exceeds 1 percent, we see huge differences in the time scale between countries with different levels of commercial sex. If 20 percent of the men visit sex workers with two clients per night, the epidemic will exceed 1 percent roughly 15 years after the IDU epidemic begins. In a more moderate risk country with 10 percent clients and 1 client per night, it takes 25 years for this to occur, while with only 5 percent clients, it takes over 40 years. Thus, the time scale for epidemic growth depends critically on the level of risk in sex work. If sex work is particularly prevalent, with high numbers of both sex workers and clients, as was the case in Thailand and Cambodia, then the 1 percent threshold is passed in less than a decade, and the early growth of the epidemic is exceedingly fast (see line d in Figure 6.3).

This explains much of the variation observed in Asia – countries with moderate levels of commercial sex risk where perhaps 10 percent of men visit female sex workers, such as China or Vietnam, are seeing much more gradual epidemic growth, than countries where 20 percent of the men do so, such as Thailand and Cambodia early in their epidemics. Thailand and Cambodia never reached the HIV prevalence levels shown in Figure 6.3 because of very active prevention programs reducing risk in commercial sex.

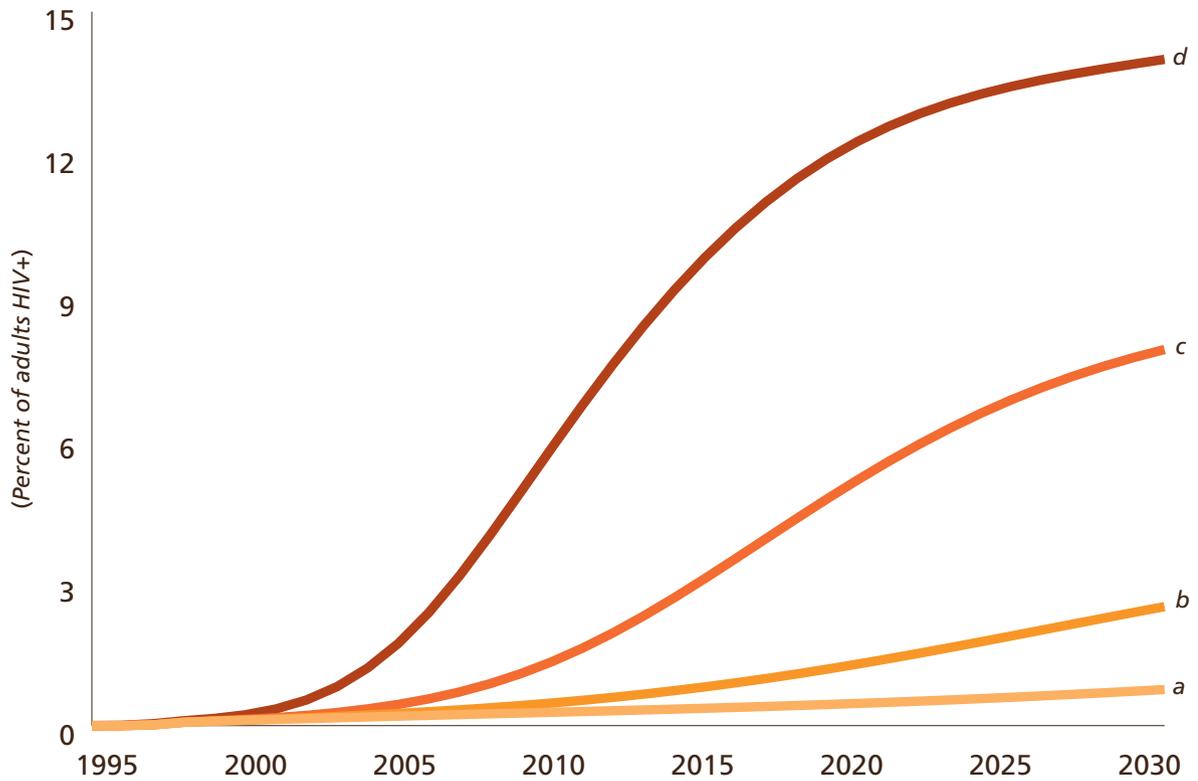


Figure 6.3.

Growth of adult HIV prevalence in a national Asian epidemic if an IDU epidemic takes off in the mid-1990s: a) 5% of men visit sex workers with 0.5 clients per night; b) 10% of men do so, 1 client per night; c) 20% of men do so, 2 clients per night; and d) same as c) except with twice as many female sex workers – like Thailand or Cambodia before behaviors changed.

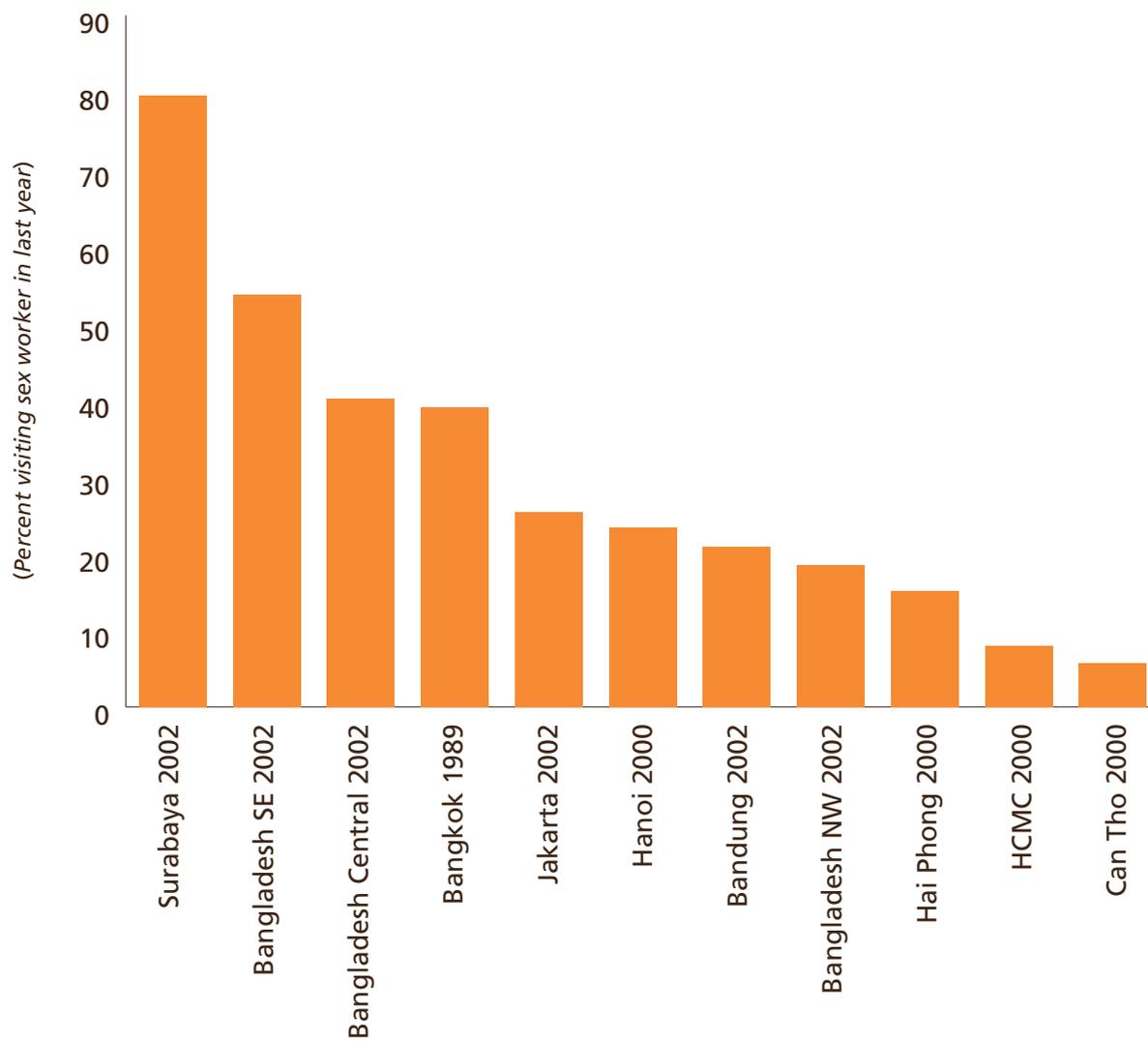


Figure 6.4.
Percent of injecting drug users visiting sex workers in the last year as measured in a number of behavioral studies in Asian settings.

FINDING 1B. THE MAXIMUM LEVEL OF NATIONAL HIV PREVALENCE IN COUNTRIES DEPENDS PRIMARILY ON THE PROPORTION OF CLIENTS. MORE CLIENTS MEANS A MORE SEVERE EPIDEMIC.

The other characteristic of the epidemic that depends on the level of sex work risk is the ultimate magnitude of the epidemic, assuming no prevention occurs. As can be seen in Figure 6.3, if 20 percent of men are clients, the epidemic can rise to levels of 8 percent or more. If 10 percent are clients, we get a more moderate epidemic of around 2-3 percent, and with 5 percent only around 0.5-1 percent. Once again, in the case of a very active sex industry as in Thailand and Cambodia, the levels can rise to almost 15 percent. Thus, the severity of the epidemic also depends critically on the size and activity level of the sex industry.

Some have questioned whether such levels of HIV can be attained in Asian settings. The threat of high prevalence in countries with higher levels of risk was real, however. In at least one province in the upper North of Thailand, where HIV was spreading rapidly before prevention took hold, prevalence among young men and pregnant women did reach 26 percent and 10 percent respectively. The fact that Thailand and Cambodia never reached these prevalence levels nationally is a tribute to the success of the extensive and intensive prevention efforts taken in both countries, which put substantial emphasis on increasing condom use between sex workers and clients, treating STIs, and reducing the client numbers (Phalla et al. 1998, Phoolcharoen et al. 1998). Today both countries have less than 10 percent of adult men visiting sex workers, cutting the previous client population in half, and condom use between sex workers and clients is above 80 percent.

Thus, the size of the client population and the frequency of sex work are primary determinants of the rate of growth of national HIV epidemics in Asia and the ultimate levels to which they can rise. Analyses similar to these in a number of Asian countries, undertaken as part of the A² process, have shown that this finding is quite robust across a variety of behavioral conditions in Asian countries.

Has a serious HIV epidemic occurred among the injecting drug users in the country? The IDU epidemic can help to seed the heterosexual epidemic

One interesting observation about HIV epidemics in Asia, first made by Weniger and colleagues, is that the epidemics tend to proceed in “waves” (Weniger et al. 1991). The Asian epidemic most often begins with an outbreak or “wave” of HIV among injecting drug users, followed by a “wave” among sex workers, another “wave” among clients, and then a “wave” among their wives and children. This raises the question of why the epidemic among IDUs precedes that in other groups – almost all countries in the region have experienced this.

There is absolutely no question that injecting drug use has played a key role in HIV epidemics in China, parts of India, Indonesia, Thailand and Vietnam. As described above, needle sharing among IDUs with their high frequency of injection is an efficient means of transmitting HIV; however, IDUs can also contract and transmit HIV sexually. This highlights the need to explore direct links between sex work and injection drug use.

These direct links take two forms: 1) IDUs are often clients of sex workers, and 2) female injecting drug users often sell sex, and some sex workers inject drugs. Figure 6.4 shows the

percentage of IDUs reporting visiting sex workers in the last year in various Asian locations. It varies from a few percent to almost 80 percent. Less information is available on sex workers who inject, but studies in parts of China and in Vietnam have found as many as 15 to 20 percent of sex workers in some areas injecting drugs.

If IDUs are clients of sex workers, then what influence do they have on the growth of the heterosexual components of the epidemic? Models, such as the AEM described in Chapter 7, can examine these relationships directly. Figure 6.3 showed a situation in which the IDU epidemic started in 1995. Suppose we now take the situation as shown in line (b) in that figure, in which 10 percent of men visit sex workers who have one client per night. Let's look at what happens if we start the IDU epidemic earlier or later or if we avert the IDU epidemic entirely (that is, we implement programs that eliminate injection risk).

Figure 6.5 shows what happens to the overall epidemic if, instead of starting in 1995, the injecting epidemic starts 10 years earlier or 10 years later or if the IDU epidemic is averted entirely. The results are quite startling. If the IDU epidemic starts in 1985, the overall epidemic begins to rise rapidly much, much earlier than if the epidemic starts in 1995. Similarly, if the IDU epidemic is delayed until 2005, it also slows the start of the overall epidemic. Recalling that the majority of HIV transmission in any country in Asia occurs in sex work, this means the direct link between injecting drug use and

sex work, primarily the fact that many IDUs are clients of sex workers, is essential to getting the larger national epidemic underway.

As Figure 6.5 shows, if the IDU epidemic is averted entirely, the overall epidemic barely grows at all by 2020. That is, in the absence of an IDU epidemic, the level of sexual risk in a moderate risk Asian country does not support a rapidly growing HIV epidemic. This helps to explain why many Asian countries (e.g., China, Indonesia, Vietnam) haven't seen HIV prevalence in sex workers start to rise until a few years after the epidemic among IDUs begins.

In higher risk countries (e.g., Cambodia where 20 percent of men visited sex workers at the start of the epidemic), sexual risk alone is enough to start the epidemic – and injection drug use has not played a central role in that country's epidemics. However, in moderate and low risk countries in Asia, where 5 to 10 percent of men visit sex workers, unless there is an epidemic among IDUs, it takes 30 to 40 years to start the epidemic among sex workers and their clients. That is, the growth of infections among IDUs “seeds” the epidemic among sex workers and clients, and thereby accelerates the entire national epidemic. Therefore, in moderate risk places in Asia, such as Bangladesh, where the IDU epidemic has yet to start, we are not likely to see a major sex work epidemic today. However, as the experience of so many Asian countries has shown, once that IDU epidemic does begin, the growth of the heterosexual epidemic will soon follow.

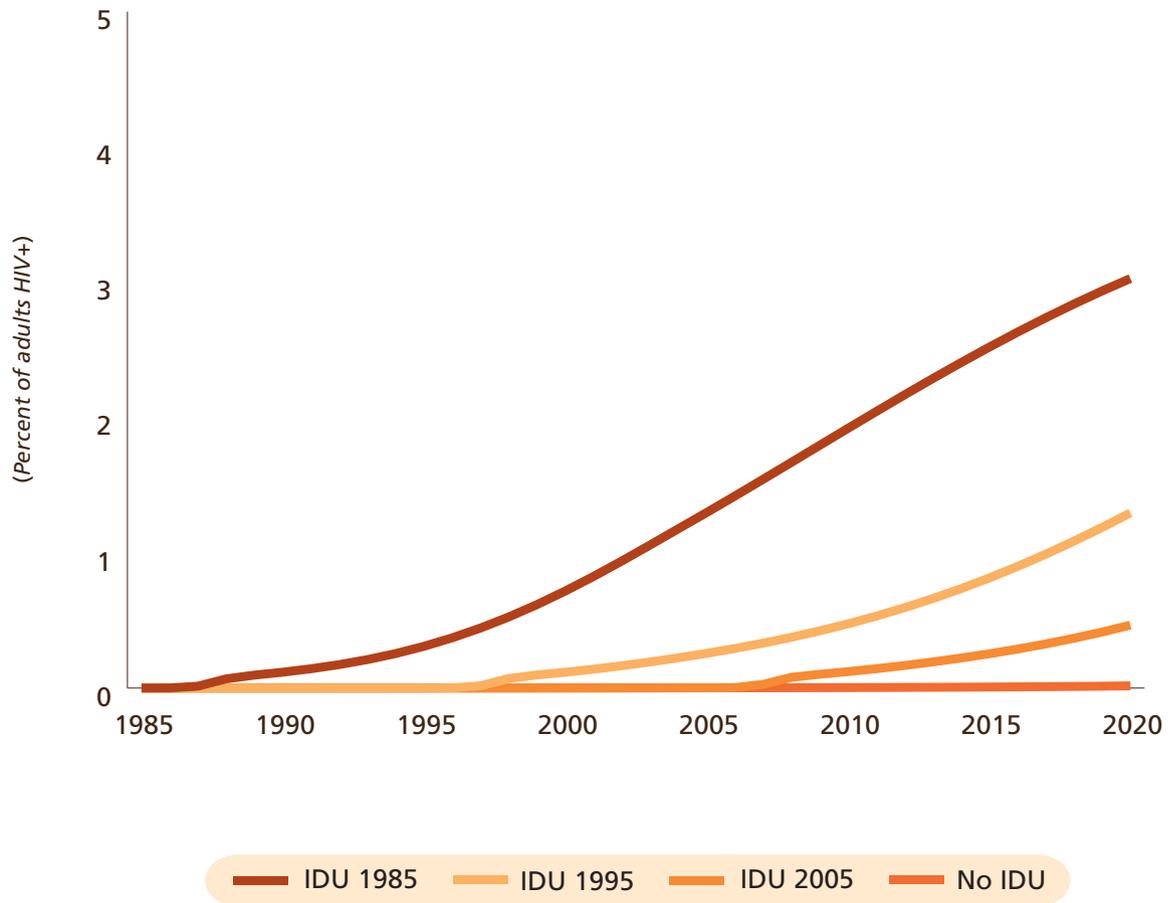
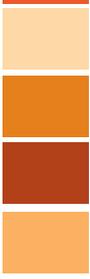


Figure 6.5.
Total adult HIV prevalence if the IDU epidemic starts in the year indicated in the legend or if the IDU epidemic is averted entirely.



To what extent has an epidemic developed among MSM?

The epidemic among men having sex with men deserves renewed attention in Asian settings. In the earliest stages of most Asian epidemics, MSM figured very prominently in early infections and AIDS cases. For example, in Thailand, Hong Kong and Singapore, the bulk of the earliest infections were among MSM. However, with the growth of the IDU epidemic in Thailand and increases in the heterosexual component of the epidemic in many other locations, the focus on the epidemic among MSM was lost.

Only in the last few years has any concerted effort been made to determine the HIV prevalence among MSM populations, and the results raise serious concerns. Table 2.1 in Chapter 2 showed the comparatively high HIV prevalences measured in this population in a number of recent studies in different countries. It is clear that this has become a significant component of epidemics throughout Asia. It is also clear that it is growing. In Beijing prevalence grew from 0.4 percent in 2004 to 5.2 percent in 2006 (Ma et al. 2007). In Bangkok, it went from 17 percent in 2003 to 28 percent in 2005 and over 30 percent today (van Griensven et al. 2005). And Bangkok is not the only place with such high prevalence. In Andhra Pradesh, India the prevalence in Hyderabad was 24.7 percent, while in Madurai in Tamil Nadu state it was 22.3 percent (ICMR and FHI 2007).

Among transgenders, HIV prevalence is often even higher than among the overall MSM population. For example, HIV

prevalence among MSM in Jakarta in 2002 was 2.5% , while prevalence among waria, the transgendered community in Indonesia, was 22% (Pisani et al. 2004). In Southern India, where hijra are the major transgendered community, a study in the late 2000s found HIV levels of 18.1% among hijra, compared to 10.5% among MSM who practiced both insertive and receptive anal sex and 7.6% among those only reporting insertive anal sex (Brahmam et al. 2008). Two contributing factors to higher HIV levels among transgenders are their primarily receptive role in sexual encounters and their involvement in sex work in some places.

With MSM making up 2-3 percent of the adult male population, the high efficiency of anal sex in transmitting HIV as discussed earlier in this chapter, and the comparatively low levels of condom use reported by many MSM around the region, this component of the epidemic is poised to grow rapidly in the near future. In Japan, Hong Kong and Singapore, MSM are already the main source of newly reported infections. As other countries increase condom use in sex work and reduce transmission through this route, the importance of MSM will grow substantially.

Figure 6.6 shows how the contribution of different populations has changed over time in Thailand, where effective responses have largely contained transmission through sex work. Entering the late 2000s, MSM are becoming the largest source of new infections in the country. Yet, to date, prevention efforts have been anemic at best, and on a region-wide basis it is estimated that only 5-10 percent of MSM have any access to prevention programs.

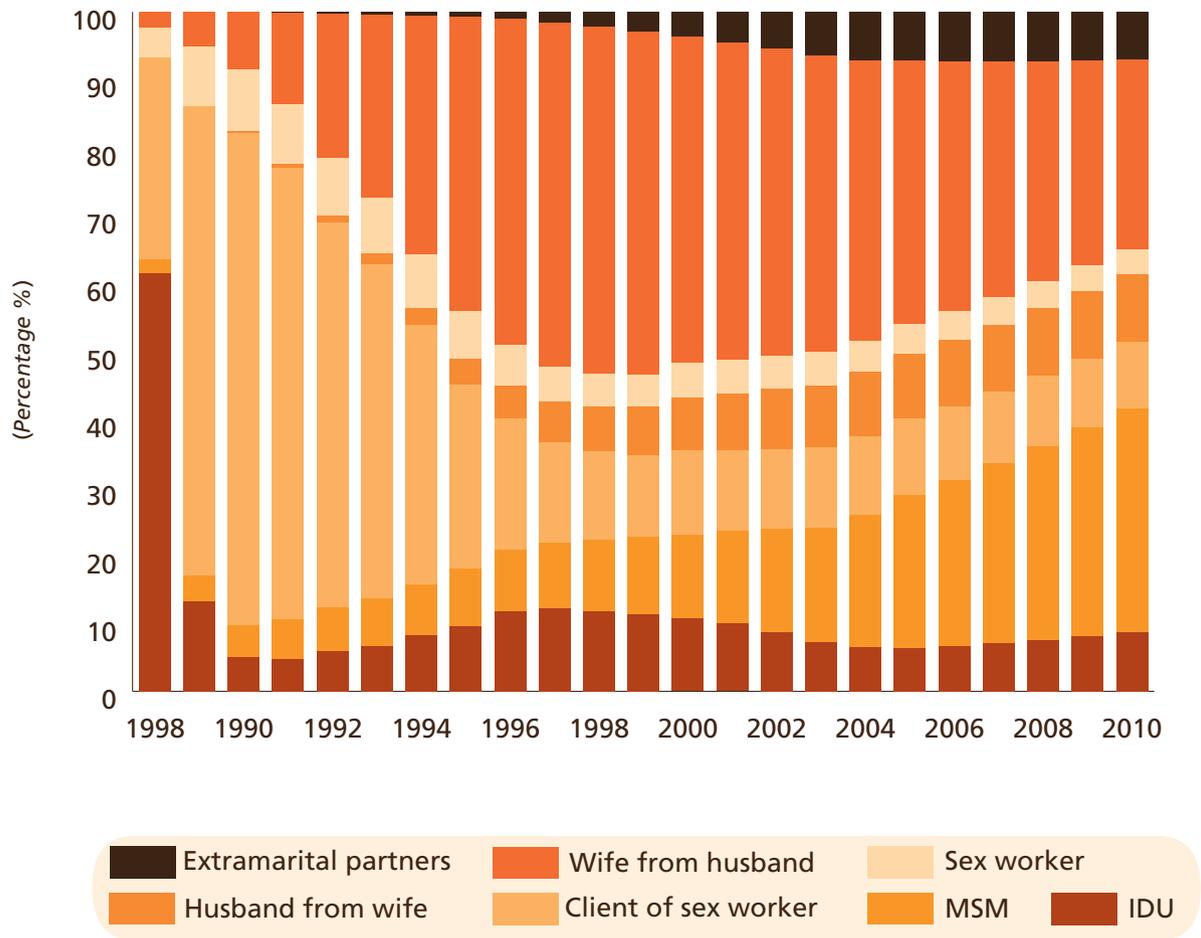


Figure 6.6.
The contribution of different groups to new infections in Thailand. After sex work transmission was reduced in the 1990s, the contribution of MSM to new infections grew rapidly.



Recap: the three most important questions in an Asian epidemic

If an Asian country can answer these three questions:

- How big is the national sex industry and how busy are the sex workers?
- Has a serious HIV epidemic occurred among the injecting drug users in the country?
- To what extent has an epidemic developed among MSM?

then it is well on its way to a good understanding of the current state of its epidemic and recognizing where prevention efforts are likely to have the biggest impact.

Generalized heterosexual spread is NOT presently a concern in Asia

Many misinterpret the Asian epidemic pattern of IDUs to sex workers and clients to wives and girlfriends to imply that once enough men and women become infected, the epidemic goes "generalized" with non-commercial casual heterosexual sex driving the epidemic. However, this has not been borne out by epidemiological studies or modeling efforts in the region. In fact, the vast majority of women who have contracted HIV in Asia have not contracted it from casual sex, but from their marital relationship with their husband. This is not to say that transmission between men

and women by casual, non-commercial sex does not occur, but to say that it does not occur at sufficient levels in Asia to sustain national epidemics or to contribute more than a few percent of the total infections in these epidemics. Even at advanced stages of the epidemic, the majority of new infections in Asia continue to occur among the most-at-risk populations and their immediate sexual partners.

The reason for this is well understood: there is a huge dichotomy in Asia between the sexual and injecting risk behaviors of men and those of women. Behavioral studies in Asia have shown that a large proportion of Asian men have had sex before marriage and outside of marriage, often with sex workers (Brown et al. 1995). These same studies show that the vast majority of Asian women either have not had sex before marriage or, if they did, usually only had sex with their future spouse prior to marriage. Similarly, Asian women are much less likely than Asian men to have sex outside of marriage. For example, in the series of general population surveys conducted by WHO in the early 1990s, in Singapore 10 percent of the men, but only 1 percent of the women reported sex outside of a relationship in the last year (Carael 1995). In Thailand, the corresponding numbers for urban men and women were 40 percent and 2 percent, respectively, and in Manila, 14 percent and 1 percent (Carael 1995). In the Indian National Behavioral Surveillance Survey in 2001, 11.8 percent of males, but only 2.0 percent of females reported any sex with a non-regular partner in the last month (National AIDS Control Organisation 2001).

The result of this imbalance between the genders in non-marital sexual activity is to create a substantial male demand for sexual services, which is filled by a small population of women: the sex workers. Normally in Asia, the sex worker population is between 0.2 and 0.8 percent of the adult female population (Vandepitte et al. 2006). A comparison of this against the 5 to 20 percent of men who are clients explains why sex workers have such large numbers of clients each year, which places them at extremely high risk for both STI and HIV. The high number of clients per year, coupled with weak STI treatment programs in much of the region, produces an environment particularly conducive to rapid HIV spread.

However, because the women themselves are not sexually active outside of current or future marital relationships, the spread of HIV among those who are not members of most-at-risk populations (clients, sex workers, IDUs or MSM or immediate sexual partners of these groups) remains very limited. This means that “generalized” spread will not drive Asian epidemics, either now or in the future, but that the vast majority of new infections will continue to occur among most-at-risk populations. This will be true not only at the earliest stages of the HIV epidemics, but also at the later stages.

Critical implications for prevention

The findings of this section have serious implications for prevention, which will be explored in more detail in later

parts of these guidelines during discussions of specific country situations. However, these findings lead to several essential prevention messages worth stating here:

- Containing HIV transmission through sex work is essential to controlling HIV epidemics in Asia. Without such efforts, the epidemics will continue to spread.
- Early intervention with IDUs to keep their prevalence low can slow or, if very successful, avert the sex work component of the epidemic.
- Programs for MSM remain essential in all Asian countries because of the high efficacy of anal sex in spreading HIV and the substantial contribution they are making to epidemics in the lower prevalence settings of Asian epidemics.
- Programs focused on these at-risk populations—clients and sex workers, IDUs and MSM—will be both more cost-effective and more effective in containing epidemics in Asia than those targeting the population-at-large.

Unless the coverage of focused programs rises to high levels, it is unlikely that an epidemic in an Asian country will be contained. These issues will be discussed in more detail in later chapters dealing with the A² approach and the A² experience in evaluating the effectiveness and the targeting of HIV prevention efforts.

The need to focus on trends – limitations of snapshots in a dynamic epidemic

HIV status today depends on behaviors in both the past and the present

It has often been said that HIV is a “behaviorally transmitted” disease – and by most measures this is correct. The behaviors that transmit most HIV are very well understood: vaginal and anal sex and needle sharing. We know that when used effectively, condoms can prevent sexual transmission and that using one’s own equipment can prevent transmission through needle sharing. And, of course, this is all backed up by large numbers of studies...or is it?

Nelson et al. (1993) conducted a study among young men entering the Thai military. They found that 15 percent of the men who used condoms were HIV+, but only 9.3 percent of the men who did not use condoms were HIV+. OK...what’s wrong with this picture? The men using condoms have higher prevalence than those who don’t use condoms? So the logical conclusion is that use of condoms increases HIV transmission. You scratch your head and wonder...

OK. Let’s try another one – we know that vaginal sex with higher-risk partners such as sex workers transmits HIV most effectively. Therefore, men who visit sex workers should have higher prevalence than men who don’t – and places with more clients should have higher prevalence as well. So let’s look at a study in four cities in Africa that examined the relationship of HIV prevalence and men’s sexual behavior. Table 6.2 shows the study’s findings (Morison et al. 2001).

Hmmmmhhhh...The place with the smallest number of clients has one of the highest HIV prevalences and the place with the largest number of clients has the next to lowest prevalence. That seems counterintuitive.

Looking at these two examples might lead the naive reader to believe that maybe we don’t understand HIV and how it’s transmitted very well. So what’s wrong with our interpretation of the above two studies? The problem with both of our interpretations above is:

- **ERROR: We have assumed that *current* behaviors are correlated with current levels of HIV.**

City	Country (East or West Africa)	HIV prevalence in adults (%)	Men visiting sex workers last year (%)
Cotonou	Benin (W)	3%	4%
Yaounde	Cameroon (W)	4%	12%
Kisumu	Kenya (E)	20%	3%
Ndola	Zambia (E)	23%	6%

Table 6.2.

HIV prevalence in four African cities compared to client population size in the city. (source : Morison et al 2001)

Let's take the first example. We say that the men who use condoms more have more HIV – and according to the study this is true. However, when Nelson and his colleagues looked more closely, the reason for this became apparent. The men who were more likely to use condoms were also the men who went to visit sex workers more often – and they hadn't used condoms with sex workers their entire lives. In fact, in the past, before they knew about HIV but after it had started circulating in Thailand, they visited sex workers and never used condoms. That is, they got infected because they visited sex workers very frequently in the past and never used condoms. But once prevention messages reached them, realizing they were at very high risk because they visited sex workers so often, they started to use condoms. For some of them, it was too late and they had already contracted HIV. Thus, the problem with our interpretation of the relationship between condoms and HIV was that we forgot that HIV infection risk is cumulative and we need to consider not just their current protective behaviors with condoms, but their past behaviors as well. A person's HIV status today is a function of not just current behavior, but also of past behaviors and potential exposure to HIV.

The same issue comes into play with the second study. We've assumed the current level of HIV is determined by the current level of visiting sex workers. But once again, we've forgotten two things: the time element, and the large number of other factors that can influence HIV transmission. What if HIV had only started circulating in Yaounde recently? Then the epidemic would not have had time to reach high levels. Risk

behaviors can be quite high, but if there is no HIV present, there can be no HIV transmission. So the time of introduction of HIV becomes very important to understanding what's going on – and we haven't considered that in our "analysis." Also, what if men in Yaounde only started visiting sex workers in the last two or three years as the economy expanded, that is, what if the behaviors themselves had been changing over time? Then, again we would not expect the epidemic to have grown too large yet because it takes time for HIV prevalence to grow. But we only have behavioral data at one point in time, so we can't say offhand if it was the case that behaviors were changing without collecting some more information.

Interestingly, when the researchers looked for factors that did correlate with HIV infection, they found two factors to be significant: circumcision and the levels of the sexually transmitted infection HSV-2. Circumcision, as we know well today, is somewhat protective – men who are circumcised are less likely to contract HIV – thus, circumcision can slow the growth of an epidemic over time. HSV-2 increases HIV transmission substantially. Thus, higher HSV-2 levels increase the frequency of transmission of HIV. Again, over time, this will increase the prevalence level in those communities in which HSV-2 is at higher levels.

The other problem in our crude interpretation of the second study was that we forgot that HIV transmission is controlled by a number of different factors, not just by the size of the client population. We oversimplified things and didn't take into account a number of major factors that might influence

HIV transmission including condom use, frequency of sexual risk, levels of other STIs, etc. Each of these factors will change the rate of transmission of HIV over time, and thus alter the speed, severity and course of the epidemic. In fact, in a recent paper, the same authors revisited this study using trends in behaviors, HIV and STIs over time in models that included behaviors and the time element. In this paper, they concluded that with such models they could explain the apparent contradictions to our understanding of HIV transmission in the first paper (Freeman et al. 2007, Orroth et al. 2007).

The limitations of cross-sectional studies

Most of our HIV data sources are cross-sectional in nature. That means they only reveal the situation at the point in time at which they are conducted. They do not provide information about people's past behavior. They do not provide information about the HIV levels at the time those past behaviors were occurring. They do not tell whether these same people used condoms or didn't share needles in the past – they primarily tell us about their situation today. This limits our ability to draw correct inferences from them – and people sometimes draw radically incorrect or incomplete conclusions, such as our early “conclusion” from the Nelson et al. study that condoms increased HIV transmission.

There are studies, known as cohort studies, which do follow people, their behaviors, and their HIV status over time. In these studies, condom use does protect them from HIV, people who visit sex workers more often are more likely to

contract HIV, and things do work the way we expect them to. However, such studies tend to be expensive and difficult – as a result, they are relatively uncommon. Most of the data to which you will have access are cross-sectional.

The problem with cross-sectional studies of HIV is that they are only snapshots in time, but the epidemic itself is a dynamic movie with a complicated plot. Just as you cannot understand a movie by looking at one still photo from it without knowing the plot up to that point, you cannot understand an HIV epidemic from one cross-sectional study without knowing what has gone before. However, if you piece together enough information from a number of cross-sectional studies over time, you can reconstruct the history of the epidemic, just as you can produce a pictorial synopsis of a movie if you have enough snapshots and can put each in context. The final sections of this chapter discuss how to build that synopsis from the available data.

Tools such as the Asian Epidemic Model, discussed in the next chapter, provide a framework with which you can reconstruct such a history of your national epidemic. By drawing data from both past and present studies, models built from such tools already integrate the effects of past behaviors on current HIV levels. As such, they are not likely to produce the types of incorrect associations between behaviors and HIV seen in the above examples.

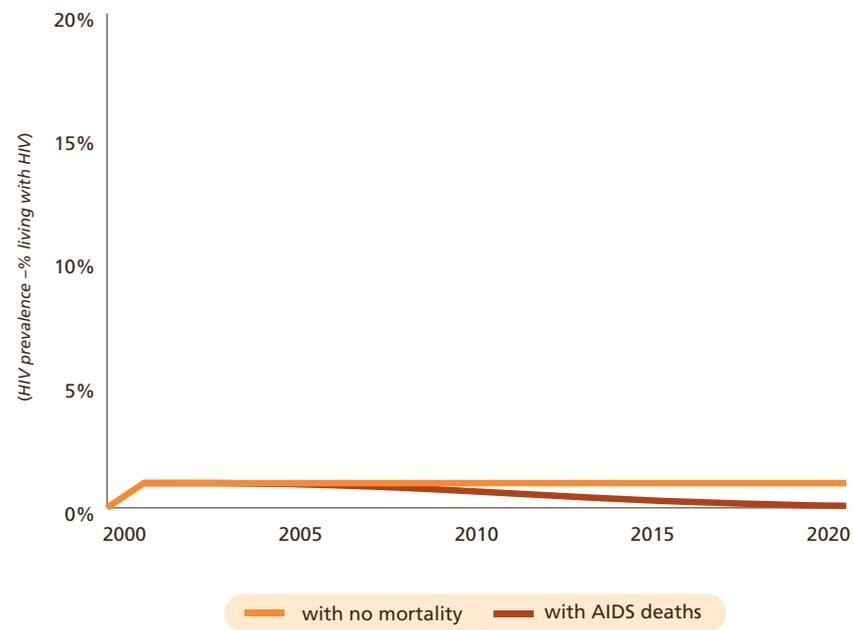
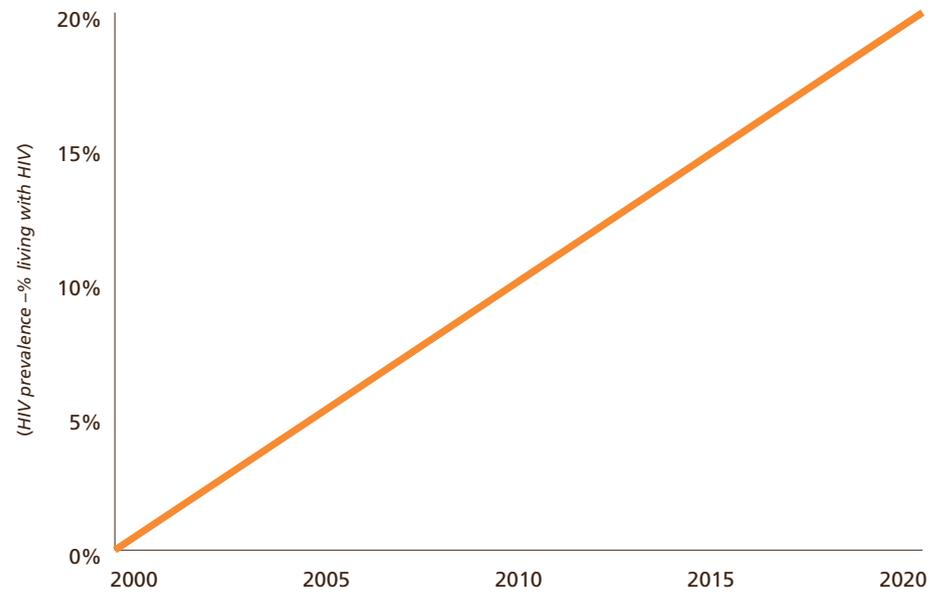


Figure 6.7.

Top-increase in HIV prevalence over 20 years with 10 new infections a year in a population of 1000 people if nobody dies; bottom-If there are 10 new infections in a population of 1000 in 2000, and new infections stop after the first year, the HIV prevalence remains stable at 1% if there are no deaths (orange line). If there are AIDS related deaths, prevalence drops slowly to 0.1% by 2020 (brown line).

HIV prevalence is an insensitive indicator of behavior change

On the surface, HIV prevalence seems like a pretty straightforward and useful indicator for an HIV epidemic. It is defined simply as the percentage of the population currently living with HIV. On first thought it seems to work like other indicators. If you start with 1000 people and you have 10 infections in the year 2000, the prevalence becomes $10/1000 = 1.0$ percent at the beginning of 2001. If you have another 10 infections in 2001, the prevalence becomes $20/1000 = 2.0$ percent at the start of 2002, and so on. When more people become infected, HIV prevalence goes up. So you just measure the number of HIV infections in a population at different points in time and you can track the growth of the epidemic. The top graph in figure 6.7 shows how prevalence would increase if we continued to have 10 new infections each year over 20 years. In the real world, the number of new infections tends to go up every year at first, so the HIV prevalence actually grows much more rapidly than in this simple example.

But what happens to HIV prevalence in this simple example when effective prevention programs are implemented? Looking at the previous example, suppose that by the end of the first year, we introduce a really good prevention

program – one that prevents all of the infections in the second year. What happens to HIV prevalence then? Well, in 2000, we haven't gotten our program working yet, so we still have 10 infections and a prevalence of 1.0 percent at the beginning of 2001. But in 2001, we now have no new infections – but the 10 people infected in 2000 are still with us. Thus, at the beginning of 2002, we will have a prevalence of $10/1000 = 0.1$ percent. At the beginning of 2003, it is still 10 people infected out of 1000, so the prevalence is still 0.1 percent.

This is not quite the full picture, because in the absence of treatment, people with HIV do die of AIDS-related causes at a faster rate than those without HIV. As discussed earlier in this chapter, about 50 percent will still be living 11 years after they become infected. So by year 2012 in the second example above where we stop HIV transmission completely, we will have a prevalence of $5/1000 = 0.05$ percent (i.e., half of the 10 people infected in the first year will have died and nobody else got infected because we did such a great prevention program). That is, prevalence will fall very slowly as those infected with HIV in 2000 pass away. Given how accurately we can normally measure prevalence, this drop in

prevalence due to higher mortality among those living with HIV will probably not even be detectable until four or five years after we implement our 100 percent successful prevention program.

Now, we're seeing the problem with prevalence as the indicator of prevention success. Even if we are completely successful in our prevention efforts, we are only going to see a slow, gradual decline in the number of people living with HIV. Prevalence is a cumulative indicator, indicating the total number of people infected over the entire course of the epidemic, reduced by the cumulative number of people who die of AIDS, which in turn depends on when those people were infected. However, prevention success really needs to be measured by looking at the current number of new infections (i.e., incidence as defined earlier in Chapter 3), not at the number of cumulative infections, which is what prevalence reflects. This cumulative nature makes prevalence a very insensitive indicator of prevention success.

Why doesn't it work this way for most diseases? It's because with most diseases people either die fairly soon after infection or recover quickly (i.e., their immune system totally

eradicates the virus or bacteria in their body), and they are subsequently immune to being reinfected. Thus, the prevalence of active infections drops off rapidly. However, HIV doesn't have either of these outcomes. Deaths do not occur quickly, but instead play out much more gradually over time scales of years or decades; and people do not recover from HIV and become immune. Instead, it is a lifelong infection that will never resolve. Thus, the prevalence in a population goes up easily as people become infected, but takes a very long time to come back down, even if the flow of new infections stops completely.

The insensitivity of HIV prevalence is even more apparent in real world situations. HIV prevention works by stopping new infections, but it is rarely possible in the real world to become 100 percent effective in a short period of time – we need time to test programs, bring them to scale, and fine tune them to the local situation. In fact, in the early stages as we are learning to do good prevention, we will probably be lucky to reduce new infections by 20 percent a year from the previous year's value. Figure 6.8 shows a typical epidemic in its growth phase showing the number of new and current infections by year.

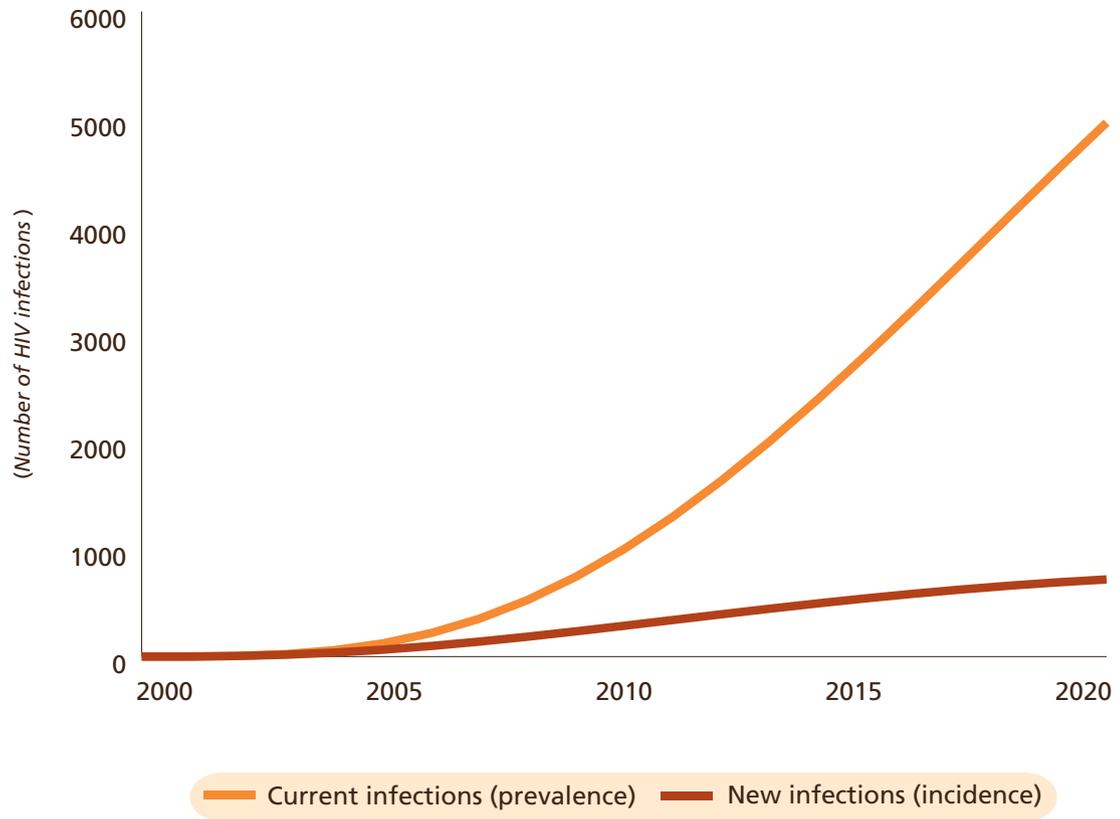


Figure 6.8.
A typical epidemic growth scenario with about 5000 current infections in 2020 and a steadily growing flow of new infections.

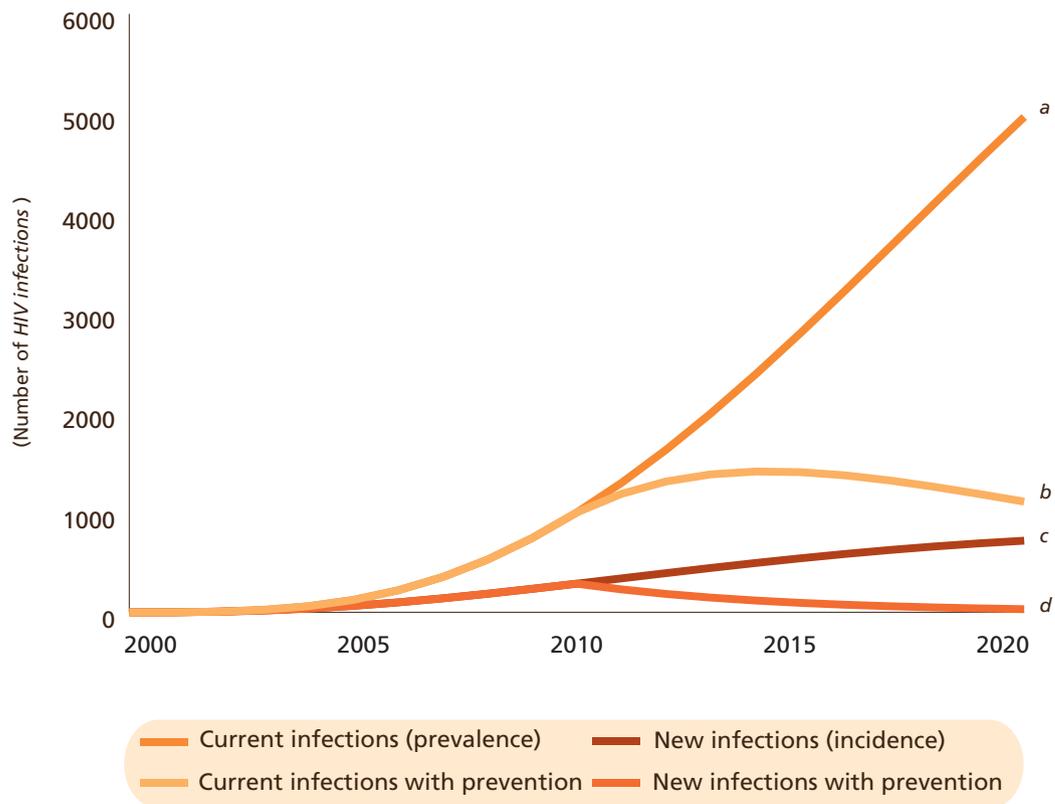


Figure 6.9.
The impact on incidence and prevalence of a major prevention effort, starting in 2010, that reduces new infections by 20% each year. Lines a and c show without an enhanced prevention effort, while lines b and d are with such an effort.

Suppose we now introduce an extensive and intensive prevention effort in 2010, which reduces the number of new infections by 20 percent in each subsequent year (i.e., if there are 286 new infections in 2010, there will be $286 \times 80\% = 229$ new infections in 2011, and $229 \times 80\% = 183$ new infections in 2012, etc.). The impact of this program on incidence and prevalence measured in total number of new and current infections is shown in Figure 6.9.

In this still optimistic example, even though prevention starts reducing new infections strongly starting in 2010, the prevalence as measured in number of current infections continues to climb (line b) for another five years or so before

beginning a very gradual decline. This illustrates once again the difficulties in using prevalence to measure program success. It responds only gradually and after a long time delay even to very successful prevention efforts.

But, you ask, what about showing how much impact we had by comparing the prevalence curves with and without the prevention program (lines a and b in Figure 6.9)? Good idea, but in the real world, we never see line a! We would only measure the curve in the case where the prevention program took place. How then can we tell what might have been or assess the number of infections we may have prevented? For this, we need to turn to models, the subject of Chapter 7.

Adjusting for how the prevalence we measure changes with time

A final set of time-related factors to be considered are related to what “prevalence” is actually being measured. We normally will not have the entire population tested for HIV in order to determine the number of HIV-positive individuals and thereby calculate the prevalence for the population as a whole. Instead, we select some subset of the population for testing based on their relevance to the epidemic, and then select a sample from this population to whom we administer HIV tests. From this we calculate the percentage HIV-positive and some error bounds.

In responding to Asian epidemics, we usually gather data on prevalence in specific populations included in HIV surveillance: FSWs, MSM, IDUs, and pregnant women among others. HIV prevalence for these groups is invariably measured in some specific setting (e.g., brothels for sex workers, bars and night-clubs for MSM, treatment clinics for IDUs, and urban hospital settings for antenatal clinics). The populations captured in these settings may change over time. These changes, in turn, often influence the prevalence that is actually measured. They can also change the relationship between new infections and measured prevalence. Understanding these changes is critical to interpreting the data and extracting its implications for directing and evaluating responses.

Is the population turning over?

Figure 6.10 shows some of the time-related changes that can affect the HIV prevalence measured in a population. Infected or uninfected individuals may enter or leave the population. For example, in many Asian countries women remain in sex work for only a few years. If the number of sex workers remains stable, this means that every year approximately 20 percent of the sex workers leave sex work and are replaced by other, typically younger, women. If the sex work component of the epidemic is underway, some of the women leaving sex work will be HIV-positive, but the majority of women coming into sex work will be HIV-negative. If condoms were always used 100 percent by all the sex workers so no new infections occurred, the net effect of this change in the population of sex workers over time would be to bring the measured prevalence down, as the HIV was diluted by uninfected young women entering sex work. However, under these circumstances if the prevalence among sex workers is remaining constant, then some of the young women entering sex work are becoming infected. **That is, if there is population turnover, stable prevalence implies ongoing incidence.** If prevalence is climbing, then the incidence in a population with turnover must be higher than it would be for a similar population that was not changing at all.

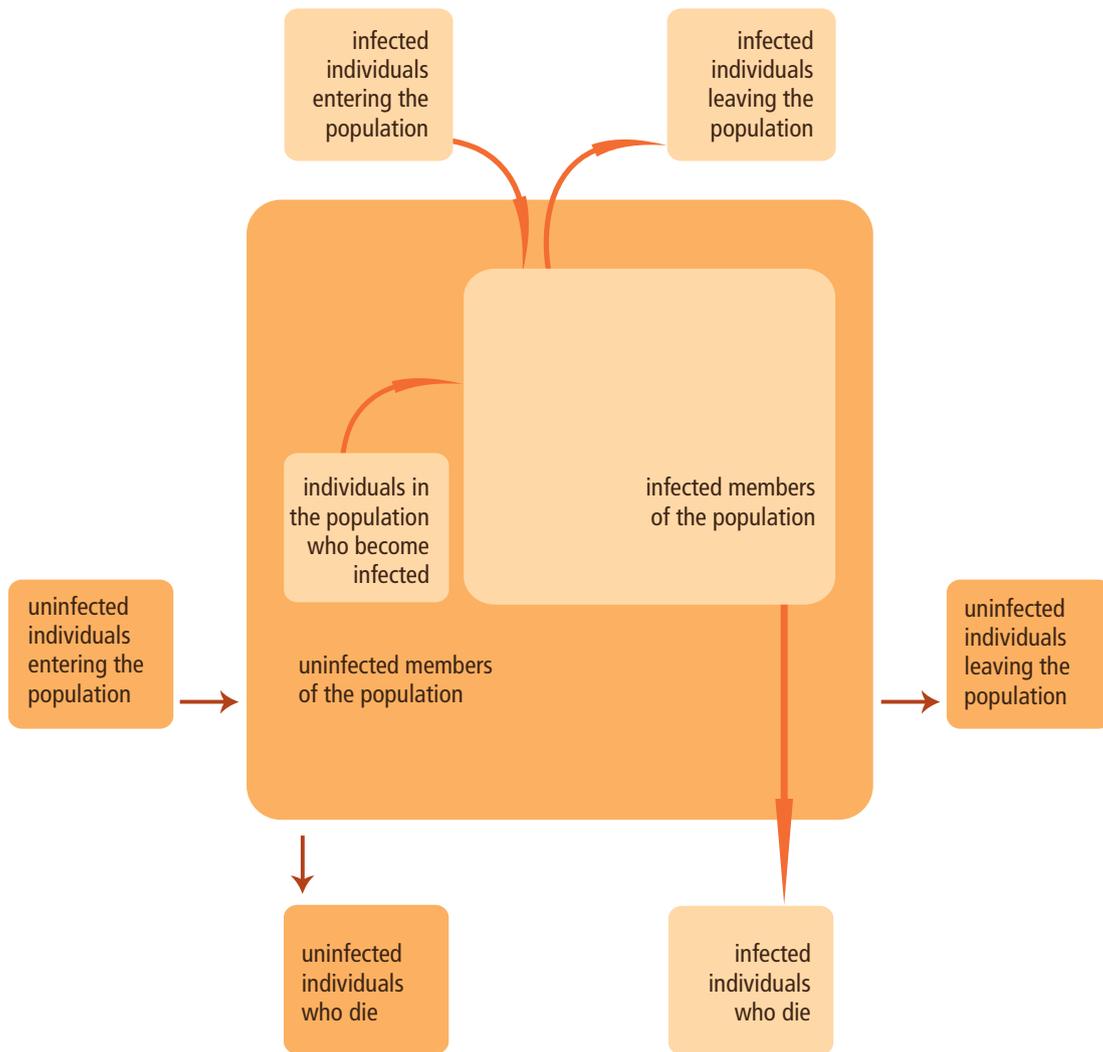


Figure 6.10.
The changes that can occur over time which influence the prevalence measured in any specific population.

Is the surveillance system changing?

Another time-related factor that can influence the overall prevalence measured in a country is a change in the surveillance system itself. Often surveillance systems start with a small number of sites (e.g., only antenatal clinics in provinces suspected of being higher prevalence because they have more exposure to the introduction of HIV by geographic proximity to a neighboring country or heavy tourist flow). If those systems expand over time to include many lower prevalence sites, then the apparent overall prevalence in the country, measured as the average of all the surveillance tests done nationally, may go down. However, again, this is a dilution effect, not a real change in national prevalence – lower prevalence sites added later have reduced the apparent prevalence, but the prevalence in the earliest sites may still be trending upward. This shows the importance of looking at consistent sets of data, collected in the same way and in the same population, as we seek to understand and interpret trends in the epidemic.

Is risk shifting to other places?

Yet another time-related factor may be actual changes occurring over time in the nature of risk at the testing site chosen. For example, in some countries sex work in the early 1990s was largely concentrated in brothels, so surveillance systems were set up to test women in those locations. However, as the HIV epidemic became apparent, many clients started to shift to what they perceived

as lower risk settings (e.g., bars and restaurants). As a consequence, many of the more educated sex workers moved to these lower risk settings, leaving less educated young women working in the brothels. These women often had less negotiating power with clients and therefore were more likely to engage in sex without condoms frequently. This might mean sex workers at brothels were becoming higher risk over time, tending to increase the prevalence. On the other hand, if brothel owners begin to insist that all customers use condoms, the risk might instead be going down. If you are to interpret the prevalence trends from sites with such changes, then it is critical that you understand the changes occurring and the evolving nature of behavioral risk at each type of site.

Is the population at sites changing?

Who is attending a specific site may also vary over time, producing artificial changes in the prevalence. A good example of this is found in HIV prevalence among antenatal clinic women in some countries. As awareness of HIV has evolved, some of the original HIV surveillance sites have become known to health staff and to the public as places where HIV testing is done. This may tend to disproportionately draw HIV individuals to these sites, either spontaneously if they wish to get tested or by referral from other lower risk sites. If large numbers of referrals of HIV-positive women are made from other hospitals, it may directly increase the prevalence measured at the referral sites. If the referral policies or frequency of referrals change over time, the prevalence trends may be affected.

Is the sampling done consistently?

One final factor to keep in mind is whether the sampling approach is changing. Even if the population is closed, the same sites are used, and the behavioral risk is the same over time, changes can be introduced by the actual sampling methodology being used. For example, suppose that a methadone clinic shifts from calculating prevalence based on blood samples drawn with informed consent from individual clients, to unlinked anonymous testing of urine specimens in the same population without a consent requirement as part of the surveillance system. If those refusing consent to test in the former situation were primarily people with reason to believe they were HIV-positive, the apparent prevalence might go up with the introduction of the unlinked urine testing. However, this would not be a real increase in prevalence, but merely an artifact of the change in the sampling methodology.

The variety of these factors and the influence they have on what “prevalence” is actually measured highlights the need to understand your data systems in order to correctly interpret the data they produce. This is why the synthesis specialist needs to gather full information about the systems that collect the data, not just the data alone. If you understand the surveillance system, who it samples, how it samples them, and how these things have changed over time, you will be able to make a more realistic and reasonable interpretation of the prevalence data and what they are telling you.

The art of discerning trends in a sea of information – how to do it?

The many ways in which HIV epidemics depend on time require that you gather information about the past to understand the present and predict the future. To build models that accurately capture the previous evolution, current state and impact of previous responses on the epidemic, you need to know:

- How behaviors relevant to HIV transmission have changed over time
- How HIV and STI levels in key populations have varied over the years
- How responses have influenced these behaviors and levels

Chapter 3 already discussed the types of epidemiological and behavioral information needed to understand an Asian HIV epidemic and the important populations in these epidemics. For each important epidemiological or behavioral variable, we need to determine its value at various points in time (i.e., the trend in the variable).



What are you looking for? Defining the unit of analysis

Depending upon the policy goals, the unit of analysis (i.e., the particular geographic area and specific subpopulation you wish to examine and model) may vary. In many cases, you will want to work at the national level so as to influence overall national policies and strategic directions. In other cases, you may be working at the provincial or city level attempting to influence local decisions. You may want to look at brothel-based sex workers, or you may want to look at street-based sex workers. Before starting to work, it is important that this analysis unit be defined clearly, both in terms of geographic area and subpopulation of interest, as this will greatly influence the data to be collected and your possible sources of data.

In most cases, the subpopulations of concern will be those relevant to Asian epidemics: female sex workers and their clients, men who have sex with men, injecting drug users, and the lower risk component of the adult male and female populations. If risk varies within different segments of these subpopulations, you may want to examine specific segments instead of the subpopulation as a whole. Epidemiological and behavioral data will be needed for each of these subpopulations or prevention relevant segments, as well as information about the responses conducted and their reach and impact in these subpopulations or segments. Some variables (e.g., number of clients per night for brothel-based sex workers) may be relatively stable over time. Others (e.g., condom use between brothel-based

sex workers and clients) may change rapidly in response to growing knowledge of the epidemic, active prevention programs or other important changes in the risk landscape. The only way to assess this for a particular variable is to look at different studies at multiple points in time and extract the value of the variable of interest.

The ideal data for constructing a trend – unfortunately it's rarely available

Trends are intended to illuminate how a particular variable is changing over time. The ideal data for constructing trends will have a number of key characteristics:

- **It is gathered consistently over time.**
It will be sampled in the same way at each time point (i.e., it will be gathered from the same population, in the same geographic area, using the same sampling methodology) with a similar instrument or measuring tool (e.g., behavioral questionnaire and method of administration or same HIV or STI test kits and lab tests).
- **It is from a stable population.**
The data come from a population that is not changing over time in age structure, composition by residence (urban/rural), ethnic composition, socioeconomic status, etc.
- **It is representative of the analysis unit.**
If you're looking at brothel-based sex workers at

the national level, you would ideally like nationally representative data for all brothel-based sex workers. If looking at MSM at the city level, you want data collected in the specific city being modeled for a representative sample of the MSM.

- **It is collected at regular intervals.**
The data are collected annually or every second year for many years, so that you have as many points as possible to tell you about how our variable has changed over time.
- **It is from areas that have similar intervention programs starting at similar times.**
Prevention efforts can have a major impact on risk behaviors. Trends constructed with data from different years and from areas with different intervention intensity and initiation time are not likely to reflect the overall reality unless adjustments are made for the intensity and timing factors.
- **It has an adequate sample size.**
Small samples are subject to extreme statistical fluctuation. This means that if you are to accurately discern trends you must have a sample size large enough to distinguish actual changes in the variables of concern from statistical fluctuations.

Unfortunately, in the real world we rarely have the ideal data! There are some data sets that come close, such as HIV

surveillance data or behavioral surveillance data. These are normally collected in a consistent way from similar populations at regular intervals, making it easier to build valid trends. However, even with data sources such as these it is important to know how the surveillance system has changed over time. If sites are added or deleted, if the geographic coverage expands or contracts, if the sampling methodology changes, if the definition of the population of interest varies from round to round, then even this data source may not produce valid trends.

Unfortunately, surveillance systems normally collect only a limited subset of the full range of epidemiological and behavioral data that we need. They are designed for relatively rapid data collection and this limits the number of questions that can be asked or the number of samples that can be taken. This means that, more often than not, we must try to construct trends for some of the variables we need from data that will not satisfy all of the above characteristics. This will require making some compromises, adjustments, and in some cases, assumptions. Keeping this in mind, let's discuss the process of creating trends for tracking behaviors and HIV to aid in our understanding of the epidemic and provide essential inputs to our modeling work.

Steps in the process of extracting and determining trends in the real world

As discussed in Chapter 3, the A² process normally starts with a significant effort to collect existing reports and

information on HIV. Even as this process is carried out, you can begin the process of extracting important information from the studies, records and data collected. The following is a list of the steps to be taken in extracting the information needed to generate trends from the available sources.

- 1. DECIDE YOUR GEOGRAPHIC ANALYSIS UNIT. AN IMPORTANT FIRST STEP IS DECIDING THE LEVEL AT WHICH POLICY ANALYSES ARE NEEDED.**
Are they to be done at the national level or are they to be provincial or city specific? The answer to this question determines exactly which data need to be extracted from the studies. If national coverage is desired, either national studies are needed if available, or you may need to gather additional information on the study area that will allow the results to be combined at the national level. If the analyses are to be done at a more local level, then careful attention must be paid to selecting out results from that locale or from areas expected to be similar epidemiologically and behaviorally.
- 2. DEFINE THE SUBPOPULATION IN YOUR ANALYSIS UNIT CONSISTENTLY.**
As discussed in preceding chapters, the subpopulations relevant to Asian epidemics may further segment into prevention relevant subsets, such as sex workers in brothels, or sex workers in bars or nightclubs. In extracting data on sex workers, it is necessary to characterize each study population by the segment to which it belongs, as risk and other

characteristics often vary substantially from one segment to the next.

- 3. DEVELOP A CHECKLIST OF THE TRENDS NEEDED — AND LIST THE VARIABLES.**
To avoid being overwhelmed in the reports and studies collected, you should draw up a checklist of the key variables of interest for each analysis unit. This should take into consideration the needs of policy analysis, the needs of the models to be used (in Asian A² countries this means AEM and Goals discussed in later chapters of these guidelines), and the needs of advocacy in terms of priority issues to be addressed. Normally this checklist will include, at a minimum, the sizes, frequencies and levels of behavior, and HIV and STI information for the populations relevant to Asian epidemics.
- 4. REVIEW AVAILABLE STUDIES AND EXTRACT RELEVANT MEASURES.**
This is a time-consuming process and an organizational framework is needed or it will quickly become confusing and disorienting. In the A² process we have normally done this process with Excel spreadsheets that are based on templates listing the major epidemiological, behavioral, and response information needed. Examples of these spreadsheets are on the CD-ROM. They include a number of important factors including different variables, the characteristics and demographics of the population from which the data are collected, the geographic

area and timing of data collection, any biases or concerns regarding the particular study, and other issues of importance.

5. CHECK CAREFULLY THAT THE TIME FRAMES AND THE DEFINITIONS OF VARIABLES ARE THE SAME.

When extracting numerical data from the reports, careful attention must be paid to the time frames of measurements (last time, last month, last six months, last year, etc.) and to exactly what is measured. To determine a trend, then the time frame and the variable measured must be the same. For example, you cannot directly compare “consistent” and “last time” condom use; however, both may be important and both should be extracted and entered into your spreadsheet. Be sure to enter into the spreadsheet both the time frame in the definition of the variable if it is not a standard definition.

6. REVIEW THE SPREADSHEETS AND EXTRACT VARIABLES AT DIFFERENT POINTS IN TIME FROM DIFFERENT REPORTS.

Once the process of reviewing the available reports is completed, there will be numerous values for most of the key variables in your spreadsheets. These are then extracted from the spreadsheet and listed in a table along with an indicator of their source and any important biases or factors to be considered in comparing them with other values.

7. ADJUST THE DATA TO MAKE THEM MORE “REPRESENTATIVE.”

Depending upon your unit of analysis, you may need to make adjustments to the data for comparability. For example, if your unit of analysis is a city and you have a national survey, you might wish to extract a subset of the data for that city. If your study samples a population of age 15 to 49 and another samples ages 15 to 60, then we might want to extract values for the 15 to 49 subsample from the survey with the larger age range. A number of factors may have to be considered at this point in trying to make the data more comparable:

- **The geographic area in which the data are collected.**

Is it a high prevalence area? Is it a low prevalence area? Is it known to have higher or lower risk than the rest of the country? Are there other unique factors that should be considered that might bias behavioral or prevalence data? For example, do large numbers of young women go into sex work from this region? Is it along a drug trafficking route and likely to have a high number of injecting drug users?

- **The population from which the data were collected.**

Who exactly has been sampled in this data

source? Is it a sample of IDUs from clinics serving drug users? Is it a time-location sample of IDUs at community injecting sites? Is a sample of injecting drug users among prisoners, who might be particularly high risk? Again, because we need comparability, we should try to compose trends only for similar segments of the larger at-risk population and consider any biases that may raise or lower the value of the variable of interest.

- **Urban/rural residence.**

Is this a predominantly urban sample? Or is it largely rural? Or is it mixed? In most places, urban risk tends to be higher than rural risk, so this factor needs to be considered and noted when trying to extract trends. Any studies that indicate comparative prevalence between urban and rural areas, which may help in determining the extent of risk differentials, should be noted.

- **Composition by age and gender.**

HIV prevalence, risk behavior and access to prevention all vary substantially by both age and gender. Therefore, to the extent possible, standardize on age and gender in comparing any two studies or sources of data. In Asia, gender is a

particularly critical issue, given that women in Asia tend to have substantially lower average risk than men. If a study does not do a gender breakdown in Asia, it will be very difficult to use it to build understanding of the epidemic.

- **The state of interventions in the area of data collection.**

Behaviors, HIV and STIs can all change in response to prevention efforts or to increased awareness of HIV in the community. Thus, it is important to know if data come from an area in which interventions have been strong or weak or one in which there have been no interventions. This affects how to interpret the numbers collected (i.e., are they likely higher or lower than the average for the analysis unit as a whole).

Once these factors are considered, it is valuable to classify the various data values at any point in time for the analysis unit as likely to be “very high,” “high,” “average,” “low,” or “very low” based on the factors outlined above. This will be useful when trying to generate the actual trend later. In some cases, if your access to the data or the detail in the report allows it, you may want to weight by some of the factors mentioned above (urban/rural residence, age, gender,

etc.) to get an “adjusted” value that is more comparable to other values. If you do in fact weight or adjust the data, it is important that you maintain careful documentation of the weighting steps and exact methodology used to adjust data. Otherwise you will come back in one or two months and not be able to remember exactly what you did. This may make it difficult to justify your values to interested parties. The CD-ROM contains some examples of the types of weighting of variables done in some A² analyses.

8. EXTRACT THE TRENDS OVER TIME.

If you have followed the preceding steps, then the process of extracting trends is not too difficult. Create an Excel spreadsheet and for each analysis subunit and year enter all the values you have. If there are a large number of values, you may choose to just average them. If there are fewer, review your classifications (from “very high” to “very low”) and use these to determine an appropriate value for that year. Often in the A² process, we actually do this directly in the AEM workbook included in the supplemental materials on the CD-ROM for Chapter 7. Using Excel’s comment feature, you can enter the various study values as a comment and then put your “best” value in the appropriate cell.

9. PLOT THE TRENDS UP, LOOK FOR OUTLIERS, AND DELETE OR ADJUST THEM.

Once you have extracted the information from available sources, it is often valuable to plot the data out in a program such as Excel and to look for outliers (i.e., values that seem too high or too low compared to the surrounding values). Once these are identified, one of two things should happen: 1) you reexamine sources from which these data were extracted and see if there are additional factors that may bias it upward or downward. If so, make adjustments and corrections; 2) you seek additional sources of information on this particular variable. You can do this by looking for additional reports in similar populations, asking NGOs and researchers if they have further information on this variable, or seeking expert input on an appropriate value. Using any additional information gathered, either delete the outliers as unrealistic or make adjustments to them.

10. FILL IN THE GAPS AND MISSING VALUES AND DOCUMENT HOW YOU DO IT.

There will still likely be gaps or missing values after you have mined your information resources. In many cases, there may only be values for a limited number of years. If you have values from preceding and



subsequent years, the simplest way to fill these gaps is to “draw a straight line.” That is, use linear interpolation to produce values for the missing years. In other cases data may be entirely missing (i.e., there are no data on a particular variable in the available information for the analysis unit). In this case you may use a number of different approaches, including taking data from a similar analysis unit, using national or regional “average” values, or seeking consensus from a group of experts (e.g., your Technical Working Group) on the appropriate value to use. Essentially what you are doing in this case is making an assumption, and you must clearly document what you have done by keeping a list of the assumptions made. When you add an assumption to this list you should: 1) write the assumption down clearly and in understandable terms; 2) explain your rationale in making this assumption; 3) identify the sources of data that support this assumption, whether they are local (e.g., from similar areas in the country) or are based on findings in other countries. Whenever possible, it is better to use local data. In addition to adding

assumptions to this list, the missing data should also be added to your running list of data gaps as outlined in previous chapters. The CD-ROM has some examples of the types of assumptions made in A² countries and the data on which they are based.

Be open and transparent about the data and trends used in your analyses

Throughout this trend extraction process, document your data sources, justify any weightings, adjustments or assumptions made, and appropriately reference them. One of the important elements in building support and acceptance for the results of your analyses is transparency. People must be able to see the data on which your analyses are based and be able to review any adjustments or assumptions you have made. They must understand that the data used in your analyses are scientific, locally relevant and valid – having good documentation on your sources and assumptions makes this easier. If you are not open about these things, you will engender mistrust and make it difficult to gain acceptance and build consensus around the programmatic and policy findings of the A² process.

Time is the missing element in most analyses of HIV epidemics - its key role means we need models to understand an HIV epidemic

The fundamental problem with most earlier analyses of national epidemics is that the people preparing them failed to analyze existing information on past and present behaviors, epidemiology and responses in an integrated fashion with appropriate attention to the influence of the past on the present. We have highlighted a number of important lessons to keep in mind in trying to understand your national HIV epidemic:

1. PAST TRENDS IN BEHAVIORS, HIV AND STIs DETERMINE CURRENT PREVALENCE LEVELS.

Understanding a country's HIV epidemic is not possible without knowing how risk behaviors, HIV and STIs in the country have evolved over time.

2. WE NEED MODELS TO UNDERSTAND THE PAST, PRESENT AND FUTURE OF A NATIONAL HIV EPIDEMIC.

National epidemics are composed of numerous sub-epidemics that grow at different rates in different

populations. HIV levels, behaviors and protective measures have all changed over time. We as human beings are not very good at putting the pieces of something this complex together in our heads, especially if we need to include changing behaviors (frequency of sex, condom use, levels of needle sharing, etc.), the enhancing effect of other STIs that themselves change over time, the protective effect of circumcision, the movement of people in and out of the key populations, and other factors. To do this requires a computer model.

3. THOSE MODELS REQUIRE BEHAVIORAL AND HIV/STI TRENDS TO CORRECTLY ASSESS THE TRANSMISSION OF HIV.

Because the prevalence today depends on the behavioral, HIV and STI levels in the past, the model needs this type of information to make its calculations. This means we need a model that takes this information as inputs at each point in time and uses it to calculate the number of new and current HIV infections in a country. Chapter 7 introduces the model used for doing this in the A² process, the Asian Epidemic Model.

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ANALYSIS

Chapter 7

PUTTING IT ALL TOGETHER:
BUILDING AN EPIDEMIC MODEL

[an overview]

[an overview]

Chapter 7

PUTTING IT ALL TOGETHER:

BUILDING AN EPIDEMIC MODEL

Why Model?

Modeling an epidemic serves several essential purposes:

- Preparing the inputs for a model encourages closer examination of both epidemiologic and behavioral data and the time trends in both.
- A properly designed model provides a direct consistency check between the epidemiologic data and the behavioral data.
- Changing the various population and behavioral inputs to a model and observing their effects on the course of the epidemic builds understanding and helps to identify the factors and populations at the heart of the epidemic.
- Once validated, the model can be used to explore the impacts of behavior change that might result from implementation of specific programs. Used in this way, the model can allow you to evaluate the impact of intervention alternatives.

The Asian Epidemic Model.

However, achieving these purposes requires that the model be appropriate to the epidemic situation being explored. Asian epidemics have a unique pattern, and tend to be driven by very specific risk behaviors which are well characterized. The Asian Epidemic Model (AEM), discussed herein, is a model developed to replicate this pattern, and it has been applied effectively in several Asian countries. The model includes the key populations involved in Asian epidemics: sex workers and clients, injecting drug users, men who sex with men, and their spouses.

What can a model give us?

The AEM takes as inputs the sizes of affected populations, the frequency of their risk behaviors, and their levels of protective behavior. Using these inputs, coupled with several transmission parameters, the model then simulates the transmission of HIV among these populations, allowing for both past and future projection of total HIV infections, symptomatic illness, and HIV-related deaths. It can also be used to assess ART needs and determine the number of children affected by the epidemic.

Models can be used to explore responses.

One particularly important feature of a behaviorally focused model such as AEM is that it can determine the relative contribution of the different populations in which new infections are occurring. Knowing where new infections occur, you can evaluate whether or not the current response is appropriately focused. In addition, by varying the input behaviors in the different populations, you can explore how much impact a specific set of behavior changes, resulting from targeted programs, will have on the future of the epidemic.

Validating the model is essential.

However, these uses are contingent upon being confident that the model accurately reflects reality. Thus, this chapter also discusses what you must do to validate a model and ensure that it is a reasonable representation of the epidemic situation in the country. This is an essential prerequisite to using the model for further policy analysis.

TIM BROWN
WIWAT PEERAPATANAPOKIN

Chapter 7

PUTTING IT ALL TOGETHER:
BUILDING AN EPIDEMIC MODEL

[concepts and content]

Chapter 7

PUTTING IT ALL TOGETHER: BUILDING AN EPIDEMIC MODEL

Tim Brown and Wiwat Peerapatanapokin

The need for models in the A² process

At this point in the A² process, you have collected a substantial amount of epidemiological, behavioral and response information; you recognize that there are still gaps in the information available to you; and you recognize that understanding an HIV epidemic requires understanding not only the epidemiological and behavioral situation today, but also the situation in the past and the responses made to the epidemic.

The large volume of information that has been collected clearly calls for an organizing framework. That framework needs to deal with the behaviors that transmit HIV in Asian settings and the sizes of populations affected by HIV, take advantage of the epidemiologic data on HIV and STIs that you have collected, and appropriately incorporate the extremely important time element for HIV epidemics. One tool that can provide this framework is a model for HIV transmission. That model needs to reflect the HIV situation in Asia; it needs to utilize the relevant information on behaviors and biology you have collected; and, it needs to reflect the influence of the past on the present and the future.

Thus, the next step in the A² process is to construct a model for HIV transmission in your country. The best type of model for this work is one that uses the behaviors in the populations affected by or likely to be affected by HIV in your country to calculate and project the course of the epidemic. The process of applying such a model serves several important purposes:

- **Providing a framework for organizing data and encouraging their careful review.**
Preparing the inputs for the model requires you to look closely at the data, their quality, and their gaps. This helps you to understand the limitations of the data available in your country, and to identify necessary improvements in the data systems so that they better serve the goal of planning, evaluating and improving HIV responses.
- **Cross-checking your epidemiological and behavioral data for consistency.**
If your trends in epidemiological and behavioral data are

correct, then you would expect that the behavioral trends would predict the past and future patterns of HIV transmission. If you put your data into a behaviorally driven model, you may find this not to be the case, and some of your data may have problems. This will force you to go back and examine the problem areas in your data more carefully.

- **Providing an integrated view of the key factors driving the epidemic in your country.**

If the model is in fact based on behaviors and epidemiological trends observed in your country, then a closer examination of what is happening within the model will allow you to determine: the populations containing the largest number of infections; the behaviors and populations currently contributing the most to new infections; and the relative contribution of different behaviors and populations to the epidemic in the future. This in turn will help you to determine places to focus your HIV prevention budget to have a maximal impact on the epidemic.

- **Exploring the comparative impact of different prevention efforts.**

As we will discuss in future chapters, having a model based on behavior allows us to explore the impact of different prevention programs on the future course of the epidemic. This can be done by translating the program inputs into levels of behavior change, and then predicting the future based on these behaviors. This forms the essential core of the policy analysis that is at the heart of the A² process.

What model should you use in Asia?

The requirements for the model to be used in the A² process are that it: 1) be behaviorally based, 2) makes use of available data on epidemiology and behaviors, and 3) accurately reflects or models the HIV situation in the country of interest. The initial A² countries have all been in Asia, thus we require a model that accurately reflects the HIV situation in Asian countries.

So you first might ask, what do HIV epidemics in Asia look like? As discussed in Chapter 2, HIV infections in Asian epidemics proceed in waves. The first wave occurs among IDUs and/or MSM. This is followed by a wave among sex workers; shortly followed by a bigger wave among the much larger population of clients of sex workers. This, in turn, is followed by a wave among the wives of the clients and their children. This pattern, first identified in Thailand, has been observed in country after country in Asia. In the surveillance data this wave pattern is seen as an early appearance of infections among injecting drug users and men who have sex with men, followed by a rapid rise in infections among sex workers, which soon leads to a rise in HIV among men visiting STI clinics (the clients of sex workers), which is invariably followed by more gradually increasing prevalence in antenatal clinics (wives and children of men at-risk).

The relative contribution of these different waves may vary, but the order, that is the general pattern, is usually the same. This tells us that in Asia a number of specific and well-defined populations play a key role in HIV epidemics. These include female sex workers (FSWs) and their clients, injecting drug users (IDUs), men who have sex with men (MSM), and the spouses and children of these groups. Figure 7.1 illustrates these populations and gives a rough idea of their comparative size in Asian settings.

Most early infections in Asia are strongly focused in the behaviorally linked at-risk populations shown at the top of Figure 7.1, that is, IDUs, MSM, FSWs and clients. Because most of these at-risk populations are male, with clients being by far the largest, this creates a strong male dominance to early infections in Asia. As the epidemics evolve, infections move from these populations to their regular female partners, predominantly their spouses. As the epidemic matures, this subsequent transmission within committed relationships produces the majority of female infections in Asia, while most ongoing male transmission still occurs within the male at-risk populations.

The Asian Epidemic Model

What's in the Asian Epidemic Model?

In 1998 the Asian Epidemic Model (AEM) was developed by this chapter's authors based on this repeatedly observed pattern of HIV transmission in the region. The AEM is a computer model that simulates the transmission of HIV within and between the important at-risk populations and their partners in Asia. Internally, the AEM contains a compartment for each of the important subpopulations in Figure 7.1 and includes the most important forms of HIV-related risk behavior for each of these subpopulations.

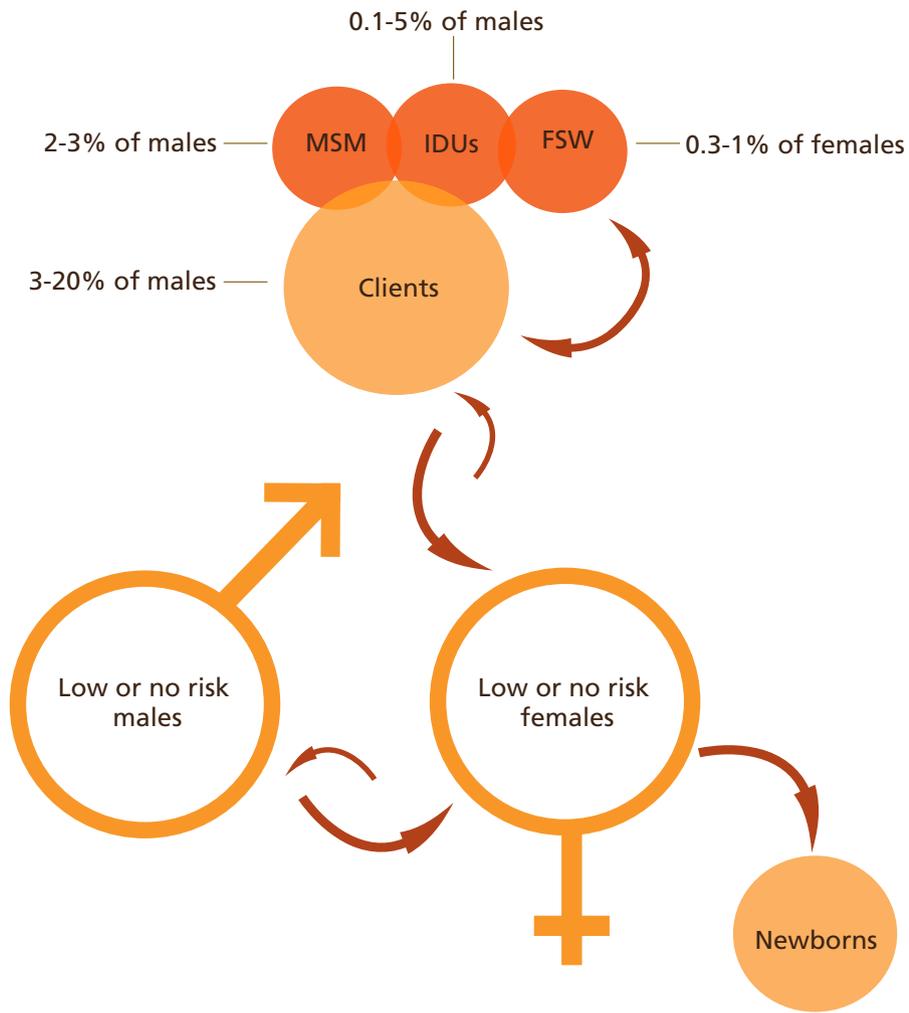


Figure 7.1.
The primary populations affected by HIV in Asia. The approximate percentage of adult males and females in the primary at-risk populations is shown.

The key subpopulations included in the AEM and the risks calculated for them are:

- **Injecting drug users**, who have needle sharing risk and sexual risk from visiting female sex workers.
- **Men who have sex with men**, who have sexual risk from sex with other MSM, with male sex workers (MSWs), and with female sex workers.
- **Male sex workers**, who have sexual risk from sex with MSM clients and female sex workers.
- **Clients of sex workers**, who have sexual risk from sex with female sex workers, casual female sexual contacts, and sex with their wives.
- **Non-clients**, which includes all males who are not MSM, IDUs, and clients. Their risks include sex with casual female contacts and with their wives.
- **Female sex workers in two groups**, the first group having many clients per night (high frequency sex workers) and the second having fewer clients per night (low frequency sex workers). Their risks include sexual contact with clients, both IDUs and non-IDUs, and needle sharing risk if they inject.
- **General population women**, whose risks include sex with their husbands or regular male partners, and sex with casual male contacts.

The internal structure for the model is illustrated in Figure 7.2. The model is dynamic with the subpopulations changing over time as new individuals enter at age 15 and others die of either background mortality or HIV-related causes. The model also allows movement between the groups, as shown by the bidirectional arrows. For example, a woman may leave the general female subpopulation, become a sex worker for several years, and then return to the general female subpopulation. Similarly, a male may become an injecting drug user for a period of time and then return to the general male population. This allows the model to capture important effects such as the increase in prevalence among general population women caused by the presence of ex-female sex workers, many of whom became infected while in sex work. The effects of HIV on children are also captured in the model in that women in the general female population can give birth, and the probability of their passing HIV to their newborn, both with and without antiretroviral therapy, is included.

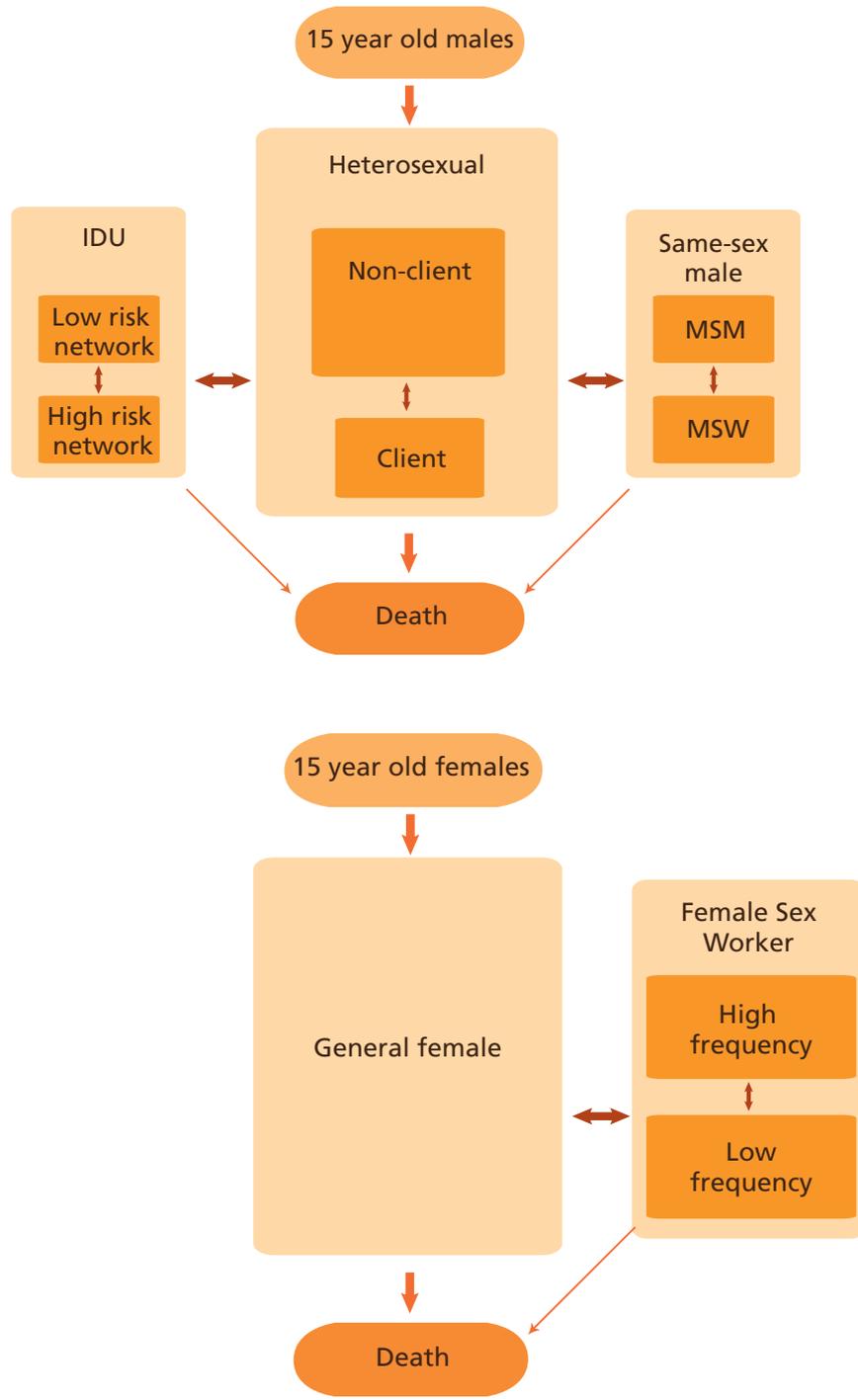
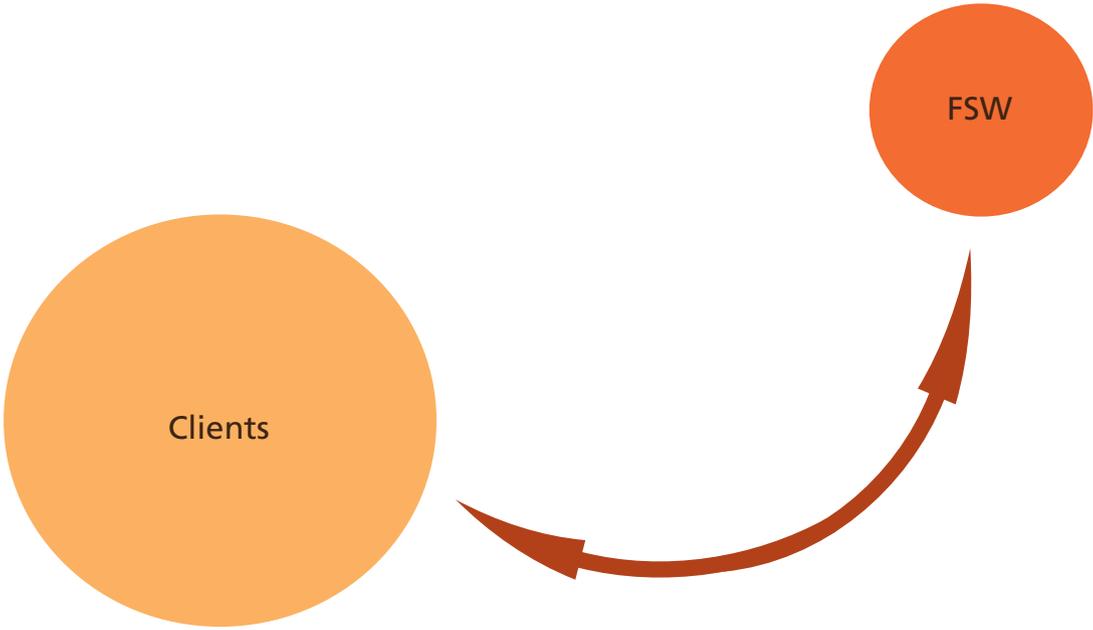


Figure 7.2. Internal structure of the Asian Epidemic Model for men and women. The arrows represent the ways people move from one stage or subpopulation to another in the model.



$$N_{\text{clients infected}} = n_{\text{client-FSW contacts}} * p_{f \rightarrow m} * \frac{N_{\text{HIV+ FSW}}}{N_{\text{FSW}}}$$

Figure 7.3.
The calculation of new client infections in AEM. The number of contacts between clients and sex workers is multiplied by the probability of transmission, $p_{f \rightarrow m}$, and the fraction of sex workers living with HIV, $N_{\text{HIV+ FSW}} / N_{\text{FSW}}$, to give the number of new client infections.

How does the AEM work and how do you use it?

To understand the AEM interface and how to use it, you must know a little about how it works internally. The model takes four general classes of input data:

- **Sizes** of the important at-risk populations and the population at large
- **Frequencies of sexual and needle sharing risk behaviors** that transmit HIV, (i.e., how often does an individual with these behaviors engage in them?)
- **Levels of protective behaviors**, in particular, condom use and use of clean needles and syringes
- **HIV and STI prevalence levels** over time in the at-risk populations, and the population at large, if available

The exact details of the inputs needed are discussed in more depth in the implementer's track documentation associated with this chapter; and, as discussed in Chapter 6, the time element is essential, so you must provide trends in each of these input categories. The actual interface to AEM is a Microsoft Excel workbook, described in more detail in the implementer's track, which allows you to easily enter the years of data you have and calculate intermediate values

between those years. As you are doing this, you should review your data to make sure they are truly trend data, that they are repeated measurements in similar populations, and you should evaluate their quality. Needless to say, collecting and extracting the input data needed from available data sources is the most time and resource intensive part of the process. However, doing it carefully is essential. If you provide poor quality data as inputs, you will not get valid projections: garbage in, garbage out.

Using this input data, the AEM performs a series of calculations to determine how many new HIV infections occur in each subpopulation in the model for each year. These calculations are simple in concept. From the frequencies and sizes of the relevant subpopulations, you calculate the number of sexual or needle sharing contacts that occur. This is then multiplied by the probability of transmission of HIV in a single act of this type and the fraction of partners who are infected with HIV to give the total number of new infections in the relevant subpopulation. Figure 7.3 illustrates how this works for calculating the number of new infections of clients by sex workers.

Given the number of new infections and the rate at which people succumb to illness and death from HIV-related disease, the number of HIV infections in each subpopulation the next year can be determined. This way, the entire epidemic can be calculated from the time of first introduction of HIV to the last year for which behaviors are provided by the user. With assumptions about future behaviors, projections can extend beyond the present.

The question then is: where do you get the probabilities of transmission? The scientific literature gives us some idea of what these might be, but leaves a lot of room for variation. For example, as discussed in Chapter 6, the probability of a man passing HIV to a woman if both have no other STIs is in the range of 1/1000 to 1/500, but in terms of calculating new HIV infections this is a very wide range. If you use 1/500 you will get twice as many new infections as if you use

1/1000. And, even more importantly, under the behavioral conditions common in Asia, where many clients are served by a small number of sex workers, a little variation like this makes a huge difference in the epidemic. Figure 7.4 shows the effect of three different probabilities of male-to-female transmission on the prevalence in adult men under the behavioral trends observed in Thailand over the last decade and a half. Increasing the probability by only 0.0002 more than doubles the number of adult men infected. Increasing it by 0.0004 almost quadruples it. If you think about it, the reason for this difference is obvious. If the probability is twice as high, each HIV+ client will infect twice as many sex workers, who in turn, will infect even more clients, who will infect more sex workers. Thus, there is a feedback loop between infected clients and infected sex workers, which is very sensitive to how likely a man is to transmit HIV to a woman and vice-versa.

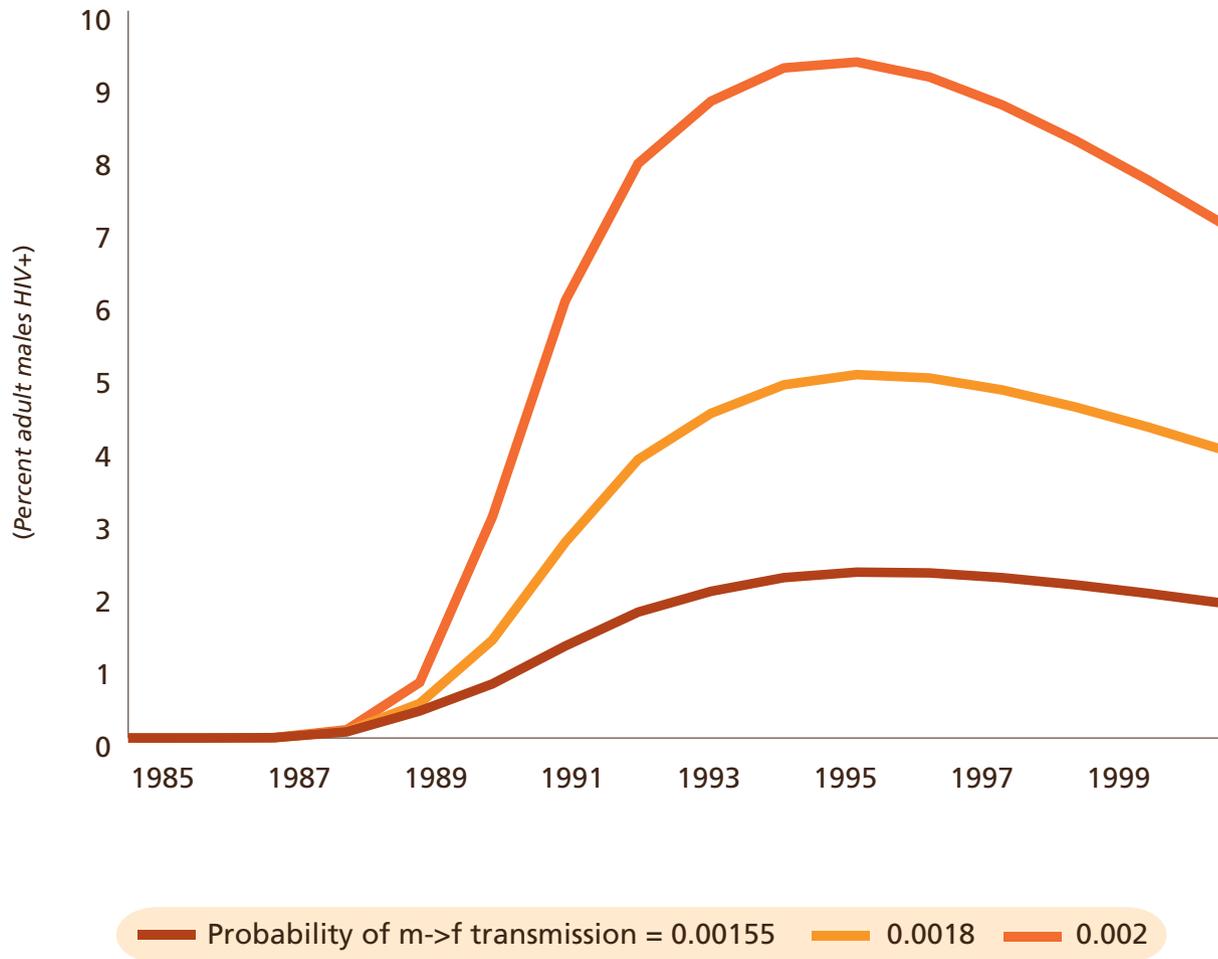


Figure 7.4.
 Given the behaviors observed, the overall level of HIV among the adult male population in Thailand if you use different probabilities of transmission from men to women in the Asian Epidemic Model.

The AEM actually uses more than one probability of transmission. It needs to account for differences in transmission between anal sex, needle sharing, and vaginal sex, increases in transmission associated with other sexually transmitted infections (STI), decreases in transmission associated with circumcision, and the fact that men are more likely to pass HIV to women than vice-versa. This is done by including a number of probabilities of transmission and cofactors:

- **Probability of male-to-female transmission.**
This is usually set between 0.001 and 0.002 (Mastro and de Vincenzi 1996).
- **Ratio of male-to-female to female-to-male heterosexual transmission.**
Normally this is taken in the range of 2 to 3 from the scientific literature (Padian, Shiboski et al. 1991; Nicolosi, Correa Leite et al. 1994; Padian, Shiboski et al. 1997; Quinn, Wawer et al. 2000). The situation here is a bit uncertain because of the difficulty of measuring a low probability event and the limited number of studies that have estimated transmission on a per sexual contact basis. Nicolosi et al. (1994) estimated 2.3 to 1 in Italian couples (95% CI: 1.1-4.8), while Padian et al. (1997) found a 7.7 to 1 ratio in lower risk couples in Northern California (95% CI: 1.97-67.3). Quinn et al.

(2000) found nearly equal rates of male-to-female and female-to-male transmission, but most of the men were uncircumcised, which increases their risk by a factor of 2-3. Given this, we have normally used values of the order of 3 in fitting epidemics in those Asian countries where men are largely uncircumcised.

- **Ratio of contracting HIV for uncircumcised versus circumcised men.**
This is called the circumcision cofactor and is normally set at 3 (i.e., uncircumcised men are three times as likely to contract HIV as circumcised men). This is in reasonable agreement with recent trials in African settings which found the comparative risk to be 0.4 (95% CI: 0.24-0.68) and 0.31 (95% CI: 0.15-0.64) in circumcised men compared to uncircumcised men (Auvert, Taljaard et al. 2005; Shaffer, Bautista et al. 2007). Since AEM looks at the ratio for uncircumcised to circumcised, this results in AEM circumcision cofactors of 2.5 and 3.2.
- **Ratio of HIV transmission for men with an STI compared to those with no STI.**
This is called the male STI cofactor (Hayes, Schulz et al. 1995; Korenromp, de Vlass et al. 2001). Since STI increases HIV transmission, this number can be high. On a per contact basis, normal levels used in AEM in

Asia may be as high as 30 to 50, although more commonly they are in the range of 15 to 30. The comparatively high values here probably result from the fact that many sex workers in Asia are infected with multiple STIs if treatment access is poor.

- **Ratio of HIV transmission for women with an STI compared to those with no STI.**

This is called the female STI cofactor. On a per contact basis, values in Asia seem to be much lower than for men – something on the order of 10 seems to work well.

- **Probability of transmission in anal sex.**

For MSM this is the dominant source of infection, and measured probabilities are much higher than for vaginal sex, on the order of 1/200 to 1/100 (De Gruttola, Seage et al. 1989; Vittinghoff, Douglas et al. 1999).

- **Probability of transmission in sharing an infected needle.**

For IDUs this is the main source of infection. Values normally used range from 0.004 to 0.008 (Kaplan and Heimer 1992; Baggaley, Boily et al. 2006).

There are strong reasons to believe that these probabilities of transmission and cofactors may vary from one country

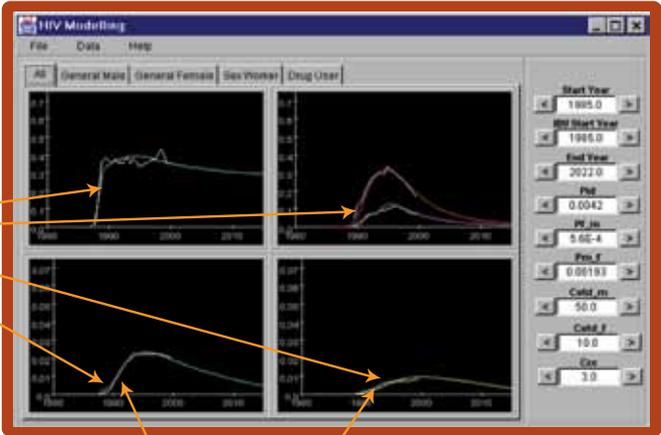
to the next. For example, the types of sexually transmitted infections differ from country to country, which can affect the STI cofactors for those countries. One country may have more ulcerative STIs, such as chancroid or HSV-2, while another may have more inflammatory STIs, such as Chlamydia or gonorrhea. All STI increases HIV transmission, but ulcerative STI increases it more than inflammatory STI. Thus, the country with more ulcerative STI would have higher STI cofactors.

Similarly, different sub-types of HIV may be more easily transmitted sexually than others, in which case, countries with different sub-types would have different probabilities of transmission. Sex workers in countries with more clients per night may have increased risk of small vaginal injuries or abrasions, increasing their overall risk in a single contact. Practices such as failure by males to clean after sex may leave HIV in contact with the urethra or foreskin for an extended period, increasing transmission. The size and interconnection of different sexual networks within a country may also affect the transmission. If sexual networks are small and isolated, the overall probability of transmission per sexual contact on a population basis will be much lower than if the networks are large and well-connected. AEM does not model network dynamics, so their effects must be captured in the transmission probabilities.

Sizes and behavioral trends in clients, sex workers, injecting drug users, men who have sex with men, population at large



Probabilities of transmission and start years



Observed HIV trends (white lines)

Figure 7.5. The user interface to AEM compares observed HIV prevalence in different populations with the prevalence calculated from the behaviors entered and the probabilities chosen.

AEM is tuned to a country's specific situation

How then does AEM deal with this variation? It tunes the probabilities and cofactors to fit the HIV situation in a specific country. This means, we adjust these probabilities and cofactors within certain allowable ranges until we get agreement between the observed HIV prevalence in the key subpopulation and the calculated HIV prevalence based on the behavioral trends entered as inputs and the probabilities and cofactors. The process is shown in Figure 7.5:

- **The user enters behavioral and size data.**
The user enters the sizes of populations, behavioral trends, HIV and STI trends, and other data into an Excel spreadsheet.
- **AEM calculates the HIV prevalence produced by these behavioral trends.**
AEM is run with a starting set of probabilities and cofactors which calculate the expected HIV prevalence based on the behaviors provided by the user.
- **The user tunes the model to the country in question.**
The user adjusts the probabilities and cofactors within allowable ranges to get a good fit between the observed HIV prevalence and what AEM calculates.

The AEM interface, shown in Figure 7.6, makes this process easy for the user. On the left hand side are a series of graphs for the key subpopulations in Asian epidemics. These are: IDUs, FSWs (high frequency and low frequency),

injecting sex workers, MSM and MSWs, and general population men and women. On the right hand side are the various transmission probabilities and cofactors the user can change, along with the start years for the epidemics among heterosexuals (Start Year), IDU (IDU Start Year), and MSM (MSM Start Year). As these are changed, the graphs are recalculated and the user can easily compare the resulting prevalence calculated against the observed prevalence in the various populations.

Assuming the behavioral and observed HIV trends entered are accurate for the country in question, the first time AEM is run these curves will usually be too high or too low. In Figure 7.6, they are too high in all populations except IDUs, which normally means either the model is starting the epidemic too early or the probabilities of transmission are too high. However, the user can fix this by adjusting the values on the right hand side of the screen. Figure 7.7 shows the effect of bringing the probability of male-to-female transmission down from values of 0.0022 to 0.0017, which gives a reasonable fit.

Once this process of fitting the observed and calculated prevalence in the different subpopulations is complete, the "tuned" AEM model for the country should represent the HIV situation fairly well, assuming the inputs are correct. This final assumption is why so much effort needs to be put into getting the inputs correct and consistent with the various sources of data available in country.

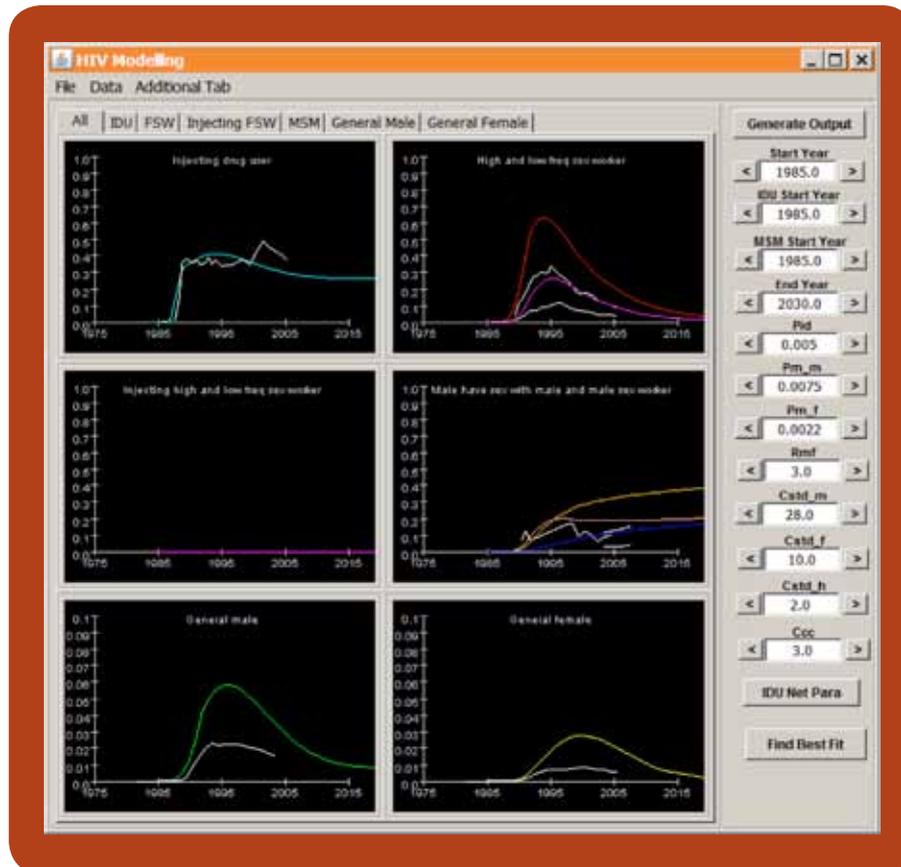


Figure 7.6.
 The AEM interface when first run. The colored curves are calculated by AEM from the behavioral trends provided by the user, while the white lines are the observed HIV trends, normally taken from surveillance data.

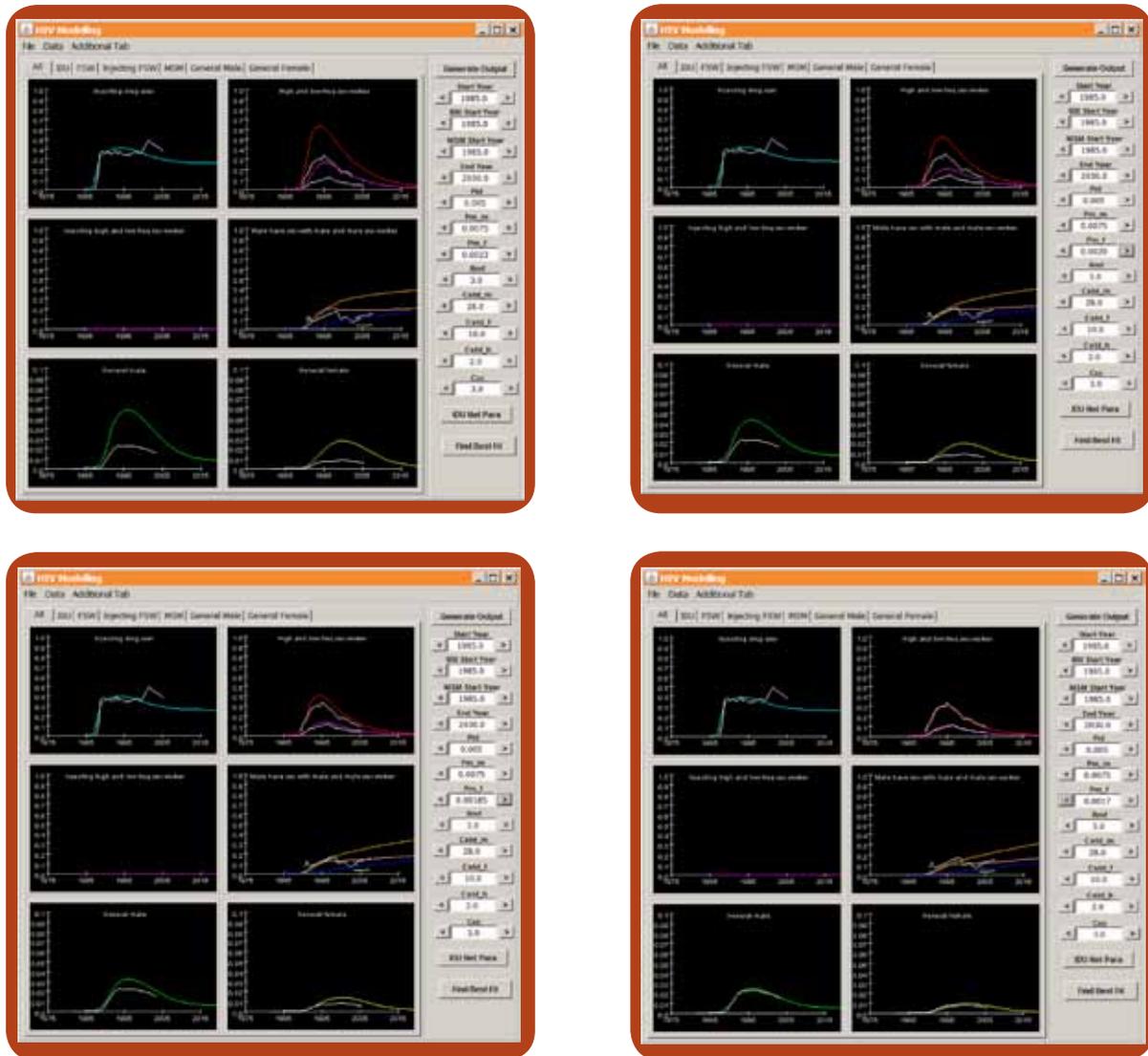


Figure 7.7. A fit using AEM to Thailand's epidemic. The impact of adjusting the probability of male-to-female transmission (Pm_f in the interface) to fit the data trends observed in Thailand.

What does the Asian Epidemic Model give us?

So now we have a country-specific model for the transmission of HIV over time, containing the main dynamical factors driving HIV epidemics in Asia: sex work, needle sharing, male same-sex behavior, husband-to-wife transmission and mother-to-child transmission. Because it is a complete model based on the dynamics of epidemics in Asia, examination of the internal variables in the model allows you to produce a number of useful outputs:

- **HIV prevalence in all key subpopulations.**
Because each subpopulation has its own compartment, you can calculate the number of infected and uninfected individuals and thus, the prevalence for each one, the prevalence for men and women separately, or the prevalence for the population as a whole. For all of these, it provides new, current and cumulative HIV infections. Figure 7.8 illustrates the Thailand baseline for HIV calculated from the model discussed above. If desired, AEM can also provide age structures for HIV and related deaths.
- **Deaths to HIV by subpopulation.**
AEM also internally tracks the progression of those infected by HIV from infection to illness to death. This allows you to determine how many deaths occur each year in each subpopulation.
- **New HIV infections by route of transmission.**
Since the AEM internally tracks who gets infected and the source of each new infection, you can actually

extract the new infections by subpopulation or by transmission route. This allows you to obtain the number of new infections in any subpopulation, determine the impact of specific behaviors (i.e., transmission routes) on the epidemic, or to determine the source of new infections. The lower graph in Figure 7.8 shows the proportion of new infections occurring through different transmission routes.

- **ART needs and effects.**
AEM also tracks progression to the need for antiretroviral therapy (ART) according to the latest UNAIDS definitions for those in need of care. It calculates the number needing care, the number on care, and the number of lives saved by ART based on user-provided inputs of the percentage of people in need who receive therapy over time.
- **Children living with HIV.**
AEM also calculates the number of children born to HIV+ mothers, and using inputs on the proportion of HIV+ women receiving prophylaxis for mother-to-child transmission, the number of children newly infected with, living with, and dying of HIV-related causes.

Because AEM is a behaviorally based model, it can be used for long-term projections provided you are willing to project likely behaviors into the future. As discussed in the Chapter 10, this ability makes it a valuable tool for exploration of program alternatives and policy analysis.

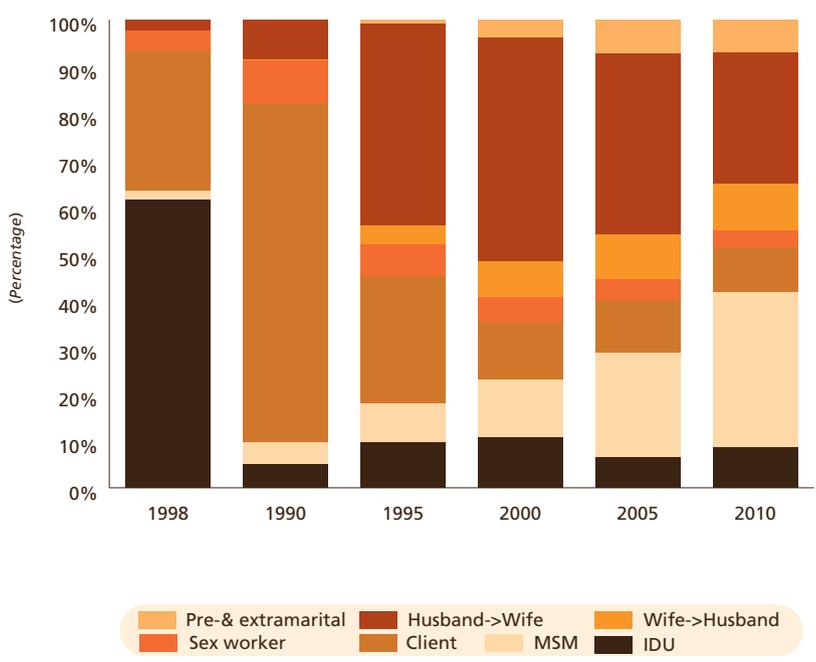
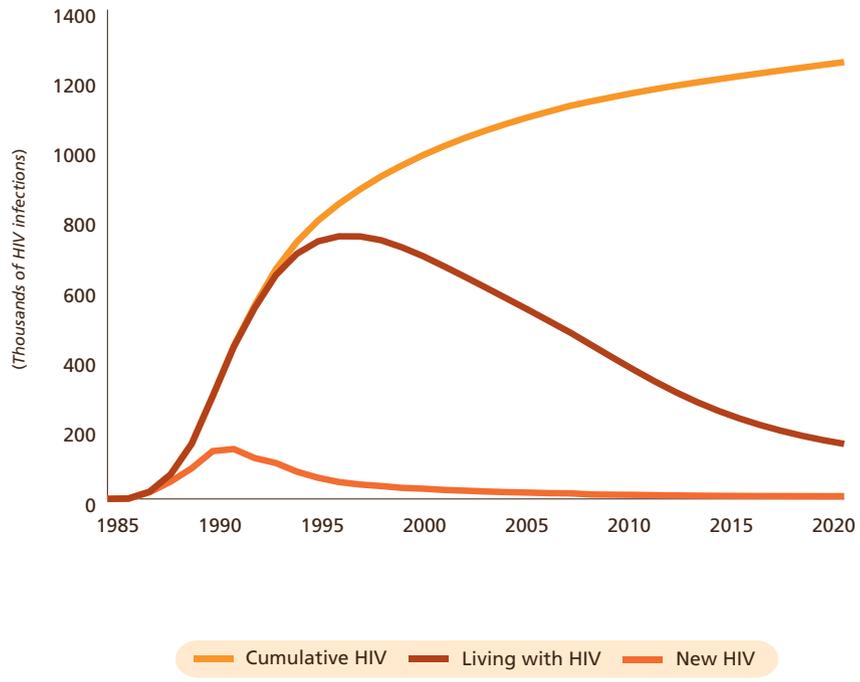


Figure 7.8. AEM outputs include the HIV prevalence over time and the percent of new infections in each key sub-population. The top graph shows the trend in HIV prevalence over time. The bottom graph shows the distribution of new infections by subpopulation for Thailand before the advent of antiretroviral therapy.

Can AEM replicate epidemic trends in countries based on real data? Yes

The first test for a tool like AEM is to apply it to actual behavioral and epidemiological data from a country and see if indeed the behavior does predict the epidemiology of HIV. The first country in which this was done was Thailand, a country that has over 15 years of solid epidemiological and behavioral data to work with. Thailand began sentinel surveillance in 1989, during the earliest phases of its epidemic, and expanded to coverage of every province by 1990. Major national behavioral surveys were done in 1990, 1993, and 1997 and again in 2006, and national behavioral surveillance in a third of the provinces has been in place for a decade. Large numbers of ad hoc studies of both HIV and its associated behavior have been done since the start of the epidemic. This provides a solid basis for the inputs required by the Asian Epidemic Model, and the existence of nationally representative HIV and behavioral data made direct comparison possible.

In 2000, the AEM was used to construct a Thai national model for HIV (Thai Working Group on HIV/AIDS Projection 2001). A detailed report, available in the supplemental materials, was prepared. Similar work was undertaken in Cambodia in 2002 (also included in the supplemental materials), which also had a series of epidemiological and behavioral data starting in 1994 and 1996, respectively (Cambodia Working Group on HIV/AIDS Projection 2002). One notable difference between the two countries was that injecting drug use played no role in the Cambodian epidemic. The actual behaviors and HIV trends required by AEM were extracted from the studies in both countries, the data were entered into AEM, and a model was fit for each. Figure 7.9 shows the results of this exercise. In both countries, where good behavioral data were available, the Asian Epidemic Model accurately replicated the trends in HIV prevalence in the different subpopulations for a decade or more. This gives some confidence that the model is capturing the realities of HIV dynamics in an Asia setting.



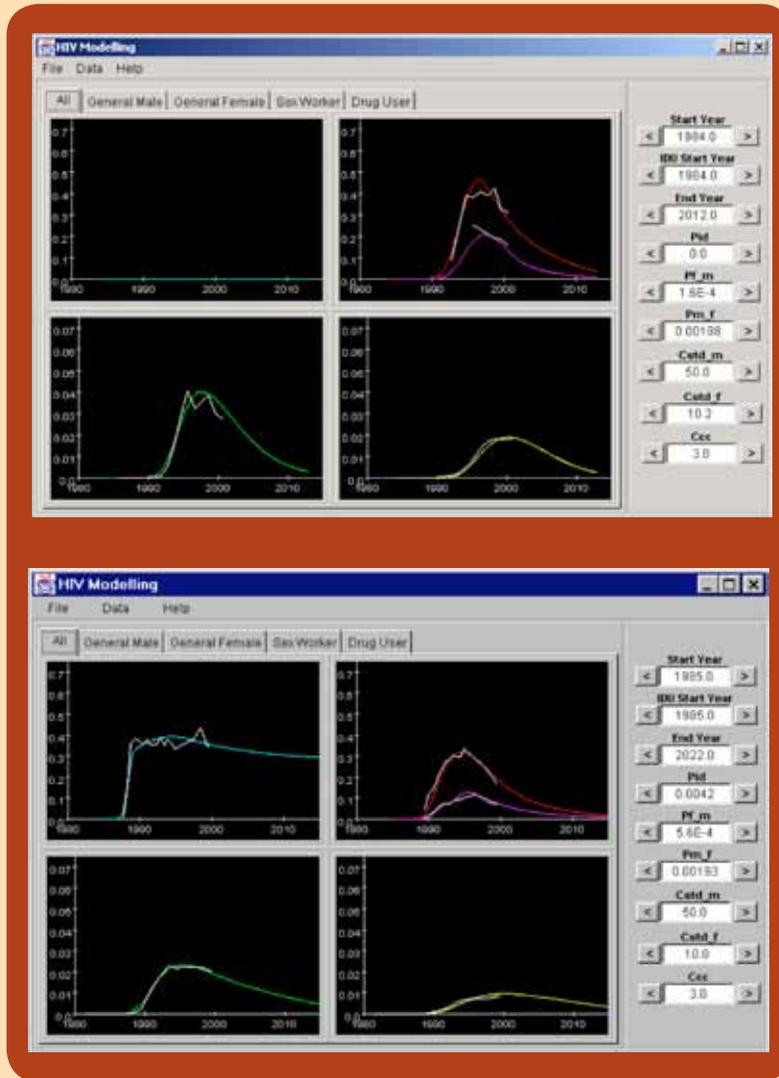


Figure 7.9. The AEM models for Cambodia (top) and Thailand (bottom). Note the good agreement between the AEM predicted trends based on behaviors and the surveillance data in white.

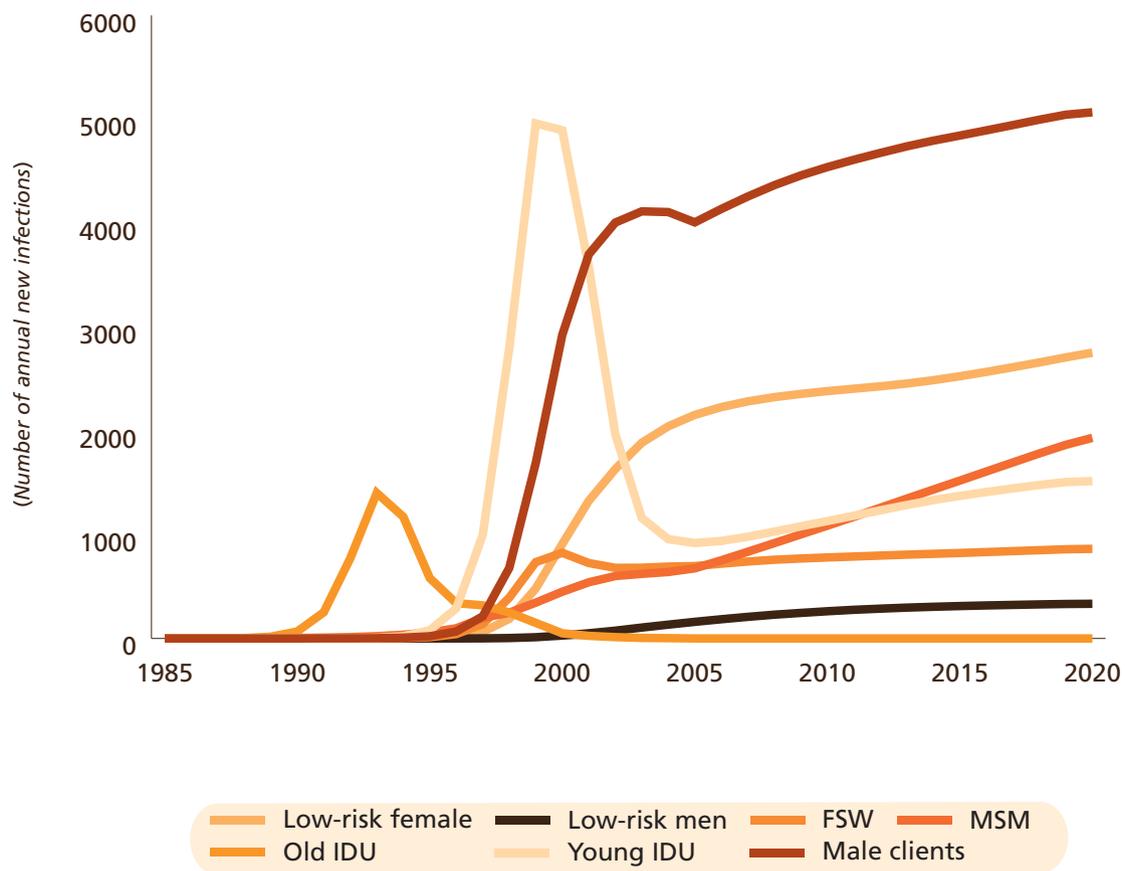


Figure 7.10.
New infections in Ho Chi Minh City, Vietnam over time as determined by an AEM fit to the epidemiological data in the city.

How can AEM help us improve responses? Four critical questions

The strength of a model such as AEM, which is based on the way Asian epidemics actually work, is that it is easy to see the connections to programs that address HIV and its impacts in Asia. Once an AEM projection has been prepared for a country, it can be used to examine a number of critical programmatic questions. Some of these questions include:

Are your programs focused in the right place?

A close examination of the number or proportion of new infections in each subpopulation, and how they change over time, can help to identify places where strengthening programs will have the greatest impact on the future of the epidemic.

AEM was applied by the A² Vietnam team to the situation in Ho Chi Minh City, Vietnam. Figure 7.10 shows the source of new infections over time coming out of this work. In the early stages of the epidemic, injecting drug use was the major source of new infections, but by the early 2000s new infections among the clients of sex workers had come to dominate the epidemic and the second largest source of new infections was low-risk women who were primarily the wives of the IDUs and clients infected earlier. A serious epidemic among MSM was also on the horizon, becoming very significant by the end of this decade. On comparing the results of this model with the actual programs in place on the ground, it was decided to strengthen programs addressing sex work, MSM and IDUs. This work will be discussed in more detail in the next chapter.



If you review Figure 7.8 for the proportion of new infections acquired through different transmission routes in Thailand, you see the proportion of new infections attributable to sex work declining substantially starting in the early 1990s. This, coupled with the major declines in overall prevalence seen in the country, demonstrates the effectiveness of the prevention programs for sex workers and clients done in Thailand. However, an increasing proportion of new infections is now occurring among MSM, a group for whom the programs in Thailand have been very weak. Growing awareness of this increase has helped to focus attention on the need to strengthen and expand programs for this community. Similar work with the AEM in Hong Kong has led to the allocation of a special fund to address HIV prevention needs in the MSM community.

Did your past programs have any impact on the epidemic?

Policymakers often need reassurance that the programs they are supporting make a difference. One of the difficulties in demonstrating the impact of prevention programs to policymakers is that they only see the HIV situation that results when the program is in place. They never directly see the impact of their programs or what would have happened in the absence of the program if behaviors had not changed. Having a model like AEM makes it possible to show them the impact of their choices. For example, in Thailand, a major national prevention program was put into place in 1991. What effect did this have on the epidemic? The epidemiological

data were not very convincing. Despite the major program effort begun in 1991, HIV continued to climb until the mid-1990s among sex workers, and among pregnant women until the early 2000s.

But when the history of the epidemic was reconstructed in AEM, a very different picture emerged. Examining the new infections over time, as shown in Figure 7.11, you could see that concurrent with the major scale-up of effort, HIV infections among clients began a rapid decline. A few years later this was followed by a decline in HIV among their wives as the effects of the earlier prevention efforts among sex workers and clients propagated through to their wives. Thus, while prevalence only declined several years after efforts began, the effects on incidence were more immediate and apparent when the epidemic was analyzed with AEM.

Prevention efforts in Thailand and Cambodia were very successful at reducing risk in sex work. Condom use between sex workers and clients rose to over 90 percent in both countries and the percentage of men visiting sex workers in the last year dropped from 20 percent to 10 percent. In the real world, we can't see what would have happened without these changes, but in a model such as AEM, we can go back and leave risk behaviors as they were in the early 1990s. When this was done for Cambodia, we found that the Cambodian epidemic would have been substantially worse (see Figure 7.12). HIV prevention efforts in Cambodia averted over a million infections.

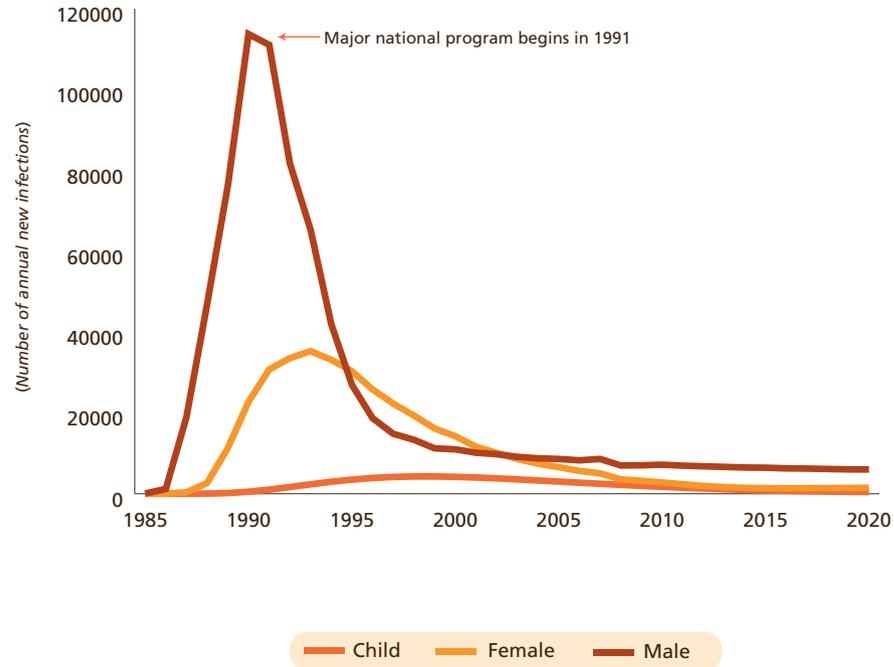


Figure 7.11.

An AEM reconstruction shows that new infections in men, mostly among clients, began to decline shortly after Thailand took its national prevention program to scale.

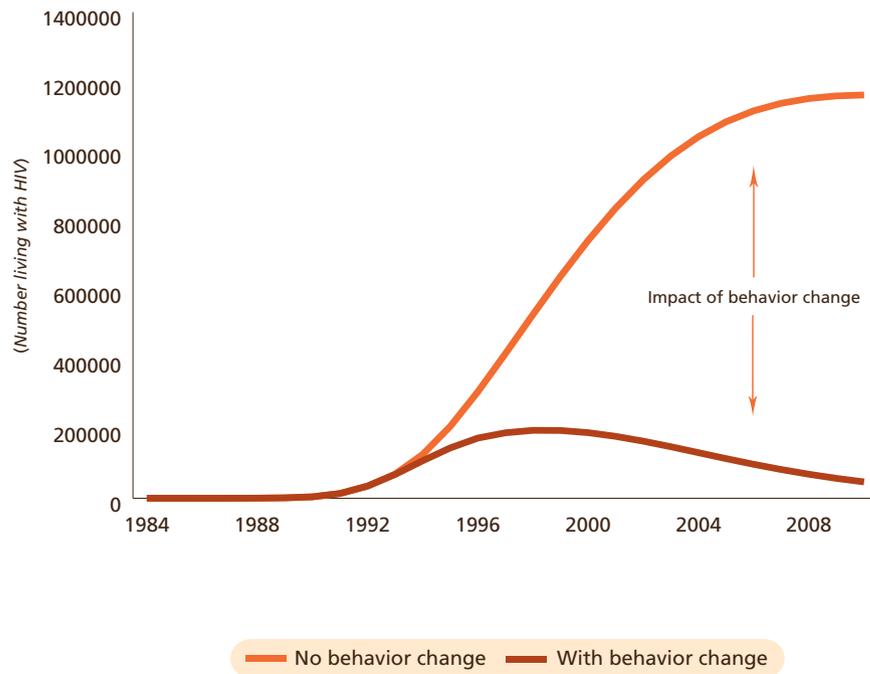


Figure 7.12.

Increases in condom use and reductions in the number of clients in Cambodia produced a major change in the course of the epidemic, as seen when comparing AEM runs with and without these behavioral changes.

What level of behavior change do we need to reverse an epidemic?

One of the questions often faced by policymakers is: what minimum targets do I need to set for behavior change to have an impact on the epidemic? For example, how high does condom use have to get between sex workers and clients to turn the epidemic around? Because the AEM is a behavioral model, you can change the behavioral inputs to try various levels of increasing condom use beginning in a particular year and see the impact this has on the future spread of HIV. Figure 7.13 shows how HIV prevalence changes in response to an increase in condom use over a five-year period starting in 2005. If condom use by 2010 grows to 50 percent the epidemic will stabilize below 1 percent; if condom use rises to 60 percent or more the epidemic will begin to decline. Because an AEM model for a location is tuned to local conditions, it can provide locally relevant information on behavioral targets and objectives to be achieved to reverse the growth of the epidemic.

How big an epidemic should we plan for?

In low prevalence settings, where the epidemic is growing more gradually, it is often unclear how serious the epidemic will become. Policymakers get one group of people arguing that their country will become the next “Sub-Saharan Africa,” while another says that local levels of risk are too low to sustain an epidemic. As usual, the truth is somewhere in between. Without a numerical assessment of the epidemic and its likely impacts, it is difficult for policymakers to prioritize HIV over other competing needs and for planners to allocate the resources to slow the epidemic and prepare for its impacts. However, with a locally tuned AEM model based on several years of actual observed HIV prevalence growth in the country, you can make more realistic assessments of the likely rate of epidemic growth, and the probable future severity of the epidemic. Such projections can form an essential input both for advocacy to strengthen and focus responses appropriately and for planning for impact mitigation in a realistic way.

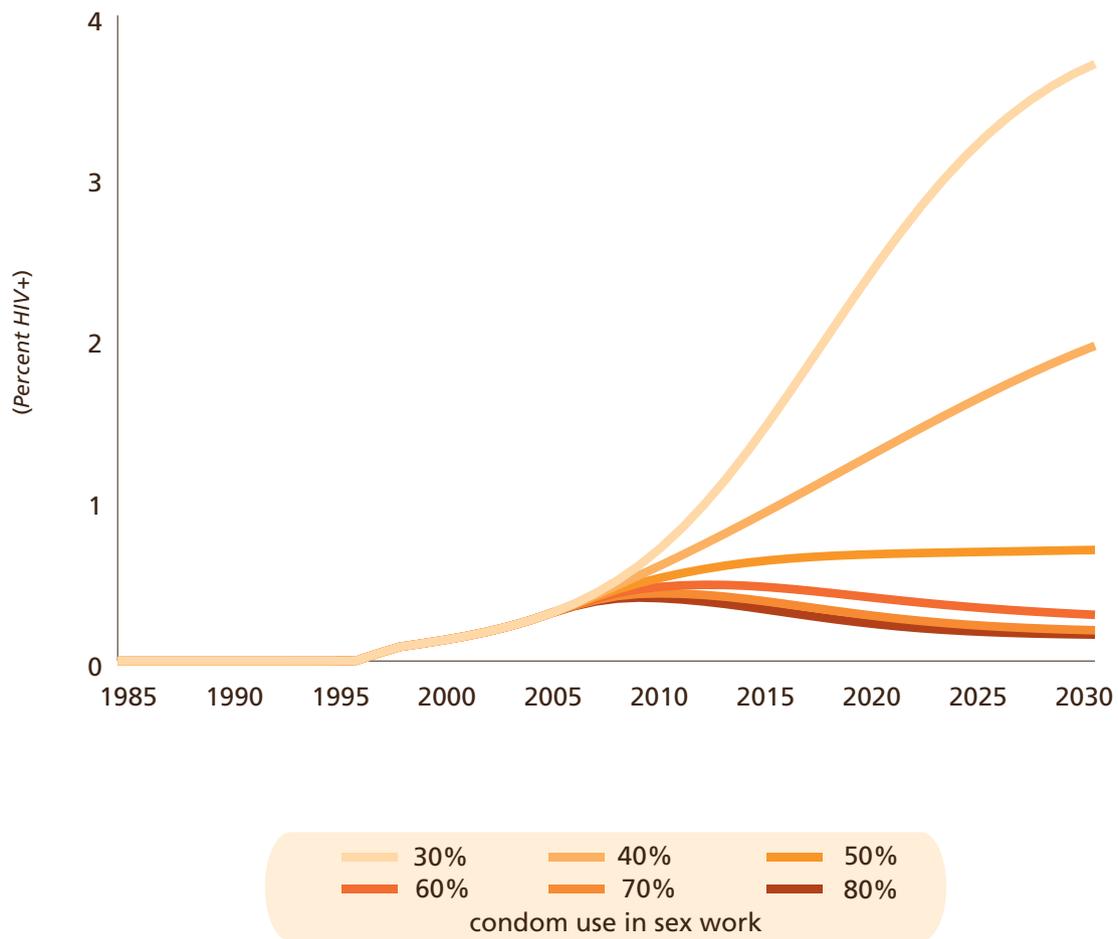


Figure 7.13.
Impact on adult HIV prevalence in a higher risk Asian country of increasing condom use between sex workers and clients over a five year period from 30% to the level specified.

Building confidence in the model - validation of AEM projections for a country

If AEM is to be used as a tool for guiding policy and programs, it is essential that the model reflects the reality of the situation on the ground. A bad model will lead to bad policy decisions. As a result, in places where AEM has been applied, considerable effort has gone into validating the model.

The first level of AEM validation occurs in the AEM interface itself, when you compare the calculations based on behavioral inputs with the observed HIV prevalence trends in the different subpopulations. If the model trends do not reasonably match the observed trends, it is difficult to have confidence in the results. You cannot expect exact agreement given the biases and problems in data sources discussed in earlier chapters, but the levels, the shapes of the curves, and the timing of the peaks in the curves should be in reasonable agreement.

But even when this is done, there are a number of additional validation steps that can and should be taken. There are a lot of HIV data that are not directly used in AEM, and this can be used to test a proposed AEM model to see if it makes sense. Some sources of validation data that have been used in the past include:

- Trends in reported AIDS cases
- Male-to-female ratios in AIDS cases
- Transmission modes in reported HIV and AIDS case data
- Measured incidence in cohort studies in a country

Trends in reported AIDS cases can be compared directly against the number in need of ART treatment that comes out of AEM. While AIDS is often significantly underreported in most Asian countries, with less than 10 percent of actual cases going into the reporting system, the trends should be much more robust unless medical care is expanding rapidly for people with HIV. If the medical system for those with HIV is not changing and the number of cases is going up more rapidly than is seen in the AEM projection, then the projection needs to be revisited. Figure 7.14 shows such a graph that was done as validation of the Thai AEM models – as you can see, while the reporting system is capturing only about 48 percent of the new AIDS cases, the trends in the model and the reported data are similar. This agrees with estimates by Thai experts that about half of the AIDS cases actually get captured in the reporting system.

One of the greatest uncertainties in any projection of HIV in Asia is the size of the various at-risk subpopulations contributing to the epidemic. If these sizes are off substantially, you would expect that the male-to-female ratios predicted by the AEM would vary significantly from what is actually observed in reported AIDS data. This makes checking the reported male-to-female ratio in AIDS cases for the model and the reported data an essential step in validation. Figure 7.15 shows such a comparison for the Thai epidemic. You can see reasonable consistency between the model and the reported data, with the trends in the two paralleling each other reasonably well.

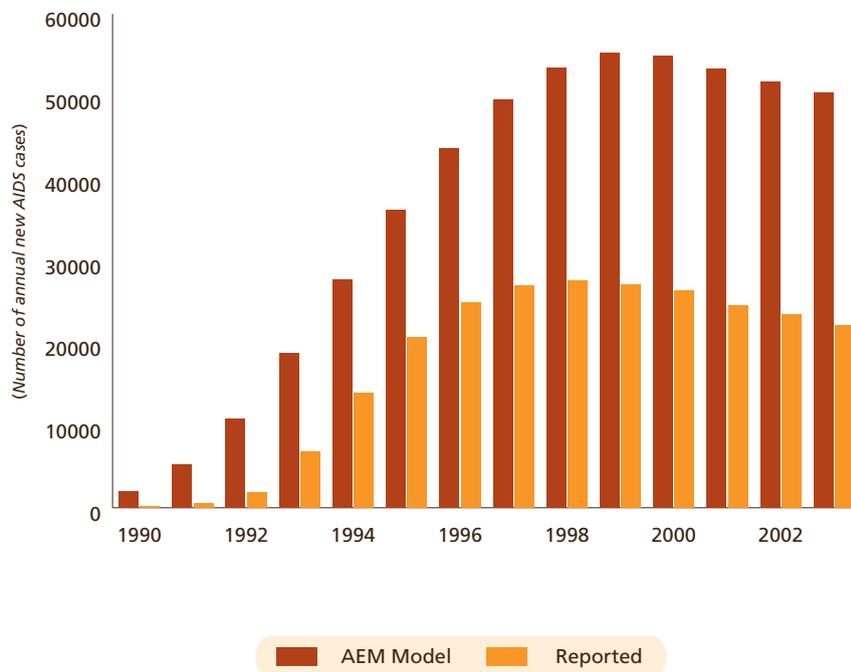


Figure 7.14.
 Comparison for validation of new reported AIDS cases from the Thai reporting system with AEM calculations of new AIDS cases. The trends are similar.

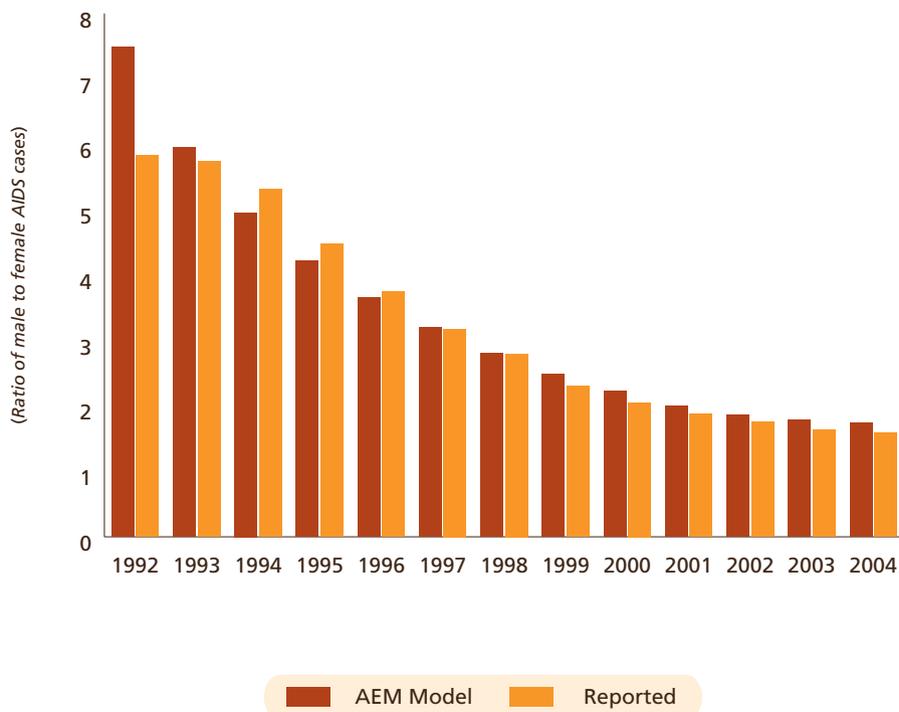


Figure 7.15.
 Comparison of the male-to-female ratio of AIDS cases from the Asian Epidemic Model and from reported AIDS cases in Thailand over time.

Reported transmission mode data consist of the fraction of newly reported HIV or AIDS in a year attributed to specific subpopulations or transmission modes. For example, 20 percent of newly detected HIV infections might be among IDUs, while 65 percent might be among heterosexuals, 10 percent among women with no reported risk, and 5 percent among MSM. These numbers can be compared directly against the incidence proportions coming out of AEM for a given year (e.g., Figure 7.8 for Thailand). If the agreement is not good, then there are two possibilities: 1) the AEM model is wrong; 2) there are biases in the reported HIV or AIDS data. Determining which of these is the case requires careful analysis of the groups from which these data are collected. For example, 79 percent of reported HIV in Malaysia in 2002 was attributed to IDUs, but the vast majority of reported HIV comes from testing of drug users in clinics and prisons. Thus, the 79 percent does not represent the true proportion of total HIV infections attributable to injecting drug use. When examining the AIDS cases, which are less likely to be biased by selection, only 65 percent were attributed to IDUs, while 30 percent were heterosexual in origin. Another form of bias in reported numbers seen in many countries is stigma and discrimination against certain behaviors. For example, in much of Asia, it is more acceptable for men to admit to visiting sex workers than to having sex with other men. As a consequence, the fraction of infections attributed to MSM is often underreported. These types of factors must be considered carefully as you compare an AEM model against reported cases. If reported data seem fairly unbiased, the AEM model probably needs to be adjusted.

The ability of AEM to give information about new infections on a subpopulation level makes it possible to directly compare the incidence (new infections per year) from AEM with incidence measured in other studies. This has been done extensively in Thailand with cohorts of sex workers and IDUs. Table 1 shows a number of incidence studies done over the years in sex worker populations. These are not national in scope, but instead reflect some regional variation. However, HIV spread rapidly on a national basis, and given that the confidence intervals are large, they can be compared with the incidences calculated in AEM. If expected regional variations in Thailand are taken into account, with the North (Chiangrai and Chiangmai) leading the epidemic with higher prevalences and the Northeast (Khon Kaen) trailing with lower ones, then the measured values seem quite consistent with what AEM has produced, and both reported data and AEM show a consistent drop in incidence nationally by the mid-1990s.

Similar comparisons have been done with cohorts of IDUs in Bangkok, which gave ongoing 4-6 percent incidence through the 1990s, compared to 5 percent in the AEM model. The use of a model that captures the dynamics of HIV in Asia makes many such comparisons possible, and other forms of validation of the model may be done depending on the availability of data in the country being modeled. In any case, validation, as discussed above, is an essential step in ensuring that an AEM model accurately represents the local HIV situation and building credibility for its use.

Type of sex worker	Annual incidence (95% CI)	Year	AEM incidence	Reference
Brothel Chiangrai	9.3% (6.1-13.7)	1991-1996	14.8%	(Kilmarx, Limpakanjanarat et al. 1998)
Non-brothel Chiangrai	1.0% (0.3-2.5)	1991-1996	2.9%	(Kilmarx, Limpakanjanarat et al. 1998)
Brothel in North	29%	May-Nov 1993	17.3%	(Nelson, Beyrer et al. 1994)
Non-brothel in North	4%	May-Nov 1993	3.4%	(Nelson, Beyrer et al. 1994)
Brothels in Khon Kaen	9.2% (4.6-13.9) NOTE: grew from 4% to 12% over the year	Nov 1990- Dec 1991	18.6%	(Ungchusak, Rehle et al. 1996)
Direct and indirect in Chiangmai	25.4% (14.8-40.6)	1991-1992	20.6%	(Beyrer, Brookmeyer et al. 1996)
Unclassified in South	4%	1994	2.8%	(van Griensven, Limanonda et al. 1998)

Table 7.1.

Incidence among sex workers measured in studies in Thailand.

Building validity and legitimacy for your model – the role of the Technical Working Group

Before moving on to a discussion of the use of models for policy and program analysis, we should discuss the essential role of the Technical Working Group in the process of preparing a model. You will recall that Chapters 1 and 3 discussed the need for a group of local technical experts who could provide input to the A² process at various stages. One of the most essential times to seek the input of this group is during the preparation of models.

The Technical Working Group has four essential roles during the modeling process:

- Linking the synthesis specialist or other person doing the modeling to key individuals who may be able to assist in filling data gaps in the inputs.
- When a data gap persists, providing expert input on what assumption should be made to fill that data gap.
- Reviewing the model as a whole to ensure it is technically sound and truly representative of the local situation.
- Providing legitimacy for the model in the eyes of policymakers and program managers.

As the model is developed, certain input data will not be readily available to the modeling team. Members of the Technical Working Group are chosen for their national expertise on HIV and AIDS. With their background and experience, they are likely to know of sources of data or to individually know many of the researchers or public

health authorities who are the gatekeepers for these data. Their assistance and support may raise the modeling team's awareness of data sources and open doors for access to data that might otherwise be out of reach.

Despite the team's best efforts, some inputs needed for the model are likely to remain unavailable. In this case, the Technical Working Group's expertise can offer guidance on what assumptions should be made regarding the missing inputs. This might be based on their own experience with the local HIV situation or data collection; it might be based on an understanding of the situation in a similar country or location; or it might be based on data which they have received confidentially but cannot disclose. Even when this is the case, TWG members knowing this behind the scenes data may be able to provide important guidance on what assumption to make for a particular input value.

When the model is complete, the TWG should undertake a comprehensive review of the inputs, the model itself, and the outputs. With their expertise on HIV and AIDS, they may be able to spot inconsistencies either within the model or between the model and other information of which they are aware. They may make recommendations for modifying some of the assumptions, changing some of the inputs, or producing other useful outputs.

And, most importantly, the agreement and approval of local experts on HIV and AIDS will confer legitimacy on the model. When the model or analyses based on it are later presented to policymakers and program planners, being able to point out that it has been reviewed by local experts and that they agree with its findings will make it much easier to convince people of its validity and usefulness.

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RESPONSES

Chapter 8

MAKING USE OF WHAT'S THERE:
COLLECTING INFORMATION ON RESPONSES,
THEIR IMPACTS AND THEIR COSTS

[an overview]

[an overview]

Chapter 8

MAKING USE OF WHAT'S THERE: COLLECTING INFORMATION ON RESPONSES, THEIR IMPACTS AND THEIR COSTS

Analysis of responses requires data, too.

Just as your analysis of the epidemic depended upon having quality data, your analysis of past and current responses must also have a strong evidence base. When you go to policymakers, you must be able to say what is working and what is not. You must know if your response is at a scale to make a difference and, if not, what needs to be done to get there. And, you must be able to tell them how much appropriate and effective responses will cost. Without these essential inputs, decisions will continue being made in ad hoc fashion and it will be difficult to mobilize the resources needed.

What do you need to know about responses?

The information you will need to collect about responses falls into three primary categories:

1 Coverage of responses.

You need to know both the geographic coverage and distribution of programmatic responses in your country or province and the proportion of the locally important populations in your epidemic that are actually reached by those programs.

2 Impact of responses.

You must determine the effect that specific programs are having on risk behaviors and, if possible, on the epidemic. This generally depends on having data about those reached by interventions as compared to those not reached.

3 Unit costs of responses.

Programs require resources, both financial and human. These costs must be quantified, usually in terms of the cost per person covered, also known as the unit cost. This will allow you to assess the resource needs to mount an effective response and provide this essential information to decision-makers.

How do you find the information you need?

The process of collecting information on responses is very similar to the process outlined in Chapters 3 and 4 for collecting data on the epidemic, behaviors, and at risk populations. However, information on responses is usually even more disorganized and dispersed than epidemiological and behavioral data. The essential steps in the process are:

- **Clearly define the data you need and review the published literature and meeting abstracts.**
This will help you to locate studies and projects that have measured the effects or costs of intervention programs.
- **Contact national programs, NGO networks, affected communities and donors.**
Find out who is engaged in prevention, care and impact mitigation programs.
- **Follow up with these organizations.**
Collect reports, evaluation documents, or other information they may be able to provide regarding the extent and impact of the programs they have implemented and/or their costs of implementation. Enter the documents and data gathered into the databases and document systems you developed for epidemiological and behavioral data.
- **Extract information about coverage and impact of the programs done so far.**
Several approaches can be used to assess coverage and impact including:
 - Reviewing measured behavioral or epidemiological impacts in studies or evaluations of prevention and care programs.
 - Using combined service statistics and population size estimates to roughly estimate overall coverage.

- Gathering coverage and impact estimates from behavioral surveillance.
- Using geographic coverage as an upper bound on total coverage.
- **Gather information on costs.**

Normally you will start with available published studies, national resource tracking systems, donor or NGO reports, or project formulation documents. However, costs vary from country to country, province to province, and even from organization to organization locally. Thus, in many cases you will need to sit with the various organizations involved in your local response or hire consultants to do so in order to obtain realistic estimates of average local costs.
- **Identify gaps in data on the responses and make plans to fill them.**

Coverage, impact and costs of responses are essential inputs to national strategic planning, making it important that gaps be filled as quickly as possible.

What specific things should you watch for as you collect response information and cost data?

- **The quality of the data and how representative they are.**

Data on responses are more likely to come from NGOs and CBOs than from researchers and surveillance systems. National data systems collect some response indicators, but these are often quite geographically constrained, limited in scope, and often biased to make responses look stronger than they are. This makes it essential that you pay special attention to the quality of the information you collect regarding responses. It also makes it critical to cross-validate data from different sources, compare what you find to regional databases for similar information, and be alert for possible biases in the data available.

- **The content of specific programs and how that affects their impact.**
Prevention and care programs vary in what they actually do, the resources they need, and the impact they have on risk and access to care. This requires examining the essential components of each program carefully and comparing the relative effectiveness of different programs. The impacts and costs you use in your analyses should be those relevant to the specific prevention, care or impact mitigation programs you are proposing.
- **Make sure you understand the costs that are provided in a study or report.**
Costs can be and are calculated in a number of different ways, using different approaches and terminologies. You should carefully review and be sure you understand what any costing information represents. Unit costs may or may not include infrastructure costs. Some costs are one-time and some are recurring. Analyze these things carefully in assessing your local unit costs.

Be sure to track the barriers and facilitators in the response environment.

Because you will be advising decision-makers on what responses work best, it is also important to collect information on the environment in which responses occur and the barriers and facilitators to effective responses. Responses do not occur in isolation, but in a complex legal, cultural and social environment that greatly affects the ability to mobilize resources for them and implement them and also greatly impacts their effectiveness on the ground. As you review responses, keep track of any external factors, barriers or facilitators that are influencing the ability to respond effectively and be prepared to relay this information on to decision-makers and program designers at the appropriate time.

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Chapter 8

MAKING USE OF WHAT'S THERE:
COLLECTING INFORMATION ON RESPONSES,
THEIR IMPACTS AND THEIR COSTS

[concepts and content]

Chapter 8

MAKING USE OF WHAT'S THERE: COLLECTING INFORMATION ON RESPONSES, THEIR IMPACTS AND THEIR COSTS

Gayle Martin, Naline Sangrujee, Margot Fahnestock and Tim Brown

It's all about responses – so what questions do you need to answer?

The A² process is all about improving responses in an evidence-based way. In Chapter 3 you learned about the data needed to analyze the epidemic and the behaviors that drive it; but, in addition, you will need to collect data on the responses themselves. These data will help you to answer a number of very specific questions about past and present responses:

- Where are prevention, care and impact mitigation programs operating, that is, what is the **geographic coverage** of your response and how has this changed over time?
- Who and how many are these programs serving? Which populations are reached by the programs and what is the **extent of program coverage** over time of the priority groups central to Asian epidemics?
- Which groups or organizations are currently conducting these programs, and how much **capacity** currently exists for program expansion?
- What is working and what is not in your country or province? That is, what is the **effectiveness** of individual programs and of the overall response in the country? How much have programs in your country or province

managed to change behaviors? Is there evidence that they, in turn, have reduced the spread of HIV, expanded the access to care or mitigated the serious impacts of the epidemic?

- What factors contributed to the success of effective programs? What **facilitators** can contribute to improving program effectiveness? What **barriers** exist to expanding program coverage and effect?
- What are the **costs** of the programs currently underway?

Collecting the information needed to answer these questions will help you to answer two of the most critical questions raised in Chapter 2:

- Are current HIV prevention and care efforts having an effect and are they positioned for maximum impact both now and in the future?
- How much will prevention and care cost and does your country or province currently have the capacity to do it?

These questions will figure prominently in your discussions with decision-makers as you advocate for improved responses. And,

as with your analysis of the epidemic, your analysis of the response will need to be based on actual data about the responses in your location and on what's important in your local epidemic situation. This chapter discusses in more depth what kind of data you need, where you can find that data, and how you can make the available data more useful and meaningful in answering the critical questions. These data will be central to the analysis activities discussed in the next two chapters and will play a critical role in the development of effective, efficient and properly focused national and provincial strategic plans for addressing HIV and AIDS.

What information do you need about responses and their impacts?

Three categories of data are essential in assessing the current response to HIV and AIDS and the impact of that response: 1) coverage, 2) impact, and 3) unit costs. Coverage and impact

in turn determine the overall effectiveness of a program on a large scale.

1. COVERAGE.

For every HIV prevention, care or impact mitigation program, the first thing you identify is the size of the population that is targeted by program activities. This target population is the population that could potentially have access to those services given existing infrastructure and the objectives of the program. Coverage for that program is then defined as the percentage of the target population that is effectively reached by the program's activities in any given year. In concept, coverage refers to the fact that an individual actually receives a message or service. This concept applies to any type of program: prevention, care, treatment, social support or impact mitigation.

2. IMPACT.

Prevention interventions aim to influence change in risk behaviors in order to reduce transmission of HIV. Risk behaviors include both sexual risk behavior and injection

drug use. The impact is defined as the effectiveness of the intervention, or program response, in changing behavior. You estimate the magnitude of the impact from local epidemiological impact studies that are published, as well as from good quality unpublished studies. An example of the impact is the percentage change that can be associated with exposure to a particular intervention (e.g., the increase in condom use with clients among sex workers in contact with outreach programs). Chapter 9 describes impacts included as part of the Goals Model. The magnitude of the prevention impacts used in Goals has been derived from an extensive review of the published literature.

3. UNIT COSTS.

Unit costs are defined as the costs required to reach one person in the target population with a particular intervention. Unit costs are used to calculate total costs of an intervention by multiplying the number of people reached by the intervention by the unit cost. Unit costs must capture all the costs to implement a program in order to obtain an accurate estimate of the program response. A more detailed description of the various types of cost analyses, most notably, average cost analysis or marginal cost analysis, is provided later in this chapter.

The actual effect a given set of program activities will have in slowing the epidemic is a combination of the coverage and the impact. If the impact is high, but the coverage low, the program will only reach a limited number of people and the actual effect on the growth of the epidemic will be small. Similarly, if the coverage is high, but the program has little impact on behaviors, it will be unlikely to make a large difference. However, if coverage with moderate or high-impact programs is high, major changes in the epidemic can be expected. It is important that you pay attention to both of these factors, because while there are many examples of high-impact pilot projects, the number of these actually taken to scale remains relatively low.

Coverage of responses has several dimensions

Coverage seems like a simple concept: the percentage of the target population reached by a particular program or receiving services. However, there are various other dimensions to coverage that you should keep in mind as you gather information:

- **Population coverage.** This is the percentage of a specific at-risk target population reached by the specified program(s) or intervention(s). Normally in A² you will be interested in the coverage on a national or provincial scale for a

specific at-risk population (e.g., all brothel-based sex workers or all MSM). That is, you will define coverage for that at-risk population as the percentage of the at-risk population in the country or province reached by programs of a specific type (e.g., prevention or treatment). For example, prevention coverage for condom promotion efforts among sex workers might be measured by the percentage of all sex workers who regularly received condoms from some source throughout the year.

- **Geographic coverage.**
This refers to the percentage of all areas in which services are available. This is important since prevention or care services are often offered in only a limited number of locations. This may leave major proportions of your at-risk populations uncovered, reducing the overall national or provincial population coverage that you will use in the Goals Model discussed in the next chapter.
- **Coverage has a time dimension.**
Not only can coverage change over time, but you often draw a distinction between current coverage and future coverage. Future coverage – or target coverage – is usually determined by stated goals in a strategic plan

or can be generated through a cyclical modeling process, as described in subsequent chapters. It is important to note that future coverage is intended to indicate targets that are feasible (i.e., they should not only be informed by the coverage needed to control the epidemic but also take into consideration operational or financial constraints).

Cost estimates for programmatic responses come in several forms

You may encounter various cost terminologies (e.g., cost versus price; marginal cost analysis versus average cost analysis, fixed, variable, capital, recurrent costs; indirect costs). It is important before starting to gather cost information that you first be clear on a few definitions that you will encounter.

Cost is the value of the inputs that have been used to produce a good or service. Price reflects the interplay between demand and supply-side considerations, and may be above, equal to or below the cost. The price paid to a private healthcare provider, for example, usually includes the cost and some profit, whereas the price paid to a public provider is usually subsidized and below the full cost of the service.



Marginal cost analysis examines the additional cost of producing one more unit of a good or service. The average cost analysis is the total cost per unit of output, and is calculated by dividing total cost by the units of output or services produced. This is an important distinction, and the costs may vary substantially. If a service already exists, you may ask how to go about estimating the cost of providing an additional output. In estimating the marginal cost for prevention of mother-to-child transmission (PMTCT) services, for example, if PMTCT services are already provided, then the marginal cost of providing PMTCT services to one additional woman will not include the investments costs needed to establish the service or the training costs needed to start providing the services (marginal cost = variable cost per output). However, in planning for implementation, not all services will be provided at established facilities. In this instance the unit cost will be calculated as the average total cost (average total cost = fixed cost plus variable cost per output).

You should take note of some additional definitions that you will see in the literature:

- **Fixed costs:**
the cost of items that do not change directly with output. Examples include vehicles, equipment and buildings.
- **Variable costs:**
items that change directly with output. Examples include materials, drugs and supplies.
- **Capital costs:**
costs of items that are consumed over more than one year. Examples include equipment, vehicles and buildings.
- **Recurrent costs:**
costs of items that are consumed within one year. Examples include materials, labor and utilities.
- **Direct costs:**
costs that are incurred and identified as a direct result of undertaking the activity. These costs increase in direct proportion to the scale of the activity. Examples include condoms, testing reagents and labor.
- **Indirect costs:**
costs that are incurred by providing infrastructure to support the intervention and are often called overheads. These costs cannot be identified in direct proportion to coverage.

You need response impact or effectiveness for different programs and groups

Prevention interventions are intended to reduce new HIV infections. Except for safe blood and programs for mother-to-child transmission, all the prevention interventions operate by changing behaviors that are linked to HIV transmission. As seen in Chapters 2 and 6, in Asian epidemics most new infections will be concentrated in a small number of groups with higher behavioral risk (FSWs and clients, MSM and IDUs) and their immediate sexual partners. However, the prevention needs of and types of programs done for each of these populations are quite different. As a consequence, you will need to gather information about the impact of specific types of prevention programs on behaviors for each of these groups.

The Goals Model, which will be introduced in the next chapter, is a tool designed to assist policymakers and support strategic planning for HIV and AIDS by linking program choices and goals, expected levels of behavior change, and funding. In the model, three types of sexual behavior (condom use, number of sexual partners and treatment of sexually transmitted infections) and three types of injecting behavior (frequency of injecting, frequency of needle sharing and number of sharing partners) are affected by prevention efforts among each of

the at-risk populations important in Asian epidemics as well as among medium- and low-risk heterosexuals in the population. The specific definitions of who is in these groups may vary from country to country depending upon the local situation, although usually you will use medium-risk heterosexuals to represent those having non-commercial casual sex. The Goals Model also includes prevention efforts for youth, as well as general population programs (mass media, voluntary counseling and testing, condom social marketing, etc.) and programs for blood safety and preventing mother-to-child transmission.

In the Goals Model the impacts, that is the changes in behavior associated with a particular program, are population specific. Each prevention intervention can affect any or all of the risk behaviors outlined in the previous paragraph. The effects may be different depending on the specific at-risk population targeted. Thus a sex worker prevention program may affect condom use, treatment of STIs and number of partners among the sex workers and the clients. School-based interventions may affect age at first sex, condom use and numbers of sexual partners among medium-risk men and women (i.e., those having casual sex) but would not be expected to affect the higher-risk populations.

The Goals Impact Matrix, to be discussed in more depth in Chapter 9, summarizes the epidemiological evidence of the

impact of particular interventions on the mentioned risk behaviors by risk group for each prevention intervention by specifying the expected level of behavior change from a particular program in a particular population. It is this component that allows the Goals Model to link resource inputs and program interventions to their impact on risk behaviors for sexual and shared injection-based transmission of HIV. The literature on which the Impact Matrix is based is constantly being updated (Bollinger, Cooper-Arnold, et al. 2004). For implementation of the Goals Model in the Asian context, special emphasis has been placed on enhancing the Impact Matrix for interventions targeting injecting drug users, given their central role in the epidemic.

While this matrix is unique, it is not without limitations. The content of the Impact Matrix is limited to the available literature. Therefore, an empty cell in the Impact Matrix may imply no impact or merely that there are no studies that looked at this impact. This may be viewed as a very serious limitation, but you could look at the reverse and say that many interventions are being implemented with little or no evidence of impact.

Early in the HIV response the problem of empty cells was more of a limitation, but as the database has grown this is less of a problem today. The database on which the values in the Impact Matrix are based is available, and a recent version is on the CD accompanying these guidelines. The database summarizes the results from each study that was used, and provides the references and important information about the study (e.g., location, sample size, target population, study design).

As you will see in the discussion of the Goals Model, you will need to make choices about the levels of impact that particular prevention interventions have in your country. The Goals Model has three levels: high impact, average impact, and low impact. This means that you will need to collect information on the levels of behavior change observed in prevention efforts in your own country. In particular, you will need information about changes in condom use, changes in seeking STI treatment, changes in the number of sexual partners or contacts, and changes in injecting behaviors for each of the important populations in your country in response to particular programs.

How do you collect the information you need on responses?

As was the case with collecting epidemiological and behavioral information, gathering information on response coverage, impact and costs can take some time. However, if you proceed in a systematic fashion, the process will be smoother.

Make a list of the response data you need and review published literature and meeting abstracts to find relevant data and additional sources

To start, make sure you are clear on precisely which coverage statistics, program impacts and program costs you wish to collect. Review the material in this chapter and the Goals Model, described in the next chapter, and make a list for each locally relevant population of what data you need to estimate cover-

age, which behavioral indicators you can use to evaluate the impact of programs, and which cost figures you must collect.

Next, review the published literature and the meeting abstracts you collected earlier to extract any of the information on your list they may contain. As you did with epidemiological and behavioral data, keep this information organized in spreadsheets or summary documents to make it more easily accessible later.

Locate and contact those organizations that are likely to have access to more detailed information on responses

Unfortunately, information on responses is often much more limited and less frequently found in the published literature or conference presentations than information on HIV, STIs or risk behaviors. Thus, you will probably need to seek additional information from other sources, including the gray literature. One of the best ways to locate these sources is to contact those involved in HIV prevention and care. Particularly useful people to talk to include:

- Your national or provincial AIDS program
- NGO networks that work in HIV
- CBOs from affected communities
- International donors or international organizations funding or engaged in HIV work locally (USAID, UNAIDS, GFATM, WHO, Care International, etc.)

These people will know the organizations or groups most actively involved in the HIV response. National or provincial programs and donors, in particular, should have a clear picture of where and by whom most HIV resources are being expended. UNAIDS country coordinators, UN Theme Group chairs, and WHO representatives may be able to provide a good overview of the response situation. NGO networks sometimes maintain lists of network members engaged in HIV work and their program activities.

Especially today, with the increasing emphasis on unified monitoring and evaluation, any of these groups may have annual reports that attempt to assess coverage, measure the impact of programs, or track annual expenditures. In addition, before committing substantial funds, donors often conduct extensive situation analyses that look at both the national or provincial HIV situation and the current response to it. These can provide a valuable snapshot of the response at past points in time. Often, situation reports or project evaluations can be found on their institutional websites. A list of these websites is given on the CD accompanying the guidelines.

Contacts with any of the agencies outlined above can help you to learn the situation in the country in terms of the response, locate the major players, and obtain various useful reports or

documents that they may have. It also provides you a valuable opportunity to introduce the A² process to them and seek their active engagement. The techniques used and analyses done in the A² process allow for evaluation of the impacts of the overall response and can provide valuable inputs for national monitoring and evaluation efforts.

Follow up with the major organizations involved in the response to collect reports, evaluation documents or other information and enter them into your document databases

Most larger organizations involved in HIV prevention and care and all international agencies generate a paper trail. They usually have documents that describe their programs, they prepare annual reports, and they frequently conduct evaluations of their programs. They also normally have service statistics (i.e., estimates of the number of people served and/or the number of contacts made with members of their service population).

These annual reports and evaluations may be useful in assessing the impact of programs. The service statistics, when summed for all the major organizations working with a particular population, can be used along with size estimates to estimate total coverage. The larger organizations also typically have better accounting systems, as they are often required to report financial expenditures to donors. This can make them an extremely valuable source of coverage, impact and cost information on the responses, although often you will need to gain their trust and work closely with them to gather the detailed costing information you need.

As you gather reports, documents and other information from these organizations, be sure to systematically enter it into the document databases generated earlier. This will make it much easier for you to locate information later.

Extract and validate information about coverage and impact

The next step is to extract estimates of coverage of prevention efforts and how it changes over time and to determine the behavioral impacts of those prevention efforts. For A² purposes, what you would really like is a national or provincial estimate of the coverage by effective programs for each of the important at-risk populations. Similarly, you would like estimates of the behavioral impacts of those programs on a national or provincial basis. However, such data are rarely available in this form. Instead, you must normally derive national or provincial coverage and impact estimates indirectly from various sources.

USE AVAILABLE DATA TO MAKE MULTIPLE COVERAGE ESTIMATES. COVERAGE ESTIMATES CAN BE MADE IN A NUMBER OF DIFFERENT WAYS, EACH OF WHICH HAS ITS OWN SET OF LIMITATIONS:

- **From service statistics.**

If you can locate the major prevention, care or impact mitigation efforts for a given population and obtain estimates of the number of people served by each effort, you can sum these results to get the total number of people reached. If you divide this by the size of the eligible population, you obtain an estimate of the coverage in that group. This method is limited by the accuracy of the techniques used to count individuals covered by a

particular service or program and by the quality of your size estimate for the population as a whole. For example, NGOs often count client contacts rather than individuals. Thus, individuals may be double-counted when they participate in a prevention program multiple times. Sometimes it is very difficult for a program manager to accurately track participation in the program, as identifying information is often not available. Counting methodologies may not be consistent across all providers. In some cases, organizations exaggerate the number of clients served to make the program look more successful. Unless care is taken to account for these factors, the eventual coverage estimate may be compromised.

- **From behavioral surveillance data or ad hoc survey data.**

Increasingly, questions on exposure to prevention efforts are being included in behavioral surveillance systems (BSS) and other behavioral surveys. For example, the BSS questionnaire may ask if the respondent has received a condom from any NGO worker in the last six months. Such questions provide direct estimates of coverage for the population captured in BSS. However, once again, this technique has its limitations. The questions may be phrased in different ways on different questionnaires, making direct comparability difficult. For example, some questionnaires include both government and NGO efforts, others ask only if you've been reached by an NGO or even a specific organization. Often the time frames vary from one BSS system or survey to the next. While you seek a national or provincial estimate of coverage, this method actually only provides an estimate of coverage among those reached by the BSS or the

survey. In most countries, BSS systems are quite geographically limited, operating in only a handful of sites. If the BSS sites are preferentially in intervention areas, this will overestimate national or provincial coverage; so you must adjust for this bias. Furthermore, some of the more hidden components of the population may not be accessed by either BSS or prevention efforts, again leading to an overestimate of coverage. This makes it imperative that you understand the populations at-risk as well as the BSS system and its limitations, and that you carefully examine the questionnaires used to gather the data.

- **By estimating geographic coverage.**

Sometimes you may find that service statistics are impossible to collect and that BSS data are quite limited. In that case, you can generate an estimate of coverage by looking at the percentage of smaller geographic units (e.g., counties or districts, in which prevention efforts operate). For example, when this was done early in one A² location, it was found that less than 10 percent of these smaller units had functional prevention programs at that point in time. You should keep in mind, however, that even in those areas with prevention programs, universal coverage will normally not be the case, meaning geographic coverage overestimates actual coverage. In addition, when using this approach, you must pay careful attention to the distribution of risk. If you are assessing coverage among sex workers and there are no sex workers in a number of the counties or districts, geographic coverage may underestimate the overall coverage if coverage is high in all counties or districts with sex workers.

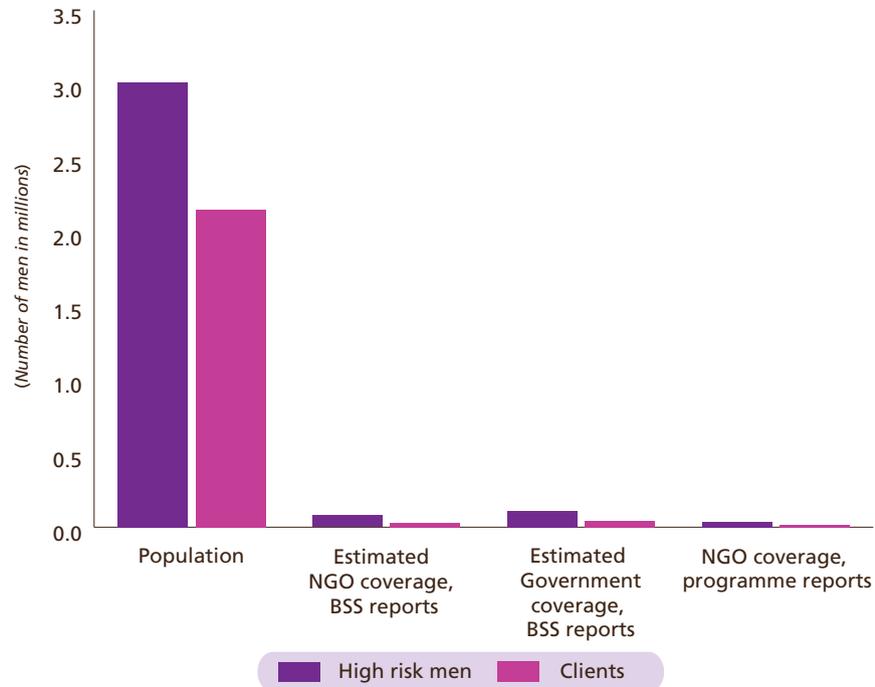
- **From national coverage reports.**

In recent years countries are reporting coverage

indicators in some populations to international agencies. You should obtain copies of your country's reports (e.g., UNGASS reports or Universal Access reports) to see if they contain coverage estimates. However, it is important to keep in mind that coverage in these reports may be overestimated to make it appear that the country is meeting international goals. Thus, you must look carefully at the methodology used to arrive at these estimates and assess how realistic they are.

As you can see from the above discussion, each of these methods has substantial limitations and the potential to produce a bad coverage estimate. Figure 8.1 illustrates this with data from Indonesia. Estimates of NGO prevention coverage from the NGO program reports are approximately half of the level reported in BSS. Government coverage, which might be omitted in many questionnaires, was higher than the NGO coverage. This demonstrates how different sources can give different estimates of coverage and highlights the need to look carefully at what is asked about exposure to different types of programs in the questionnaires.

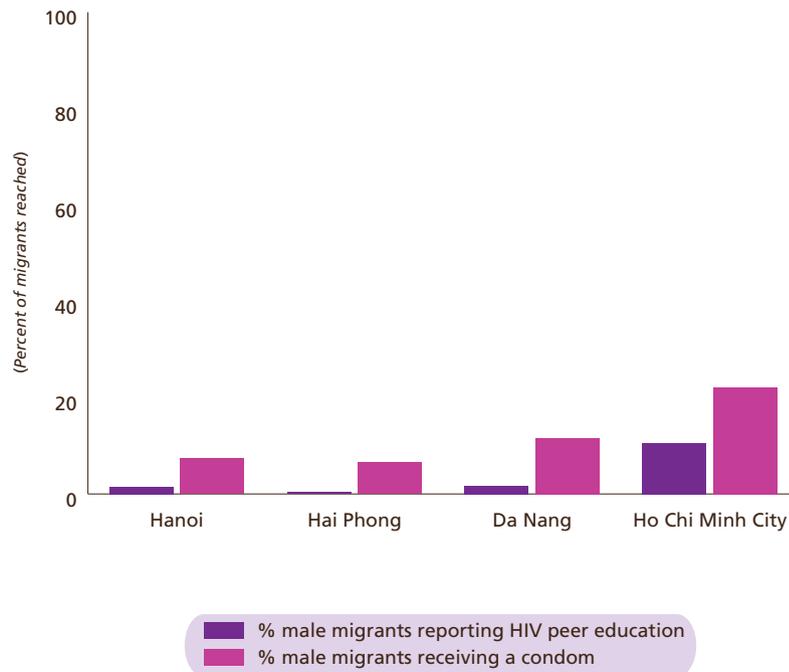
In addition to the data considerations outlined above, it is important that you realize that coverage itself can vary geographically. Figure 8.2 shows two different measures of coverage among male migrants from four BSS sites in Vietnam in 2001. Any attempt to formulate a national estimate of coverage of male migrants for Vietnam would need to adjust for this large provincial variation. This example also shows that you may encounter many different measures of coverage, in this case those reached by peer educators and those receiving condoms from some prevention program. These may give very different results, highlighting the need to seek a consistent measure of coverage as you review available data.



(source: indonesia national surveillance system data)

Figure 8.1.

Estimates of number of clients and high-risk men covered from different sources in Indonesia in the early 2000s



(source: 2001 BSS report, NIHE and FHI)

Figure 8.2.

Coverage of male migrants by peer education and condom distribution efforts in BSS sites in Vietnam



Chapter 10 will discuss how you prepare scenarios for different prevention programs and their effects on the future of the epidemic. This will require that you be able to estimate realistic rates of how coverage changes over time. Coverage cannot be scaled up overnight. You need to develop effective program approaches to work in your specific settings, mobilize resources, train staff, and roll out and market the services to affected communities. Going to scale takes time. If BSS tracks program exposure over time in one or more parts of the country or province, this can be used to determine a realistic rate of scale-up. Figure 8.3, for example, shows how coverage among sex workers scaled up in Nepal between 1998 and 2003. The other thing to note in this example is that many sex workers were being exposed to multiple prevention efforts. This is common in HIV prevention. Multiple interventions tend to synergistically enhance each other, producing higher levels of preventive behavior.

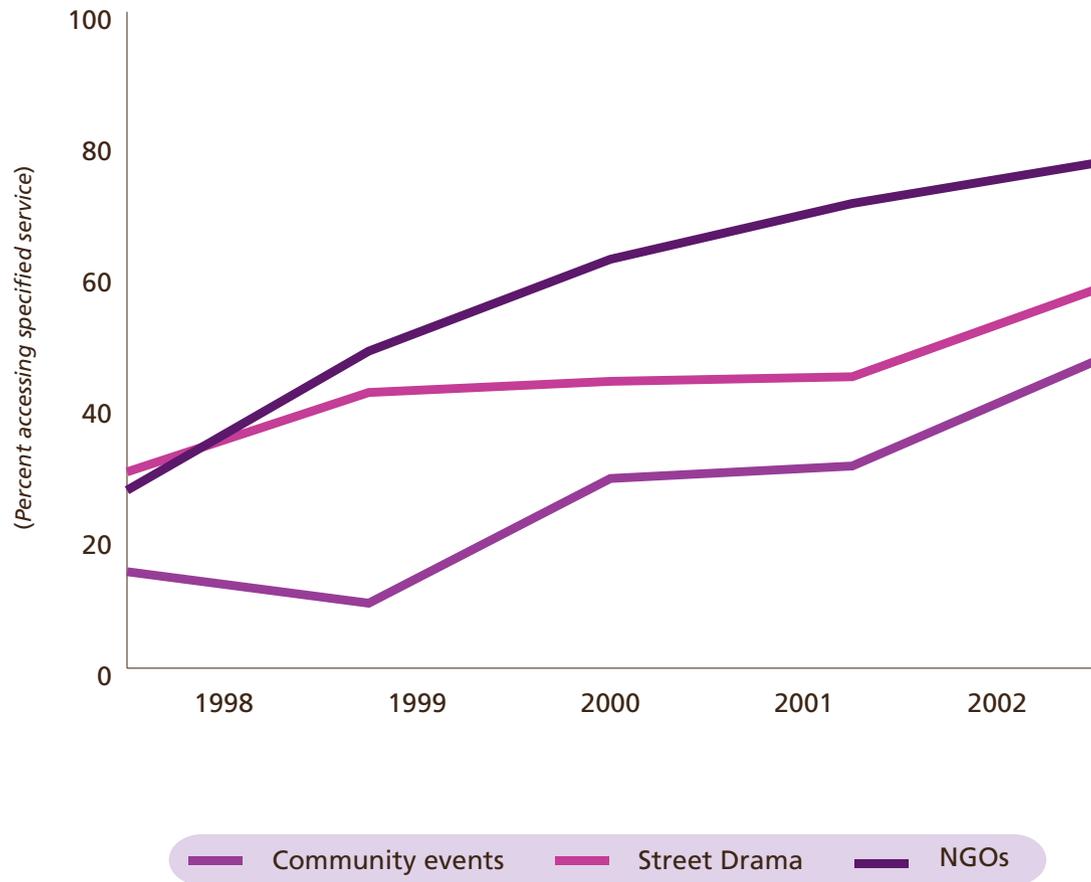
CHECK THE CONSISTENCY OF CHANGES IN COVERAGE WITH CHANGES IN BUDGETS, SUPPLIES AND BEHAVIORS

With the difficulties in assessing coverage, it is important that you validate the trends in coverage scale-up to ensure they are reasonable. If the coverage of prevention programs in a particular population is going up, then a number of other things should be following similar rising trends:

- **The budget allocated to prevention programs for this population.**
While there may be some economies of scale, expanded coverage inevitably requires expanded resources.
- **The number of prevention supplies being distributed.**
For many HIV prevention programs, this means the number of condoms handed out, the number of clean needles distributed, or the number of STIs treated among this population should increase. These “process” indicators are often routinely collected by NGO and government programs.
- **The level of protective behavior.**
If effective prevention programs are scaling up, members of the population in question should report lower levels of risk behavior and greater use of condoms and clean needles.

If any of these shows a downward trend while coverage is going up, then you need to make a closer examination. If coverage is going up, but the overall budget is going down, something is wrong. If coverage increases, but the distribution of prevention supplies or the level of protective behavior decreases, then either the coverage numbers are inaccurate or ineffective programs are





(source: new era and family health international 2003)

Figure 8.3.
Scale-up of three types of prevention efforts (NGOs, street drama, community events) for sex workers in Nepal between 1998 and 2002.

being scaled up. If you see these types of inconsistencies, they should raise red flags. You should examine the situation more closely and contact people knowledgeable in prevention to figure out what is really going on.

ALWAYS TRIANGULATE COVERAGE NUMBERS

The limitations of the data sources available to you for assessing coverage make it crucial that you triangulate results from different methods in arriving at a realistic estimate or range of estimates for national and provincial coverage in each important population.

USE AVAILABLE DATA TO ASSESS THE IMPACT OF PREVENTION PROGRAMS ON BEHAVIOR FOR ANY PROGRAMS FOR WHICH YOU CAN FIND DATA OR RESULTS

Your next goal is to determine the behavioral changes that are achievable with prevention efforts in your country or province. While you will generally use the Goals Model to estimate behavior changes in response to programs for the policy analyses discussed in the next two chapters, you need to have a good idea of exactly what levels of behavior change are realistically achievable in your location. This information is essential to setting realistic goals and objectives for prevention efforts, as well as in determining which version of the Impact Matrix (high, moderate or low effectiveness) you will use in your Goals modeling. Assessing what is possible locally requires examining the effects of local prevention efforts in the various at-risk populations.

In general, determining the level of behavior change requires comparing behaviors in an intervened population with behaviors in a non-intervened one. You can do this in a number of different ways:

- **Randomized controlled trials.**
The gold standard for determining the impact of prevention on behaviors is a study in which people are randomly assigned to a group which is intervened and a group which is not. After some period of time, the behaviors of the intervened and non-intervened groups are compared. You may be able to find some studies of this type in the published literature for your country or province. However, these studies generally require qualified scientists to conduct them, tend to be expensive, and most likely are limited in number and unavailable for the full variety of programs and populations you must consider.
- **Measuring behaviors before and after an intervention.**
A more frequently available set of information on behavioral impacts comes from studies that assess the level of risk behavior before an intervention and then measure it again after the intervention. These are not as good as randomized controlled trials because behaviors may also change in response to factors other than the intervention program (e.g., because of the increased coverage of HIV in mass media outlets). Without a control group it is impossible to adjust for the changes that result from factors other than the prevention

program itself. However, intervention projects with pre-and post-behavioral assessments are much more common than randomized controlled trials. Many of the large international or national NGOs, for example, conduct relatively high quality evaluations of their programs, which assess behaviors before and after. These can give you a good idea of the level of behavior change that can be produced locally. However, many of these are not in the published literature and you will need to ask the organizations for copies of their evaluation reports.

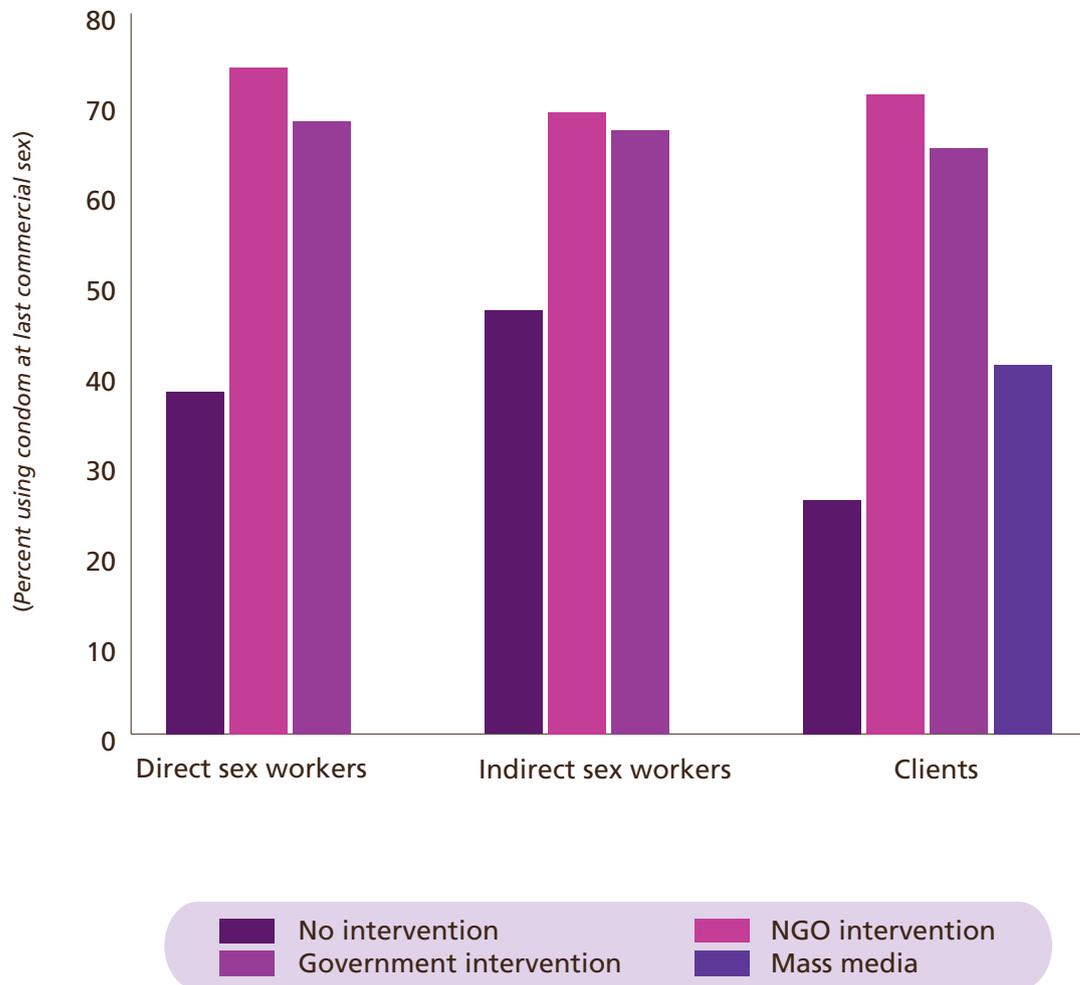
- **Comparing behaviors among the exposed and unexposed in behavioral surveillance or ad hoc surveys.**

A third way of assessing impact is to look at the relative levels of behavioral risk among those who have been reached by an intervention and those who have not. This makes use of the questions on exposure to prevention efforts that are often included in behavioral surveillance or ad hoc behavioral studies today. Since these studies also gather behavioral data, direct comparisons can be made of behavioral risk in intervened and non-intervened populations. Figure 8.4 illustrates how last-time condom use between sex workers and clients in Indonesia varied with exposure to different prevention programs as seen in behavioral surveillance data. Prevention efforts, either NGO or government, produced significant changes in behavior. Figure 8.4 also illustrates the point made earlier about factors other than the interventions influencing

behavior – even those clients who were only exposed to HIV messages in mass media had somewhat higher levels of condom use than those with no exposure to HIV prevention efforts at all. Thus, not all of the behavior change could be attributed to the prevention efforts.

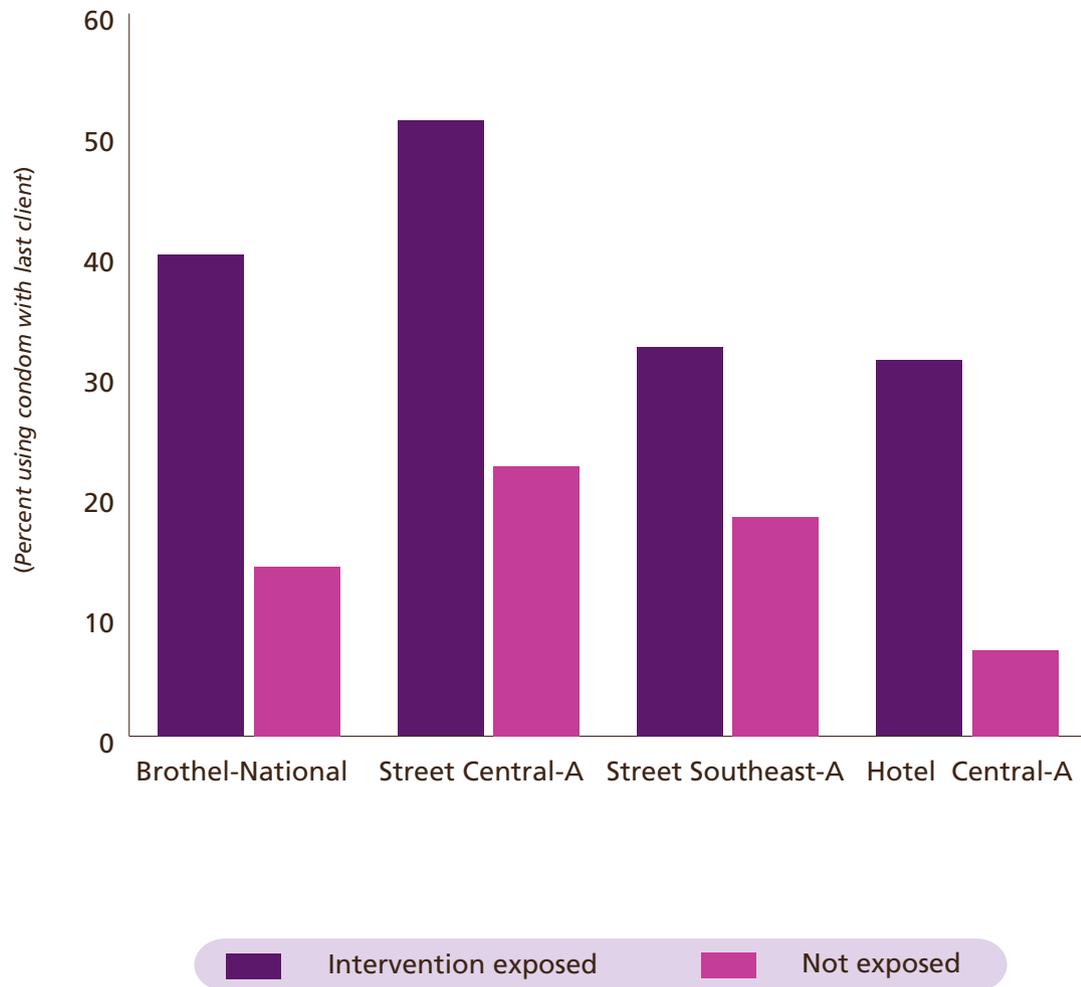
- **Comparing behaviors in areas with intervention to behaviors and areas without intervention.**

It may also be possible to compare levels of risk behaviors in areas that have interventions and in areas which don't. However, this is the least desirable approach and should only be used as a last resort. There is no guarantee that the areas started at the same level of risk or that the quality and intensity of the prevention is the same in each area. Figure 8.5 illustrates this with behavioral surveillance data for sex workers in different sites in Bangladesh. Notice that the level of condom use among those not exposed to prevention programs varies from place to place and that the increase in condom use as a result of the interventions (and whatever else may be influencing risk in the area) also varies. This highlights the importance of using national or provincial data if available; and, if it is not, taking into account geographic variations in levels of risk and prevention programs in calculating the overall levels of behavioral risk and prevention impact for use in modeling and policy analysis.



(source: indonesia surveillance data presented by elizabeth pisani at the addis ababa surveillance meeting 2004)

Figure 8.4.
Condom use at last commercial sex among sex workers in Indonesia by exposure to different types of prevention interventions.



(source: bangladesh behavioral surveillance round IV)

Figure 8.5.
 Condom use at last sex with a client by sex workers in different parts of Bangladesh by exposure to prevention programs.

CONSIDER HOW TO USE LOCAL DATA ON COVERAGE AND IMPACTS AS A TOOL FOR ADVOCACY

Local data on the coverage and impact of programs in your own country or province is also an essential tool in advocating for improved responses and expanded resources. Decision-makers are much more likely to be influenced to act by a local example of an effective program for sex workers and clients than by one from outside their borders. They also need advice on what types of programs are likely to prove effective in your local context. If asked, you should be prepared to offer them local examples of programs that work and programs that don't or can't. This requires you have a good knowledge of what has been done in your country or province to date and how much impact it has had.

Advocacy can also play a major role in mobilizing funds. In most countries there are pilot programs, which have shown the effectiveness of different prevention ideas but whose coverage is comparatively low. Additional resources are needed to take these programs to scale, and the resources are controlled by the policymakers. If you are to free up additional resources, then it is critical that you show the decision-makers that the programs work and that the money spent to date has had an impact. Strategically chosen data from your analyses of impact can help to show them that behaviors can be changed in the local context. Figure 8.6 illustrates how greater exposure to various NGO activities in Nepal has increased the level of protective behavior. If you show data such as this in conjunction with data showing limited coverage of these programs, you can make a strong case for expanding the resources to produce an effective response at a large scale.

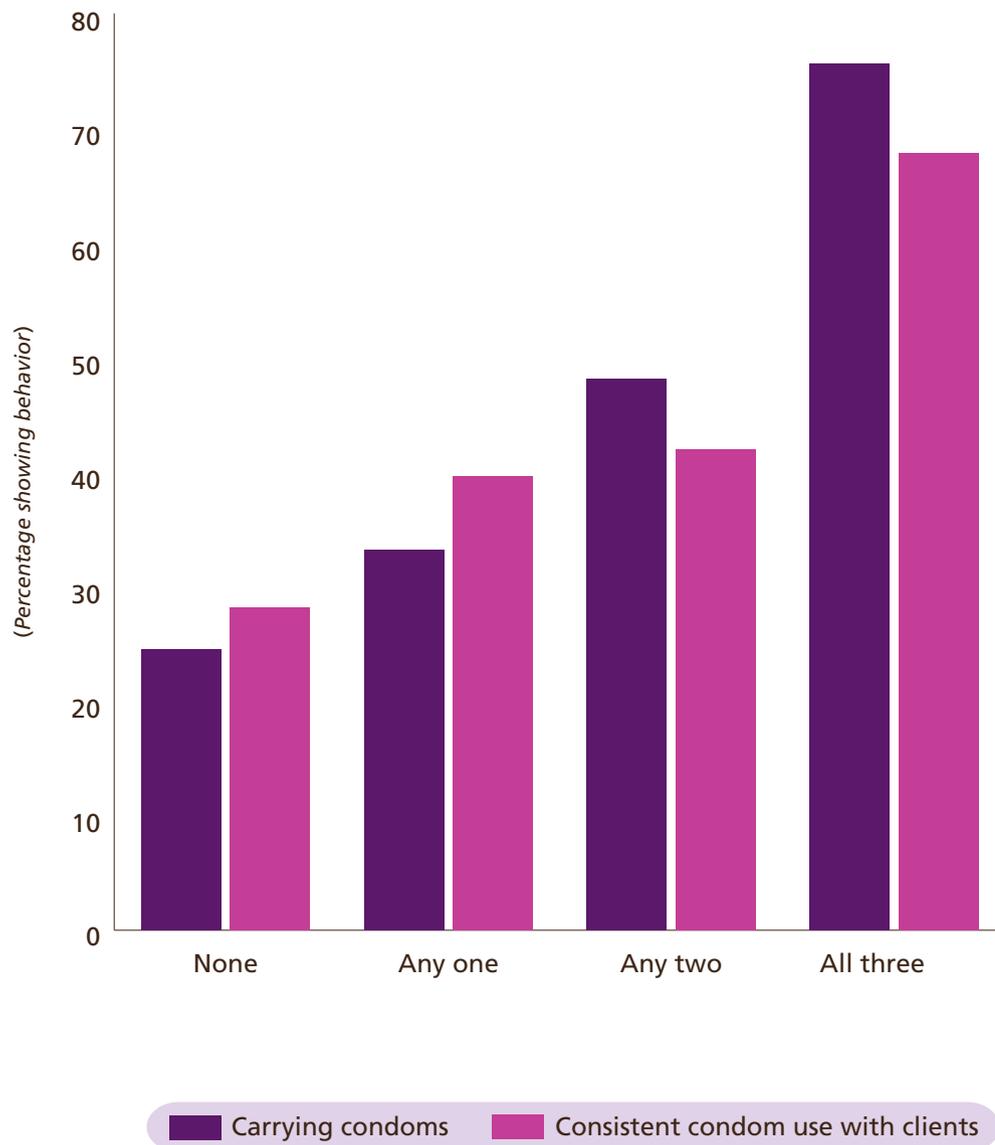


Figure 8.6.
Impact of increasing levels of protective behavior with exposure to one or more of three types of interventions: 1) receiving condoms; 2) receiving brochures or materials; and 3) receiving information about HIV/AIDS through interpersonal communication.

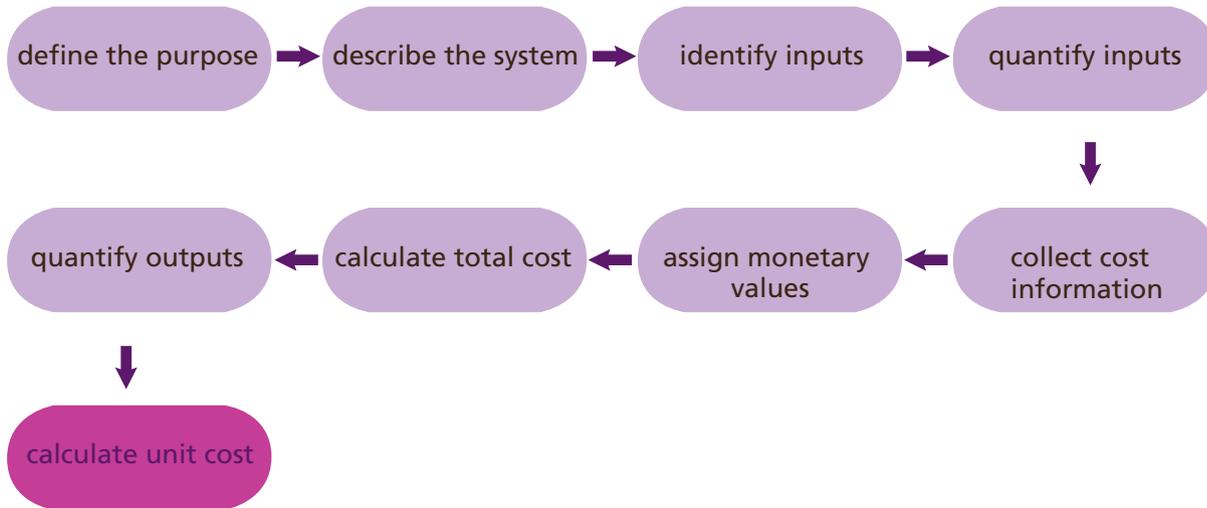


Figure 8.7.
The steps in the cost analysis process.

Gather cost information and estimate unit costs

For the purposes of A², you will be seeking to collect information on unit costs, that is, the costs required to reach one person in a particular target population with a particular intervention. Of course, you will need this information for each locally relevant population in which prevention efforts are planned. These unit costs are not just useful for A² policy modeling, but can also be incorporated into a budget or used to estimate the costs of an intervention to avert a given number of HIV infections in a specified population.

Normally you will start by identifying cost information available from published studies, national resource tracking systems, donor or NGO reports, or project formulation documents. However, costs vary from country to country, province to province, and even from organization to organization locally. Thus, in many cases you will need to sit with the various organizations involved in your local response or hire consultants to do so in order to obtain realistic estimates of average local unit costs.

Should you be required to extract data from a program or provider site to determine the unit cost of a particular intervention, there are multiple steps in the cost analysis process as shown in Figure 8.7.

DEFINE THE PURPOSE: IT IS CRITICAL TO UNDERSTAND FROM THE START WHAT THE PURPOSE OF THE ANALYSIS IS AS THIS WILL DETERMINE WHAT IS INCLUDED OR EXCLUDED IN THE ANALYSIS

Examples of questions you might seek to answer include:

- What is the total amount of resources required to run the peer education and outreach project?
- How much would it cost to scale up the PMTCT project?
- What are the costs to the consumer of accessing VCT?

DESCRIBE THE SYSTEM

In this step you address the question: How is the program or intervention structured? Figure 8.8 (a,b and c) shows examples of the elements of three HIV interventions. Not all interventions targeting at-risk populations include all elements shown. For example, not all sex worker programs include provision of STI services. For that reason, you should clearly outline the elements that make up the intervention before collecting the cost data.

IDENTIFY AND QUANTIFY INPUTS

Identify all recurrent resources used (including donated items) and identify all capital items used. Examples are: recurrent inputs (staff, supplies, vehicle operation and maintenance, drugs, utilities) and capital inputs (equipment, vehicles, buildings, etc.). Once the various inputs have been identified, each input has to be quantified. For example, the time that a peer educator spends with a client (as well as the number of client encounters considered to be part of the full intervention), the number of condom demonstration models, the number of pamphlets, condoms, etc.

COLLECT COST INFORMATION

Only now do you collect cost information. For staffing inputs, the salary with benefits are usually costed and then expressed in the cost per time unit (minute or hour depending on the unit of time used in the previous step). For materials and supplies, the price paid by the project should be used. In this step macroeconomic data (interest rates or real interest rate, inflation rates, property values) would also be collected. For capital goods, annualize capital costs. (In general you should annualize the cost of the capital goods because they hold value over a one year period, however, if you are estimating the resources needed for capital costs and are required to have sufficient

funds in order to purchase or invest in capital equipment, you may decide that the annualized cost is not how you want to present the capital costs). Identify indirect costs and allocate shared costs. The indirect costs can be complex to quantify. For example, in most instances one program provides several services and the overheads are shared. How the indirect costs should be quantified and the share of the total overheads that should be apportioned to a particular intervention are beyond the scope of this chapter. You should refer to more detailed references on cost analysis in the supplemental materials.

ASSIGN MONETARY VALUES

In this step, you combine information from the two previous steps. For example, if the time input for a peer educator was quantified as X minutes per sex worker reached and the salary per hour was identified as Y, then the assigned monetary value would be $(X \text{ minutes}) * (\$Y \text{ per hour} / 60 \text{ minutes})$.

CALCULATE TOTAL COST

The total of the direct costs (e.g., staffing inputs, supplies and materials) and indirect costs (or overheads) should be added.

QUANTIFY OUTPUTS

It is often challenging to quantify the outputs. The guiding principle should be determined by how you will use the unit cost. Examples are: number of per sex workers reached, number of person individuals counseled and tested, etc.

CALCULATE THE UNIT COST

In this step you divide the total costs by the outputs to arrive at the unit cost (e.g., cost per sex worker reached, cost per person counseled and tested, etc.). Note: some interventions can have multiple unit costs (for example, PMTCT: cost per women screened for PMTCT and cost per women who tests HIV positive and receives PMTCT).

Once the cost analysis is complete it is important that you benchmark the estimated cost against any existing cost information for the intervention in question. If the estimated cost differs from the cost data in the literature it does not necessarily mean that the estimation is incorrect, but may merely reflect different elements of the intervention. But, if there are large variances it is important that you be able to explain the differences.

A review of the literature on costing studies is summarized in a regional cost database, which is included as a worksheet in Goals. You can compare your country-specific cost data with the numbers in this database. Keep in mind that there are legitimate reasons for variations in cost data, but when there are large differences in the country specific data and the unit costs in the regional database, it may be worth re-checking the cost inputs on which the unit cost estimate is based.

IMPORTANT NOTE: Many, if not most, synthesis specialists may not have sufficient economic background to prepare unit costs on their own. In this case, the A² team should retain a health economist as a consultant and ask this person to prepare the necessary unit costs.

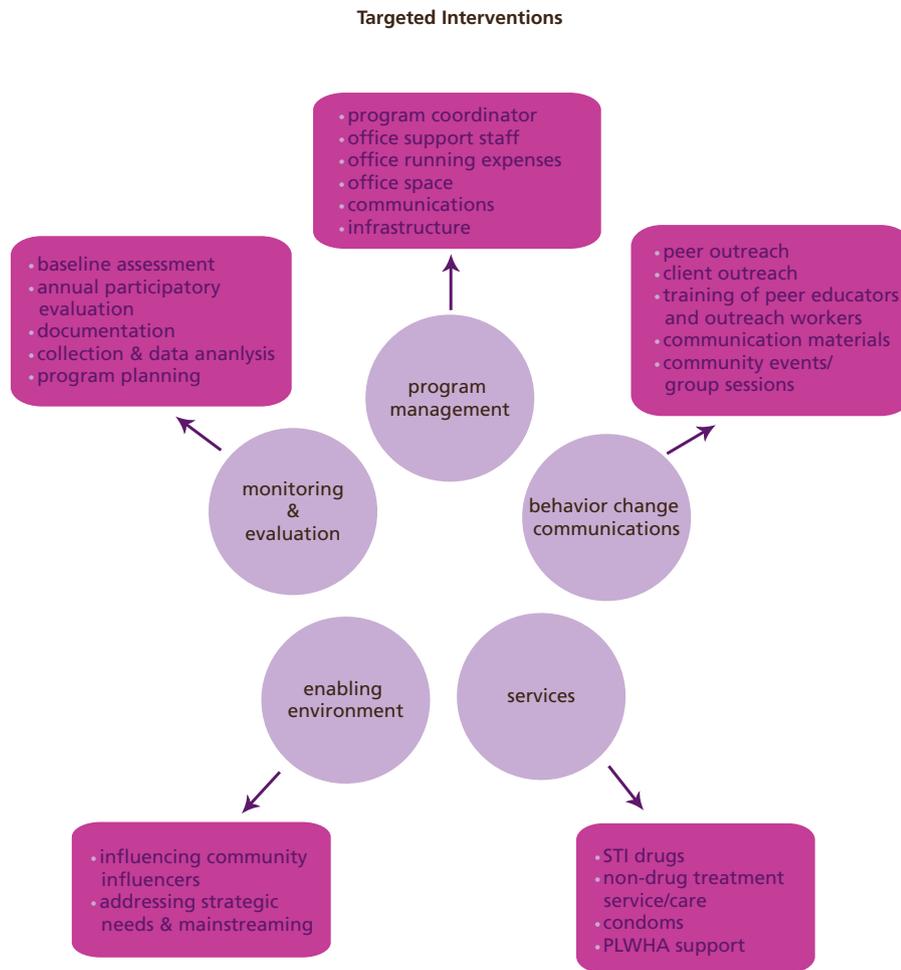


Figure 8.8a.
Describing the system : Targeted Interventions.

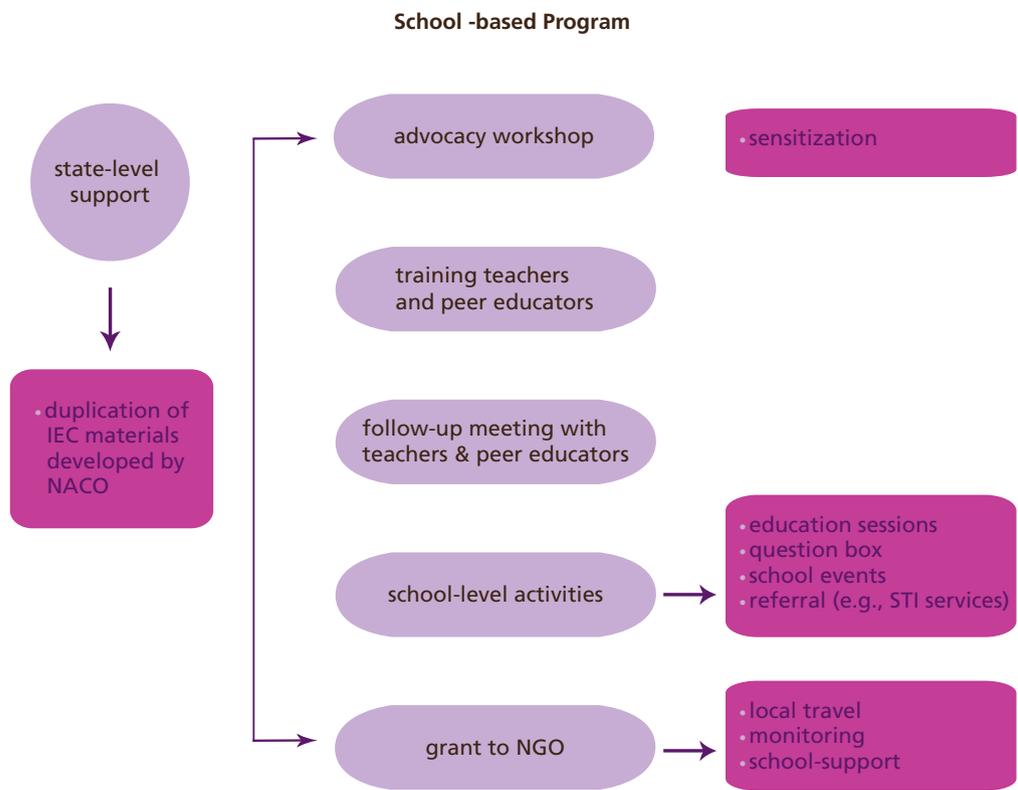


Figure 8.8b.
Describing the system : School-based Program.

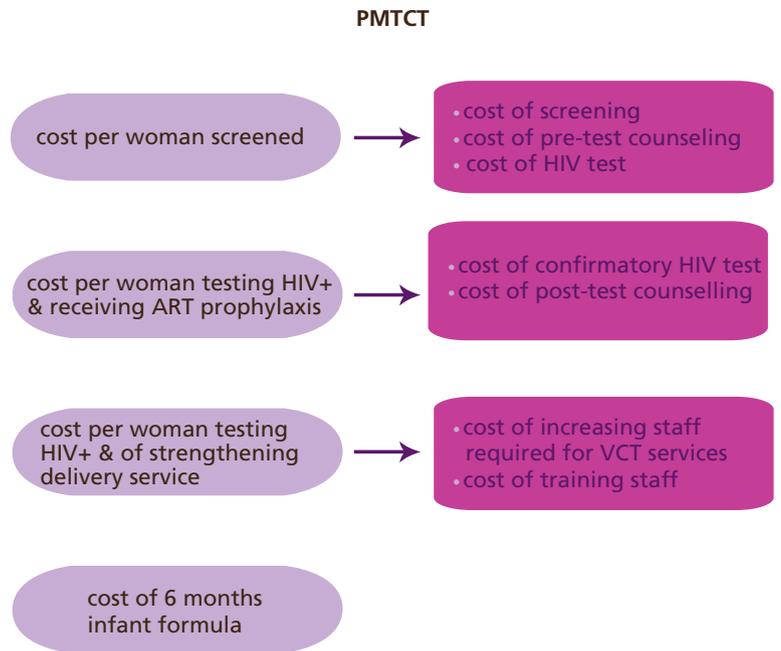


Figure 8.8c.
Describing the system : PMTCT.

Issues in cost analysis to keep in mind as you extract unit costs

Below are some issues that are often encountered when analyzing or interpreting cost data.

FISCAL YEAR:

In many countries the fiscal year does not coincide with the calendar year. When this is the case it is important to state explicitly what year is being used. If the fiscal year is used, state what time-period the fiscal year spans.

PERSPECTIVE OF THE COSTING:

In any cost analysis the types of costs considered depend on whose perspective is adopted. This largely depends on the purpose of the analysis. In the resource needs estimation, the purpose of the analysis is generally to inform resource mobilization and resource allocation decisions. For this reason, the costs to the consumer of accessing the services are not explicitly taken into account. Examples are: travel costs, the opportunity cost of travel time in terms of lost wages, etc. However, that does not mean that demand-side costs are not important or that they are not considered in the analysis. For example, one

of the primary motivations for government or donor subsidization of costs of ART or condoms or expanding geographic access to various programs is driven by the desire to reduce the costs to the consumer and remove financial barriers that may prevent access or utilization of goods or services that have an added indirect benefit to others (e.g., condom use, which not only protects the individual but keeps that individual from transmitting HIV to others and averts future public sector treatment costs)

ASSUMPTION IF CONSTANT UNIT COSTS:

Usually constant unit costs are assumed in the projection of HIV resource needs. But, there are several reasons why you would expect unit costs to vary over time. One is the economic reasons (variation in exchange rate, inflation rate and interest rates). You may also expect unit costs to vary as programs are scaled up as a result of economies of scale. Unit costs are usually defined as average total costs (as opposed to marginal costs). Figure 8.9 shows that initially average costs may be high (p_1 at q_1), and average cost then reaches a minimum (p_2 at q_2) and beyond that may increase as the program increases beyond the optimal output (p_3 at q_3). In most countries the program specific cost data do not exist to support variation in cost by level of output.



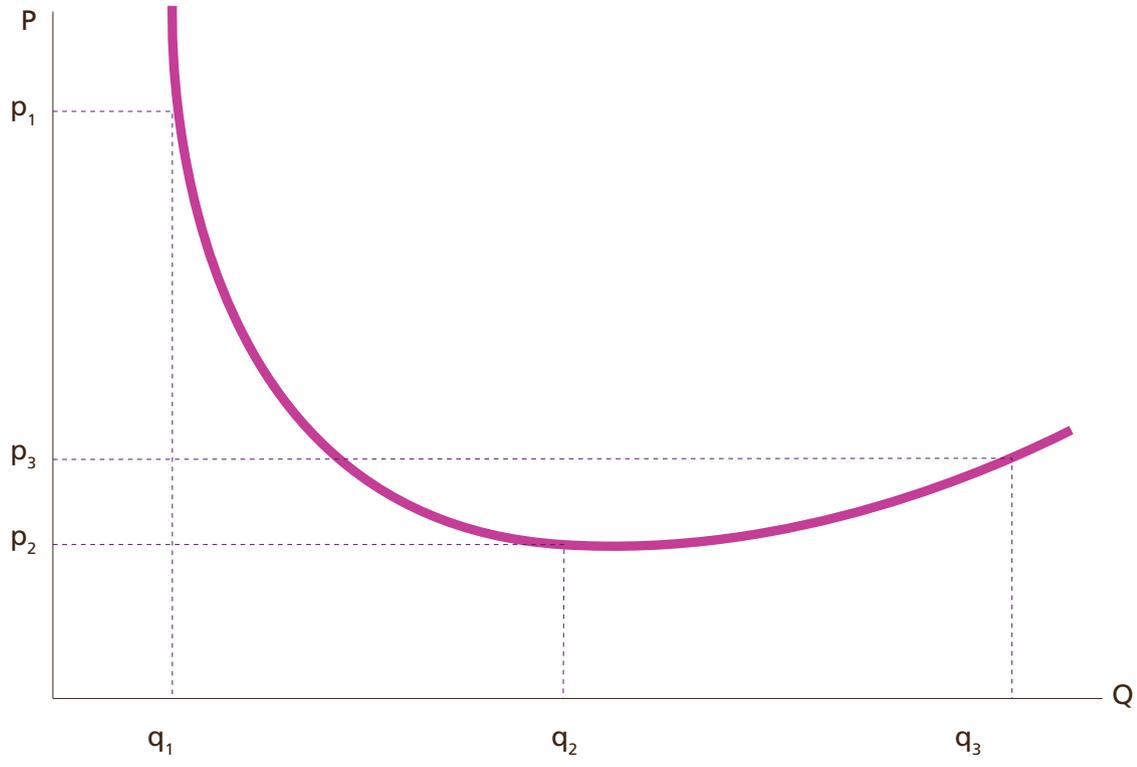


Figure 8.9.
Basic costing principles.

Concern about the assumption of a constant unit cost depends on what is meant by scaling up. If scaling up implies expansion of a program from 100 to 1,000, then the assumption may be problematic. If, however, scaling up means replicating 10 programs serving 100 people usually over a larger geographic area, then this assumption is less problematic. The latter is more likely the case for scaling up HIV programs. Furthermore, some costs associated with scaling up are often explicitly taken into account when new programs are introduced (e.g., coordination and management at the national and regional level, training of doctors and nurses to supervise and manage ART).

COMMODITY PRICE FLUCTUATIONS:

The most common source of price fluctuations is drug prices. These are very hard to predict and therefore the Resource Needs Model was designed in such a way that updated prices can be inserted relatively easily.

FINANCIAL COSTS OR ECONOMIC COSTS:

Economic costing tries to cover all cost elements including the costs of free items. Program costing covers only those costs that are met by the program. In economic terms free items do not exist, as everything has a price (e.g., in full economic cost analyses, the full price for condoms would be included, even if the condoms are provided free to the program because somebody pays for them). Although in actual terms from the organization's perspective the condoms may be provided free, they still

have a cost. This is especially important when comparing unit costs of specific interventions; be careful not to compare full economic unit costs with program costs. Unfortunately the method often used for cost analysis is not part of the available information on many unit cost estimates, which makes the two very difficult to compare.

ECONOMIES OF SCALE:

Economies of scale characterize a service delivery process in which an increase in the scale of the program (i.e., number of people served or reached) causes a decrease in the average cost of each unit. There are therefore efficiencies associated with increasing the quantity of a particular service being delivered and thereby the fixed costs are shared over a larger number of outputs. In the example in Figure 8.9, this implies scaling up from q_1 to q_2 . Dis-economies of scale occur when an increase in the scale of the program results in an increase in the average cost of each unit (moving from q_2 to q_3 in Figure 8.9).

ECONOMIES OF SCOPE:

Economies of scope refer to efficiencies associated with increasing the range of services delivered that share the same fixed costs, for example, co-locating VCT and PMTCT where infrastructure for counseling and equipment for testing are shared.

ADJUSTING FOR EXCHANGE RATE:

This adjustment is usually required to express the results of

the analysis in a common currency. Often this is the national currency, or in US\$ to facilitate international comparisons. The projections are generally made for a given period. A constant exchange rate is usually assumed over the projection period. The exchange rate used is the Interbank Exchange Rate on a given date. Several internet sources can be used for this (e.g., <http://www.oanda.com>).

ADJUSTING FOR PURCHASING POWER PARITY:

Purchasing power parity (PPP) takes into account variances in domestic purchasing power of a given level of expenditure. A purchasing power parity exchange rate equalizes the purchasing power of different currencies for a given basket of goods. This type of adjustment to an exchange rate is controversial because of the make-up of the basket of goods used to compare the purchasing power across countries. The basket of goods is a fixed list of items reflective of the economy usually used to track inflation in a country. However, it makes the assumption that prices in the health sector follow the same structure as the broader economy, which is not always the case. Variance in domestic and international purchasing power is especially of concern for non-tradable inputs, for example, domestically provided labor inputs (which often account for up to 80 percent in the health sector). Where goods are purchased from international markets (e.g., imported drugs, imported medical supplies and international consultants) the conversion to PPP\$ or international dollars does not

make sense. This would be the case for donor financing and some of domestic funding. This would suggest using PPP\$ for government funding and US\$ for donor funding. However, this approach would provide internally inconsistent aggregate estimates of expenditure, and for this reason the reporting and analysis is usually done in US\$.

DISCOUNTING:

Discounting is the process of converting future costs to their present value, to reflect the fact that, in general, individuals and society have a positive rate of time preference for consumption now over consumption in the future and the fact that money may have alternate productive uses. There is general agreement in the literature about the need to discount costs, and some agreement about the likely range of the appropriate discount rate (between 3 and 10 percent). There is, however, less agreement about the need to discount health effects and, if so, whether the appropriate discount rate should be identical to that used for costs. The standard practice is to use the same discount rate. But, discounted costs are not always easy to interpret to non-economists and to use in strategic planning. When the purpose of the analysis is resource needs estimation over a period of a strategic plan (usually about five years), no discounting is applied. This is consistent with the approach used by UNAIDS in the global resource needs estimation. However, in a formal cost-effectiveness analysis discounting of the costs and benefits is usually applied.

Identify gaps in data on the responses and make plans to fill them

Data on program coverage, impact, and cost are essential to the policy analyses at the core of A². However, as you saw earlier in this chapter, the different inputs often come from different sources of data. This creates challenges to ensure that there are no gaps in the data and that the data are consistent (i.e., time frame, population definitions, program definitions). Another challenge is that some of the sources from which you may be collecting data can lag behind and not provide the most up-to-date information that you need in planning for the future.

If there are programs for particular populations that are important to an effective response and data are not available from any existing sources, then you must try to fill this gap. If there are local pilot programs for this group, you may be able to coordinate with those doing the program to prepare unit cost estimates. If there are no local examples, you may need to rely on costing data on similar programs from other countries or provinces. However, if you do this, you need to make appropriate adjustments for relative costs of goods and services in arriving at a number for local use.

As you collect coverage, impact and cost information, make sure it is internally consistent

Coverage and unit cost information are closely related to one another. If you know the population size, then the number of people served is the just the product of coverage and population size ($\# \text{ served} = \text{coverage} * \text{population size}$). Similarly, the cost for those served (i.e., the total expenditure on the program for that year) should be just the $\# \text{ served}$ times the unit cost ($\text{total cost} = \# \text{ served} * \text{unit cost}$). If the total cost, calculated in this way, is too high or low compared to the actual amount expended, then your size estimate, coverage estimate, or unit costs is inconsistent. You should make these sorts of simple consistency checks before you start doing any extensive policy analyses.

For example, Figure 8.10 shows a calculation from Goals for estimating the resource needs (total costs) of a program for sex workers. The data in the highlighted boxes with bold letters are the actual coverage in 2004 (2,400 – the number of sex workers actually reached for that year) and the actual expenditures for 2004 (\$US 1,508,951). The numbers highlighted in lighter colors are the data inputs for the target population and the coverage estimates. The cells in the middle of the page are the unit costs.

Sex workers 2004

POPULATION SIZE

Number of sex workers	#	120,000	Warning: Greater than 0.9% of women 15-49
Annual growth rate in SWs	%	0.73%	
Number of sex acts per SW per year		324	
Number of sex workers			120,000

COVERAGE

% sex workers reached by intervention per year			10%
% using condoms among those reached by intervention			40%
% using condoms among those not reached by intervention			14%

UNIT COSTS

Cost per sex worker targeted			US\$
Cost per male condom distributed			42
			0.14

RESULTS

Sex workers reached		2,400	12,000
Number of condoms required by SWs reached by programs			1,555,200
Number of condoms required by SWs not reached by programs			544,320
Resources required for SW outreach			4,056,000
Resources required for condoms			1,741,824

RESOURCES REQUIRED

	1,508,951	5,797,824
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Figure 8.10. Data inputs for estimating prevention resources for a sex worker program in Goals.



As you enter the data for the estimated number of sex workers, the software sends a warning signaling that this estimated population of female sex workers is a percentage of women of child bearing age that is larger than expected, based on information from global estimates (the warning message shown at the top of the figure). This signals you to confirm the data inputs and ensure that the demographic information and the estimates for the size of the sex worker population are correct. Suppose you enter 10 percent in the coverage section for “% sex workers reached by intervention per year” and an estimate of 120,000 sex workers in your country. This entry results in an estimate of 12,000 sex workers reached (10 percent coverage * 120,000 sex workers). This estimate of 12,000 is higher than the actual reported number of sex workers reached – 2,400. If the 10 percent coverage estimate was correct, then your total number of sex workers should only be 24,000, based on the number actually reached. This

is only one-fifth of the total number of sex workers that you entered (120,000). The discrepancy is also reflected in the fact that the total resources required (\$US 5,797,824) is five times the actual expenditure recorded for that year (\$US 1,508,951). As you go through and enter this type of data into Goals, make sure that you are not producing inconsistent numbers like this. The most likely explanation for the problem here is that the number of sex workers has been overestimated.

If the number of sex workers actually reached from program data agreed with the estimated number reached from the coverage calculation, but the costs were still off, it would indicate you had a problem with your unit costs. It is critical that you mentally cross-check the data continually as you enter them to make sure they are painting a consistent picture of the responses to the epidemic in terms of their coverage and costs.

What should you watch out for in collecting response data?

As you go through the steps of gathering response information, there are a few things you do on a regular basis:

- **Assess the quality of the data and how representative they are.**

Data on responses are more likely to come from NGOs and CBOs than from researchers and surveillance systems. This means you must be sure you understand the definitions and methodologies used in their reports, what data they have actually collected, and assess their capacity to collect correct and reliable data. Many smaller NGOs have extremely limited capacity for this and you may find it best to reject their data if they seem weak

or inconsistent. National data systems also collect some response indicators, but these are often quite geographically constrained, limited in scope, and often biased to make responses look stronger than they are. This makes it essential that you pay special attention to the quality of the information you collect regarding responses. It also makes it critical to cross-validate data from different sources, compare what you find to regional databases for similar information, and be alert for possible biases in the data available.

- **If the data are geographically limited, you must consider how best to generalize them.** It is essential to produce nationally or provincially representative values. As examples here have shown, there can be substantial geographic variation in the effectiveness of responses, in the

coverage of programs, and even in the costs of programs. Risk and at-risk populations may not be uniformly distributed around the country or province. This means you must consider where each coverage, impact or cost measurement is coming from and factor in the geographic variation in programs and distribution of risk in arriving at your overall national or provincial estimates of total coverage, overall impact, or total costs.

- **Whenever possible, estimate coverage, impact, or cost for a given program from multiple sources or approaches and compare them for consistency.** Also look for internal consistency between coverage, impact and cost data. When the data are weak, and response data in most countries are quite weak, it is essential that you obtain as many estimates as possible from independent sources and compare them to arrive at a consensus estimate. In addition, run the kind of consistency checks for coverage and cost outlined in the preceding section. If your data are not painting a consistent picture of the coverage and costs of the response, then you must reconsider its validity and make appropriate adjustments. Similarly,

you should also consider whether the coverage and the impacts measured are consistent with the behaviors actually observed. If your coverage is only 20 percent, but reported condom use is over 80 percent, you should seek additional inputs to validate the findings or a clear explanation of how such low coverage could produce such a major impact.

- **Consider the content of specific programs and how that affects their impact, and make sure the response information you collect is relevant to the types of programs you want to scale up.** Prevention and care programs vary greatly in what mix of activities they actually implement (condom promotion, STI treatment, peer education, outreach, voluntary counseling and testing, etc.), the resources they need, and the impact they have on risk and access to care. This requires careful examination of the essential components of each program and makes comparing the relative effectiveness of different programs difficult. You can gather response data for many different types of programs, but it will take time to do so. For this reason it is important that you focus on the

information you can actually use. Make sure that the impacts and costs you extract and use in your analyses are relevant to the specific prevention, care or impact mitigation programs you are proposing as part of your program package. That is, make sure you are measuring the coverage, impact and costs of the actual types of programs that are to be scaled up. In Goals, you will use the Impact Matrix to calculate the behavior change associated with particular programs – the impact data used there are an average estimate of program effectiveness from published studies. The Impact Matrix uses these impacts to project future behaviors, but conditions can change and programs may be more or less effective in the future. Variations in the program quality or the actual components of the program in your country or province may affect the level of behavior change those programs produce. The lack of standard definitions regarding program quality or how programs are implemented limits the accuracy of the impact data as impacts are averaged from a number of different program-specific measurements for inclusion in the Impact Matrix. Finally,

the impact values used in the Impact Matrix measure the impacts of services separately and cannot capture the benefits that an individual gains from receiving two different services. These synergistic effects of multiple program efforts will not be well captured in Goals analyses.

- **Make sure you understand the costs that are provided in a study or report and the limitations of the unit costing methodology.**

Costs can be and are calculated in a number of different ways, using different approaches and terminologies. You should carefully review and be sure you understand what any costing information represents. Unit costs may or may not include infrastructure costs. Some costs are one-time and some are recurring. Analyze these things carefully in assessing your local unit costs. Even once you have unit costs, remember that they represent an average of all costs. Thus they may not be an accurate representation of total costs in all instances. Also, unit costs change over time and these changes are hard to predict and account for in unit costs calculations.

Be sure to characterize the environment in which responses occur

The environment shapes the response and influences its effectiveness

So far, this chapter has focused primarily on numerical indicators for HIV responses (i.e., coverage, impact and cost). However, HIV responses do not occur in isolation, but in a complex legal, political, economic and social environment that greatly affects their implementation and can change their effectiveness on the ground. This makes it essential that, as you go through the process of collecting information on responses, you also collect information about the environment in which those responses occur and the factors that positively or negatively influence their implementation and effectiveness.

Seek input on what's good and bad about current responses

In keeping with A²'s spirit of inclusion, as you collect response data you should always seek input from people about the factors that are facilitating or impeding prevention and care programs in your country or province. This may prove to be crucial information to relay to those involved in the policy process in the future, as you may need to add activities to prevention and care programs or to the advocacy agenda to ensure important environmental issues are addressed.

Information on the context and environment surrounding responses may come from a number of specific sources:

- **Discussions with members of affected communities and organizations working with them.**
If you're concerned about the factors that are supporting or impeding prevention, care and

mitigation efforts, the first people to talk to are the affected communities themselves. They know their situation best. They know the difficulties they face. They know where they get support and where they find opposition. They will often have strong opinions about current responses and their value. NGOs and CBOs that work with these communities are also a good source of information. As you go around collecting response information, you should be asking their opinions on what's working and what's not working in the response and you should seek their input on why responses are not as effective as they could be and how they could be improved. You also need to understand the social norms and the cultural environment of each community, as these are the framework in which responses play out.

- **Conversations with policymakers and other stakeholders.**

The policymakers and other stakeholders (e.g.,

program managers or donors) are often the ones who make the decisions about responses. It is important to understand the political, economic and social environment in which they make those decisions. Seek their input on why they support or oppose particular programs. Find out what political, social and financial constraints influence their decisions. Discuss the issues surrounding resources for HIV programs and where they see HIV in the big scheme of things. Understanding their level of knowledge and the factors which influence them will help in deciding which advocacy programs you must undertake.

- **Case studies and literature exploring contextual or environmental issues.**

Often in the literature you will find studies or reports on social, economic, religious or societal factors influencing behavior, prevention and access to care or other services. As you go through these studies and reports, extract any information you



find about issues or factors that are positively or negatively influencing the ability to respond and keep it for future reference. While many of these factors are difficult to quantify, their qualitative influence on the ability to respond and the effectiveness of those responses is important.

Many different environmental and contextual factors affect responses

Some specific things that you should be watching for include:

- **Stigma and discrimination**, which negatively influence responses in a number of ways:
 - **They directly impact quality of life.** For people living with HIV or members of marginalized communities, stigma and discrimination affect their self-esteem, often increase their risk or vulnerability to HIV, reduce their

ability to protect themselves, limit their access to preventive and protective services, and often create problems with employment and housing. This lowers their quality of life and has direct impacts on the needs for and content of prevention, care and mitigation programs.

- **They discourage people from accessing services.** A young MSM may be unwilling to seek treatment for an STI because of the way he will be treated at the clinic. People living with HIV sometimes do not seek essential medical care for fear that an HIV test may be performed.
- **They deny access to services.** In some places, those with HIV are denied medical care at local hospitals or referred to other hospitals that are more difficult for them to reach. Young children and families affected by HIV are sometimes denied access to schooling. It is important to document if stigma and

discrimination are keeping people from seeking or accessing services, so that remedial measures can be taken.

- **They discourage policymakers from addressing the needs of affected communities.**
Stigma and discrimination can make it politically difficult for a policymaker to choose the right programs or mobilize resources for the communities affected. Understanding where the public and where policymakers stand on these issues will help in defining an advocacy agenda later in the process.

- **They create a negative environment for prevention and care.**
It is very difficult to conduct a prevention program when there is strong community opposition and little public support. This makes the programs more difficult to start and keep going and tends to reduce their effectiveness.

- **They make it difficult to openly discuss prevention.**

Stigma and discrimination against groups such as MSM or IDUs makes it difficult to discuss the behaviors transmitting HIV and the means of prevention. This can leave people with little information about the risks they face and how to protect themselves.

- **Economic situation of affected communities.**
Often cost turns out to be a major barrier to protecting oneself or accessing care and treatment services. If condoms are not affordable, they won't be used. If HIV treatment costs more than you can afford or is only available in distant hospitals, treatment access will suffer. The overall economic situation of a community may also influence risk directly. Women with limited economic opportunities may go into sex work. Young men may go into drug trafficking, increasing the chances they may use drugs themselves.

- **Legal or policy barriers to HIV prevention and care.**
Some of the biggest barriers to HIV prevention are legal or policy barriers. Laws allowing prosecution of sex workers for carrying condoms discourage condom use. Paraphernalia laws interfere with an IDU's ability to obtain clean injecting equipment. Laws outlawing same-sex behavior make it difficult to do peer education or outreach programs for MSM.
- **Social and cultural environment.**
Social and cultural pressures can help or hinder prevention efforts. Social and religious restrictions on discussing sexual behavior can make it difficult to provide people information on HIV prevention. Social norms can either support condom and clean needle use or discourage them. Religious restrictions sometimes limit condom accessibility and discourage people from using them.
- **Political issues surrounding HIV.**
Because it often affects marginalized populations and directly involves sex and drugs, the politics of HIV is often complex. You should determine

the current locally important political issues surrounding HIV, where people stand on them, and what influences political decisions in this area. These may serve as entry points for advocacy or as issues to be addressed in that advocacy.

- **Access limitations of HIV services.**
Numerous factors can limit access to prevention and care and mitigation services. For each important population you should try to identify the specific factors that are limiting expansion of services or their effectiveness. Such factors can take many forms, such as lack of community interest and support, distance to services, stigma and discrimination or resource limitations.
- **Any other locally relevant factor that influences the ability to implement effective programs or deliver services to those affected by the epidemic.**
Keep in mind that what you're trying to do here is to understand the factors that are keeping responses from being maximally effective, preventing the scale-up or responses, or helping to strengthen those responses.

Keep a running list of barriers, facilitators, and factors influencing the overall response and the specific responses in each key affected community

In your study/report reviews or conversations with others, as you encounter factors that are affecting responses, you should document them so you can refer to them later.

You may find it useful to keep a Word document with a detailed list of relevant environmental and contextual factors for each important population or program (FSWs and clients, MSM, IDUs, antiretroviral treatment, PMTCT, etc.) with specific sub-categories for:

- **Barriers** to effective prevention, care and impact mitigation. These are the things that are interfering with the ability to do effective prevention and care. They might include specific forms of stigma and discrimination, laws and policies that interfere with prevention, factors that prevent people from accessing condoms or clean needles, poor community knowledge of HIV, etc.
- **Facilitators** of effective prevention, care and impact mitigation. These are the things that are helping to do better programs (e.g., strong community cohesion or

mobilization, supportive staff in the Health Ministry, good health care infrastructure, anti-discrimination laws, etc.).

- **Specific issues** influencing HIV programs raised in discussions with policymakers, community members, NGOs, etc. This would include any issues that people felt were important and relevant to the quality, scope and effectiveness of responses.

Designing effective programs and strategies for HIV prevention, care and treatment or impact mitigation must take environmental factors into account

Programs or strategies that do not address critical locally relevant factors such as legal restrictions, economic barriers to access, or stigma and discrimination, may have little effect on the epidemic as a whole. This makes it essential that this environmental and contextual information be collected and later provided as an input to the policy process. The ultimate goal of tracking these issues is to identify the ones that can be changed, through policy decisions, components of intervention programs, or targeted advocacy.

References

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RESPONSES

Chapter 9

EXPLORING THE EFFECTS OF PREVENTION
AND CARE EFFORTS ON BEHAVIORS
AND ASSOCIATED COSTS:
THE GOALS MODEL

[an overview]

[an overview]

Chapter 9

EXPLORING THE EFFECTS OF PREVENTION AND CARE EFFORTS ON BEHAVIORS AND ASSOCIATED COSTS: THE GOALS MODEL

By this point you are becoming somewhat of an expert on your HIV epidemic and the response to it. You have collected and reviewed hundreds of documents and studies. You have a good understanding of the epidemic and the factors driving it, and you have reviewed the scope, effectiveness and costs of the various components of the response. Using the Asian Epidemic Model you have been able to link trends in risk behaviors to HIV trends. However, to advise policymakers this is not enough. Instead, what you need to do is to link programs to HIV trends, that is, to be able to show the actual effects on the epidemic of undertaking a particular set of programs. Further, you need to be able to tell policymakers what this set of programs will cost in both financial and human resource terms and what it will save in downstream costs. This requires a tool that can link a chosen package of programs to behavior change and calculate the associated financial and human resource needs. That tool is the Goals Model.

What does the Goals Model do?

Goals is a tool, developed by the Futures Group International/POLICY Project, for exploring alternative program and policy choices and assessing their impact on the epidemic. Goals can:

- **Help you to answer important questions such as:**
how much funding do I need to reach my goals, what can I achieve with available resources, what's the comparative effectiveness of two different response packages?
- **Bring people together to interactively explore the consequences and trade-offs of different program choices.**
By allowing people to see the effects and costs of different packages of programs, Goals allows interactive improvement and tuning of responses. The Goals process interactively engages technical experts and policymakers together to ensure both quality analysis and policy impact.

- **Facilitate an evidence informed policy dialogue around issues of importance.**
Because Goals draws on locally gathered data on responses, their impacts and their costs, it can encourage vigorous discussions about what constitutes the most effective response in the local setting.

What are the components of the Goals Model? The Goals Model has three essential components:

1. **The Resource Needs Module (RNM)** calculates the financial resources needed to implement a specific set of programs. It has prevention, care and treatment, and orphan support components. Required inputs include target population sizes, unit costs of the programs, and coverage or access targets.
2. **The Impact Module** translates programmatic choices and funding inputs into behavior change. It is based upon an Impact Matrix, which distills down global experience in assessing the level of behavior change achievable by each type of program included in the model.
3. **The Capacity Module** assesses the human resources and training needs associated with implementing the programs in the rest of the model. Inputs required include the size of the targeted populations, starting capacity, reach of an individual staff member, and staff characteristics.

How does the Goals Impact Module determine the effects of interventions?

The Goals Impact Module assesses the overall effects of the prevention programs you choose on sexual and injecting behaviors in the key populations relevant to Asian epidemics. It makes use of

an Impact Matrix which calculates the expected level of behavior change among those exposed to a particular intervention and then combines these impacts for all programs in your prevention package. The levels of change contained in the matrix are the result of a critical review of hundreds of prevention studies globally. To determine the overall level of behavior change expected from a prevention package, the user:

- Provides estimates of size and current behaviors for each of the key prevention populations
- Enters current and target coverage data for each of the programs in the overall prevention package
- Provides data on unit costs and total budgetary resources available

What outputs does the Goals Model provide?

The Impact Module uses the coverage provided by the user along with the Impact Matrix to calculate the expected level of behavior change in each population, providing the results in both tabular and graphical form. The Resource Needs Module uses this same information in association with the unit costs for each program to calculate the overall budget for your prevention package and its sub-components. Goals provides these results in a number of useful tabular and graphical forms for policy analysis including annual budgets (total and by sub-component), behavioral changes expected, number of people reached by programs, resource requirements and resource gaps, distribution of resources by program type, etc.

What kinds of analysis can you do with the Goals Model?

Because Goals links resources, coverage, and behavior change, it is an extremely flexible tool for policy analysis. Virtually any policy question related to resources, coverage, and behavior change can be explored in Goals. Two very common uses for Goals include:

- Determining a package of prevention interventions to achieve a designated impact.
- Costing a complete package of prevention, care and treatment, and impact mitigation programs.

Whatever type of analysis you do, it is important that you validate all inputs and outputs (size estimates, coverage, behaviors, financial resources, etc.) against any other source of data you can find. National monitoring and evaluation systems may be an important source of data for this validation.

How do you see the effects of different intervention packages on the epidemic?

Goals links programmatic choices and financial resources to behavior change; AEM links behavior change to epidemic trends. By linking the two together, as you will see in the next chapter, you will have a powerful tool to go directly from program and policy choices and funding to their impacts on the HIV epidemic.

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Chapter 9

EXPLORING THE EFFECTS OF PREVENTION
AND CARE EFFORTS ON BEHAVIORS
AND ASSOCIATED COSTS:

THE GOALS MODEL

[concepts and content]

Chapter 9

EXPLORING THE EFFECTS OF PREVENTION AND CARE EFFORTS ON BEHAVIORS AND ASSOCIATED COSTS: THE GOALS MODEL

Gayle Martin and Nalinee Sangrujee

What else do you need to be able to advise decision-makers?

As you have gone through the A² process, you have learned a lot about your local epidemic and the responses to it. You have examined a tremendous number of documents, collected a large number of data sets, extracted epidemiological and behavioral trends, and even constructed a model for the growth of the epidemic in your country or province. You understand the linkages between risk behaviors and HIV, and you know the importance of the time element in understanding your HIV epidemics. You have assessed the impacts that a particular prevention program can have in your local situation, and you know something about the costs of those programs. However, if you are to advise policymakers you need to bring these various elements together to fill some critical needs:

You need to show decision-makers the consequences of response alternatives

You need to explore not just the effects of one program on behaviors, but also the effects of a complete package of programs (i.e., a complete national or provincial response) on the epidemic itself. If you can do that, then it becomes

possible to show the decision-makers what will happen if they choose one set of programs over another. That is, you can **show the decision-makers the consequences of their choices**. One of the major difficulties program managers have faced in convincing policymakers to choose the most effective set of programs in Asia is that they haven't been able to advise the policymakers on these consequences with a model that correctly reflects their local situation.

You need to be able to tell them what each possible response costs

Policymakers need to have another question answered before making decisions – how much is it going to cost me, and what return do I get for that investment? This means you need to be able to put a price tag not only on an individual prevention or care program, but also on a package of programs. That is, you must be able to provide them the total financial resource needs for a particular response, and show them the cost savings that result in the future from averted health, social and financial burdens. This will allow you to make the case that HIV prevention

is a good investment and will strengthen your case for mobilizing additional resources.

You need to advise on the human resources required to be able to respond effectively

HIV prevention doesn't just happen – it has to be implemented by properly trained people. This creates a third essential information need for policymakers – information about the human capacity requirements for implementing the chosen programs, the current human capacity to undertake these programs, and the training needs to address any capacity shortage.

To be able to provide this comprehensive set of epidemic impact and financial and human resource needs information, you need one more tool. You need a model that can determine the behavioral effects of a set of program choices and estimate the associated costs – the costs of prevention and the future cost burdens averted. The model used in A² for doing this is the Goals Model.

What is the Goals Model and what does it do?

The Goals Model is a tool designed to assist policymakers and support strategic planning for HIV and AIDS by providing a link between program goals, funding and behaviors.

The Goals Model can help you answer key questions:

- How much funding is required to achieve the goals of your strategic plan?
- What goals can be achieved with the available resources?
- What is the effect of alternate patterns of resource allocation on the achievement of program goals?

The Goals Model, while extremely useful as a planning tool, does not provide all the answers. It is intended to assist planners in understanding the effects of funding



levels and allocation patterns on program impact. The model can help planners understand how funding levels and patterns can lead to reductions in HIV incidence and prevalence and improved coverage of treatment, care and support programs. The Goals Model does not, however, calculate the “optimum” allocation pattern or recommend a specific allocation of resources between prevention, care and mitigation. Though the Goals Model can be used to show how the distribution of funds will affect coverage and HIV-related behaviors, it does not imply that program goals can be achieved merely by allocating the necessary funds. As you will see, quality of implementation, the policy environment and other factors affect what can be achieved. Funding choices and program outcomes are also often influenced by issues in addition to those considered in the model. Thus, a particular Goals model should be considered a possible “scenario” for the future based on a reasonable assessment of potential impact, not an accurate prediction of the outcomes of a specific set of program and policy alternatives.

Goals brings diverse people together to explore the effects of different program choices

The Goals Model is intended for use by national as well as sub-national (e.g., provinces or large metropolitan areas) programs to explore the effects of different funding levels and patterns on meeting the goals of the HIV program. As with other aspects of A², the process of generating a Goals Model is an inclusive one, drawing in a number of individuals. It is generally implemented by a multi-disciplinary team composed of participants with various areas of expertise (demography, epidemiology, health finance, planning) representing different aspects of society (government, civil society, private sector, donors). A technical team works together to implement the model for the first time. Then the model is used in interactive workshops with planners and stakeholders to explore the effects of different program configurations on the provision of care and support and the prevention of new HIV

infections. Through this interaction participants gain a better understanding of the dynamics of funding and impact. This prepares them to develop realistic budgets and goals that reflect their priorities.

Designing and implementing an HIV/AIDS program is complex and important work. Prevention, treatment and palliative care costs are a significant component of the health budget. In most HIV/AIDS strategic plans, although the activities to be undertaken are clearly outlined, these activities are not closely linked to specific behavioral and prevalence goals the countries want to attain. By projecting estimates of future program needs, Goals can help planners respond to changes in intervention, care and drug therapy funding. However, you should keep in mind that when trying to provide high-quality HIV/AIDS services, political, legal, and ethical considerations sometimes take priority over economic issues in determining the actual resource allocation patterns.

Goals supports the decision-making process in many ways

One reason to use the Goals Model is to estimate the impact of budget decisions on the achievement of HIV/AIDS program goals. By anticipating the consequences and trade-offs of allocation options, Goals can support the decision-making process, which may include the following activities:

- Estimating reductions in HIV prevalence (in Asia this is calculated with AEM)
- Estimating increases in coverage of essential care and treatment services
- Allocating resources between prevention and care programs
- Setting priorities for high-risk populations
- Calculating training needs required to provide services

By understanding how resources need to be spent to achieve proposed goals, the simulations from the Goals Model can help planners choose goals that are attainable and useful. For example, information on the magnitude of the economic effects of sexually transmitted infections (STIs) on the prevalence and incidence of HIV may move the allocation of resources away from other sectors and toward the health sector. Information on the relative impact of prevention programs in different populations may help in prioritizing prevention efforts.

Another important use of the Goals Model is the examination of alternative resource allocation strategies. Rather than simply project current expenditures into the future, the analyst can ask, "How much funding is required to achieve coverage for the most cost-effective interventions? How much funding is required to provide palliative care to everyone who needs it? How many pregnant women can be treated with ARV to prevent maternal-to-child transmission? Would the allocation of additional expenditures to HAART have a significant impact on HIV prevalence goals?"

Goals fosters informed policy dialogue around critical issues in prevention and care

The Goals Model is not intended to replace the tools and techniques used in day-to-day operations. It is intended to encourage and support policy dialogue about the allocation of resources and its contribution to achieving the goals of the HIV/AIDS strategic plan. It is designed to support discussion of long-term issues, such as reduction

in HIV incidence and prevalence, the implications of initiating HAART, alternative options in preventing mother-to-child transmission, and the funding requirements to meet HIV and STI health goals.

What are the components of the Goals Model?

There are three components of the Goals Model, implemented in a Microsoft Excel spreadsheet:

- **Resource Needs Module**
- **Impact Module**
- **Capacity Module**

The Resource Needs Module collects crucial pieces of information regarding input costs for program interventions. The module assists you and your colleagues in estimating the total resources required for supporting numerous HIV and AIDS activities – those outlined in a strategic plan, for example. The Impact Module contains the Impact Matrix and is the "engine" of the Goals Model in that it applies an impact estimate, derived from an extensive literature review, to each prevention input. The Capacity Module calculates the costs and level of training necessary for achieving the level of services outlined in both the Resource Needs and Impact Modules.

The Goals modeling process (see Figure 9.1) allows you, as the policy analyst, to consider the resources required for each prevention and care intervention and estimate the impact of those resources on HIV incidence and

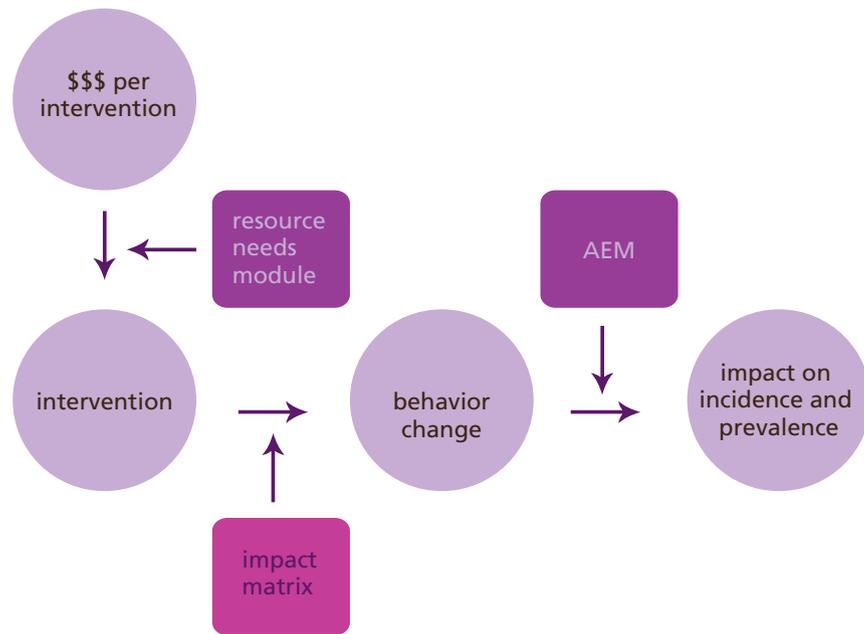


Figure 9.1.
The Goals modeling process.

prevalence in an Asian setting through the use of the Asian Epidemic Model. The Goals Model allows the user the flexibility to model increases or decreases in program resources as necessary to achieve the desired results in terms of risk behavior change.

As was the case with constructing an AEM model for your country, the time-consuming part of the Goals process is gathering and analyzing the data on coverage, impacts and costs which will serve as inputs to Goals – this may take several months and the work of a number of individuals, including the core members of the A² team, program managers and health economics consultants. This data collection and extraction process was described in the preceding chapter. Once the data are gathered and validated, a typical Goals application may take two weeks to complete. After a local model is created with the appropriate data, Goals can be updated periodically to support annual planning exercises and ad hoc studies or as better data become available.

Resource Needs Module (RNM)

THE RESOURCE NEED MODULE CALCULATES THE FINANCIAL RESOURCES NEEDED TO RESPOND

The first step in using the Goals Model is to complete the Resource Needs Module. The Resource Needs Module

calculates the total costs of prevention, care and orphan support for HIV/AIDS. The Resource Needs Module can assist strategic planning efforts by providing a tool and methodology to examine the financial allocations needed to implement a variety of prevention interventions, care and treatment programs, and orphan support. For example, the United Nations used the Resource Needs Module to assess the costs of reaching global goals for prevention and care committed to at the June 2001 UN General Assembly Special Session (UNGASS) (Schwartlander et al. 2001, Stover et al. 2006).

THE RNM CONTAINS PREVENTION, CARE AND TREATMENT, AND ORPHAN SUPPORT

The model in the Resource Needs Module contains three sub-models:

- The **prevention component**, which calculates the costs of 13 prevention categories, including:
 1. Interventions focused on sex workers and their clients
 2. Interventions focused on injecting drug users
 3. Harm reduction programs
 4. Interventions focused on men who have sex with men
 5. Youth focused interventions

6. Condom social marketing
7. Public and commercial sector condom provision
8. Improving STI management
9. Voluntary counseling and testing
10. Workplace programs
11. Blood safety
12. Prevention of mother-to-child transmission
13. Mass media

The prevention services listed above are not an exhaustive list. These prevention interventions can be customized to accommodate a national HIV/AIDS strategy with additional or fewer components. Note that if you add or subtract interventions in the model, there are certain links in the other Goals modules that will need to be adjusted to reflect these changes.

- The **care and treatment component**, which estimates the cost of five care and treatment programs, including:
 1. Highly active antiretroviral therapy (ART) and its associated laboratory support
 2. Opportunistic infection (OI) prophylaxis in symptomatic patients
 3. Treatment of OIs
 4. Diagnostic HIV testing
 5. Palliative care

- The **orphan support component**, which calculates the cost of three interventions to support children orphaned by AIDS:

1. Orphanage care
2. Community assistance
3. Subsidies for school expenses

THE INPUTS TO THE RNM INCLUDE POPULATION SIZES, UNIT COSTS AND COVERAGE

There are three main elements in the methodology used in each sub-model. The final expenditure on any program is a combination of these three input elements:

- Size of the population target groups
- Unit costs
- Coverage or access targets

Impact Module

THE IMPACT MODULE TRANSLATES PROGRAMS AND RESOURCES INTO BEHAVIORAL CHANGES

The Impact Module estimates the impact of interventions on behavior change, which is later fed to AEM as part of the A² process. It is this module that allows the Goals Model to link resource inputs and program interventions to their impact on behavior change. The Impact Module requires inputs of population size, coverage from the Resource Needs Module and baseline behaviors from AEM.

The Impact Module uses an Impact Matrix to calculate the impact of prevention activities on behavior. This matrix describes the percentage change in behavior among those people receiving the prevention service or prevention education. The values in the impact matrix have been derived from an extensive literature review on the impact of prevention interventions. The user can select low, average or high impacts to explore the possible range of effects of programs with varying levels of impact.

The impact of prevention programs is affected by the coverage of those prevention programs, and can also be affected by the coverage of care services and the policy environment: prevention is assumed to be more effective when care is readily available and within a supportive policy environment. In A², the behavioral changes predicted by the Impact Module are then fed back into AEM to assess their effects on the future course of the epidemic.

Capacity Module

THE CAPACITY MODULE ESTIMATES HUMAN RESOURCE AND TRAINING NEEDS AND COSTS

The Capacity Module has four worksheets that estimate the investments necessary to implement that level of activities calculated by the rest of the model.

INPUTS INCLUDE TARGET POPULATION, STARTING CAPACITY, PROGRAM REACH AND STAFF CHARACTERISTICS:

1. Number of people each activity will reach.
2. Base year capacity: number of existing trained staff by occupation for each activity.
3. Program reach: number of clients reached per trained person.
4. Characteristics: various characteristics of each occupation needed to calculate full-time equivalent personnel, including salary, attrition and death rates, and sick time.

What inputs does Goals require to determine program effects and costs?

Before Goals can estimate the impact of prevention interventions on behavior change, you must enter a number of important inputs, including baseline data regarding sexual and injecting behavior, costs, the sizes of key populations, demographic data, and the types and reach of prevention activities that will be included in the analysis. The specific information you will need to enter at the outset for each prevention, care or impact mitigation program in your package includes:

COVERAGE, BOTH BASELINE AND TARGET:

Coverage is a measure of the proportion of a target population that has effectively heard or received a message or particular service. Normally baseline coverage will be entered for the first year of a Goals analysis and

will be set to an expected target level in a later year. The coverage achievable varies with the size of the affected population and the resources dedicated to that service. The allocated resources combined with the unit costs determine how many individuals can be covered. It is important to remember that while individuals may be covered by a message or service and may have effectively heard a message or received a service, not everyone will change behavior. The Goals Impact Module will account for this based on published estimates of the expected levels of behavior change in specific prevention efforts.

RESOURCES AVAILABLE:

The Goals Model estimates the impact of prevention and mitigation services on behavior change. The impact is in part determined by the level of resources – and therefore the possible coverage – provided for that service or intervention. Thus, Goals requires an estimate of available resources to compare against expected costs based on the unit costs, coverage and prevention, care and impact mitigation programs chosen.



UNIT COSTS:

Unit costs for interventions, which were discussed in Chapter 8, are the base measure of how much it will cost to implement a particular program and are essential inputs to Goals. It is important to work with accurate unit costs for the programs and services to be implemented because the resources needed to implement a strategy will be determined by unit costs and coverage.

BASELINE BEHAVIORAL DATA:

The impact of prevention interventions on behavior is not a linear relationship – it depends on the starting (or baseline) behavior of a given population. For example, if the baseline value for condom use is relatively high at 80 percent, the prevention interventions will have a lesser impact on this behavior than among individuals who start at much lower values of condom use. An intervention will have a much greater impact on individuals whose behavior is what we would normally categorize as “higher risk” before the start of the program, that is, those who have higher numbers of partners, lower consistent condom use, lower treatment of STIs, etc. The actual baseline behavioral data required by Goals will be specific to each included at-risk population. Normally in

the A² process, these behaviors will be transferred in from the behavioral inputs of the Asian Epidemic Model to ensure consistency in the linked AEM/Goals analyses to be discussed in Chapter 10.

How does the Goals Impact Module determine the effects of interventions?

One of the unique features of the Goals Model is its capacity to estimate the impact of prevention and program interventions on behavior change, which results in averting new HIV infections among the target population. Goals applies impact estimates that represent the magnitude of impact of interventions on measures of behavior change (see Figure 9.2). The model bases these impact estimates on research from an extensive literature review of various prevention interventions. In other words, the Impact Module does not predict a change in behaviors of a population, the module estimates the level of changes expected from the literature.



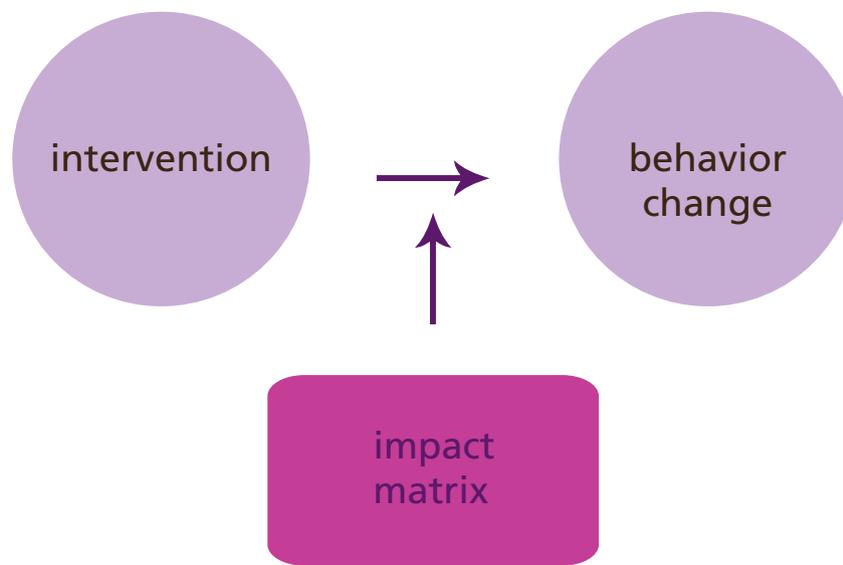


Figure 9.2.
The Goals Impact Module.

The Impact Module assesses overall prevention impacts on both sexual and injecting behaviors

Prevention interventions are intended to reduce the transmission of new HIV infections. With the exception of blood safety, all the prevention interventions evaluated in Goals operate by changing sexual behaviors or injecting behaviors linked to HIV transmission. Goals evaluates prevention impacts on four types of sexual behavior:

1. Condom use
2. Treatment for sexually transmitted infections (STIs)
3. Number of sexual partners
4. Age at first sex

and impacts on four types of injecting behavior:

1. Prevalence of injecting drug use (primary prevention impacts)
2. Frequency of injection
3. Prevalence of needle sharing
4. Number of sharing partners

Goals includes the populations relevant to Asian epidemics

The version of the Goals Model used in A² considers behavior change among several different at-risk populations for sexual and needle sharing transmission of HIV:

1. Men who have sex with men (MSM) and male sex workers (MSWs)
2. Injecting drug users
3. Sex workers and sex workers who inject drugs
4. Clients of sex workers
5. Medium risk (in Asia, this is primarily those having casual sex of a non-commercial nature)
6. Low risk men and women

Given the diversity of risk behaviors in Asian settings, the definitions of who belongs in each of these at-risk populations is often country or province specific. Sex workers are normally further divided into a higher frequency group and a lower frequency group, who have more and fewer clients per night, respectively. Which sex workers actually go into these two groups depends on the different forms that sex work takes in the country and on

the number of clients per night in different settings such as brothels, nightclubs, parks, streets, etc. Sex workers who inject drugs are handled separately depending on how they are targeted in prevention programs. In a typical Goals application, the medium-risk population refers to men and women with multiple sexual partners; and the low-risk population refers to men and women with a single partner.

The effectiveness of program interventions is a function of coverage, size of the population and the level of the intervention's behavioral impact

Intervention effectiveness is mitigated by both the policy and care and treatment environment. Prevention is assumed to be more effective when care is readily available and within a supportive policy environment (see Figure 9.3 and the next section).

The Impact Matrix calculates the behavior changes expected from the complete package of prevention programs chosen

Most prevention interventions can affect any or all of the four key sexual behaviors, and interventions for IDUs and injecting sex workers can additionally affect the injecting behaviors. The actual behaviors affected and the level of effect may vary depending on the at-risk population being considered. For example, a sex worker intervention may affect condom use, treatment of STIs and number of partners among sex workers and clients, but would not be expected to affect age at first sex or other behaviors among low-risk men or women. School-based interventions may affect age at first sex, condom use and numbers of partners among medium-risk men and women, but would not be expected to directly affect behaviors in at-risk populations.

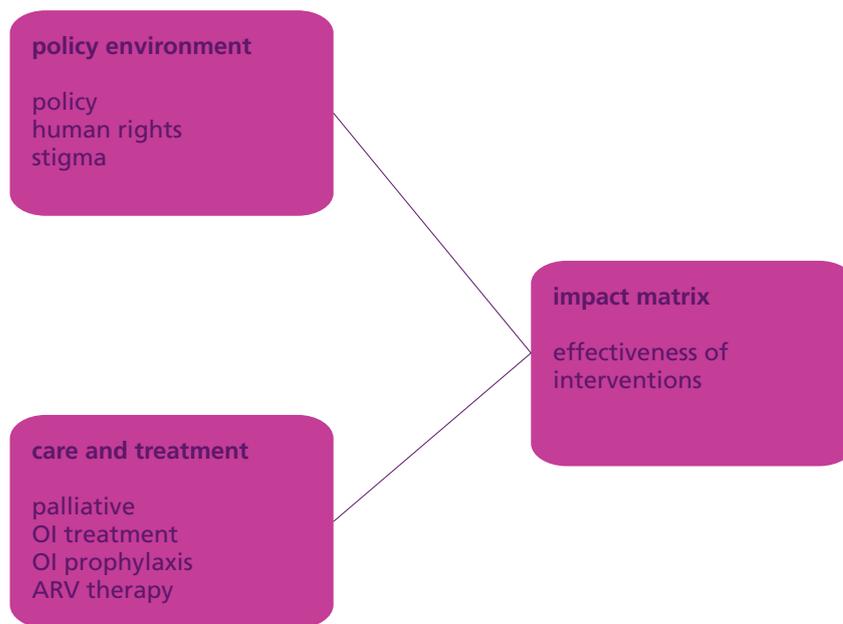


Figure 9.3.
The policy and care environment and its impact on interventions.

Several simultaneously conducted prevention interventions may affect the same behavior in the same at-risk population. The model calculates the impact of interventions on condom use and STI care as percentage reductions in non-use of condoms or failure to seek STI treatment. Goals calculates impacts on number of sexual partners and age at first sex as percentage reductions in the average number of partners per year and percentage increases in the average age at first sex. Goals automatically combines the impacts of multiple programs on a specific behavior and population.

The Impact Matrix is based on hundreds of critically reviewed studies

The magnitude of the effect of each prevention intervention analyzed in the model depends on the coverage of that intervention and the level of its expected impact. The actual entries in the Impact Matrix describe the percentage change in behavior among those people covered by the prevention service. The default levels for expected behavior changes in the Impact Matrix that estimates intervention impacts are derived from over 270 impact studies reported in the literature (150 on the impact to reduce sexual transmission and 123 related to IDU transmission). For each cell in the matrix, the available evidence was reviewed. When more than one study was available the average value was used for the point estimate. Values reported from the best studies, such as randomized controlled trials, were given more weight than those from less exacting studies.

While researchers created the original version of the Goals Impact Matrix between January and June 2001, the values in the matrix are updated frequently using new studies. The methodology was established at the outset of the project with researchers conducting a literature review in eight stages:

1. Identification of reports regarding HIV and STI prevention interventions in developing countries; these included searches of both peer-reviewed and non-reviewed articles.
2. Searches of the bibliographies and articles identified through the online search process.
3. Review of final project reports and country program evaluations.
4. Contact with study authors for additional information or clarification.
5. Review and classification of studies using a set of general guidelines for the Goals Model, including intervention setting, target population, outcomes, study design, use of control groups, sample size, among others.
6. Entry of study information into an Excel spreadsheet bibliography.
7. Generation of descriptions of the data fields for the matrix.
8. Pooling of study outcomes to create quantitative estimates of intervention impacts using qualitative techniques.

Since that time, the Impact Matrix has been updated repeatedly. Between March and December 2005, an extensive review of IDU interventions was undertaken with over 100 studies reviewed to update the related entries in the matrix. In late 2005, a review of the Chinese language literature was made to add studies not captured in previous English language reviews.

As with any data source that relies on current literature, there are limitations to the Impact Matrix. Primarily, the quality of the impact estimates is limited by the quality of the studies included in the literature review process. Taken as a whole, the studies have various inadequacies in methodology, including: limited follow-up (less than six months), self-reported data, no or inadequate control group, high attrition and publication bias, among others. Nevertheless, the Impact Matrix provides the user of the Goals Model with an estimate of impact either to use as a proxy for program impact or by which to judge other available data

regarding the actual impact of the intervention. For additional information regarding the literature review design, studies included in the review, and database of selected studies, please consult the Health Policy Initiative website: <http://www.healthpolicyinitiative.com> or the Goals manual at <http://www.futuresgroup.com/software/GOALS/goals.pdf> (in the section titled Appendix A: Goals Literature Review of that document).

The user can adjust the expected level of behavioral impacts

The Goals Impact Matrix itself comes in three user-selectable impact levels to reflect the variations in effectiveness observed in the literature studies. These are low, average, and high – and the level of behavior change expected varies with the level the user selects. For example, in the low impact case, it is assumed that the non-use of condoms will be reduced by only 19 percent by programs among sex workers, while in the average and high impact cases, the



reduction is 44 percent and 58 percent, respectively, based on available data. The user of the Goals Model can use the values in the Impact Matrix to evaluate and incorporate good quality local data if they are available. Based on the local data, the user can make adjustments by choosing the impact level that most closely represents the locally available data. However, it is strongly recommended using the values currently in the matrix because the studies used to produce these data have been vetted by a panel of international experts.

Care and policy environments can change prevention impacts

The impacts specified in the Impact Matrix (Table 1) are assumed to be maximum impacts, achievable only in the best environments. One major factor affecting the effectiveness of prevention interventions is the environment for care. In environments in which no care is provided for people with

HIV, stigma will usually be high and there will be little incentive for individuals in a community to get tested for HIV, declare HIV status, or even talk about the virus with family or friends. In such an environment, prevention activities will have less impact than in one in which care and treatment are readily available.

Antiretroviral treatment (ART) may also have a negative effect on prevention if people are less concerned about contracting HIV if they perceive it as an easily treatable disease. If this perception leads to riskier behavior among a target population, then prevention activities may be less effective. On the other hand, ART may reduce the transmission of HIV by reducing the viral loads of those infected. The net effect of all of these environmental influences is not known; however, it seems clear that the provision of prevention and care services should not be treated in isolation as it is likely that the net effect of better treatment is to enhance prevention effectiveness.

To simulate this effect of the care environment on prevention interventions, the impacts shown in the table are only achieved when the average coverage for all four types of care (palliative care, OI treatment, OI prophylaxis and ART) is 100 percent (i.e., 100 percent of individuals in a target population receive these four care services). When coverage for these services is less than 100 percent, the impacts are reduced by a factor that is specified by the user in the inputs.

The policy environment can also change the effectiveness of prevention interventions. Strong political support and supportive policies can lead both to more resources being allocated to prevention and care and to more effective use of those resources. A poor policy environment (e.g., an environment in which the behaviors that transmit HIV are illegal) may make it difficult to undertake effective prevention efforts or for people to come forward to access them. As a result, the impact of prevention programs may be reduced if the policy environment is poor.

The Impact Module calculates behavioral changes attributable to increased program coverage and additional funding

For each at-risk population, the Goals Model calculates changes in the behaviors described in the Impact Matrix by multiplying the proportion of the population covered by an intervention by the impact of the intervention; and then it sums the impacts across all prevention interventions. The proportion of the population covered by the intervention is equal to the coverage level achieved from the specified funding, minus the coverage before the intervention. Thus, the model calculates only changes in behavior attributable to the additional funding. The model combines these behavior changes with existing baseline behavior estimates to determine new behavioral risk levels for that population.

Behavior Category	Condom Use			STI Treatment			# of Partners			Age at 1 st Sex			# of Injecting Drug Use		
	High	Med	Low	High	Med	Low	High	Med	Low	% increase in age at 1 st sex	prev. injecting drug use	freq. of injection	prev. needle sharing	# needle sharing partners	
Risk Group															
Mass Media		-0.14	-0.17								0.00				
VCT	-0.44	-0.24	-0.12								0.00				
Faith-Based Initiatives		-0.10													
Community Mobilization		-0.12	-0.03								0.00				
FSW Peer Education	-0.44							-0.11							
School-Based Program		-0.17			-0.18				-0.33		0.00				
Out of School Youth		-0.11			-0.18				-0.33		0.00				
Workplace Program	-0.39	-0.17	-0.01					-0.93	-0.36						
Condom Social Marketing	-0.21	-0.18	-0.08						0.00		0.00				
Public Condom Dist.	-0.85	-0.69	-0.05		-0.11				-0.13						
Harm Reduction	-0.22							-0.01							
MSM Peer Education	-0.39							-0.10							
Peer Education, Non-Youth	-0.24	-0.42	-0.30					-0.52	-0.10						
STI Treatment		-0.02			-0.63	-0.31									
PMCT		-0.24	-0.12					-0.52	-0.10						
Needle & Syringe Exchange											-0.05	-0.30	-0.45	-0.50	
Drug Substitution											-0.47	-0.79	-0.62	-0.63	
IDU Counseling & Testing													-0.41		

Table 9.1.
Goals Impact Matrix: impact of prevention interventions on select behaviors.

What outputs does the Goals Model provide?

The Goals Model is a very flexible analytic tool. The Impact Module uses the coverage provided by the user and the Impact Matrix to calculate the expected level of behavior change in each population, providing the results in both tabular and graphical form. These outputs from the Impact Module are contained on individual worksheets within the Goals workbook. Figures 9.4 and 9.5 present examples of the outputs of the Impact Module. Figure 9.4 shows the expected behavior change over time in injecting practices and the contribution of different interventions to this change, while Figure 9.5 graphically displays the drop in frequency of injection as a function of an increase in coverage of various IDU-focused prevention efforts. Such tables and graphs are available for the various at-risk populations included in Goals.

The Resource Needs Module uses this same information in association with the unit costs for each program to calculate the overall budget for your prevention package and its sub-components. Goals provides the combined results of its various modules in a number of useful tabular and graphical forms for policy analysis including:

- Annual budgets (total and by sub-component)
- Behavioral changes expected
- Changes in program coverage
- Number of people reached by programs
- Resource requirements and resource gaps
- Distribution of resources by program type

The next section will show more examples of these outputs when it discusses the application of Goals to policy analysis.

What kinds of analysis can you do with the Goals Model?

Because Goals links resources, coverage and behavior change, you will find it to be an extremely flexible tool for policy analysis. This section presents two examples of the types of analysis that can be done using Goals. However, virtually any policy question related to resources, coverage and behavior change can be explored in Goals.

	A	B	C	D	E	F
1	Behavior Change: Risk behaviors for intravenous transmission					
2	Risk behaviors in start year					
3	Risk Behaviors in Start Year		Prevalence of Injecting Drug Use	Frequency of shared injection	Prevalence of Needle Sharing	Number of Sharing Partners
4	IDU		0.03%	456.25	45%	5
5						
6	Prevalence of injecting drug use					
7	IDU					
8		2006	2007	2008	2009	2010
9	Prevalence of injecting drug use	0.03%	0.03%	0.03%	0.03%	0.03%
10	IDU Counseling & Testing		0.000	0.000	0.000	0.000
11	Needle & Syringe Exchange		-0.003	-0.007	-0.010	-0.013
12	Drug Substitution		0.000	0.000	0.000	0.000
13	Frequency of injection					
14	IDU					
15		2006	2007	2008	2009	2010
16	Frequency of injection	456	448	439	431	422
17	IDU Counseling & Testing		0.000	0.000	0.000	0.000
18	Needle & Syringe Exchange		-0.019	-0.038	-0.056	-0.075
19	Drug Substitution		0.000	0.000	0.000	0.000
20	Needle sharing					
21	IDU					
22		2006	2007	2008	2009	2010
23	Prevalence of needle sharing	45%	41%	38%	35%	32%
24	IDU Counseling & Testing		-0.052	-0.105	-0.157	-0.209
25	Needle & Syringe Exchange		-0.028	-0.055	-0.083	-0.110
26	Drug Substitution		0.000	0.000	0.000	0.000
27	Number of sharing partners					
28	IDU					
29		2006	2007	2008	2009	2010
30	Number of sharing partners	5.0	4.85	4.69	4.54	4.38
31	IDU Counseling & Testing		0.000	0.000	0.000	0.000
32	Needle & Syringe Exchange		-0.031	-0.062	-0.093	-0.124
33	Drug Substitution		0.000	0.000	0.000	0.000
34						

Figure 9.4. The Impact Module output for behavior change in IDUs as a result of outreach, counseling and testing, needle and syringe exchange, and drug substitution programs. The overall change in behavior is provided with each program's contribution to reducing risk.

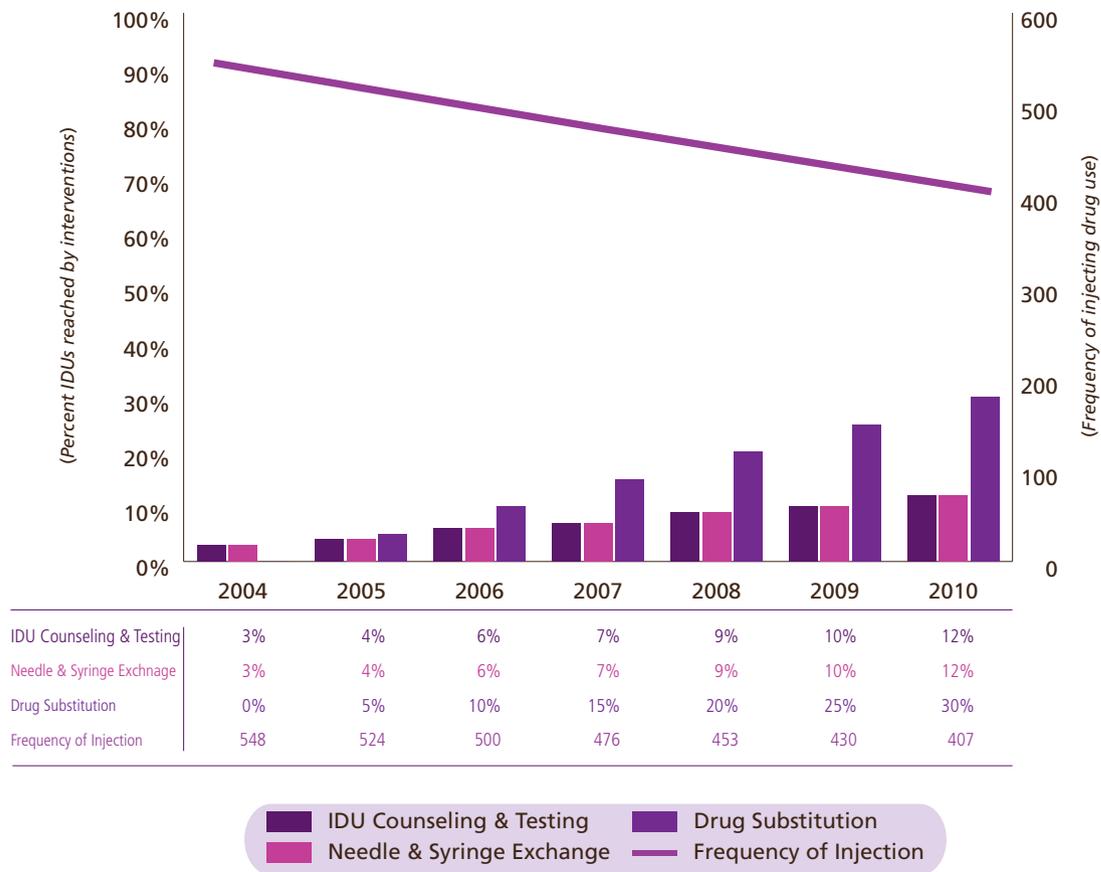


Figure 9.5.
Graphical comparison of the fall in frequency of injection with the scale-up of various IDU prevention programs from Goals.

Example – using Goals' Impact Module to assess the coverage needed to achieve behavior change goals

Suppose you are tasked with estimating program coverage and resource requirements needed to achieve particular behavior change goals, for example, to keep the increase in the number of injecting drug users below 20 percent while reducing the needle sharing from 70 percent to below 30 percent between 2004 and 2010. First, you should consider which interventions are relevant to the target population in question and assess the current baseline coverage of those specific interventions. Once these have been established, you can use the Impact Module of the Goals Model to estimate the increase in coverage required to achieve the program's goals for behavioral change.

The Impact Module of Goals calculates behavior change for an intervention by considering the baseline behaviors, the coverage increase entered (which is sometimes based on program goals), and the resulting behavioral impacts calculated from the Impact Matrix.

The steps in performing this type of coverage analysis using the Impact Module are:

1. Identify the specific interventions that impact on the risk behavior(s) being examined.
2. Set behavioral targets for the end year of projection.
3. Decide how coverage is going to be scaled up between the start and end years (interpolate linearly – draw a straight line if there is no better information is available).
4. Determine the baseline (i.e., current) level of coverage for each of the interventions that can affect the risk behavior in question.
5. Set an experimental scale-up of target coverage for each intervention (in this case it will be based on various experimental scenarios you want to test out for scale-up of the programs).
6. Identify and enter the baseline behavioral data for population that will receive the interventions.
7. Use the Impact Matrix to calculate the magnitude of behavior change that can be expected for the given level and scale-up of coverage. If it falls short of, or exceeds, the targets, go back to step 5, revise your coverage scale-up in different programs and try again.
8. Let Goals accumulate the impacts on the behavior change due to each of the programs in your package.

The easiest way to determine what's needed to reach your coverage goals for an HIV/AIDS program is to experiment with the Impact Module to model various coverage scenarios and their impact on the behaviors of the target population over the period from 2004 to 2010.

An example is shown in Figures 9.6 to 9.8. This was made by taking the following steps:

Step 1.

Assume that coverage of all IDU programs is effectively zero in 2004 with 70 percent of injecting drug users sharing needles.

Step 2.

Define two scenarios for prevention packages for IDU. Scenario A assumes going to 95 percent coverage with an IDU counseling and testing program; 50 percent coverage with a clean needle program; and 50 percent

coverage with a drug substitution program. Scenario B assumes 95 percent coverage of the same population with a VCT program; 15 percent coverage with a clean needle program; and 85 percent coverage with drug substitution.

Step 3.

Use the Goals Impact Module to determine the impact on the size and risk behaviors of this population.

Step 4.

Compare the impact of these two different prevention packages on the size and risk behaviors. As Figure 9.6 shows, scenario B reaches the first goal of keeping the increase in the number of injecting drug users comparatively low, with the number only rising from about 10,800 in 2004 to 12,500 in 2010, while scenario A sees a significantly greater increase – although the increase is still lower than that seen in the baseline.

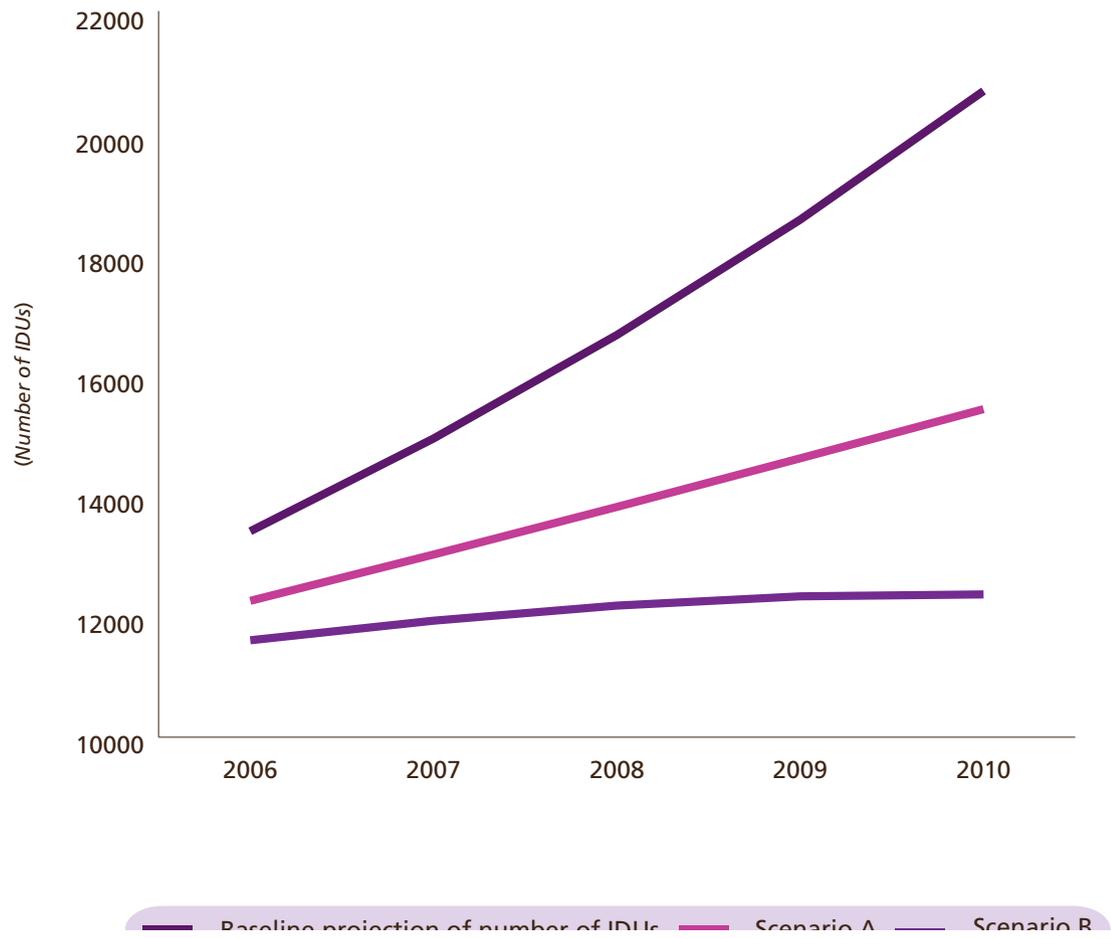


Figure 9.6.
Projection of the number of people injecting drugs based on three different coverage scenarios, the baseline plus the two discussed in the text.

Impact on HIV risk behaviors : Scenario A

Percent coverage in 2010

- Voluntary counseling & testing: 95%
- Clean needle programs: 50%
- Drug substitution programs: 50%

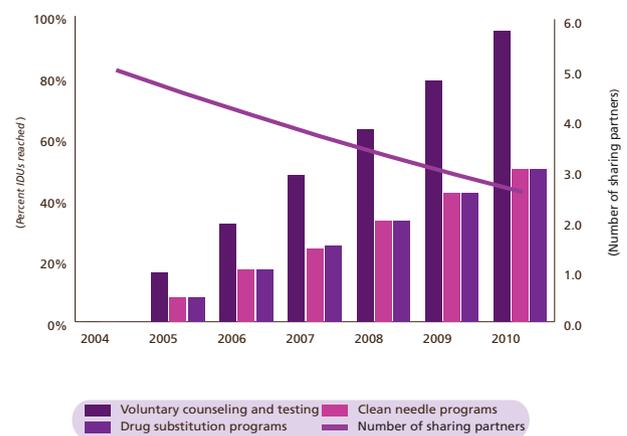
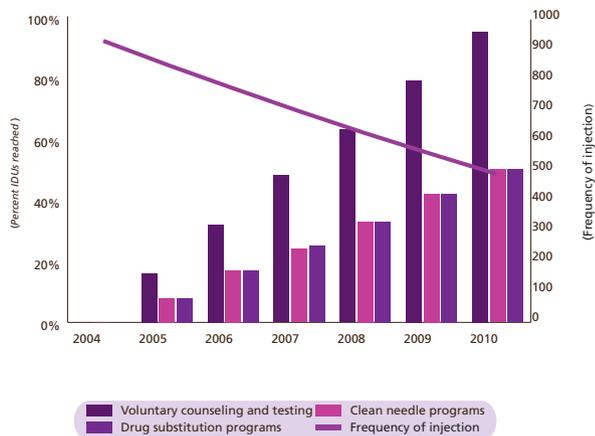
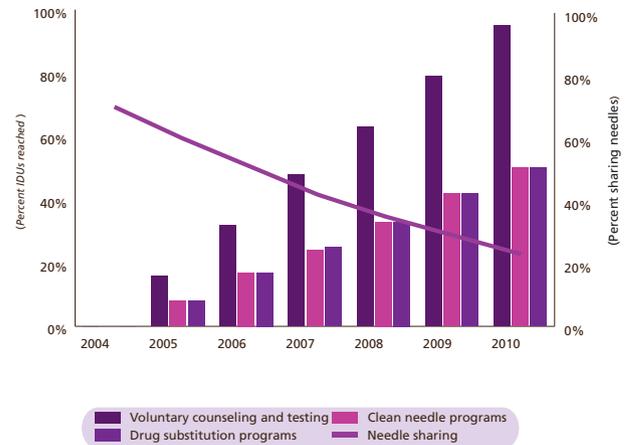


Figure 9.7.
 Risk behaviors from Goals under the program changes described in scenario A.
 This display from Goals compares the increase in coverage of the various program components with the decline in needle sharing resulting from them.

Impact on HIV risk behaviors : Scenario B Percent coverage in 2010

- Voluntary counseling & testing: 95%
- Clean needle programs: 15%
- Drug substitution programs: 85%

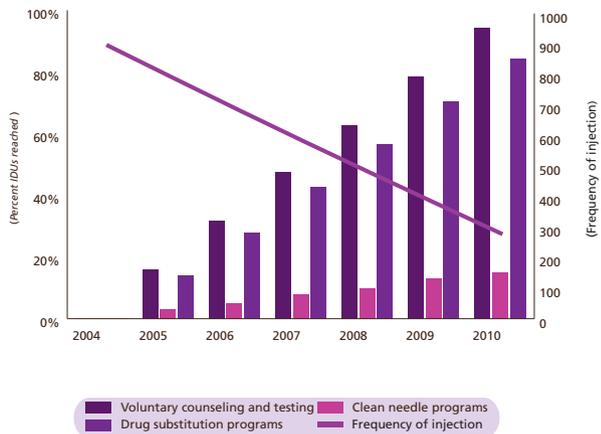
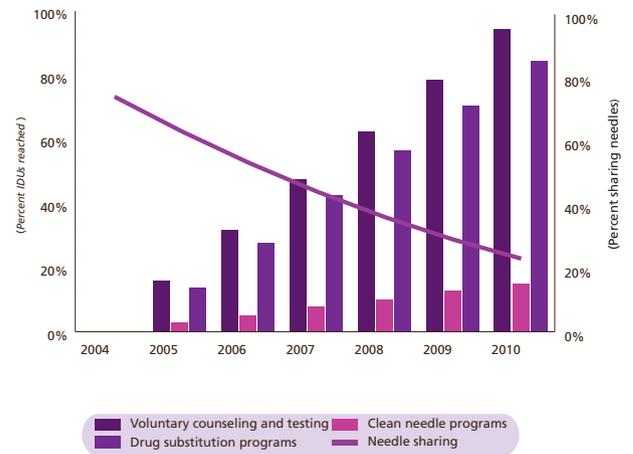


Figure 9.8.
The impact of scenario B above on risk behaviors among IDUs.

Examining the Impact Matrix we can see that this is because drug substitution programs are extremely effective at reducing the number of people injecting drugs (with drug use dropping 47 percent among those covered), and scenario B goes to very high coverage with these programs.

Figures 9.7 and 9.8 illustrate the impact that these programs have on the risk behaviors among IDUs. These figures show how the different components of the overall IDU risk reduction package scale up, along with the associated decline in needle sharing, frequency of injection, and sharing partners as a result of the two packages. These displays are automatically provided within the Goals workbook. Both scenarios clearly meet the second behavioral goal of reducing needle sharing below 30 percent, with scenario B being just a bit more effective at doing this.

Other output tables in the Goals Model provide the overall cost of these two packages for reducing risk among IDUs, providing useful information about the relative affordability of the two approaches. Examining this, you will find that scenario A costs \$6.4 million dollars over the period, while scenario B costs \$10.4 million dollars. This results because drug substitution costs substantially more

than other programs. Decision-makers will need to factor in both these costs and the effectiveness when they make a decision about which program to support.

By experimenting with different scenarios, you will usually be able to find different combinations of interventions that can meet a given set of prevention goals. There is no one path to achieving behavior change, but if you face budget constraints, you may need to explore a number of different scenarios using the most effective interventions, as determined from the Impact Matrix, to find an overall package that satisfies both your behavioral goals and your budgetary constraints.

Example – using the Goals Resource Needs Module to budget a package of interventions, such as those outlined in a national strategic plan

One of the most important steps in applying the Goals Model for intervention impact analyses is to use the Resource Needs Module to determine the budget required for a particular set of interventions (e.g., those described in a national strategic plan). The basic approach used in the Resource Needs Module to calculate the financial resources needed for a particular program is quite simple:

population in need of service (or the target population for intervention)

x

percent of population covered

x

cost per person served

=

financial resources required for intervention



The initial Resource Needs worksheets in the Goals Model used in A² are for data input, and include worksheets for prevention programs, care and treatment programs, and mitigation programs. On these sheets are cells for entering unit costs, population sizes, and baseline and target coverage for each of the specific intervention programs that will constitute a complete prevention, care and treatment, and impact mitigation response. These sheets show the detailed calculations for costs of each intervention, including prevention, care and orphan support; and then the sheets show the sum of the associated costs to estimate total prevention, care and treatment, and mitigation resource needs. These sheets are followed by cost summaries, coverage summaries and information on resource gaps.

Two caveats about the Goals Model should be noted. First, Goals estimates feasible coverage targets assuming an ambitious expansion of current intervention coverage unfettered by current financial resource constraints but without significant development in infrastructure. In other words, there are no additional expenditures assumed for infrastructure development, with two exceptions: (1) expenditures for in-school education interventions consist primarily of teacher training, and as such represent investment in human

infrastructure, and (2) a cost is built in for strengthening the infrastructure system to deliver services, such as interventions for PMTCT. Second, the multiple sources of funding are not addressed in the Goals Model; instead, activities covered by all sources of funding are included.

A comprehensive HIV/AIDS program might be comprised of some combination of the following intervention strategies for prevention, care and treatment:

1. Targeted prevention activities, such as those targeted to:
 - a. Sex workers
 - b. Clients of sex workers
 - c. Injecting drug users
 - d. Men who have sex with men
2. General population interventions, such as:
 - a. School-based prevention education
 - b. Public sector condom distribution
 - c. Prevention of mother-to-child transmission (PMTCT)
 - d. Voluntary counseling and testing (VCT)
 - e. Treatment of sexually transmitted infections

3. Medical services, such as:
 - a. Blood safety practices
 - b. Post-exposure prophylaxes
 - c. Universal precautions
4. Care and treatment services, such as:
 - a. Palliative care
 - b. Antiretroviral treatment
 - c. Home-based care
5. Mitigation activities, such as those that target:
 - a. Orphans
 - i. Community support
 - ii. Tuition and school fees
 - iii. Orphanage care
6. Policy, administration, research and evaluation, and monitoring activities

In Asian settings, those prevention efforts listed under bullet 1 are likely to have the greatest impact on the epidemic. However, if you're using Goals to determine required resources and potential outcomes for a comprehensive pack-

age, you will typically start with that set of interventions contained in the national HIV/AIDS strategy.

You first enter the coverage goals outlined in the national HIV/AIDS strategy. The Goals Model will then use the size of target populations, the coverage goals for the specific interventions, and the unit costs of those interventions to determine the total resources needed to achieve those goals (see Figure 9.9). However, you will also need to explore how to achieve these goals operationally, and there may be more effective and cheaper ways to achieve the desired behavioral or prevalence outcomes than the specific guidance contained in the national plan. This is where you and A² can add real value by proposing alternative mixes of programs that are both affordable and effective. The Goals Model can help you demonstrate to policymakers the value of focused prevention efforts in Asian settings.

Once the Resource Needs Module generates resource needs estimates, the Goals Model creates several charts for the prevention packages for each at-risk population. Figures 9.10 and 9.11 give examples of the types of summary charts you can generate using the Goals Model.

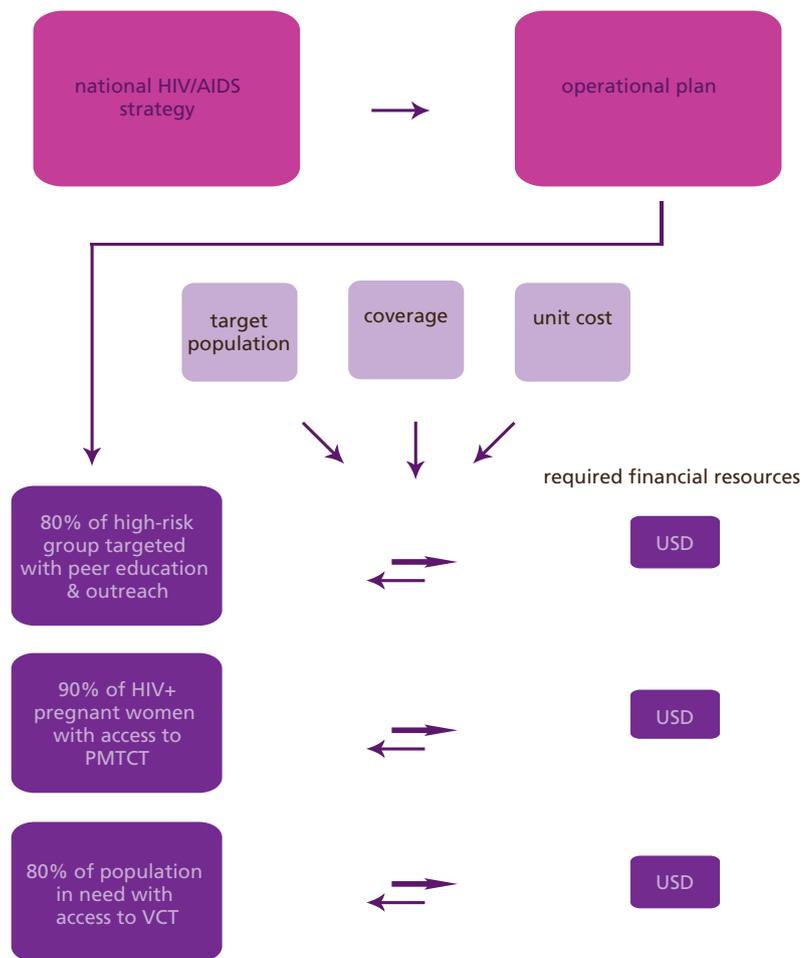


Figure 9.9.
Components of a Resource Needs evaluation of a national plan.

	A	B	C	D	E	F	G	H	I	J
2	Total Resources Needed	Meru		22,680,496	51,104,907	82,637,853	114,508,968	148,482,537	183,184,905	218,896,358
3	Prevention			14,889,454	16,703,601	28,506,714	42,453,688	57,154,405	72,436,965	88,337,217
96	Injecting drug users			2004	2005	2006	2007	2008	2009	2010
97	Population size			184,371	187,865	192,839	195,191	198,897	202,584	206,258
98	Number of IDUs				1.9%	2.6%	1.2%	1.3%	1.9%	1.8%
99	Annual growth rate of number of IDUs									
100	Coverage									
101	% of IDUs receiving Counseling and Testing			2.0%	16%	28%	41%	54%	67%	80%
102	% of IDUs accessing Needle and Syringe Programs			2.0%	16%	28%	41%	54%	67%	80%
103	% of IDUs accessing Drug Substitution Programs			0.4%	14%	27%	40%	53%	67%	80%
104	Behavioral variables									
105	% using condoms among those reached by intervention			10%	15%	21%	26%	31%	36%	40%
106	Number of sex acts per IDU per year			15						
107	Number of injections per IDU per year			511						
108	STI prevalence			1%						
109	Other variables									
110	Number of IDU reached per counselor			15.0						
111	Unit costs									
112	Cost of outreach per IDU targeted			65	65					
113	Cost per needle distributed and destroyed			0.06	0.06					
114	Cost of drug substitution per IDU contacted			250	250					
115	Cost per condom			0.13	0.13					
116	Cost to train one peer educator			75	75					
117	Results									
118	Number of IDUs			184,371	187,865	192,839	195,191	198,897	202,584	206,258
119	IDUs receiving counseling and testing			4,794	29,119	54,766	80,614	107,802	135,934	165,007
120	Counselors trained			320	1,941	3,651	5,374	7,187	9,062	11,000
121	IDUs receiving NSOP			4,794	29,119	54,766	80,614	107,802	135,934	165,007
122	IDUs receiving Drug substitution			737	25,673	51,938	78,467	106,343	135,191	165,007
123	Number of needles and syringes required			2,449,548	14,679,870	27,985,573	41,193,601	55,056,811	69,462,205	84,318,434
124	Number of condoms required			70,722	429,602	807,981	1,189,314	1,590,430	2,006,467	2,434,386
125	Resources required									
126	Resources required for IDUs receiving counseling and testing			311,586	1,892,743	3,558,809	5,239,891	7,007,129	8,855,701	10,725,437
127	Resources required for needles and syringes			146,973	892,792	1,679,134	2,471,616	3,305,209	4,167,732	5,059,106
128	Resources required for drug substitution			184,371	6,418,730	12,984,495	19,016,651	26,585,851	33,797,764	41,251,680
129	Resource required for condoms			8,840	53,700	100,998	148,664	198,804	250,683	304,298
130	Resource required for training			23,968	145,556	273,831	403,069	539,010	679,665	825,034
131	Resources required			4,470,189	528,765	8,510,769	16,919,133	23,408,275	34,310,793	43,563,618

Figure 9.10.

An example of the resources required for IDU prevention programs in the Goals Model. The selected cell (E131) shows the calculation of resources needed in 2005 for these programs assuming the unit costs shown on rows 112-116 and the population size and target coverage given on rows 98 and 101 to 103.

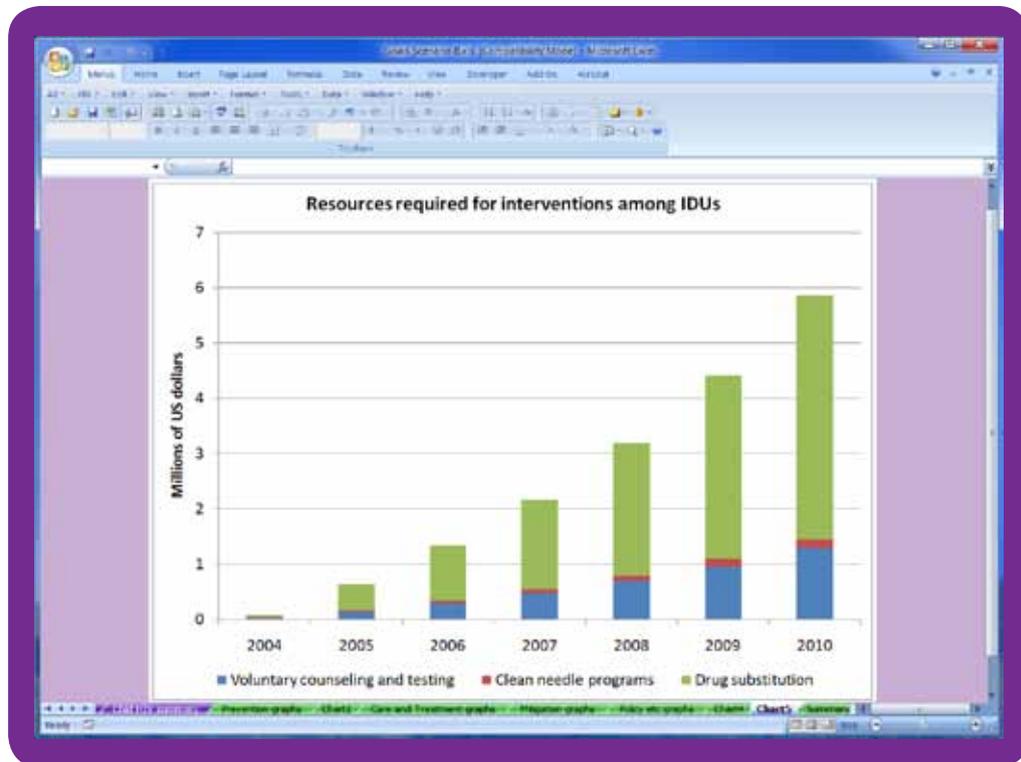


Figure 9.11.

An example of the growth of the total resources required for all IDU interventions from the Resource Needs Module of the Goals Model.

As always, closely examine and validate your Goals inputs and results against other data

Like any model, if you provide Goals with incorrect input data you will receive invalid outputs. This makes it essential that you examine the results carefully and check the resource needs estimates for reasonableness. Whenever possible, compare the inputs and financial outputs for your program's start year with any monitoring and evaluation data that you may already have. For example, you may know from program or monitoring and evaluation data approximately how many people have had access to voluntary counseling and testing programs in the past year. If your Goals Model outputs don't agree with this, either your size estimates or your coverage are off. Similarly, if your estimated cost for a particular prevention effort does not agree with the actual expenditure number, then you need to revisit your size estimates, your coverage, and your unit costs. Doing this type of validation on as many inputs and outputs as possible will help to ensure that your Goals Model reflects the actual situation more accurately.

How do you see the effects of different intervention packages on the epidemic? By linking your Asian Epidemic Model and your Goals Model

At this point, you have been introduced to two powerful tools: the Asian Epidemic Model, which allows you to translate behaviors into epidemic trends, and the Goals Model, which translates programmatic and financial data into behavior change. This suggests a natural marriage: use the Goals Model to translate programs or resources into behaviors and then put these behaviors into AEM to generate epidemic trends. This will provide a direct link between the programs you do or the resources you expend and the effects that they will have on the epidemic.

Recognizing this natural synergy, the Regional A² Team has linked the Goals and Asian Epidemic Models to create a powerful tool for HIV and AIDS decision-making and policy analysis. The combination of the Goals Model and AEM effectively links program funding and the program and policy choices made by decision-makers to long-term changes in country-specific epidemics. These tools allow you to show policymakers the consequences and costs of their choices.

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- Stover J, Bertozzi S, et al. The global impact of scaling up HIV/AIDS prevention programs in low- and middle-income countries. *Science* 2006; 311(5766):1474-6.

DISCOVERY

Chapter 10

**CHOICES THAT MAKE A DIFFERENCE:
EXPLORING THE IMPACTS OF PROGRAM
AND POLICY ALTERNATIVES**

[an overview]

[an overview]

Chapter 10

CHOICES THAT MAKE A DIFFERENCE:

EXPLORING THE IMPACTS OF PROGRAM

AND POLICY ALTERNATIVES

By this point in the A² process, you have constructed a realistic model for your epidemic in AEM, and you have a good idea of the coverage and costs of current responses from using the Goals Model. The question now is how to use this knowledge to analyze the relative effectiveness and costs of alternative policies and programs that might be adopted in the future. Such analyses can help your country or province make the best use of available resources or assist in mobilizing the additional resources needed to turn the epidemic around. Linking your locally specific AEM and Goals models makes such analyses possible. This chapter discusses how that is done, how to engage the decision-makers in this process in a meaningful way, and why that engagement is essential for moving from analysis to action.

You explore alternative strategies by building policy scenarios.

One of the values of having models is that they can be used to explore alternative futures. A policy scenario is a model for the expected future of the epidemic if a particular set of policies and programs is implemented. By making scenarios examining different policy and program choices for the next few years, you can show decision-makers the consequences of the choices they make.

What defines a response scenario for an HIV epidemic?

A policy scenario will normally be built around variations in one or more of the following items:

- The types, mix and coverage of programs to be included in the response package, which may vary by:
 - The population or populations receiving focus in programs
 - The geographic areas being emphasized in prevention and care efforts
 - The types and effectiveness of programs included in the package: peer education, condom promotion, mass media, etc.
- The resources available and/or allocated to specific programs, geographic areas, or populations, or the unit costs of specific programs
- The timing of the start of specific program components

Scenarios in A² provide essential inputs for decision-making.

The added value of scenarios using the A² tools comes from their ability to concretely explore the future impacts of choices made today. Using linked AEM and Goals models, you can generate a number of important inputs for the decision-making process, including:

- **Overall impact/effectiveness and cost.**
You can demonstrate the expected effectiveness and costs of a particular choice of policies and programs by looking at their effect on new and current HIV infections and deaths, assessing other impacts, and calculating related costs (e.g., costs of prevention, antiretroviral care or orphan care).
- **Cost-benefit.**
By using the Resource Needs Module to assess the costs of programs to be implemented and determining the costs associated with future epidemic impacts, you can weigh the relative costs and benefits of different choices.
- **Cost-effectiveness.**
By comparing prevention costs with infections averted or treatment cost averted, you can assess the relative cost-effectiveness of different policy and program mixes.

By showing the impacts of different scenarios created with the A² tools, you can help decision-makers determine which program and policy choices will help them to achieve their goals and objectives and make the best use of available resources.

What should you consider in defining scenarios?

Many scenarios are possible, but useful scenarios are not just selected randomly. They generally are designed purposively to address specific policy issues that arise from considering:

- **Who you're trying to reach.**
Different target audiences ask different questions and require different information for decision-making, making it critical to consider who is being targeted.
- **What the data tell you.**
For example, where are your hot spots? Which populations are most affected by the epidemic? What's working and not working in the response?
- **The results of your models and analyses.**
Which populations are producing the largest number of new infections? Which programs can have the biggest downstream impact on the epidemic?
- **Policy questions of local interest.**
What issues have people told you they are concerned about? What kinds of resources are needed to reach the goals of the national plan? How much will it cost to scale up a program such as PMTCT?
- **What is feasible and realistic.**
Scenarios that are not realistic are of only academic interest. The scenarios you consider should be possible and implementable with appropriate attention to capacity building, adequate resources, and the local political situation.

Each scenario should seek to answer a specific policy question of local interest. You should limit the number of scenarios considered to avoid information overload.

How do you actually create, cost and determine program effectiveness in a scenario?

The process of creating a scenario is straightforward with the data and tools you have learned:

- **Collect the necessary epidemiological, behavioral and response data.**
- **Develop a baseline projection for your country with AEM.**
You should always validate it against various sources of data.
- **Project the baseline into the future.**
Assume behaviors stay as they are, providing a basis for comparison of the effects of different program choices. Have your Technical Working Group review it.
- **Define the activities, target populations and objectives of your prevention and care package for the future.**
- **Build a Goals Model and cost this package using the Resource Needs Module and your local unit costs.**
- **Use the Goals Impact Matrix to calculate the expected behavior change from this package.**
- **Calculate impacts on new and current HIV infections and deaths.**
You do this by linking the behavior changes from Goals into AEM.
- **Calculate policy relevant measures of effectiveness, cost-effectiveness and cost-benefit.**

By comparing different scenarios, you will be able to offer concrete advice on what is most effective, how to achieve specified targets and goals, and what is needed to reverse the epidemic.

An interactive process to explore program and policy alternatives builds ownership of the outcomes and shared understanding of the epidemic.

However, if you expect to influence responses, you cannot make up your scenarios in isolation. To move such analyses into action requires that you enter the policy arena. Your A² team does not make the decisions – policymakers, finance ministers, communities, program managers and donors do. This means you must actively engage these decision-makers in determining what is realistic and what scenarios need to be examined. If they feel a sense of ownership of the process, they are more likely to act on its outcomes. This engagement is an essential act of advocacy in itself in that it builds a common understanding of the epidemic and the impact of responses to it that encourages coordinated and collaborative action.

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Chapter 10

CHOICES THAT MAKE A DIFFERENCE:
EXPLORING THE IMPACTS OF PROGRAM
AND POLICY ALTERNATIVES

[concepts and content]

Chapter 10

CHOICES THAT MAKE A DIFFERENCE: EXPLORING THE IMPACTS OF PROGRAM AND POLICY ALTERNATIVES

Nalinee Sangrujee, Margot Fahnestock, Amala Reddy and Tim Brown

By this point in the A² process, you have constructed a realistic model for your epidemic in AEM, and you have an idea of the current coverage and cost of the response. Now it's time to start translating that knowledge into better policies and programs. After all, the A² process is all about improving responses.

This chapter guides you, as a user of the Asian Epidemic Model (AEM) and Goals Model, to consider the types of analyses that are most useful to the policymaker and to learn how to place your modeling and results into a policy context. Previous chapters in these guidelines have focused on gathering information that allows you to understand the epidemic and the responses to it. This chapter will now focus on using that information and the tools you've learned to produce essential inputs for decision-making. These inputs should ideally reflect the needs and concerns of the policymakers and decision-makers, directly addressing the decisions they face and helping them to achieve national or provincial goals and objectives. If you produce useful results that take their interests into account, you make it more likely that your analyses and results will actually influence their thinking and consequently improve responses.

How do you show people the consequences of their actions?

When somebody in a position of power makes a decision, they normally are seeking a positive outcome. In the case of HIV responses, the overall objective is to reverse the

epidemic and to minimize its impacts on the population. With the information you have collected and the models you have built in preceding chapters, you are well-positioned to look at the effects that different types and levels of responses can have on new and current HIV infections and related deaths. This gives you the capacity to take someone's idea of what the response should look like and show them the expected effects of that response on the epidemic itself.

This can be an extremely powerful tool. Suppose someone intends to spend the bulk of the national AIDS budget from 2007 forward on unfocused mass media messages targeting the population at large. If you use your knowledge of the current profile of the epidemic and the impacts of these programs on behaviors to demonstrate that this will only prevent 3,000 infections over the next five years, you might encourage them to rethink this decision.

If you further showed them that the same resources, spent on prevention programs for sex workers and clients, could avert 200,000 infections in the same time frame, saving them hundreds of millions of dollars in antiretroviral care over the next two decades, they would be under considerable pressure to change their minds. If you took one step more and also convinced them that choosing the second option as opposed to the first made a major difference in the course of epidemic as shown in Figure 10.1, they'd be hard-pressed to continue on their current course. The second choice reverses the epidemic; the first allows it to continue to grow rapidly. This is a simple example of what is referred to as [scenario analysis](#).

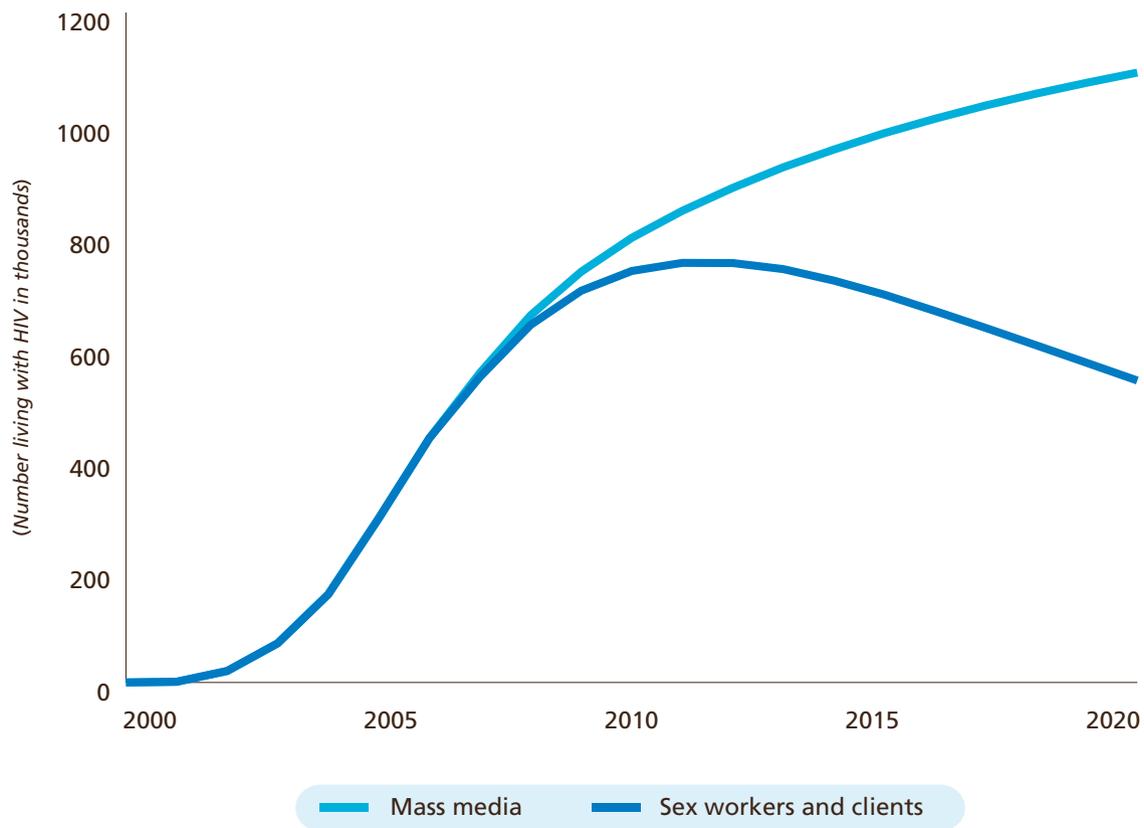


Figure 10.1.
Hypothetical scenario comparing epidemic growth if resources are spent on a mass media program as compared to a program focused on sex workers and clients.

You explore possible strategies by building policy scenarios

A **policy scenario** is a model for the future of the epidemic if a particular set of policies and programs is implemented. By making alternative scenarios examining different policy and program choices for the next few years, you can show decision-makers the consequences of the choices they make.

The A² tools make scenario analysis easy to do by linking programs to epidemic impacts:

- **Goals** translates resource allocations and/or program selection and coverage into behavior change in the key populations.
- **AEM** links behavior change directly to the epidemic in an Asian context.

Used together, AEM and Goals link your policy and program decisions directly to their impacts on the epidemic, providing a complete package for response analysis in Asian epidemics.

The national or provincial AEM and Goals models you have produced give you the ability to explore alternative futures in your own situation. Using your initial models, it is easy to build a scenario in which you change the coverage of a given program or expand the resources available for prevention in a specific population. Then by comparing this against another scenario in which things stay the way they are, usually called the **baseline**, you can see the effects that this change in your response has on your epidemic.

Scenarios are normally defined in terms of programmatic elements, resource allocations or policy choices that influence programmatic decisions

The **response package** is the sum total of all prevention, care and impact mitigation sub-components of the overall national or provincial response. Normally, you will define a policy scenario by listing the actual programs contained in the overall response package and the coverage of each. Alternatively you may specify the resource allocations for each sub-component of the response package, which automatically sets the coverage levels given information on unit costs.

A response package for use in scenario building may include or exclude programs for the important subpopulations in Asian epidemics: sex workers and clients, MSM, IDUs, those having casual sex, and discordant couples. These packages can also include a wide mix of different prevention, care and impact mitigation efforts as outlined in Chapter 9. Policy choices, for example, decisions on which populations receive the focus of prevention efforts, are captured by the way those policy decisions shift the allocations of resources or change the coverage among the sub-components in your response package.

AEM and Goals allow you to customize your scenarios to your situation

Using AEM and Goals, you have the ability to define policy scenarios that vary one or more of the following programmatic and policy inputs:

- **The coverage of specific prevention, care and impact mitigation programs in your package.**
You alter the program mix in Goals by changing the coverage for different interventions. If you set the coverage or resources of a certain

program to 0 percent in Goals, that program will not contribute to behavior change or costs. That is, that program is effectively excluded from your response package.

- **The population focus of your prevention efforts.**
As programs for sex workers, clients, MSM, IDUs, youth, men and women having casual sex and others are included in the Goals Model, you can put more or less emphasis on any specific population by shifting resource allocations or coverage among these populations.
- **The geographic concentrations of responses.**
If your epidemic shows extreme geographic variations, you may need to produce several models for areas of differing epidemic severity or different epidemic timing. Tools are provided on the CD for combining multiple AEM projections of this type to produce the total epidemic. If you have geographic sub-models and Goals models for them, you can compare the impact of focusing prevention resources in one or more hotspots as opposed to dispersing them widely around the country or province.



- **The level of resources available or the unit costs of specific programs.**

By varying the resources put into responses, you can demonstrate the need for additional resource mobilization to contain the epidemic or the need for expanded resources for treatment. You can also explore what resource allocation patterns produce a more effective response within current resource constraints. If you lower unit costs of a program while holding the resources devoted to it constant, coverage of that program increases.

- **The size of at-risk populations.**

Some programs, for example, primary prevention efforts to stop youth from starting to use drugs or discourage visits to sex workers, can affect the future size of the at-risk populations. Such changes can be directly incorporated in your linked AEM/Goals modeling.

- **The timing of prevention or care efforts.**

Delays in prevention efforts usually mean more infections – linked AEM/Goals modeling can quantify the impacts of these delays on the epidemic and its downstream effects.

- **Program effectiveness.**

By choosing the high, average or low impact versions of the Impact Matrix in Goals you can vary the effectiveness of the programs chosen. If there is sufficient local data on response impacts, you can also alter the Impact Matrix to do scenarios comparing more and less effective program alternatives.

AEM and Goals provide substantial flexibility in modeling scenarios based on resource levels, program content and focus, or behavioral and prevalence targets.

Scenarios in A² provide several essential inputs for decision-making

In the A² process you may be trying to influence any number of different audiences: government policymakers, heads of government agencies, national AIDS managers, NGO or CBO program staff, community leaders or communities themselves, donors, the public, etc. But despite this wide diversity in the potential audiences, when they go to make a decision,

all of these decision-makers are seeking the answer to one or more of the following questions:

- Will a particular policy or response be effective in containing the epidemic and/or providing care for people affected by the epidemic?
- What will that particular policy or response cost?
- What are the benefits that accrue to the people, government and the policymakers themselves from this policy or response?
- How effective is a particular policy or response compared to others?

NOTE: Usually the actual policy question asked in a local context will be formulated much more specifically in terms of a particular program or combination of programs. The next section discusses how actual policy questions and scenarios are defined more precisely, and the chapter will close with actual examples of some policy questions explored in the A² sites and how the A² tools were used to analyze them.

These four general questions define the general types of analyses that will be of value to decision-makers:

1. **Effectiveness analysis**
2. **Cost analysis**
3. **Cost-benefit analysis**
4. **Cost-effectiveness analysis**

The linked AEM and Goals models can produce a wide variety of financial, behavioral and epidemiological outputs about HIV/AIDS programs and their impacts on the epidemic, which are of value in conducting the types of analyses outlined. The way you use them depends on the question being asked.

Effectiveness analysis: can you expect this response to be effective?

The overriding goal of any HIV/AIDS program is to slow the epidemic or to deal with its impacts (e.g., illness, orphaning or death). The combination of the AEM and Goals models allows you to estimate the expected impact of a given prevention package on the epidemic. By comparing the epidemic with the prevention package in place against a baseline, where the package is not done, you can demonstrate the value of the package in terms of the number of **infections averted**, that is, new infections that were prevented because

the package was implemented. You can show the impact on the **number of people living with HIV**, producing graphs such as Figure 10.1 that show if a given program can be expected to turn the epidemic around. You can produce the number of **deaths averted** by these prevention efforts. If you're interested in a care program, you can assess the effectiveness in terms of outputs such as **lives saved** by antiretroviral therapy, **illness averted** by treatment for opportunistic infections, or the **number of children orphaned by AIDS**.

These types of direct measures can be used to determine if a program will have the desired **effectiveness**. If the program is incapable of achieving the desired goals within current resource constraints, you can prepare a scenario with expanded resources to show what is possible. These scenarios can help you build a strong case for additional resource mobilization to expand the response so that it can reach those goals. You can explore what will be needed in terms of expanded programs to reach the national/provincial goals or to actually reverse the epidemic, or you can explore if reallocating existing resources to other programs can have the desired effect.

Cost analysis: what does this response cost?

Inevitably, decision-makers will raise questions about cost. Without a concrete estimate of the costs associated with a particular response package, decision-makers cannot determine if it is **feasible within existing budget limitations**. Furthermore, since it often takes years to bring HIV/AIDS programs to scale

and additional time for them to start having impacts at a large scale it will be impossible to sustain them unless you can **plan for the future** and budget for increasing costs as the program is scaled up. If the finance ministry or donors are expected to provide resources for a program, they absolutely require future cost estimates. The Resource Needs Module and the unit cost data you have collected allow you to make direct estimates of the cost of any particular prevention or care package and to assess how those costs will scale up as coverage is expanded.

Cost-effectiveness and cost-benefit analysis: assessing the value of different responses

Because resources are not unlimited, decision-makers must often decide between competing programs or priorities.

For example, in the context of national health priorities, information on infections averted alone may not be enough to influence the Minister of Health to allocate increased funding for HIV/AIDS activities when he or she also has to consider deaths due to other causes such as malaria, childhood diseases, etc. The Minister needs a way to evaluate the tradeoffs in funding one program over the other, so he or she can decide how to divide the health budget between them. National AIDS program managers face similar decisions regarding how to intelligently allocate resources among different types of prevention efforts. Should more money be spent on programs for sex workers and clients or on programs for MSM? Which will provide the greatest return in terms of infections averted for

the investment? Which will avert the largest amount of future antiretroviral cost?

These situations require that decision-makers have some measure of the comparative effect or benefits of the programs in contention. Two methods often used to make resource allocation decisions are cost-benefit and cost-effectiveness analysis. Each calculates a numerical value that can be used to assess the value of programs:

- **Cost-benefit analysis** compares the costs of providing a specific service or intervention against the monetary benefits that service provides.
- **Cost-effectiveness analysis** compares the costs and health benefits of a specific intervention. More precisely, it expresses the ratio of the cost of the intervention or set of interventions to the benefit it produces. The benefit is not expressed in monetary terms, but is a direct measure of health outcomes such as infections averted or deaths averted.

For HIV prevention interventions the most commonly used cost-effectiveness ratio is the cost per infection averted: the smaller the cost effectiveness ratio, the more cost-effective the intervention. The program with the lower cost-effectiveness ratio has more impact for a given financial input. No substantial additional time or data is needed to use the A² tools to provide cost-effectiveness ratios.

Cost effectiveness ratio of implementing the response compared to no intervention, for example, \$2000 per infection averted:

PROGRAM COSTS TO AVERT ONE INFECTION
INFECTION AVERTED

If the benefit of the intervention is expressed in monetary terms, the analysis is called a cost-benefit analysis. The cost-benefit ratio is the ratio of the cost of the intervention to the combined direct and indirect benefits of the intervention. In the case of HIV interventions, the decision-maker must translate the value of one HIV infection averted or a life-year saved into monetary terms (e.g., by looking at the health care costs for that individual if the infection is not averted).

Cost-benefit ratio:

PROGRAM COSTS TO AVERT ONE INFECTION
MONETARY VALUE OF HEALTH BENEFIT

Normally the monetary value of the health benefit will include both money saved on future health care costs by averting the infection and the value of the life-years saved. The Goals Model contains unit cost data gathered during the model development process. These unit costs form the basis for evaluating the program costs required to avert one HIV infection. AEM allows direct calculation of the number of infections averted. Thus, the linked models allow direct estimation of the number of HIV infections averted given the available financial resources

by using the Impact Matrix to calculate the expected level of behavior change.

If a decision-maker chooses to use cost-benefit analysis for making resource allocation decisions and prefers to express the value of a life-year saved in monetary terms (i.e., what is the value of averting one HIV infection in a particular year), average salary may be used as a basis for valuation, which may require additional data collection. This estimates the amount of forgone income among somebody who dies of AIDS-related causes. More complete economic analyses may also include social costs and other financial impacts and may choose to discount future costs. If data indicate that HIV is not distributed uniformly among income classes, it may be necessary to adjust the average salary used in this valuation to reflect that distribution.

What should you consider in defining a policy scenario and its outputs?

One of the benefits of a modeling exercise is that it allows you to use variations in user-specified inputs to explore different

scenarios or outcomes. You could measure, for example, the effects on future HIV prevalence of increasing annual funding for prevention services by 25 percent in one scenario as compared to increasing funding by just 10 percent in another scenario. These two scenarios provide a useful policy input for those making the decision on the level of funding for prevention services – bearing in mind that this decision will also be influenced by the actual funding available, the goals of the National AIDS Strategy, other competing priorities, and various other factors, including local politics.

A² scenarios add value and provide a concrete basis for policy discussions but you need to choose them strategically

Scenarios made from various combinations of the programmatic and policy inputs outlined earlier (program mix and coverage, population or geographic focus, resource levels, size of at-risk populations, timing of program starts, program effectiveness and impact, etc.) allow you to explore most issues of critical policy importance. The added value of scenarios prepared using the A² tools comes from their ability to concretely and quantitatively explore the future impacts of choices made today. The linked AEM and Goals models can produce a wide variety of financial, behavioral and epidemiological

information about HIV/AIDS programs and their impact on the epidemic; literally millions of scenarios are possible. But you don't have the time or energy to prepare millions of scenarios. So you need to make some strategic decisions about what specific analyses you are going to do, that is, you need to examine which policy scenarios can actually contribute to improving responses in the current environment.

In conducting any policy analysis, you should start by asking two questions: "what is the purpose of this analysis?" and "how will the results be used to inform decision making?" While it may be intellectually stimulating for you to conduct a complex analysis on "the impacts of stochastic market variations in the unit cost for the distribution of needles and syringes on prevention effectiveness within existing budgetary constraints," this may not be of any use at all to a policymaker who is determining whether to increase the budget for care and treatment of people with AIDS. The analyses you conduct must be relevant, timely and appropriate to the issues of current concern and to your target audience if they are to make a difference.

This highlights the importance of considering a number of different things as you define various scenarios for more detailed analysis:

- **Who you're trying to reach.**
Different target audiences ask different questions and require different information for decision-making, requiring you to consider who is being targeted and what their information needs are in defining your scenario and its outputs.
- **Policy questions of local interest.**
You've talked to a lot of people in collecting information, consulted with your working groups, and discussed things with people doing programs in the field. What issues are on these people's minds? Are they worried about the kinds of resources needed to reach the goals of the national plan? Are they interested in scaling up PMTCT or antiretroviral care programs? You have to take the current "hot issues" into account.
- **What the data tell you.**
You need to look at what that data are telling you in terms of the responses needed. For example, where are your hot spots and are they adequately reached by prevention? Which populations are most affected by the epidemic and is coverage adequate in them? What's working and not working in the response?

- **The results of your models and analyses.**
You have built AEM and Goals models that provide several useful outputs for decision-making. What are those telling you about the prevention and care programs needed now and in the future? For example, which populations are producing the largest number of new infections today? What is the expected demand for treatment and are services being scaled up rapidly enough? Are current resources adequate?
- **What is feasible and realistic.**
Scenarios that are not realistic are of only academic interest. The scenarios you consider should be real possibilities that take into account capacity building needs, the resources that can be made available, and the local political environment.

Before you start, consider the policy questions and information needs of your target audiences

When you do a scenario analysis, you're producing a product. You need to be sure that product meets the needs of your consumers – in this case, the decision-makers you're trying to influence. So before you start to generate scenarios, you must consider the audience for the resulting information. Who are the people you seek to influence and what is the scope of their responsibilities? In the A² process you may be trying to influence any number of different audiences: government policymakers, heads of government agencies, national AIDS managers, NGO or CBO program staff, community leaders or communities themselves, donors, etc. You will need to decide which of these you're targeting, which is discussed at more length in the next two chapters.

EACH DECISION-MAKER MAY NEED VERY DIFFERENT POLICY QUESTIONS ANSWERED. The questions asked by the national AIDS program manager are different from the questions of the Minister of Health, which in turn are different from the questions asked by the Prime Minister, the community leader or the NGO program manager. National AIDS program managers may want to ask how to allocate available resources to improve the effectiveness of their program. Ministers of Health may be asking how much they should allocate for HIV and AIDS in their budget. NGO program managers may be interested in how to improve the impact of their overall program. Community leaders may want to mobilize additional resources for prevention and care among community members, leading them to ask how the expanded resources can alter the course of the epidemic. These different objectives and the policy questions they generate call for very different policy scenarios.

EVEN ONCE THE AUDIENCE AND POLICY QUESTION ARE DEFINED, YOU NEED TO UNDERSTAND THE TYPES OF INFORMATION USEFUL TO INFORM THE DECISION. If the intended audience is a decision-maker at the national level in the Ministry of Health, and not specifically within the national AIDS control program, describing the number of infections averted by a scenario may not be sufficient. They may wish to see a cost-benefit analysis that will demonstrate the value of the program based on the ratio of program costs to anticipated future cost savings on health care expenses. Quite often, those making decisions on HIV/AIDS in a country are responsible for more than just HIV/AIDS programs, meaning they need information to help them weigh the merits of the different programs. Even when they are devoted full-time to the national HIV/AIDS program, they must advocate for HIV/AIDS programs and financing in an environment in which other health or government programs also have substantial funding

needs. This may create a need for policy analyses that compare the cost-effectiveness of HIV interventions with other types of health programs or government expenditures.

Pay close attention to currently “hot” policy issues and questions

At any point in time there will be a number of issues surrounding HIV which generate great interest in the HIV/AIDS community, among policymakers, or with the public. In deciding which policy scenarios to run, it is important to take these issues into consideration. In 2000, when models were being built in Thailand, short course AZT to prevent mother-to-child transmission had recently been tested and shown effective in-country. Many policymakers were concerned about bringing this to national scale, so scenarios were built to look at the consequences and benefits of expanding PMTCT programs. By 2004, when the next round of modeling in the country was initiated, the current “hot” topic was providing universal access to treatment, a move spurred by pressure from activist groups and in line with the Royal Thai Government’s desire to provide better health care. This led to policy scenarios exploring the future treatment needs and cost implications of scaling up first-line and second-line antiretroviral therapy. Sometimes current policy issues will be defined by the international community, such as the recent push to meet UNGASS goals for HIV or to provide universal access to both prevention and treatment. In Thailand, this led to scenarios in 2005 to explore the cost of bringing prevention to a scale that could cut new infections in half, which were used to mobilize efforts to adopt national prevention goals and to mobilize prevention resources. When the A² process began in China, one of the most often expressed concerns of HIV policymakers was whether they had adequate resources to do their job.

Thus, analysis of the required resources using the Resource Needs Module became a central emphasis of A², backed up by scenarios showing the benefits of expanded resources in slowing the epidemic.

Listen carefully to what the data are telling you

But while the policy questions to be explored will often come directly from your target audience or from current issues of interest, other policy issues often arise from examination of the epidemiological, behavioral and response data. In Hong Kong, for example, a rapid increase in the number of reported infections among MSM indicated that a previously stable epidemic situation had changed radically. This led to scenarios exploring the consequences of failing to contain that particular component of the epidemic. When A² was getting under way in Bangladesh, surveillance data were showing rising prevalence among IDUs in a major city, while harm reduction programs were getting weaker. As a consequence, scenarios looked at the implications of this weakening of the programs for the epidemic. While rising prevalence is what most commonly grabs people’s attention, behavioral data alone can also raise red flags. Continuing low condom use between sex workers and clients in Bangladesh coupled with high numbers of clients per night creates a situation with high potential for HIV, especially given the growing epidemic among IDUs that can seed heterosexual epidemic, as seen in Chapter 6. Scenarios in Bangladesh looked at the consequences of this for the future of the epidemic. Similarly, response data often point to problems demanding closer examination. For example, if coverage of prevention programs is found to be extremely low, as it is for MSM in most countries in the region, scenarios can be built to look at the benefits and cost savings associated with MSM

programs. Because a systematic examination of available data occurs only sporadically in most countries or provinces, it is not uncommon for the emphasis on collating and using data in the A² process to spotlight issues requiring closer attention that have stayed largely hidden or have been deliberately ignored. Local A² teams have a responsibility to make sure that decision-makers and communities are aware of actionable concerns that arise from examination of the data.

Explore the implications of the results of your models and analyses

While the data itself often gives useful direction, the synthesis of data from multiple sources into a model can make the picture even clearer. One of the most useful graphs that AEM produces is the graph of new infections by at-risk population over time. Provided your AEM has been adequately validated against available data sources, this graph provides an overview of the evolution of the epidemic from its start. Figure 10.2 shows the new infections graph for Ho Chi Minh City. This shows that while the epidemic through 2000 was heavily dominated by two

epidemics among young and old injecting drug users, in the present new infections are primarily occurring through sex work. It also highlights growing transmission among MSM and increasing husband-wife transmission (low-risk females in the graph).

Because the size of the populations, the timing of the epidemics, and the risk behaviors vary from country to country, the new infections graph is unique to each country. For example, Figure 10.3 shows the graph for new infections by transmission route in Thailand, which paints a very different picture than that in Ho Chi Minh City (Figure 10.2). In this case, the dominance of sex work (client from sex worker and sex worker infections) in the early 1990s has today been replaced largely by new infections between husbands and wives and among MSM. Careful examination of behavioral data in the country shows that this is the result of effective programs for sex workers and clients, which were scaled up nationally starting in 1991. However, no such programs for MSM or for husband-to-wife transmission have gone to scale. Similar analyses in Guangxi and Yunnan provinces in China have helped to mobilize prevention programs for MSM.

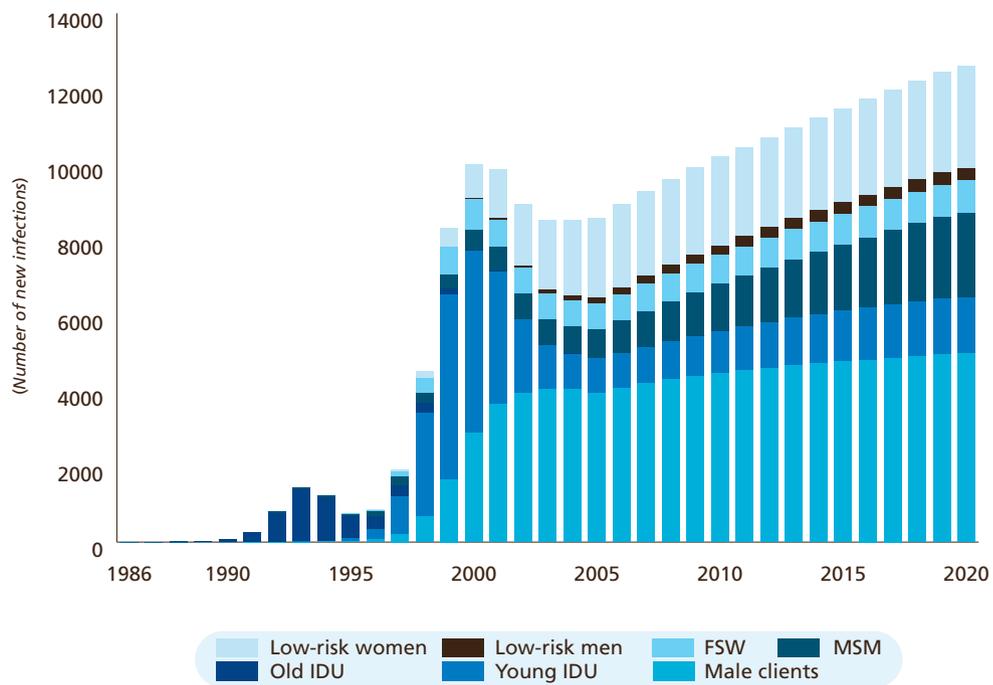


Figure 10.2.
New infections in Ho Chi Minh City among various at-risk populations.

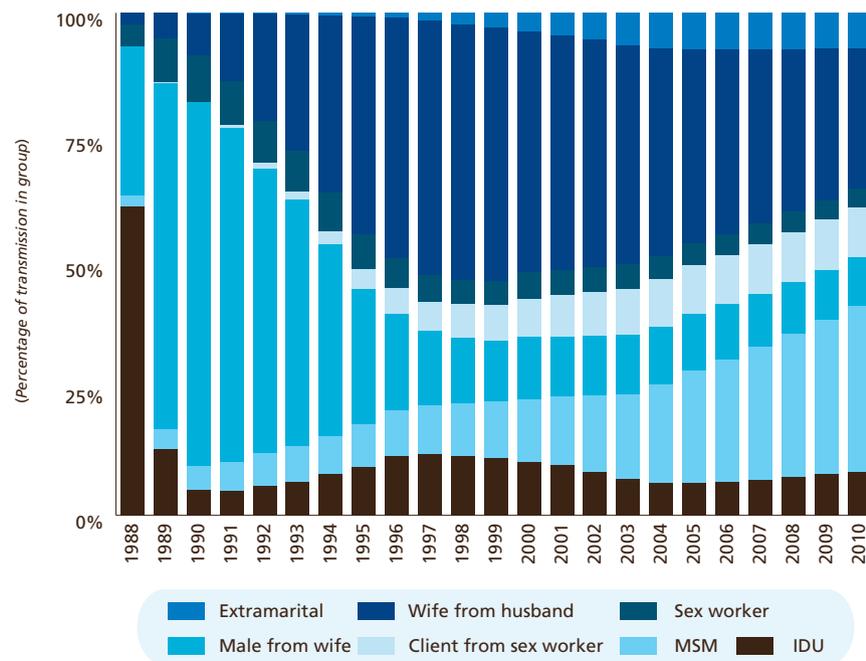


Figure 10.3.
Proportion of new infections by transmission mode in Thailand.

AEM models can also provide important information about the future impacts of the epidemic (e.g., treatment needs). Figure 10.4 shows the number of people expected to be on antiretrovirals in Thailand over the next two decades, separating those on first-line and second-line therapies. When this analysis was done in 2005, the large number of people on ART was expected to drive the cost to almost US\$400 million by 2015, with 80 percent of the cost attributed to those on second-line therapies. This has helped focus the attention of Thai policymakers on the need to reduce the cost of second-line antiretrovirals.

Analyses of the impact of different types of prevention programs can also provide valuable policy guidance. For example, Figure 10.5 shows the number of people that must be reached by different types of interventions to avert one infection. This demonstrates that prevention programs focused on at-risk populations in Asian settings are far more effective at preventing HIV infec-

tions than those targeted at the population-at-large. Programs such as community mobilization or targeting of youth in schools must reach hundreds of people to avert one infection, whereas programs for sex workers, MSM, and IDUs avert infections even when they only reach one or two people. This difference in impact results because IDU programs produce much greater behavior change and because they simultaneously avert many downstream infections (i.e., chains of transmission that originate with an IDU). Especially given that many injecting drug users visit sex workers, there can be large numbers of such downstream infections if an IDU epidemic seeds the sex work component of the epidemic.

Showing that targeted interventions are more effective at averting future HIV infections may help to convince decision-makers to change the focus of interventions, especially if a cost-benefit analysis is done showing substantial future cost savings in antiretroviral costs.

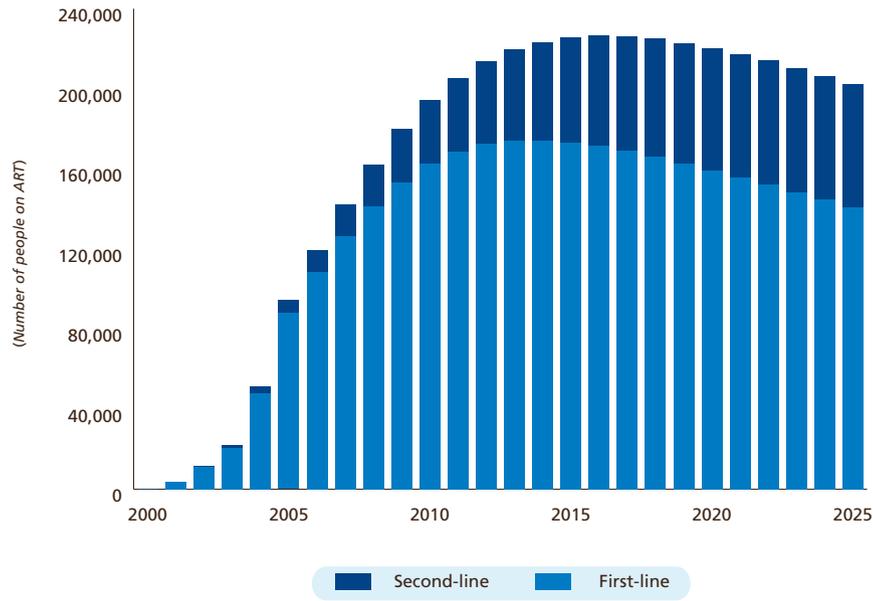


Figure 10.4.
Number of people on first- and second-line therapies in Thailand.

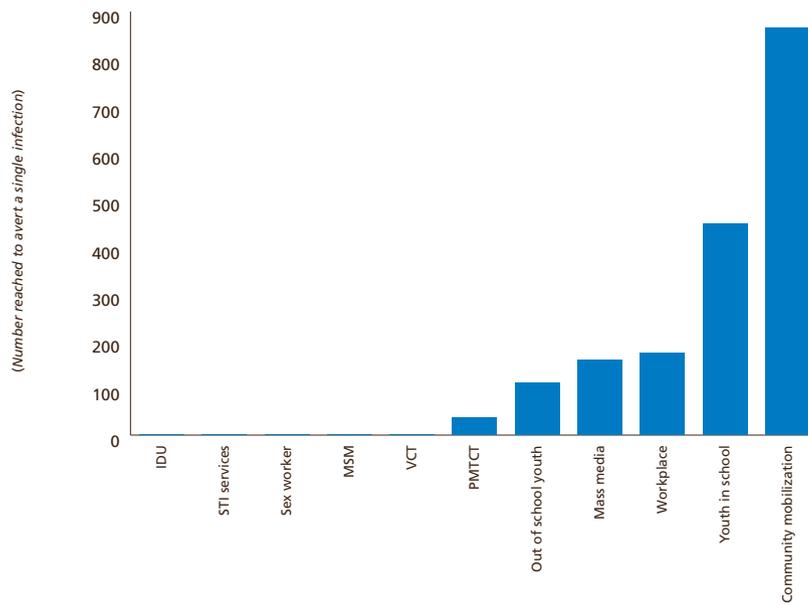


Figure 10.5.
Number of people who must be reached to avert one HIV infection by different intervention types.



Only prepare and present scenarios that are feasible and realistic

Finally, as you consider what policy scenarios to implement, you should pay close attention to their feasibility. A policy scenario that is not realistic can mislead people into thinking they can accomplish something which they cannot. Raising such false expectations is a recipe for trouble in the future. If people don't find the scenarios you propose believable, you and your A² team will lose credibility. Credibility, once lost, is extremely difficult to regain.

In determining the feasibility of a scenario, you should consider several inter-related aspects:

- **Level of coverage.**
Does the scenario assume you can reach the entire population? This may prove problematic with marginalized and hidden populations such as MSM, IDUs, FSWs and clients. Your scenario should be realistic about the level of coverage that can be expected.
- **Rate of scale-up.**
Consider how quickly you scale up the program in the scenario. If the coverage today is 2 percent, a scenario that expects to cover 100 percent in the first year is unrealistic and may undermine your credibility. Talk with program people, look at available resources and capacity, and determine a realistic rate of scale-up for any scenario you prepare.
- **Effectiveness of the program.**
Another problem may be assuming that a program is

too effective. This is often tempting because programs have been so effective in other countries. For example, Thailand or Cambodia reached 80 percent to 90 percent condom use among sex workers. However, sex work is very structured in those countries, primarily operating out of establishments that are accessible to health workers. If sex work occurs primarily on the street in your country, you may not be able to reach these levels of condom use. This is why it is extremely important to look at local examples of programs and determine what impacts they actually achieved under local conditions.

- **Affordability.**
Reaching higher levels of coverage requires more resources, and the Goals Model forms a direct link between the coverage you enter and the resources required. Pay careful attention to this. If your rate of scale up requires an increase in budget that is not feasible, or if you set your unit costs too low, you may implement a scenario that is not realistic for budgetary reasons.
- **Capacity.**
Scaling up a program requires not only financial resources, but also the trained fieldworkers and health staff to make it happen. If current capacity is extremely low, you must be realistic about how rapidly that capacity can be built. This requires assessing current capacity, how quickly people can be trained, the resources required for training and using that information to ensure that your rates of scale-up are reasonable.

- **Political feasibility.**

When discussing policy alternatives, it is also crucially important to understand the political constraints that may render some policy alternatives moot. For example, if the government has mandated free antiretrovirals for all people with AIDS, then developing a policy scenario that shifts resources from care, support and treatment to prevention efforts would not be a practical or realistic scenario to model.

Taking the above factors into account will greatly reduce the number of scenarios you need to consider and help you to focus on the ones that can actually influence policies and programs. In almost all cases, the scenarios you develop should address important shortcomings in the response, should meet the information needs of someone who can do something about those shortcomings, and should be realistic in light of the epidemic situation, the resources and capacity that can be mobilized, and the local political environment.

How do you create, cost and determine program effectiveness in a scenario?

Where do you start? With a set of scenarios to get discussions going

As discussed in more detail in the next section, the process of developing policy scenarios is an interactive one. You work

closely with those you are trying to influence or with those who can influence them in deciding which scenarios to look at. However, to get those discussions started you need a few simple scenarios to help them build a more complete understanding of the epidemic and the current response and to educate them about the types of analyses that can be done. Given the large amount of data you've collected and the large number of policy questions that might possibly be addressed, the task can be daunting. Where do you start? This section outlines some key things to consider in preparing a basic set of scenarios to start policy discussions regarding the national or regional response.

Start by preparing a baseline scenario against which to compare alternatives

Before starting, you create your baseline scenario, which assumes things stay the way they are now as you project into the future:

- **Collect the necessary data on HIV, STIs, behaviors and response coverage, cost and impact**, as outlined in earlier chapters.
- **Develop a baseline epidemiological projection and project it into the future.** This baseline is created from available behavioral, epidemiological and STI data using AEM. Project it assuming behaviors stay as they are, as might be expected without expanded programs. This provides something to compare the impact of programs against, allowing you to demonstrate their effect.

- **Validate this baseline projection** against actual epidemiological trends and other sources of information through the present, as outlined in Chapter 7. Make sure it accurately reflects the local situation.
- **Have your Technical Working Group review this baseline projection** to ensure they are comfortable with it and to build consensus on the likely course of the epidemic.
- **Build a baseline Goals Model using current response coverage, resources now available, and observed impacts.** This will provide estimates of current costs. For now, assume coverage stays where it is for the next several years. Again, have technical experts review this to build consensus and support.
- **Prepare a PowerPoint presentation on this baseline and some simple background documentation.** You will need to present this at the start of the policy discussions, so as to build understanding of the epidemic and to give people an idea of where the epidemic is likely to go without expanded responses.

In some cases, people prefer to have the baseline reflect expected changes in coverage of programs and behaviors

over the next several years. However, you may wish to be cautious in doing this, as very often those managing programs or making policies give unrealistic appraisals of where coverage will be five years from now and how fast it will scale up. If you do receive this type of input and want to include it, be sure to validate it against current coverage (both geographic and population-specific), expected budgets, and past trends in program scale-up. In practice, it is probably safer to leave the baseline as a no-behavior change baseline and then do a separate scenario for “the expected response” where you lay out the assumptions on scale-up clearly and get people to discuss how realistic or unrealistic they are. This can be a good opening discussion to get people thinking about the cost, coverage and other issues they need to reflect on in exploring future responses.

Next, develop some simple example scenarios to show people what’s important in the local epidemic and educate them on what inputs can be changed in a scenario

These scenarios should focus on the most important things affecting the epidemic in your country or province. They are not expected to be the final policy scenarios, but are part of the process of increasing people’s under-

standing of the factors driving your epidemic. A few possibilities include:

- **The baseline scenario.**
This should always be the first scenario you present. In discussing it, you should show new infections by mode of transmission and show future trends in new, current and cumulative infections. Highlight any unique features of your epidemic (e.g., a strong influence of IDU, dominance of transmission between sex workers and clients, an emerging MSM epidemic) or country specific situations such as the outbreak among former plasma donors in China or the influence of overseas contract workers in the Philippines. Back it up by showing actual epidemiological, behavioral and response data as necessary.
- **A scenario showing the impact of expanding coverage in the at-risk population producing the largest number of new infections.** The simplest way to demonstrate the impact that prevention can have is to show them what it means to bring coverage to a higher, but still realistically achievable, level in the most affected population. Emphasize both the costs and the impacts on the epidemic associated with expanding coverage. If there are indications that resources for a specific at-risk population may be cut
- **A scenario showing the comparative effectiveness of focused and general population interventions.**
As we have seen, focused prevention is remarkably effective in Asian settings. It may be valuable to show the difference between an intervention that targets a large low-risk population (e.g., workplace programs or in-school youth programs) compared to one that targets a smaller, but more at-risk population (e.g., FSWs, IDUs or MSM). You can use such an example to illustrate the types of cost, effectiveness, cost-benefit and cost-effectiveness analyses you can provide for them.
- **A scenario showing the impact and resources needed to implement the national or provincial strategy.**
Many places already have a national or provincial strategy with specified behavioral or coverage targets. It can be valuable to look at the implications for costs and epidemic impact of these objectives. In many countries, these strategies have been developed in a very ad hoc fashion, without adequate attention to their resource implications or the effects they will actually have on behavior or the epidemic.

in the near future, you may wish to show the impact of these resource cuts, as well.

Other than the baseline, your choice of the other preliminary scenarios to prepare, and what exactly you look at with them (expanded coverage, increased resources, resource allocations, etc.) will depend upon what's important in your local epidemic. Keep the number small, so you don't overwhelm people, but try to touch on the most important issues in your local epidemic and response. Remember, your purpose with these preliminary scenarios is to educate people about your epidemic and the response to it, to show them what is possible with the A² tools, and to show them the outcomes that they directly influence with their decisions.

Define relevant policy scenarios with stakeholders and then prepare them

After you present your baseline and preliminary scenarios to the people who will advise you on the important policy questions, work with them, as outlined in the next section, to decide the policy questions and the scenarios you wish to examine. Then prepare each required scenario as follows:

- **Develop various resource and coverage scenarios based on your discussions.**
Engage stakeholders and decision-makers in deciding on a limited set of scenarios that meet their information needs and provide them the information they need for making decisions. This will involve specifying the activities, target populations and objectives of a specific prevention, care and impact mitigation package. The objectives might be specified in a number of different ways (e.g., coverage, behavior change goal, resources required, etc.) The actual form of the policy question and the analysis done depends on their needs.
- **Use the Goals Model Impact Module to estimate the impact on risk behaviors of the various resource and coverage scenarios.**
When you put a set of assumptions on resources or coverage into Goals, it will automatically generate the expected behavior changes.

- **Link Goals with AEM to calculate the impacts on new and current HIV infections and deaths.**

Detailed guidelines are on the accompanying CD for directly linking your Goals Model with expanded resources or coverage to the AEM, producing the desired outputs.

- **Use the Goals Model Resource Needs Module to estimate costs** of implementing the interventions under each of the scenarios. Remember costs are almost always a central concern of those making the decisions, so be sure to provide them.

- **Calculate policy relevant measures of cost, effectiveness, cost-effectiveness or cost-benefit.**

What you actually look at depends on the policy question and the information requested by your target audience. Some of the more common measures used include:

- **Infections averted.**

Compare the relative merits of different scenarios or resource allocation patterns by

linking the costs of intervention in each risk group with the number of infections averted.

- **Costs averted.**

Do a cost analysis to show the level of care and treatment costs averted by scaling up prevention. A cost-benefit ratio here normally shows major returns on prevention investments.

- **Resource gaps.**

Compare the total resource requirement with the available prevention expenditure based on the most recent data available to assess the remaining resource gaps that needs to be filled.

- **Future costs.**

Assess the financial resources to scale up the prevention programs or provide appropriate care, treatment and impact mitigation programs.

- **Behavior change.**

Use Goals to determine the expected level of behavior change for a given resource investment.

Examples of the types of policy questions AEM/Goals can answer

We close this section with some examples of the types of policy questions that might be asked and a brief description of how the A² tools can be used to answer them.

POLICY QUESTION:

What will be the effects of expanding the annual budget for care and treatment from US\$2 million to US\$10 million over the next five years and the budget for prevention among clients of sex workers from US\$0.5 million to US\$5 million over the same time frame? To do this you will first need to make some more specific assumptions about exactly which care and treatment programs you are expanding, and which intervention for clients you expand. There are several care and treatment programs possible (ART, palliative care, treatment for opportunistic infections, etc.) and several programs that impact client behavior (peer education and counseling, VCT, workplace programs). You will then need to divide your expanded budget among those programs. Once you divide the budget, linking AEM and Goals in this scenario can answer the following questions:

- **How many people in each program will these additional budget resources fund?**
Based on the programs you chose to expand and the budget you provide for each in a given year, you can calculate the expected increase in number of people covered by dividing by the unit cost. In Goals you will do this by adjusting the coverage until you reach

the desired budget. Then you can read off the number of people covered by that particular program directly from the Goals workbook.

- **What is the impact of these programs on risk behaviors?**

Once you have determined the coverage from the budget, as provided in the first question, the Goals Impact Module then calculates the new levels of behavior change (e.g., condom use or STI treatment seeking). Again this information is available on an annual basis in the Goals workbook.

- **What is the impact on HIV incidence and prevalence of increasing the number of clients of sex workers covered?**

The behavior change from Goals due to these programs is fed to AEM to produce the changes in the number of current and new HIV infections compared to the baseline scenario. By graphing this against the current and new infections in the baseline, you can directly see the impact of the expanded programs for clients.

- **How many infections are averted as a result of these changes?**

By comparing the annual number of new infections in this scenario with the number in the baseline, you can calculate the number of new infections averted every year and sum the annual results to get the total number averted over some period of time.

POLICY QUESTION:

What is the effect of expanding coverage of programs for sex workers to 90 percent over the next five years? A scenario to answer this question can be built by just increasing the coverage in the Goals Model for this particular population. The linked AEM/Goals models can then answer the following specific questions:

- **How much will it cost to move from the current baseline level to 90 percent coverage of sex workers?**
Goals will take the estimate of the number of sex workers from AEM and combine that with the unit costs of programs for sex workers to calculate the scale-up in costs over the next five years.
- **What is the change in risk behavior as a result of the increased coverage?**
Based on the expanded coverage entered, the Goals Impact Module will calculate the change in risk behaviors (e.g., condom use or STI treatment seeking behavior).
- **How many infections are averted as a result of these changes?**
The behavior changes calculated in Goals will then be fed directly to AEM to calculate the number of new and current infections in this scenario. By comparing the annual number of new infections in this scenario, with the number in the baseline, you can calculate the number of new infections averted every year and sum them to get the total number averted over some period of time.

POLICY QUESTION:

What is needed to increase condom use among MSM to 80 percent over the next five years and what impact will that have on the epidemic? This can be done by exploring what level of program coverage is needed among MSM to produce the desired level of behavior change in Goals. More specifically you can answer:

- **What program coverage is required to achieve 80 percent condom use among MSM?**
By changing the coverage in Goals, you can see the direct impact of the interventions on condom use. You adjust the coverage until you get the desired level of behavior change.
- **How much will it cost to move from the current baseline condom use to 80 percent condom use among MSM?**
The coverage required to answer the first question combined with the size of the MSM population will tell you the actual number of MSM that must be reached by the prevention efforts. Multiplying this number by the unit costs of the interventions in each year will give the total annual cost. As coverage scales up, the costs will follow.
- **How many infections are averted as a result of these changes?**
Goals will scale condom use to 80 percent according to the annual coverage you specify. This can then be linked to AEM to provide the number of averted infections as in the first two policy question examples above.

POLICY QUESTION:

What will be the impact of a declining budget for HIV prevention over the next five years if national commitment is not sustained? This can be done by exploring the implications of the declines in program coverage forced by smaller prevention budgets. Start by making some assumptions about which specific programs are more likely to be cut as the budget falls. Then you can answer more specific questions such as:

- **How much will program coverage fall as a consequence of the budget cuts?**
After you've decided how to reallocate your reduced budget among programs, the Resource Needs Module can be used to calculate the level of coverage for each program at its reduced budget level.
- **What will this do to HIV prevalence in the country?**
The reduced coverage, fed into the Impact Module of Goals will produce an increase in HIV-related risk behaviors. By linking this into AEM, you can show the actual effect of these budget cuts in increasing HIV prevalence in the country relative to a baseline in which current programs are sustained.
- **What will this budget "cut" cost the country in the future?**
From AEM you can calculate the number of additional infections resulting from the budget cuts. Linking this back into Goals, you can calculate the increase in treatment, care and support costs associated with the

infections that were not prevented. In almost all cases this will show that the "savings" in cutting prevention budgets actually costs the country significantly more in the long run through increased medical bills.

By comparing different scenarios, you will be able to offer concrete advice on what is most effective, how to achieve specified targets and goals, and what types of resources are needed to reverse the epidemic. The end of this chapter presents a number of specific examples of the types of policy questions asked in different countries and the actual analyses done with AEM and Goals to answer them.

An interactive scenario analysis process builds ownership and shared understanding

If you expect to influence responses, you cannot decide on the scenarios to be run in isolation. To move such analyses into action requires that you enter the policy arena. Your A² team does not make the decisions – policymakers, finance ministers, communities, program managers and donors do. This means you must actively engage these decision-makers in determining what is realistic, what scenarios need to be examined, and what information they need to inform their decisions. If they feel a sense of ownership of the process, they are more likely to act on its outcomes. This engagement is an essential act of advocacy in itself in that it builds a com-

mon understanding of the epidemic and the impact of responses to it that encourages coordinated and collaborative action.

The approach that has been used in A² is illustrated in Figure 10.6. This is a cyclical process, which seeks to engage the policymakers, program managers, communities, donors and other stakeholders in exploring the consequences of different choices for the epidemic.

An effective policy analysis process engages the people it seeks to influence to ensure its relevance and impact

The essential steps of such an interactive process are as follows:

- **Conduct a policy mapping to determine who needs to be engaged in the process.**
Chapter 12 will discuss this in more detail, but the general idea is to identify the processes that generate policies or influence decisions in a country or province and who influences them.
- **Seek the input of decision-makers on relevant policy questions and the information they need.**
This can be done in a number of different ways. In some cases it is an informal process of one-on-one meetings, discussions with small groups of key stakeholders, or telephone and e-mail exchanges. However, it can also be a more formal process with one or

more larger meetings bringing groups of stakeholders together. For example, you may decide to hold a Senior Policy Symposium, as was done in Yunnan and Guangxi, to bring key policymakers together to review the epidemic situation and discuss issues. It is often helpful to have several stakeholders in one location when considering policy alternatives, in order to facilitate dialogue between the policymakers, the communities, and the key implementers. Simultaneously, you will be educating them about the factors that are important in your local epidemic based on the information you've been collecting and reviewing and the baseline you've prepared.

- **Define or redefine the scenarios based upon these inputs.**

The next step is to use the concerns and feedback you receive from the decision-makers and stakeholders to more clearly define the policy questions, the analyses needed, and the scenarios to be run.

- **Run the scenarios and generate inputs to the decision-making process.**

The A² team, perhaps working with a smaller group of particularly involved and interested stakeholders, then actually runs the scenarios requested. Based on these, policy briefs, briefing meetings, planning data, and other dissemination outputs and activities are produced and undertaken. At this point, if the

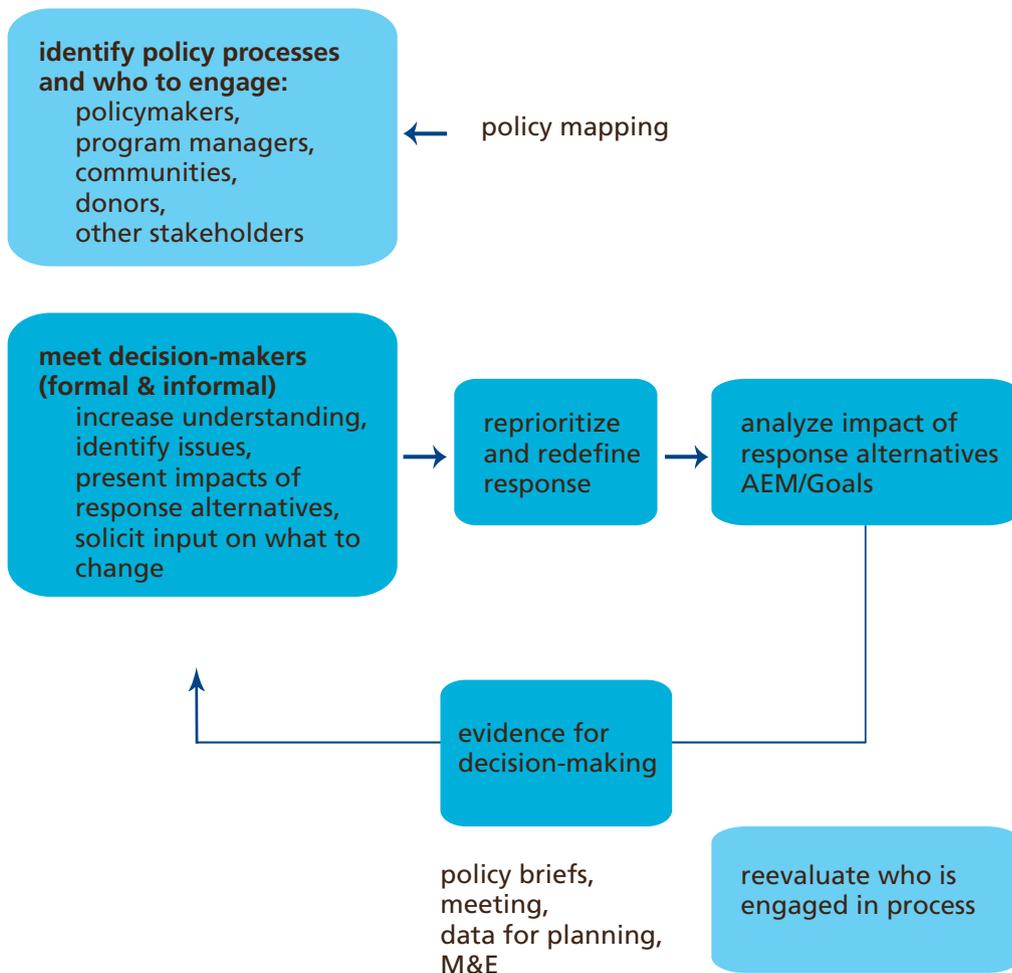


Figure 10.6.
Developing policy scenarios is best done as an interactive process engaging key stakeholders and building understanding of the epidemic and the impact of responses.

analysis or further discussions indicate that some important stakeholder group or individual was not involved in the process and that they are important to moving responses in the right direction, bring them into the process.

- **Get feedback on the scenarios and adapt them as necessary.**

After the scenarios have been run, people may decide that they were too optimistic or not optimistic enough. The scenarios may show them that some factor they previously considered unimportant is actually critical. At this point, you seek their feedback and then adapt the scenarios to be more realistic in the current policy environment. It may require two or three rounds of this before you reach a set of proposed scenarios on which there is strong consensus.

Who should be involved?

This process of building realistic and achievable scenarios for improved responses can benefit from the inputs of a wide variety of people. Policymakers from governmental and public policy bodies know the resources available and the political constraints they face. Communities know the unique problems they face and can provide input on the acceptability and feasibility of proposed strategies and approaches on the ground. Program implementers can provide feedback on whether targets proposed for the scenarios are realistic or not. Donors can let you know if they can make more resources available or not. By leaving any of these groups out, you run the risk of choosing inappropriate and ineffective strategies or leaving holes in the response through which HIV can spread.

Putting policy scenarios in perspective

Before closing, it is important to stress that policy scenarios are not the only input to decision-making. The A² process itself has collected extensive amounts of information about epidemiology, behaviors and responses. Properly chosen subsets of this information can provide additional useful inputs for decision-making. For some people, these more direct forms of information are more convincing than derived scenarios. For others, they are a valuable adjunct to the scenarios, providing more detailed information than will normally be apparent in the outputs of the scenario. And still others just like the models. You must be prepared to convince all of them.

Our feeling is that the data collected in A² and the scenarios are synergistic. Direct data are often more convincing, but the scenarios synthesize many different types of data into a more comprehensive picture of the epidemic and the response. The models and scenarios also automatically incorporate the time elements discussed in Chapter 6, and these time elements are critical to understanding HIV epidemics. This allows trends in epidemiological and behavioral data to be directly linked and used in a way that is nearly impossible with direct data analysis.

It is also important to remember that decisions are not made on an entirely factual basis. Numerous personal, emotional, political, social and religious factors may influence the decisions made by any particular stakeholder. This means it is important to understand the factors that actually influence the people making the decisions. This moves us out of the realm of data and analysis and concretely into the realm of advocacy. The next three chapters will explore the process of decision-making and advocacy in more depth.

Country examples of policy questions and scenario analyses

Policy question: What will it cost to cut the number of new infections in Thailand in half over the three year period from 2005 to 2008?

LOCATION: THAILAND

The situation: Major prevention efforts in the 1990s succeeded in reversing the Thai epidemic, largely by reducing risk in sex work (Phoolcharoen et al. 1998). However, as of 2005 there were still almost 17,000 new HIV infections each year, and

although the epidemic was declining slowly, it was still expected to produce almost 11,000 new infections in 2010. A major epidemic among MSM had been detected in epidemiological data (van Griensven et al. 2005), high prevalence continued to be seen among IDUs indicating ongoing new infections, and analysis showed almost half of the new infections in the country were from husband-to-wife transmission. While the country was in the process of scaling up universal access to antiretroviral care, prevention focus had been lost. Concerned individuals in the Department of Disease Control, national AIDS program and the Thailand A² team recognized the need to revitalize prevention efforts to address this ongoing transmission. They therefore decided in mid-2005 to analyze what it would take to reduce the number of new infections by 50 percent over a three-year period from 2005 to 2008.

The approach: The team examined the new infections by transmission mode outputs of the Thai national AEM baseline, shown earlier in Figure 10.3, to determine where most new infections were arising. In consultation with various stakeholders, it was decided that to meet such an aggressive goal, expansion of prevention programs was needed for FSWs, MSM, IDUs, discordant couples, and youth. Meetings among concerned stakeholders for each of these populations were held and decisions made about what constituted

effective prevention efforts for each of these groups. The Goals Impact Module was then applied to estimate the necessary coverage of these programs to achieve the goal of cutting new infections in half by the end of the period. Figure 10.7 shows the required increase in coverage by specific intervention type.

Thai economists and the Futures Group then collected local information on unit costs. These were combined with the required increases in coverage to estimate the total resource requirements to implement these programs. Figure 10.8 shows the result of this analysis. It required almost US\$60 million by 2008, which was a substantial scale-up of resources over the estimated US\$10 million prevention budget of 2004.

By February 2006, this work contributed to the Deputy Prime Minister committing the country to a national prevention goal of cutting new infections in half by 2010 at the Universal Access 2010 meeting at the United Nations. There has also been a substantial increase in government resources for prevention since 2007.

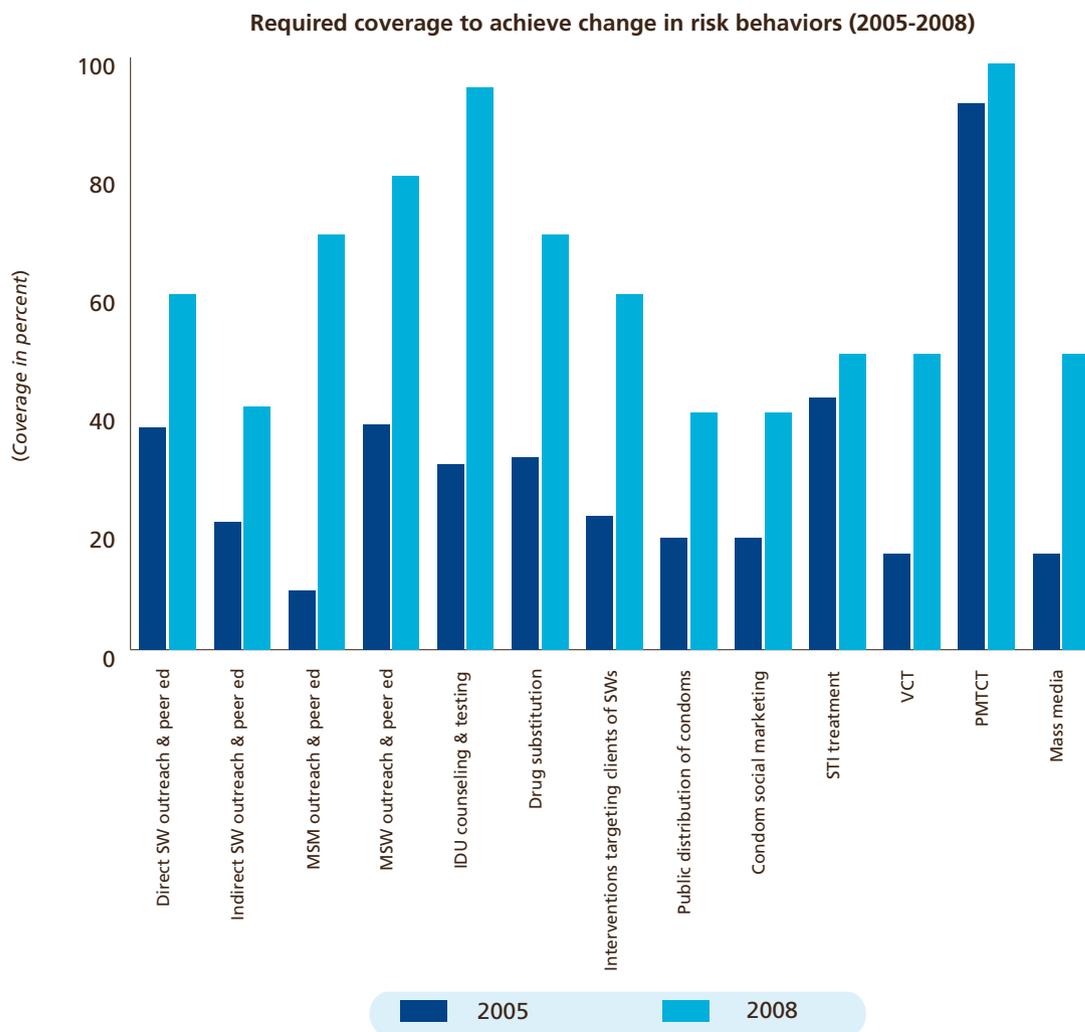


Figure 10.7.
 Required increase in coverage of specific interventions needed to achieve goal of cutting new infections in Thailand in half by 2008.

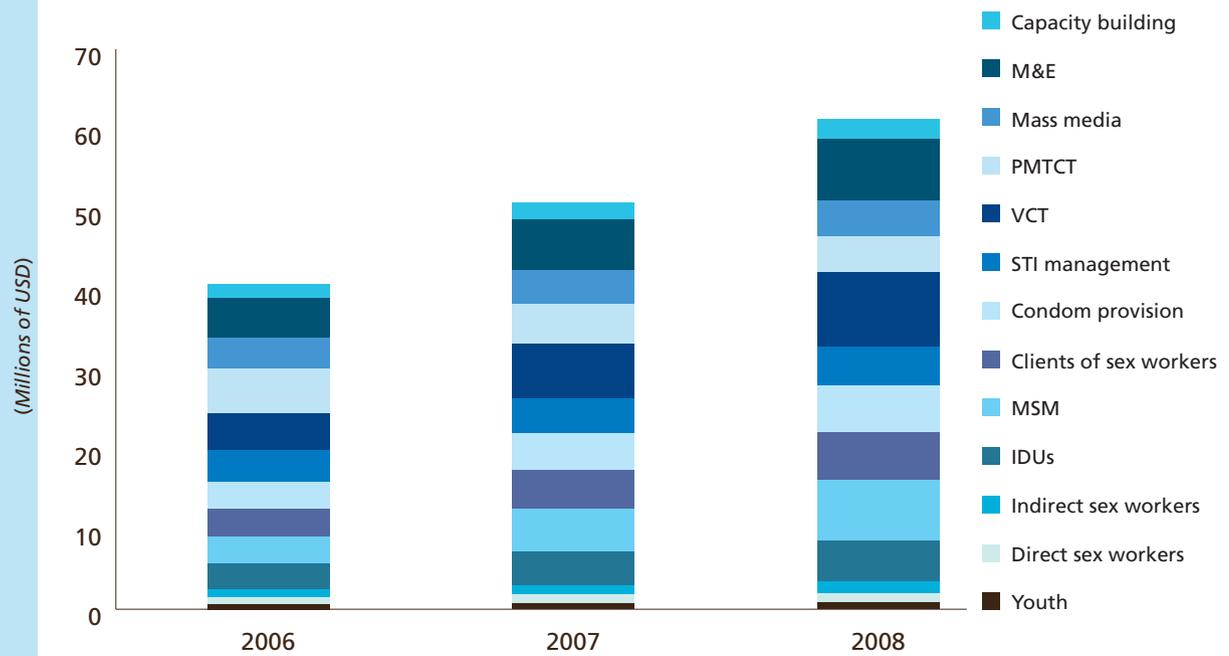


Figure 10.8.
Resource needs in Thailand to implement prevention efforts that could reduce the number of new infection by half by 2008.



Policy question: How can we reallocate prevention resources as specified in the current HCMC HIV/AIDS Action plan to avert more new infections?

LOCATION: HO CHI MINH CITY, VIETNAM

The situation: Ho Chi Minh City had developed an HIV/AIDS Action Plan based on the nine components of the Vietnamese national strategic plan. However, it was recognized that this might not represent the best allocation of resources in terms of maximizing the infections averted given the total resources available. The Ho Chi Minh City A² team, working with FHI and Futures Group, therefore undertook an examination of different ways of allocating the same resources to see if they could achieve greater prevention benefits.

The approach: A Ho Chi Minh City baseline projection was prepared. Examining the number of new infections by at-risk population (see Figure 10.9), there were substantial contributions to the epidemic from sex work (male clients and FSWs), IDUs and MSM. Based on this, it was decided to compare five scenarios:

- The baseline – based upon the original provincial action plan
- Scenario A – expanded coverage among clients and FSWs
- Scenario B – expanded coverage among MSM and MSW
- Scenario C – expanded coverage among IDUs
- Scenario D – a combination package expanding coverage in all populations

The coverage among various populations in these scenarios is shown in Table 1. Coverage figures in boldface are those that have been changed from their values in the baseline to create that particular scenario. Note that the methadone percentages were adjusted to keep the budget at approximately US\$4 million for 2010.

These coverage figures were put into the Goals Model, which then calculated the expected level of behavior change for each scenario. By linking this behavior change to AEM, the number of new infections in each scenario was calculated. Figure 10.10 shows the annual number of new infections for each scenario, along with the cost per infection averted. The combination package, which expands coverage in all of the at-risk populations, proves more cost-effective than the other packages, costing less per infection averted. It is also more effective overall, reducing the number of new infections by the largest amount. Finally, it is also a more equitable package in that the prevention benefits are spread across all populations at-risk and is not concentrated in any one. The team also did a comparison of the total cost of prevention in the combination scenario with the treatment cost averted, an example of cost-benefit analysis. They found that for an investment of US\$13.9 million from 2006-2010, the combination package avoided US\$45.7 million of treatment costs from 2011-2020. The prevention package more than pays for itself in averted treatment costs.

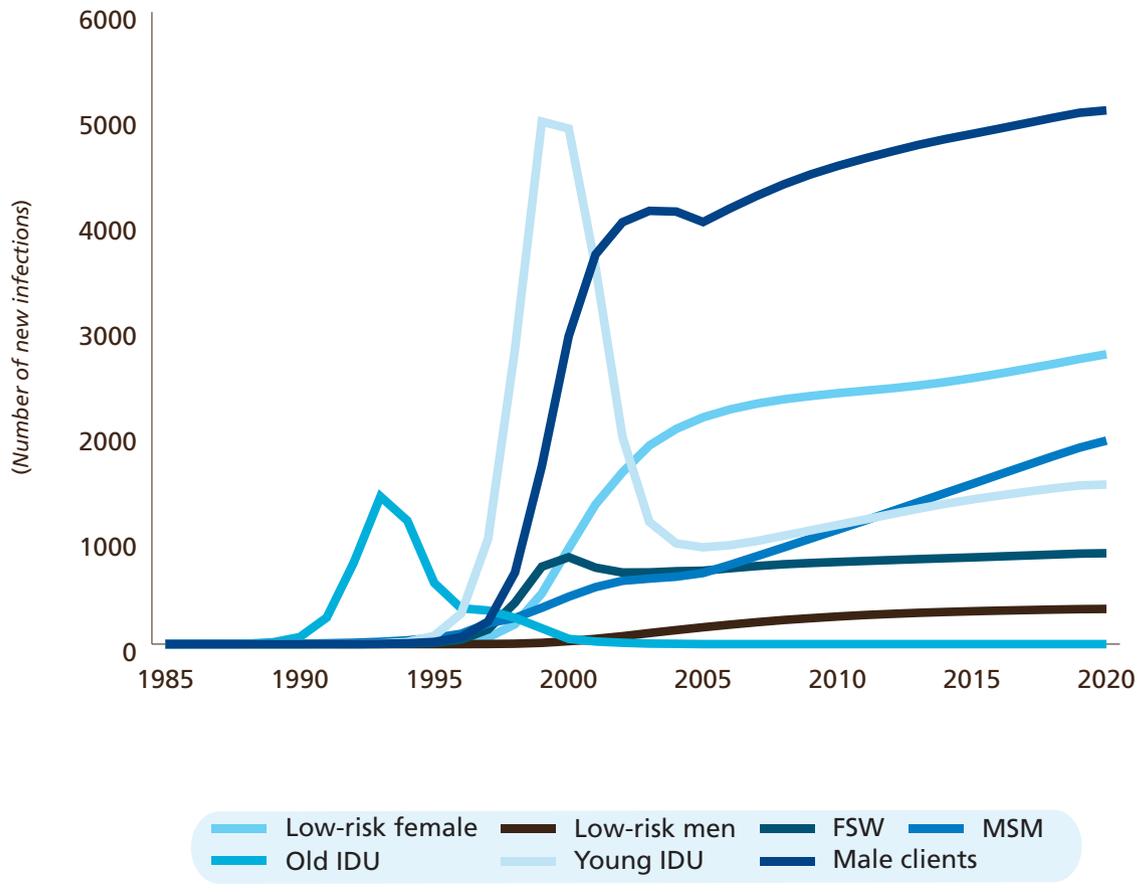


Figure 10.9. Number of new infections in different populations in the Ho Chi Minh City baseline projection.



Scenarios		A	B	C	D
	Baseline	Clients & FSW	MSM & MSW	IDU	Combination
Migrant workers	30%	60%	30%	30%	50%
Workplace	30%	60%	30%	30%	50%
High school students	30%	30%	30%	30%	30%
Out of school youth	30%	50%	30%	30%	40%
Women in community	30%	30%	30%	30%	30%
Direct FSW	60%	70%	60%	60%	65%
Indirect FSW	60%	70%	60%	60%	65%
IDU counseling & testing	30%	30%	30%	80%	60%
NSEP	10%	10%	10%	30%	20%
Methadone	15%	12.8%	15.8%	16.8%	13.4%
Naltrexone	5%	5%	5%	5%	5%
Peer outreach for MSM	30%	30%	80%	30%	50%
Peer outreach for MSW	30%	30%	80%	30%	50%
Budget in 2010		\$4,008,976	\$4,003,596	\$4,005,579	\$4,006,138
Infections averted 2006-2010		16,917	14,981	15,206	17,436
Cost per averted infection		\$823	\$914	\$896	\$796

Table 10.1.

Coverage of each type of program in the HCMC scenarios. The coverage levels have been adjusted to keep the budget the same but to enhance prevention in various groups. The final rows give infections averted from 2006-2010 and estimated cost per infection averted.

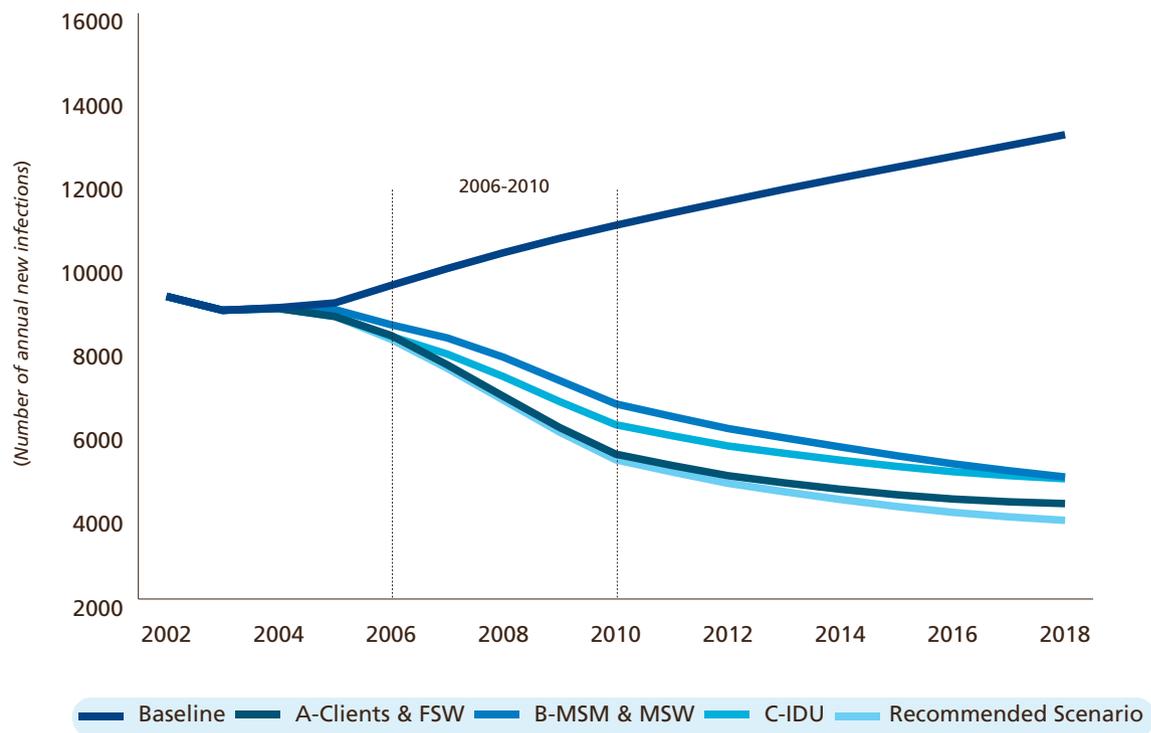


Figure 10.10.
 Annual new infections in each of the scenarios contained in Table 1.
 The recommended scenario is the combination scenario from the table.

Policy question: What is the impact on needle sharing behavior of a possible scaling back of needle and syringe exchange services and can it be offset with an increase in substitution programs?

LOCATION: DHAKA, BANGLADESH

The situation: There were growing concerns that a funding gap would arise as the existing funding mechanism for the National HIV/AIDS Prevention Program was slated to end in June 2006. This raised the distinct possibility of a major needle and syringe exchange program (NSEP) being scaled back as funding vanished. Because this program had relatively high coverage, there were serious concerns that with limited resources and little capacity for local partners to pick up the program, the coverage of the program would decline substantially. This might permit the type of rapid growth of the IDU epidemic in Bangladesh seen in so many other Asian countries. An alternate funding stream for the National AIDS/STD Program was anticipated in 2007, but a gap of a year or more in prevention was possible during this funding transition.

At the same time, stakeholders in the country were well aware of the importance of preventing a widespread epidemic among IDUs based on the experience of neighboring countries, and also from presentations of early A² AEM modeling work. Consequently, there was a push from local experts to introduce a mix of IDU targeted interventions in the country that included drug detoxification and drug substitution (DS)

options. There were several barriers to overcome for the latter, however, such as legalizing the necessary drugs, and creating an enabling political and moral climate. Thus, a hypothetical scenario was developed which explored whether a decline in the NSEP could be compensated for by reintroducing the program at a later date with other funding, and supplementing it with an expanded drug substitution program.

The approach: First, a baseline model for Dhaka was prepared, which had an IDU epidemic starting in 2005 and assumed the NSEP was ongoing at its 2004 levels of 85 percent. NOTE: this hypothetical analysis was based on a preliminary version of the Dhaka model. A later version with revised inputs after more extensive data analysis is available (Reddy and Brown 2008). Another scenario was prepared in which the NSEP was assumed to fall from 85 percent coverage in 2004 to 0 percent in 2007, but then to resume slowly in 2008 as new funding came online and then scale to approximately 50 percent coverage by 2010. In this hypothetical scenario, a drug substitution program was begun at 5 percent coverage in 2004 and scaled to 50 percent by 2009 in order to offset the prevention losses associated with the phase-out of the original program. The rates of scale-up of these programs are seen in Figure 10.11.

Goals was used to calculate the expected change in needle sharing behavior among IDUs as the original NSEP was phased out. The red line in Figure 10.11 illustrates how needle sharing would rise between 2004 and 2007. The subsequent reintroduction of the program and the simultaneous scale-up of drug substitution would then produce a significant decline in needle sharing after 2007.

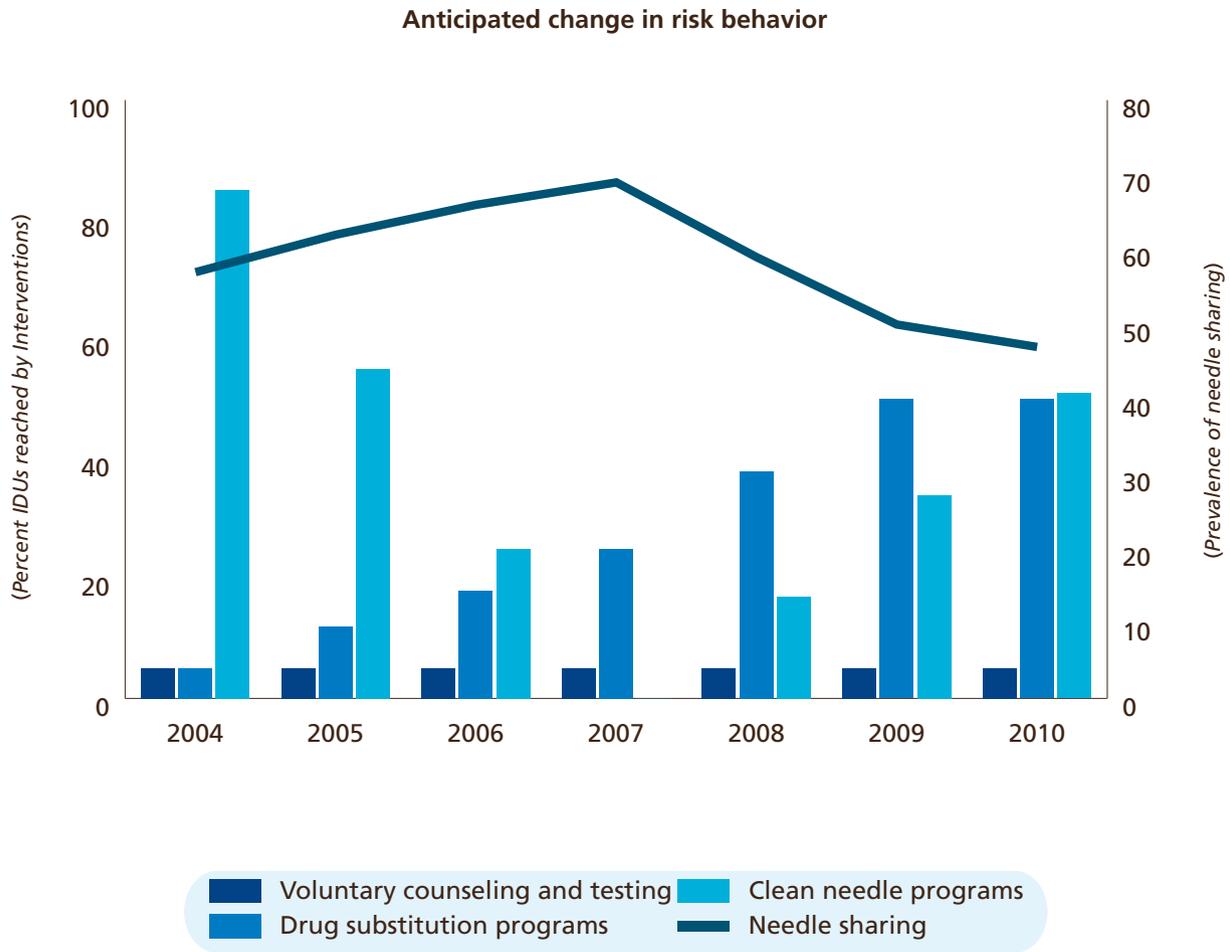


Figure 10.11. Goals graph showing scale-down and subsequent scale-up in coverage of a needle and syringe exchange program, along with simultaneous scale-up of a drug substitution program. The dark blue-green line shows the resulting levels of needle sharing among IDUs.

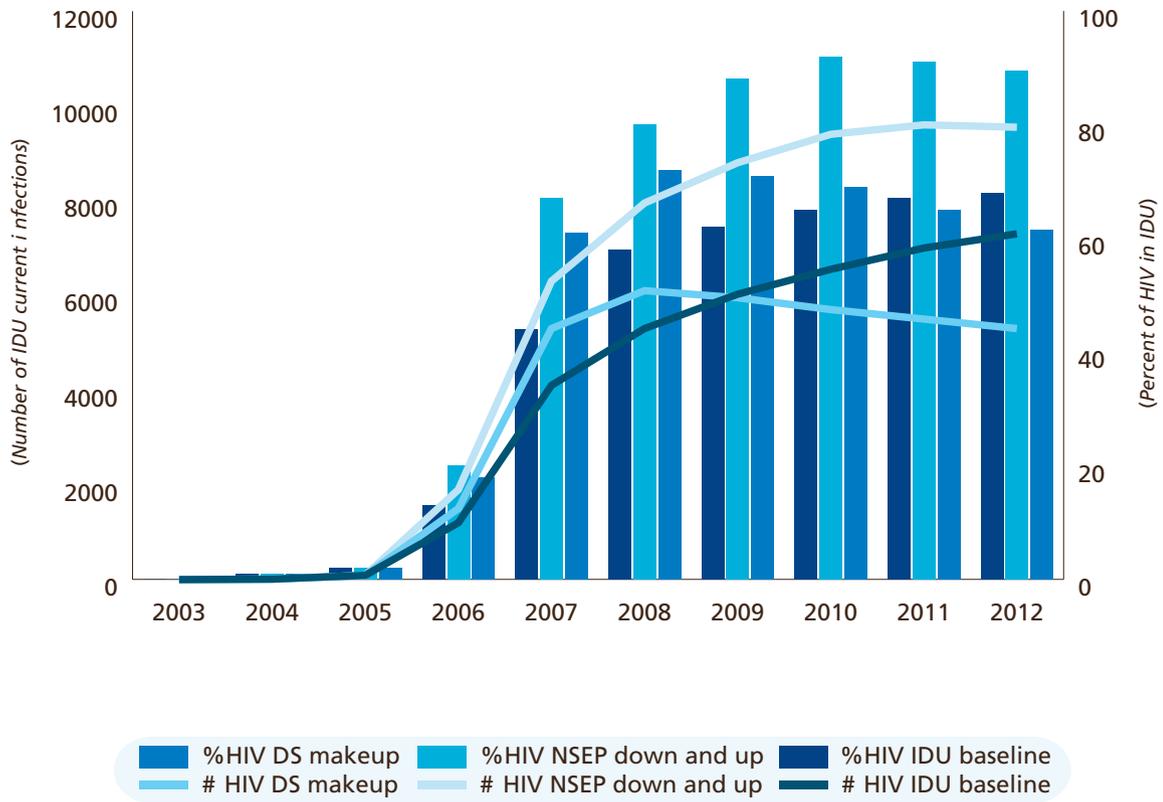


Figure 10.12.

The impact on HIV prevalence among IDUs in three scenarios: 1) dark blue-green line – baseline; 2) light blue line – with scale-down and later scale-up of NSEP; 3) baby blue line – with scale-down and later scale-up of NSEP along with scale-up of drug substitution.

The lines and bars in Figure 10.12 show the impact of these changes. In the scenario where there is a gap in the NSEP but a DS program is expanded, HIV prevalence increases between 2005 and 2008 as shown by the baby blue line compared to the baseline in dark blue-green, and then subsequently declines as the combined programs are scaled up. The top line shows what would happen if the NSEP was closed down by 2007 but then restarted without a drug substitution program.

Since collection of cost data had not been done at that time in Bangladesh, the default unit costs for Asia in the Goals Resource Needs Module were used to look at relative costs of the above scenarios. It was found that although the combined program resulted in a significant impact on needle sharing and hence the number of infections among IDUs, it cost more than three times as much as the NSEP itself. The hypothetical scenarios made a strong case for sustaining the original program rather than allowing it to be phased out, and were presented as such to the donor Review Mission of the national program for consideration. The scenarios can also be used to show lawmakers and potential program donors the impact of drug substitution on new infections and HIV prevalence.

Policy question: What are the cost implications for Hong Kong of failing to avert an emerging epidemic among MSM?

LOCATION: HONG KONG

The situation: In 2004 a sudden increase was seen in the number of reported infections among men having sex with men in Hong Kong. Over the next two years other data sources confirmed a serious epidemic was underway. A rapid increase in the number of MSM testing positive was seen at two independent VCT sites; while, at the same time, a molecular epidemiology investigation detected a large and expanding cluster of HIV infections among MSM in Hong Kong. It was clear that an epidemic among MSM, which had remained at low levels for many years in Hong Kong, was now growing

quickly. This created an urgent need for expanded prevention among these men, which required expanding the prevention resources available to the MSM community.

The approach: A baseline scenario was prepared which replicated the trend in increasing prevalence observed at the VCT sites. This is the top line shown in Figure 10.13, which assumes condom use among MSM remains stable at 60 percent levels as measured in 2005. To explore the impact prevention might have, another scenario was prepared in which it was assumed that a rapid scale-up of prevention in the MSM community could increase condom use to 80 percent by 2008, levels that have been achieved by active MSM prevention programs globally. This produced the bottom line shown in Figure 10.13, a much more gradually increasing epidemic (Brown 2006).

However, urgently scaling up prevention programs requires both resources and community involvement. Thus, it was necessary to convince the AIDS Trust Fund and the Hong Kong government to make additional resources available, and to mobilize the MSM community to take prevention measures. Given that Hong Kong pays relatively high cost for antiretrovirals, a graph was prepared showing the cost to the Hong Kong government of not strengthening prevention among MSM. Figure 10.14 shows this analysis. By 2020 annual additional antiretroviral costs were almost 400 million Hong Kong dollars (HKD), with cumulative additional costs exceeding one billion HKD. These findings were presented to various policymakers, the AIDS Trust Fund and the Advisory Council on AIDS. Meetings were also held with the MSM community to discuss the data showing a rapidly growing epidemic and the projections in order to encourage community mobilization.

In response to the data and the analyses, the AIDS Trust Fund created a special project fund for MSM of 9 million HKD. The MSM community mobilized itself and used these newly available resources to expand prevention efforts and to conduct research to develop a clearer picture of the epidemic in their midst and the barriers standing in the way of effective prevention.

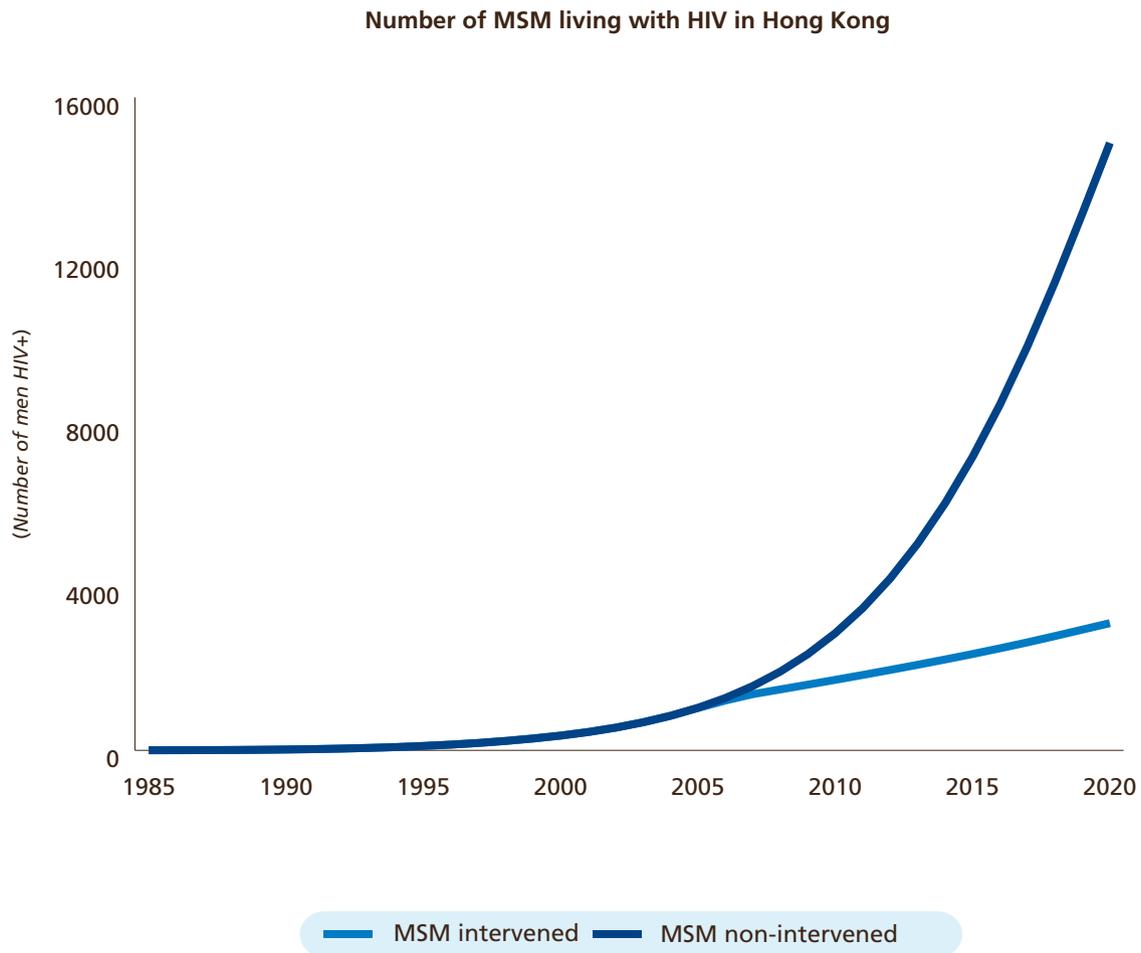


Figure 10.13.
Scenarios comparing the expected number of current infections among MSM in Hong Kong with (bottom line) and without (top line) strengthened prevention for MSM.

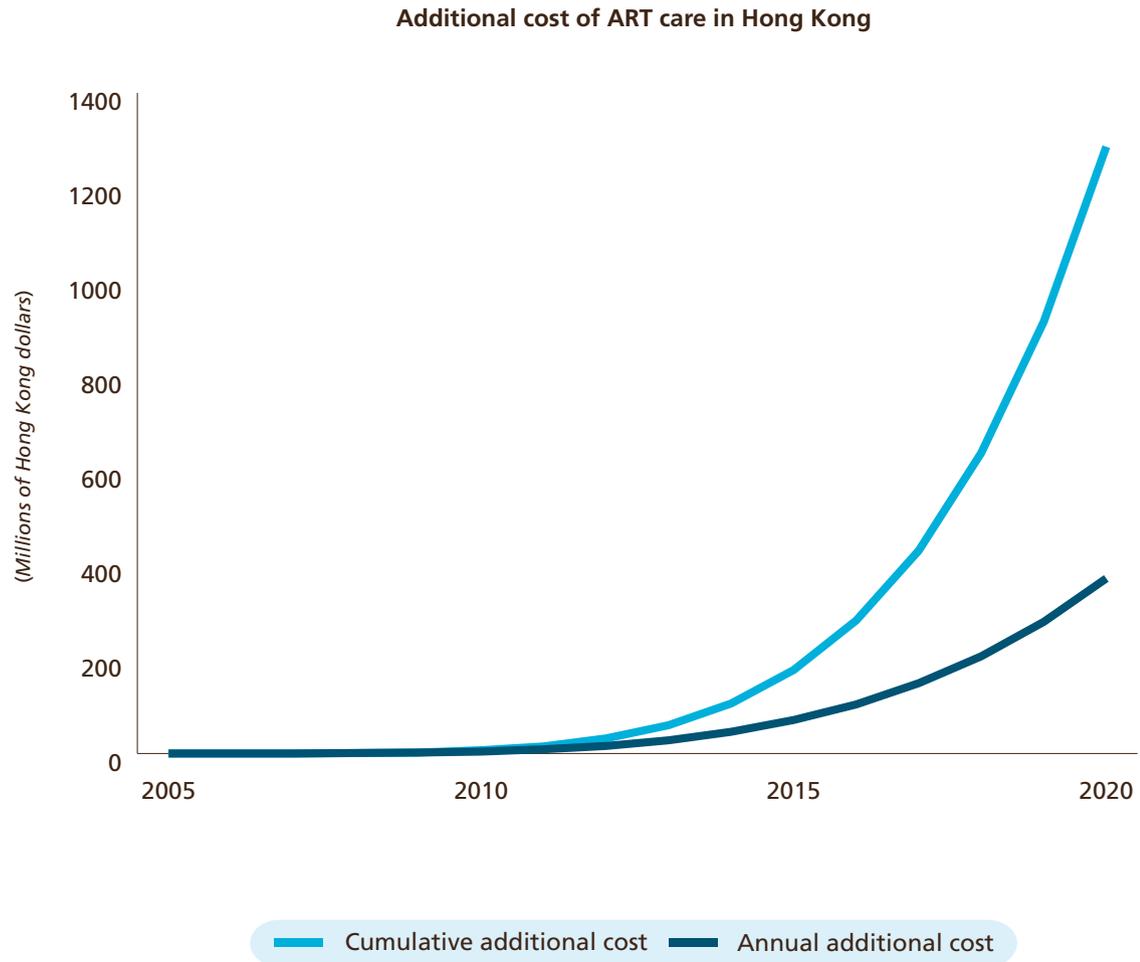


Figure 10.14.
The additional annual care cost (bottom line) and accumulated additional care costs (top line) associated with failure to expand prevention efforts. These accumulated costs will exceed one billion HKD by 2020.

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CHANGE

Chapter 11

IDENTIFYING THE CRUCIAL ADVOCACY ISSUES:
WHAT NEEDS TO CHANGE?

[an overview]

[an overview]

Chapter 11

IDENTIFYING THE CRUCIAL ADVOCACY ISSUES:

WHAT NEEDS TO CHANGE?

The balance now shifts from analysis to advocacy.

So far these guidelines have focused on gathering information and analyzing possible responses in terms of their impact on the epidemic, but the A² process is about analysis and advocacy to improve responses. The POLICY Project defines advocacy as a set of targeted actions directed at decision-makers in support of a specific policy issue. Throughout the first stages of the A² process, you have been doing advocacy of a more diffuse type – encouraging examination of the evidence by those you've engaged in the process and building shared understanding of the epidemic. This has helped to prepare the ground for what comes now – a much more focused form of advocacy that works collaboratively with others to actually change policies and programs based on the analyses done. This focused advocacy process in A² has a number of essential steps. You must:

- Collaboratively identify the most important issues that need to be addressed for responses to improve
- Prioritize and set specific advocacy objectives to be achieved in addressing those issues
- Map and understand the policy processes to determine the most effective targets for advocacy (i.e., those who greatly influence or make policies, choose programs and influence the effectiveness of responses)
- Build partnerships to develop and implement an advocacy action plan to move your analysis into action

One of the distinctive features of advocacy in A² is that it is evidence-centric. It injects key pieces of the extensive information you've gathered and the most important findings of your analyses into the policy process to identify and address those advocacy issues that will have the greatest impact on improving responses to the epidemic.

What needs to be done first? Identify the important things that need to change – potential advocacy issues.

Just as many scenario analyses were possible, there are many potential advocacy issues: changing prevention priorities, expanding or reallocating limited resources, addressing barriers such as stigma and discrimination, changing laws impeding effective prevention, increasing access to effective care, etc. But the most important issues to be addressed vary from place to place and time to time, so how do you identify the issues most important in your country or province today?

A number of possible sources present themselves:

1. First and foremost, the information you've collected and the analyses you've done.

You can identify important issues by answering a few questions on key topics:

- **Epidemiological priorities.**
Which populations and hotspots are producing the largest number of new infections and what are the downstream impacts of infections not averted in those populations?
- **Epidemic-response match or mismatch.**
How does the current response match with the sources of new infections?
 - **Coverage of key populations.**
Is coverage high enough in the populations affected by the epidemic? Why or why not?

- **Effectiveness of responses.**

Is the current response effective? Are programs being done at scale? Are the programs implemented actually working? Is the response actually changing the course of the epidemic? If not, why not?

- **Availability and allocation of resources.**

Are current resources adequate to cover all those at higher-risk? Are those resources being invested in cost-effective prevention programs? Are care and treatment programs adequately resourced and sustainable? What opportunities exist to expand the resources?

- **Other factors seen in the data.**

What has the data told you about factors driving the epidemic in your own settings? Are there things unique to your setting that contribute substantially to the epidemic or restrict access to care, treatment and services?

- **Significant data gaps.**

If there are major weaknesses in the data systems that are impeding the ability to understand the epidemic or the response, consider filling the most important of those gaps as an advocacy issue. You have identified many gaps as you collected information; prioritize them and add the most important ones to your list.

2. From contextual or environmental issues arising in discussions you've held as you've collected data and built scenarios.

You've talked to a lot of people as you've gone through this process – they invariably share their views on the epidemic and responses. Using their input to answer a number of questions can help to identify issues requiring attention:

- **Legal or policy barriers to access.**

Are there particular laws or official policies that interfere with an effective response? Are adequate legal protections in place for people living with HIV?

- **Environmental factors creating risk or vulnerability to HIV.**
Are there specific social, economic or cultural situations creating risk or increasing vulnerability? Are inequalities playing a role in the response? Is there an enabling environment supportive of prevention and care? Are there political forces that inhibit or support expanding responses?
- **Stigma and discrimination.**
Are stigma and discrimination interfering with the selection of effective and efficient programs? Are they preventing programs from being implemented in the field? Are they preventing people with HIV from taking care of themselves?

3. **From who's involved or not involved in the response.**

Many issues surrounding the ability to implement effective, efficient responses at scale arise from questions about who's involved or not involved in the response:

- **Community awareness and engagement.**
Are the communities aware of the HIV problem and how to protect themselves? Do they take HIV seriously? Do they have the training and experience to implement responses? Are they involved in decision-making for policies and programs affecting them?
- **Capacity to respond.**
Is the capacity to do the necessary prevention and care available? If not, how can it be built and who must be responsible? Is the health care and social support infrastructure strong enough?
- **The decision-makers.**
Who's making the decisions and do they have the awareness and information they need to make the best decisions? Who's in the way, impeding the ability to respond to priority issues? Who is interested and stands ready to help? Are top-level leaders engaged and concerned about addressing HIV?



Once you've identified potential advocacy issues, they need to be prioritized.

You can't solve every problem – nobody can. And that means you've got to be selective. Working in close concert with others, you've got to identify a manageable number of issues that are the most critical to improving your national or provincial response. You need to engage partners to assist you in deciding which of these issues are actionable and which can feasibly be changed through concerted advocacy. Setting priorities can be assisted by considering a few key questions:

- What changes in the response will have the biggest immediate impact on the epidemic?
- What are the biggest barriers to implementing effective programs?
- What essential capacities to respond are weak or missing?
- Are there opportunities or situations arising that you can capitalize on for advocacy?

Start thinking about coalitions and partnerships. You're not going to be able to do this alone. You will need partners who help to develop the goals of advocacy and who will help in influencing decision-makers. Build on the contacts you've made already to identify potential partners and sound them out for interest, while simultaneously seeking to locate others who share your concerns.

CHRIS WARD

TIM BROWN

Chapter 11

IDENTIFYING THE CRUCIAL ADVOCACY ISSUES:
WHAT NEEDS TO CHANGE?

[concepts and content]

Chapter 11

IDENTIFYING THE CRUCIAL ADVOCACY ISSUES: WHAT NEEDS TO CHANGE?

Chris Ward and Tim Brown

The next phase of A²: moving analysis into action

As you have now seen, much is known about Asian epidemics, their evolution and prevention. Despite this, a real divide continues between lessons learned and the programs and policies that are implemented. Prevention coverage of key populations driving epidemics (sex workers and clients, injecting drug users, and men who have sex with men) is extremely limited in most places in Asia. Few countries can estimate the size of key populations, or their respective contributions to new infections. Surveillance systems suffer from quality issues, the inability to access important populations, failure to adapt as epidemics evolve, and poor linkages with key decision-makers and affected communities. Information that is collected remains peripheral to decision-making processes, and it can be difficult to build political commitment for prevention and care services for key populations, who are often heavily stigmatized and hence “politically unpopular.”

Our focus so far has been on gathering information and analyzing possible responses in terms of their impact on the epidemic, but the A² process is about analysis and advocacy to improve responses. This is the only way that you will resolve the issues highlighted in the opening paragraph. Experience has shown repeatedly that analysis alone is

rarely enough to change responses. Additional steps must be taken to ensure that the analysis actually gets translated into policies and programs. That’s what advocacy is all about. We’ve spent a lot of time talking about analysis, so let’s spend some time talking about advocacy.

The POLICY Project defined advocacy as: a set of targeted actions directed at decision-makers in support of a specific policy issue

There are three essential pieces to this definition:

1. **A policy issue.**
This is the thing you’re trying to change. In the case of A², the definition of a policy issue is quite broad. It might be the choices made in allocating resources for prevention. It might be a law or policy that interferes with HIV prevention. It might be stigma and discrimination that keeps programs from being put into place or from being effective. This chapter will discuss various ways you can identify policy issues and prioritize them.
2. **Decision-makers.**
The means by which advocacy attains its goal of improving responses is by influencing decision-makers. This means you must first identify the

people who make the decisions regarding your advocacy issue. Chapter 12 will cover policy mapping, that is, how you identify the way decisions are made and who influences those decisions.

3. **A set of targeted actions.**

These are the actual advocacy activities that you undertake. Advocacy is not a random process. As will be covered in Chapter 13, even after you have identified the decision-makers to target, influencing and producing policy change requires:

- **Developing a comprehensive advocacy plan** with specific activities, responsibilities and timeframes
- **Preparation of advocacy materials** containing information specific to your target audience and supporting the desired change
- **Making partnerships to implement that plan,** and then undertaking the planned activities

NOTE: The POLICY Project was a USAID funded project to work with host-country governments and civil society groups to achieve a more supportive policy environment for family planning/reproductive health (FP/RH), HIV/AIDS, and maternal health. It ended June 30, 2006, but its work continues under the USAID | Health Policy Initiative with a special emphasis on the implementation of policies.

The two “A”s of A² are not independent but synergistic

Throughout the first “analysis” stages of the A² process, you have already been doing advocacy of a more diffuse type – encouraging examination of the evidence by those you’ve engaged in the process and building shared understanding of the epidemic. This has helped to prepare the ground for what comes now – a much more focused form of advocacy that works collaboratively with others to actually change policies and programs. And this second “A,” “advocacy,” will lean very heavily and synergistically on the analyses done in the earlier stages of the process.

One of the distinctive features of advocacy in A² is that it is highly evidence-centric

It injects the data you’ve gathered and the analyses you’ve done into the policy process in a way targeted to have maximum impact on the epidemic. A² is built on a synergistic relationship between analysis and advocacy. The information you’ve collected and the analyses you’ve done serve several valuable roles in that respect; they:

- **Bring together diverse sets of information** about epidemiology, behaviors and responses and use them to build a comprehensive picture of the epidemic and

the response to it that creates a shared understanding to underpin decision-making.

- **Help to identify, in an evidence-based way**, the most important issues to be addressed in improving the response in your local situation.
- **Provide local and relevant inputs to the decision-making process**, giving decision-makers the information they need using examples and local analyses that are much more likely to influence their thinking than examples or analyses from elsewhere.

Who's doing what at this stage? The advocacy specialist takes the lead

Throughout the early parts of the A² process the synthesis specialist took the lead in gathering data and conducting analyses. During this period, normally the advocacy specialist would assist in this effort while simultaneously making contacts, learning the key players, and identifying the issues on people's minds. As important issues were identified during this early phase, some advocacy activities (e.g., the policy mapping) may have been implemented before scenarios were run. These initial activities lay the groundwork for more active advocacy in later stages, address urgent issues identified from people's current concerns, or highlight important issues arising from the information being collated. The advocacy specialist normally also would

have started the process of selecting members for and convening the Advocacy and Data Use Group to advise on advocacy issues, how to do effective advocacy in the local policy environment, and how to make the best use of data to inform policies and planning. When the A² team moved into scenario building, the advocacy specialist usually takes an active role in identifying the decision-makers to engage in the process, seeking input on policy issues to be analyzed using scenarios, and relaying the important findings of those scenarios to inform decision-making processes. But now, the A² team will be transitioning rapidly into a more intensive advocacy mode, and this means the advocacy specialist will take the lead. He or she will need to organize meetings, both informal and formal, to identify advocacy issues; will need to conduct a policy mapping if it's not already done; and will need to lead the design of an advocacy plan, form appropriate partnerships, and then coordinate the joint implementation of the advocacy plan.

... But the synthesis specialist still stays actively engaged

The synthesis specialist does not go on holiday at this point. As advocacy in A² is an evidence-based process, there is a strong need to select or collect additional policy relevant subsets of data to support advocacy around the critical policy issues chosen, run additional scenarios as necessary to support decision-making, and provide additional outputs as required to policymakers, planners and budgeters. Often,

the outputs and results of the A² process will feed into national strategic planning activities or seek to meet the needs of international bodies. This may generate substantial additional data and analysis needs to help in formulating realistic goals and objectives for the national plan or setting budgetary targets for subsequent years. For example, in Thailand members of the A² team have regularly supplied additional outputs from the modeling process (e.g., number of people requiring ART, number of children affected by HIV, etc.) to government agencies, international bodies, and other agencies needing better information to carry out their own responsibilities. Each A² team needs to decide which activities or agencies they wish to support in this way. Given limited time, personnel and resources, it is not possible for the A² team to support everyone's data needs, so they need to manage people's expectations about what they can provide. Ideally, the team will choose to support those persons or agencies that have significant impact on national directions and responses.

It is worth noting that, as the description of what they're doing above implies, the skills required of the synthesis specialist and the advocacy specialist are quite different, but also complementary. The synthesis specialist will normally be a data person, someone who is more comfortable working with data, running analyses, and working with computers and spreadsheets. Such people are usually more analytic in nature, and are often not the best people to do advocacy. Advocacy must function in the real world of HIV decision-

making, with all its politics, personalities and complexities. It requires working with high level policymakers, members of affected communities, government and NGO staff, international donors and agencies, and any others who play an essential role in the decisions surrounding the epidemic response. Managing the issues likely to arise in the advocacy world requires people skills, sensitivity, leadership and the ability to network and organize coalitions – analytic skills are not essential. However, if A² is to effectively bridge the data world to the policy world, it requires people with both sets of skills.

NOTE: Much more detail on the advocacy process in A² is available in the A² Advocacy Training Curriculum, which is provided on the accompanying CD. This includes exercises, worksheets and guidelines that will help anyone planning an advocacy process do so more effectively and efficiently.

What do you want to change? Identifying important issues for advocacy

HIV epidemics are complex. They're composed of many different sub-epidemics. They affect many different sub-populations. So by implication, the responses themselves must also be complex with multiple program components



and multiple players addressing the sub-epidemics in the different populations. The epidemics occur in a challenging social, political, economic, cultural and religious environment that influences risk and vulnerability and often imposes limits on the capacity to respond. Numerous policies, laws and social attitudes affect the ability to implement programs and constrain what is possible. As this implies...

The complexity of HIV epidemics creates many potential advocacy issues

Some of the more important ones may include:

- **Setting appropriate prevention priorities.**
Targeting the response for greatest effectiveness.
- **Allocating resources properly and/or mobilizing additional resources.**
Deciding how to divide the resources among different programs or how to generate additional resources to ensure the response is at a scale that can be effective.
- **Removing barriers to responses.**
For example, changing laws that impede effective prevention or addressing stigma and discrimination so resources can be focused where prevention will be more effective or people living with HIV can get treatment and continue working and caring for their families.
- **Expanding access to care and support.**
Increasing the number of people who receive good treatment (e.g., by expanding the capacity of the healthcare system to manage people living with HIV or reducing economic barriers to treatment access).
- **Scaling up PMTCT and child treatment programs.**

Many other advocacy issues specific to your country or province may also arise.

Selecting the most important advocacy issues requires understanding your epidemic and responses and how they change over time

Just as there were many scenarios possible, there are many potential advocacy issues that could be taken on. But if you expect to achieve meaningful change, you need to identify the more important ones so that you can focus your advocacy. This is challenging because the most important advocacy issues will vary from place to place and from time to time in the epidemic. The epidemic plays out differently in every country, so the most important populations for prevention may vary. Even within one country, the primary sources of new infections can change over time. This means that a response that was extremely effective by targeting risk in sex work in 1990 might not prove very effective in 2010 when most HIV transmission is among MSM and IDUs. So the important advocacy issues this year may be different from those of a few years ago. This means you must use your understanding of the epidemic and current responses to select issues that are relevant to improving that response today or in the near future.

Remember, in A² you need to focus at a high level and identify the major barriers to effective responses

You're not trying to improve a single project or program, you're advocating for an improved response in all its aspects. This means that your goals are also fairly high level ones. You are concerned with identifying the major factors limiting the effectiveness of your response today so that you can improve or redirect responses for greater impact. So how exactly do you go about this? Well, like everything

else in A², you approach this systematically. You look at what you already know, listen to what other people have to say about what's important, and look at whether the right people are involved in the response. From these, you can draw up a list of potentially important advocacy issues.

To identify advocacy issues – make the data talk about what's not working

A key component of the A² Project is strengthening data collection and analysis, promoting their increased use in policymaking, and using them to assist in the design and effective implementation of national or provincial programs. The information you have collected on the epidemic, the behaviors driving it, and the responses tells you a great deal about where the problems are and what is not currently working in the response. You can identify some critical issues by answering a few questions:

Where do new infections come from and what are the downstream impacts of various prevention efforts today?

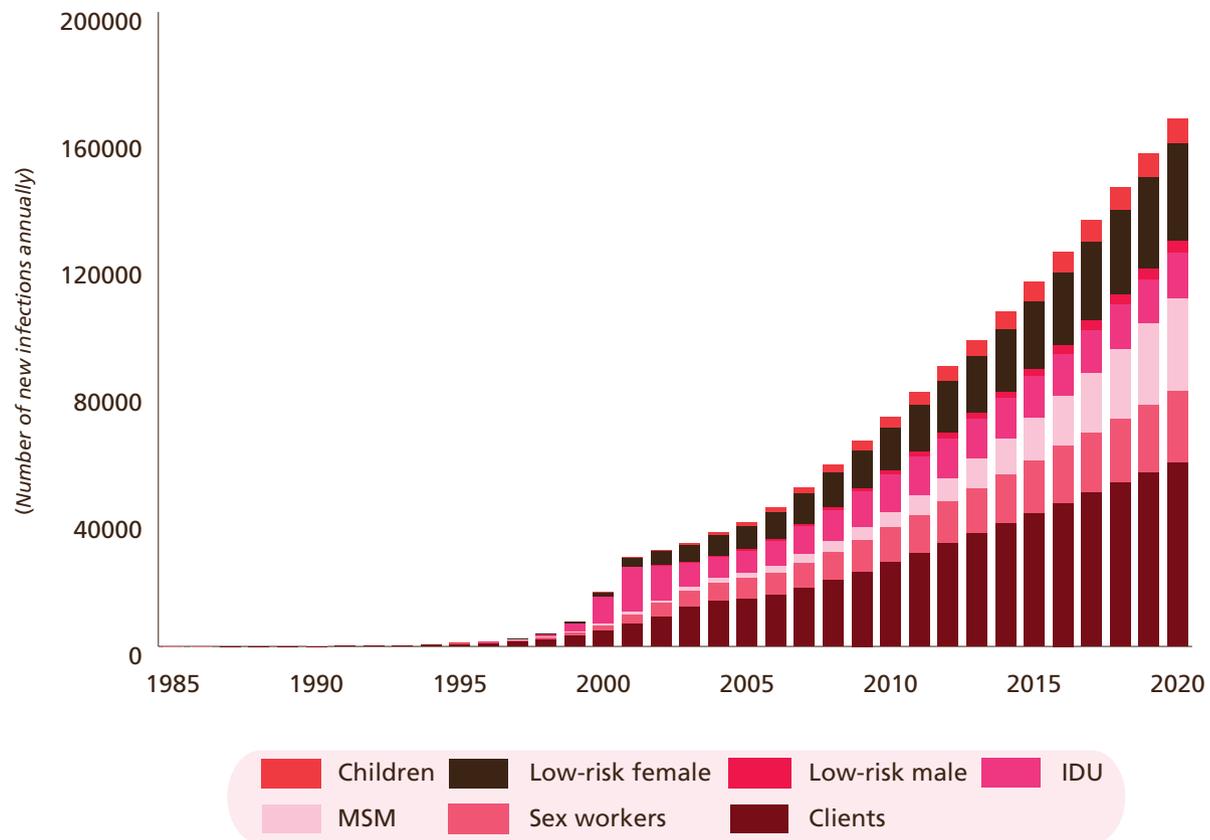
You should start by exploring information about new infections from three sources:

- **AEM results on the distribution of new infections**
- **Projections of the downstream impacts of interventions that occur now**
- **Geographic mapping over time of prevalence and HIV/AIDS data**

Large numbers of new infections in any population indicate underlying prevention failures and identify prevention priorities

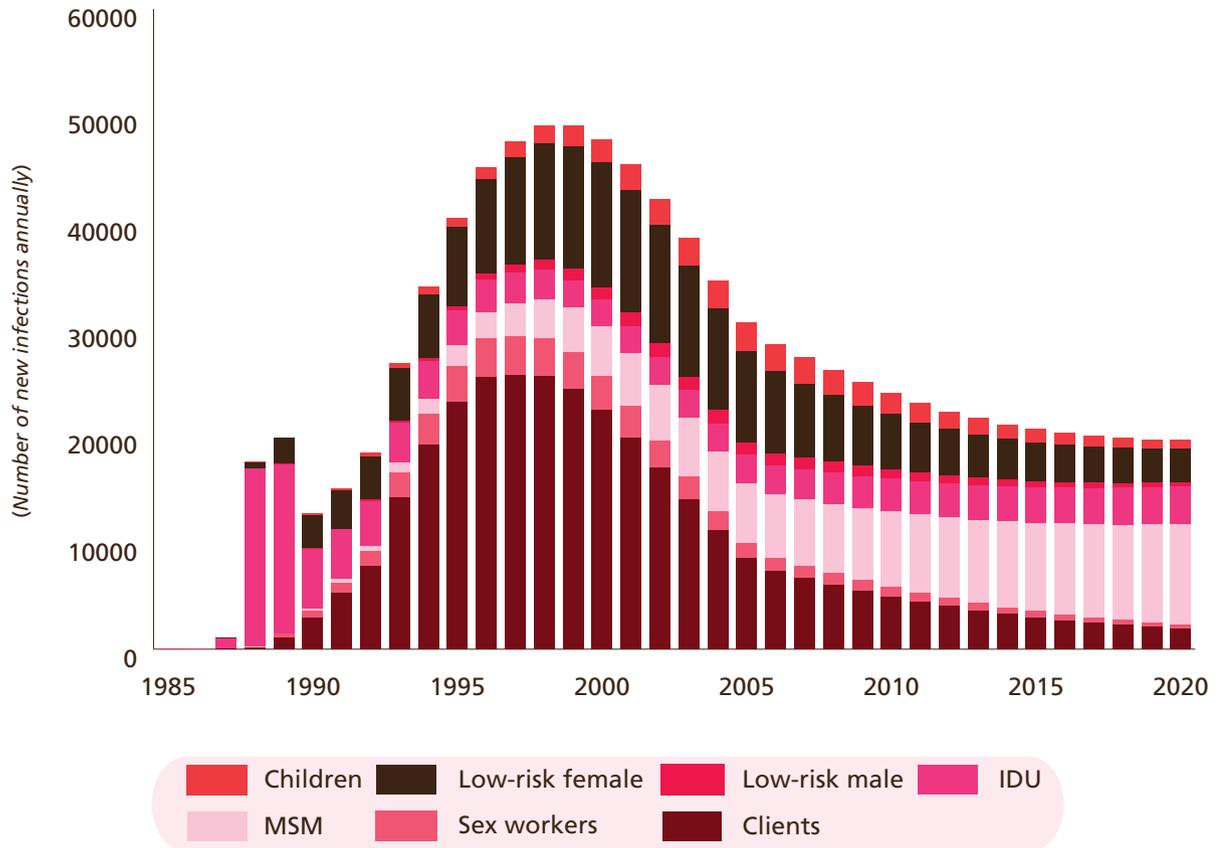
As you have seen, Asian epidemics differ from those in other parts of the world, with new infections largely occurring among FSWs, clients, MSM, IDUs and their regular sexual partners. The actual proportions of new infections in any of these populations change as the epidemic evolves. Figure 11.1 shows the new infection trends over time in two hypothetical countries. In Country 1 half of the new infections in 2010 are among sex workers and clients, with about a quarter among low-risk women (largely husband-to-wife transmission from men who are clients of sex workers) and almost a quarter among IDUs. In an ideal world, there would be adequate resources to address everyone's prevention needs, but in the real world resources are often limited and priorities must be set in prevention efforts. In Country 1 this calls for devoting more of today's resources to address risk in sex work, while putting fewer, but still substantial resources, into programs to reduce husband-to-wife transmission and IDU transmission. However, this doesn't mean that MSM can be ignored. Note that over the next decade, the MSM epidemic is also becoming an important source of new infections, implying programs for MSM must also be started now. In Country 2 on the other hand, the largest number of new infections in 2010 are coming from a contribution by MSM that is expanding over time, while the contribution of sex work (clients and FSWs) is declining. In this country more of the resources can be put into prevention efforts in the MSM community, while maintaining sufficient resources to sustain the earlier success in reducing sex work related transmission.

It's not that you're ignoring any population, but that in a resource-constrained situation, you must try to make the



COUNTRY 1

Figure 11.1.
An example of two countries with very different patterns of new infections by subpopulation.



COUNTRY 2



most effective use of the resources you have. This means the balance of resource allocations will shift depending on the distribution of new infections among the at-risk populations. Using scenarios, as described in Chapter 10, you can explore the impact of different resource allocation schemes. For both practical and equity reasons, no population should ever be ignored. From a practical viewpoint, developing effective prevention programs and building capacity to respond in a given community takes time. Thus, for every population at-risk that process needs to be started as early as possible. If prevention is successful in those populations where you focus more resources initially, then prevention in the other populations will become even more important in the future. Thus, balancing your resource distributions among all populations makes sound sense in planning for the future.

Equity considerations are also important in planning the allocation of resources: from a human rights perspective, it is unacceptable to ignore the prevention needs of any population, even if society marginalizes them. Unbalanced

prevention priorities greatly reduce the effectiveness of the response and remain a critically important issue for advocacy to address.

Assessing downstream impacts can help in prioritizing prevention efforts and identifying the most effective ones to be promoted through advocacy

Chapters 2 and 6 examined the typical dynamics of an Asian epidemic. In most places the epidemic begins among IDUs because of the high efficiency of needle sharing in transmitting HIV. Once the epidemic takes hold in a population that shares needles, the rate of growth to high prevalence levels can be exponential, as seen many provinces in China, Thailand and Vietnam. This rapid increase in HIV prevalence among injecting drug users is usually followed by a steady growth in HIV among sex workers and their clients (see top graph in Figure 11.2). Even though client HIV levels remain lower than levels among IDUs, because of the large number of clients in Asian countries the sex work component of the

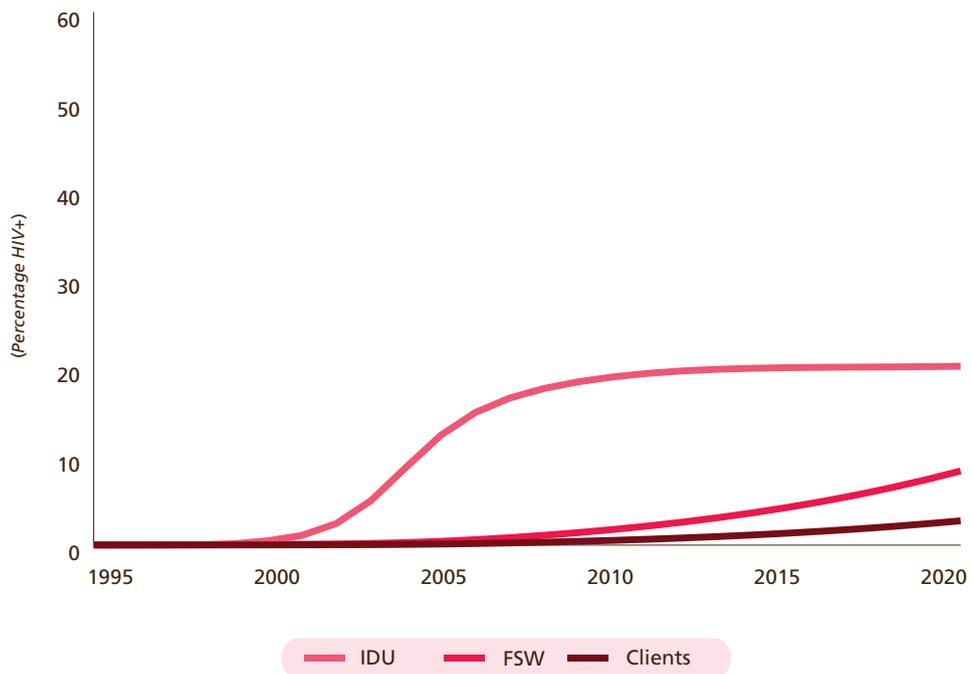
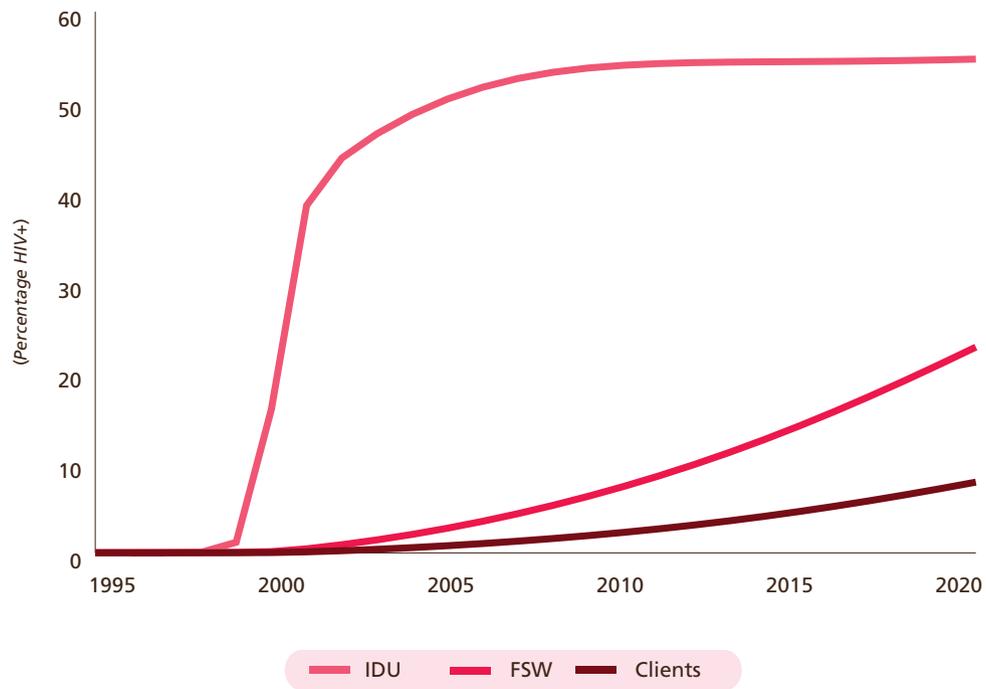


Figure 11.2.
 The growth of HIV prevalence among IDUs, sex workers and clients in cases where there is no intervention among IDUs in the top graph, and early and effective IDU intervention before the epidemic in the bottom graph.

epidemic “overtakes” the IDU epidemic in terms of total contributions to new infections.

In some sense then, a big piece of the epidemic among sex workers and clients is a “downstream” impact of the earlier epidemic among IDUs. This has prevention implications as well. If effective prevention efforts for injecting drug users reduce transmission among the IDUs, then the sex work components of the epidemic will be delayed as well. The bottom graph in Figure 11.2 illustrates this by showing the impact of an intervention among IDUs that cuts needle sharing in half and reduces the number of injections per day through drug substitution. This intervention starts early, before HIV among IDUs starts to rise. This has two major impacts: 1) it delays the epidemic and lowers the ultimate level of HIV prevalence among the IDUs; and 2) it slows the growth of HIV among sex workers and clients, producing a more gradually growing epidemic.

This is an example of “downstream” impacts of early intervention with IDUs. The intervention among IDUs averts a large number of sex work related infections, which can have a major impact on the overall epidemic. Figure 11.3 shows how the number of adults currently living with HIV

changes as a result of the IDU prevention effort. The A² tools make it possible to look at these downstream impacts in a more concrete way. Figure 11.4 shows the number of infections averted in each relevant subpopulation by this IDU intervention. This is calculated by comparing the number of new infections in each population between the two scenarios presented in Figure 11.3 – the difference is the number of infections averted. While in the first five years, prevention benefits measured as infections averted accrue largely to IDU, by 2005, more infections are being averted in other populations by an intervention targeted at IDUs than are being averted among IDUs. A substantial number of infections are also averted in low-risk women because IDUs and clients don’t contract HIV and pass it on to their wives. This illustrates an important point – when good prevention is done among marginalized populations, other segments of society often benefit. Because of the huge return in infections averted in all populations, early IDU interventions are among the most cost-effective in Asia. The CD contains a spreadsheet that creates infections averted charts of this type for any two scenarios. This spreadsheet can be used to assess the downstream benefits in infections averted of any prevention effort or combination of prevention efforts that can be modeled as an AEM/Goals scenario.

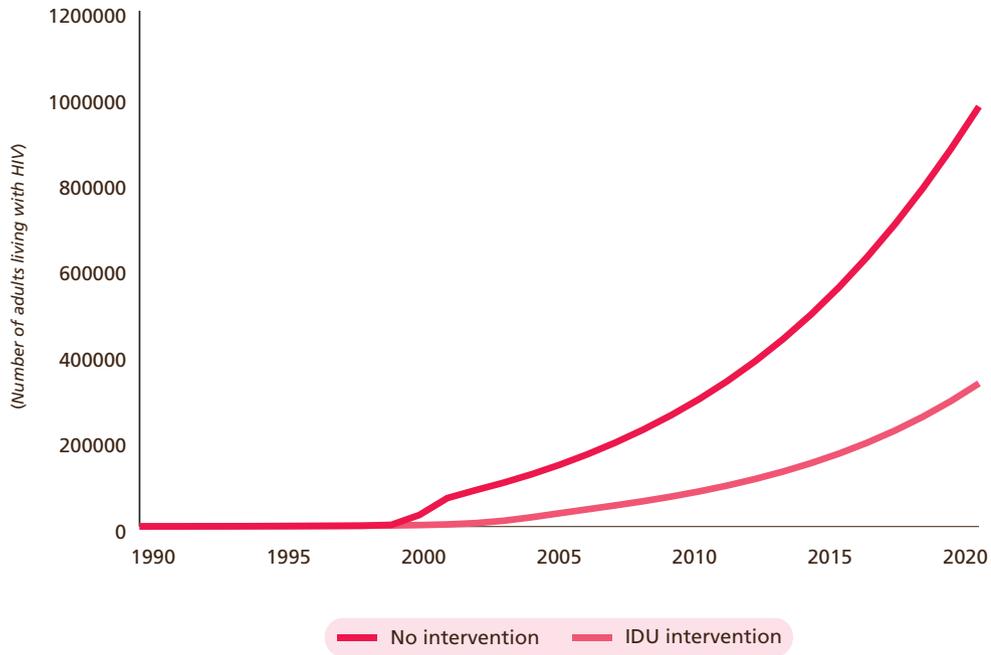


Figure 11.3. Epidemic growth in a scenario with an early IDU intervention started before the IDU epidemic (IDU intervention) and a scenario without the intervention where the IDU epidemic seeds an epidemic among sex workers and clients.

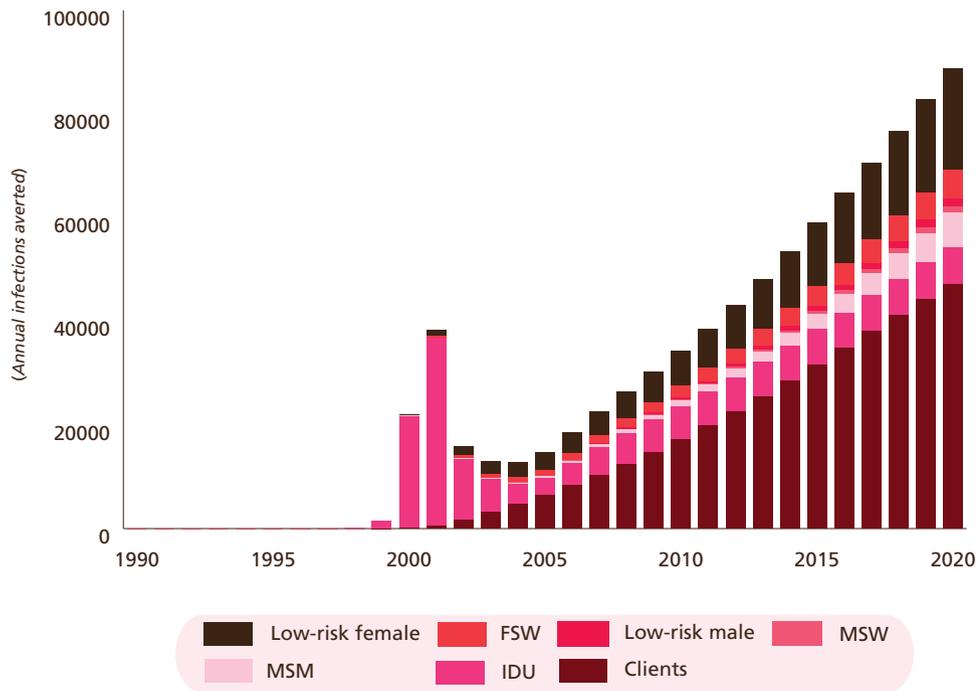
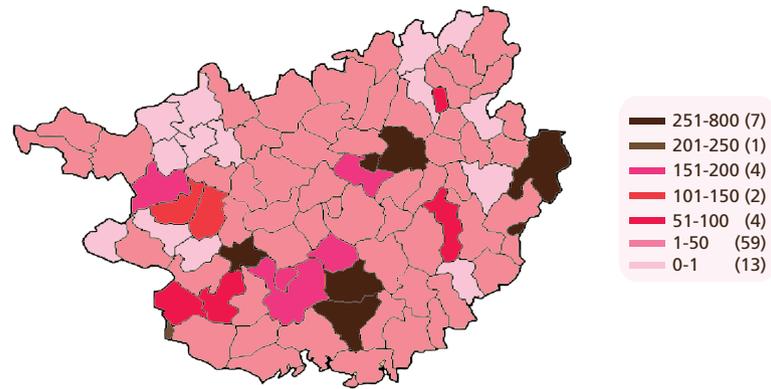


Figure 11.4. From comparing the two scenarios in Figure 11.3, the estimated annual number of infections averted in each important subpopulation for Asian epidemics by an early IDU intervention.

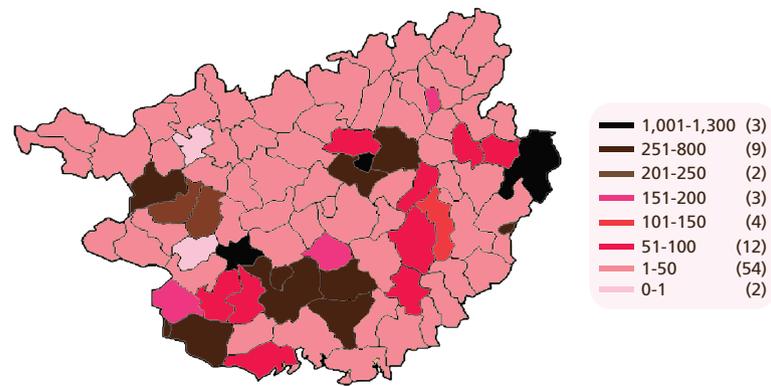
Looking at the geographic distribution of HIV over time helps to locate hotspots (i.e., priority areas)

This chapter, so far, has focused on prevention priorities in terms of at-risk populations, but the observed variations in HIV from place to place also create geographic priorities. Working with HIV surveillance systems in a range of countries and provinces has elicited new information on patterns of epidemics at national, provincial and sub-provincial levels. In most cases, the picture which has emerged is a complex one, with significant variations in both biological and behavioral data between countries, between provinces in a single country, and even between different regions in one province. HIV is rarely distributed uniformly, but instead tends to be concentrated in what are often called “hotspots.” Mapping of your surveillance data or reported case data can assist in locating hotspots. For example, Figure 11.5 shows the distribution of reported HIV in Guangxi in 2002 and 2004. This shows a clear geographic focus of HIV transmission with the heaviest concentrations in only a relatively small number of counties.

This concentration of HIV has policy implications. First, those places with the highest HIV are also going to have the highest care and treatment needs, meaning that they will require more resources for drugs, better treatment infrastructure, and strengthening of social support systems. Second, they are also likely to have greater prevention needs. Part of the reason they reach such high levels of HIV is most likely that levels of risk behavior are higher, although this should be validated with behavioral data, if possible. However, for prevention purposes just knowing they are higher prevalence is not enough, you must also understand why. What are the risk behaviors producing HIV transmission in each of these areas, and how do they vary between the different hotspots? One of the interesting findings in both Yunnan and Guangxi was that high HIV among IDUs was a precursor of high HIV among sex workers and pregnant women. In each province only five or six prefectures had high HIV among the IDUs, while others had only a moderate or low level over an extended period. This offers an opportunity to strengthen prevention by allocating more resources to the hotspot prefectures, or even to specific hotspot counties, where the resources will have more impact on the epidemic.



(a) 2002



(b) 2004

Figure 11.5.

Distribution of reported HIV in Guangxi province at two points in time. (source: Guangxi CDC)

If prevalence is rising rapidly, new infections are also high

Looking at prevalence maps over time can also help in identifying places where prevalence is growing the fastest. If prevalence is going up quickly, new infections are also quite high indicating a strong need for expanded prevention. Thus, any provinces (or, in the case of China, prefectures) where HIV is at high levels or is growing very rapidly in any subpopulation should receive urgent prevention priority.

How do the epidemic and the response to date match up? Is the response appropriately targeted and working?

After examining new infections, downstream impacts and prevalence trends, you have a pretty good idea of where the “action” is in your epidemic. Something is obviously not working perfectly, because in most countries new infections are occurring in some populations. So the next question is:

Why are the new infections continuing and how do you track down the source of the problem?

Proximate determinants of prevention or care failures (i.e., direct causes of continuing infections or inadequate care and support in spite of existing programs) may include:

1) low coverage, 2) inappropriate resource allocations or limited resources, or 3) ineffectiveness of the programs implemented. There are inevitably other more distant factors that contribute to keeping coverage low, limiting or misallocating resources, or making programs ineffective, and later in the chapter those factors will be explored to identify additional advocacy issues.

Depending on which of the three is the actual problem, the advocacy agenda may vary. If coverage is low in a particular

population, you may need advocacy to expand it. If the problem is resources, you may need to push for expanding the resource pool or for reallocating existing resources in a more effective manner. If the problem is the programs themselves being ineffective, you need to find out why and address the underlying causes. How then do you decide which of these are contributing to the problem? As part of the A² process, you’ve collected a lot of data on responses, data which can help you to identify the roots of the problem.

First, examine coverage in populations where new infections continue to occur

Perhaps the single largest reason why responses in Asia are not working is because they’re not done at a scale that can make a difference. In virtually every country, there are pilot projects or small NGOs that have done effective prevention and care for populations affected by Asian epidemics. However, in most cases these have not been scaled to a level where they can have national impact. Figure 11.6 shows the estimated coverage in Asian countries of important prevention and care services. Even the most effective program, if done on a small scale, cannot change behaviors nationally. Given the regional coverage for MSM (5%) and IDUs (2%), it is not surprising that HIV continues to spread extensively among these two populations across Asia.

Thus, for each population with high ongoing levels of infection in your country or province, look at the actual coverage of programs and determine if it is sufficient to have the desired impact. If not, then advocating for expanded coverage goes on your list of advocacy issues. Coverage can also be examined on a geographic basis. If certain hotspots continue to show growing prevalence, you should undertake a close examination of the coverage of prevention efforts in those hotspots. There may be local prevention or care failures that are creating problems.

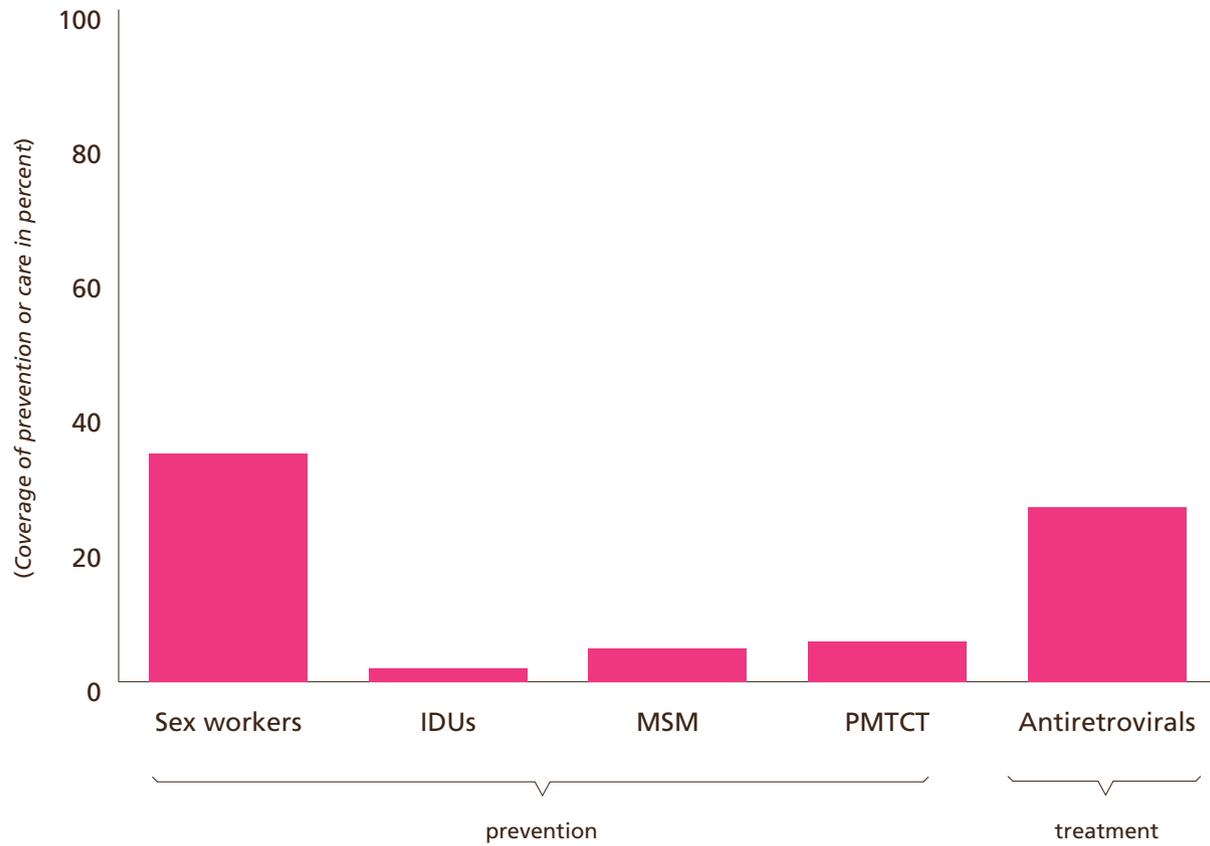


Figure 11.6.
Estimated coverage of important prevention and care programs in Asia
(Stover and Fahnestock 2006).



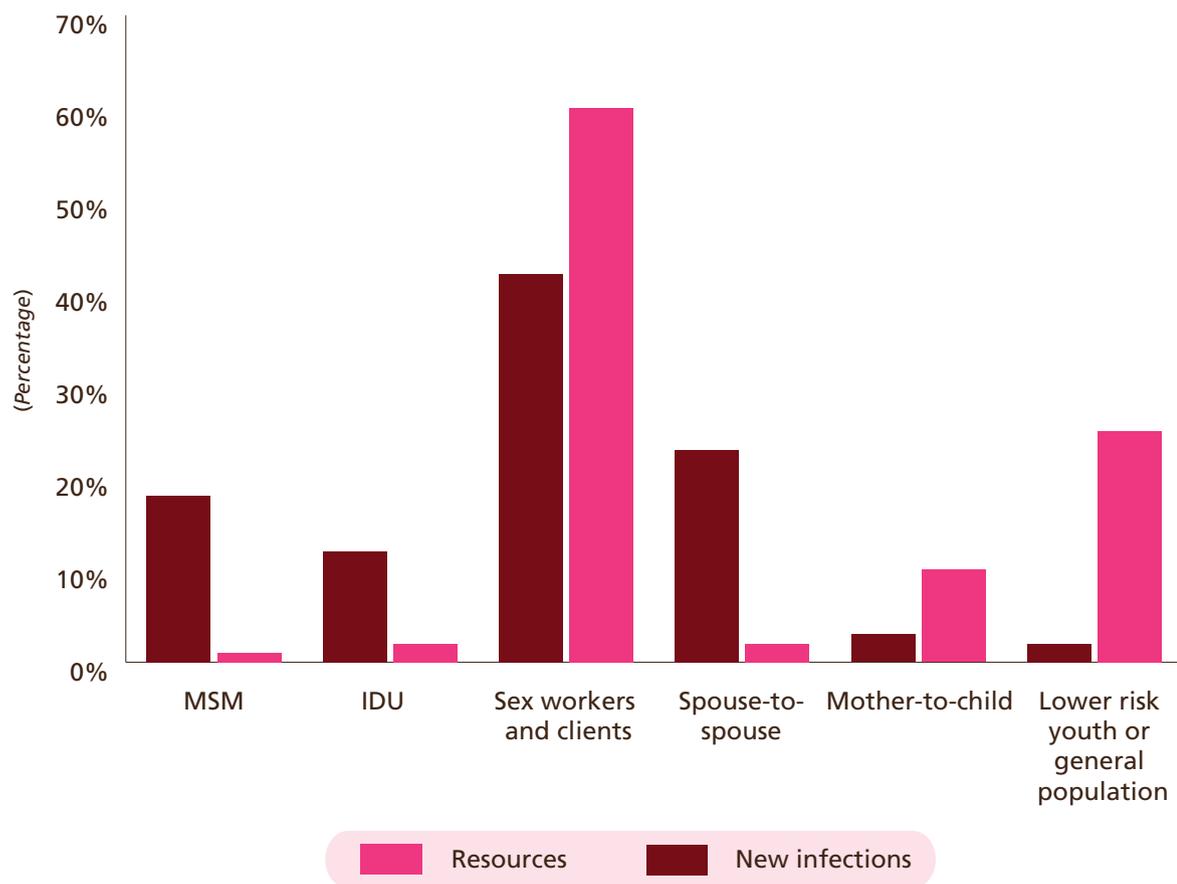


Figure 11.7.

A fairly common pattern of prevention resource allocations in Asia in comparison to the contributions of different populations to new infections.

Second, compare current resource allocations with the proportion of new infections or care needs

The next place where things can go wrong is if there are inadequate resources for prevention or care in some particular population. This can occur for a number of reasons. It's possible that the total resources available are inadequate to provide effective prevention and care to everyone. You can check this in your analyses by looking at resource gaps in the Goals Model. If the total resources necessary for effective prevention and care significantly exceed what is available, your advocacy agenda will need to include mobilizing additional resources.

Another possible reason that resources are insufficient to prevent new HIV infections in a particular population is that resource allocations are not appropriate for the epidemic situation. Figure 11.7 compares the percentage of new infections in different subpopulations against the percentage of prevention resources allocated to each

subpopulation. This shows a fairly common pattern of resource allocations in Asia today. Significant resources are being put into programs to address risk in sex work with a substantial amount also going for programs for lower risk youth or members of the general population. This allocation pattern is not unreasonable in terms of its focus on sex work, but substantial resources are being put into programs for lower risk populations that will avert very few infections (i.e., into programs that are not cost-effective). Meanwhile, the resources for MSM, IDUs, and husbands and wives are extremely limited, despite the fact that, if combined, they contribute over 50 percent of new infections.

If the resource allocation patterns look similar to those above, scenarios can be generated that demonstrate the benefits of reallocating those resources in accord with the distribution of new infections. In this case, your advocacy agenda might include promoting resource redistribution, as was seen in the example from Ho Chi Minh City in Chapter 10.

Third, look at the actual effectiveness of programs

If the programs being implemented are ineffective in some of the populations producing large numbers of new infections, then the response will have little impact on the epidemic. Thus, the final proximate determinant to examine is the actual effectiveness of the programs implemented. One of the most common sources for this type of information is behavioral surveillance data, which can be very useful in evaluating the overall response in a given area. Figures 11.8 and 11.9 display behavioral surveillance data from Bangladesh, showing the effects of intervention exposure on the levels of risk behaviors.

Figure 11.8, for example, demonstrates that the response in Northwest-A and Northwest-B has lowered needle sharing rates substantially among those exposed to the programs. However, the data for Central-A still shows substantial sharing, even among those exposed to the programs. This implies that the current programs in Central-A may not be having the desired effects. In Figure 11.9, condom use is higher among sex workers exposed to the programs in all sites, although it is still far from universal.

The rightmost bars in these figures show the coverage of programs in each site. It is interesting to note how the coverage directly affects the overall level of risk behavior. Where coverage is high, the risk behavior is much closer to that among the intervention-exposed. Where it is low, the overall behavior is closer to those not intervened. This illustrates the importance of attaining high coverage for an overall program to be effective.

In doing analyses of this type, it is important to take into account the limited coverage of behavioral surveillance systems. In many countries, they only operate in a number of sites and may have a bias toward sites with interventions. This needs to be factored into your analysis of the overall national effectiveness of your program. If the overall effectiveness of the response is low, then further investigation is necessary to determine the reasons for that low effectiveness. In this case, you may add improving the actual effectiveness of the programs to your advocacy agenda.

It should be noted that effectiveness issues do not only affect prevention programs, but can become an issue in care and treatment programs. For example, some treatment programs find relatively low levels of people

adhere to their medication schedule and that many people drop out of treatment in the first year. When this happens, treatment programs are less effective and resistance is more likely to develop. If the local treatment program has these problems, ways must be found to increase adherence and keep people on therapy. An examination of the contributing factors may be helpful. For example, sometime people drop out because the drugs chosen for the program have substantial side-effects (e.g., producing fat loss and a skeletal appearance). Lack of adherence may be related to doctors not having enough time with patients to explain the importance of good adherence. Factors such as these may require advocacy for better care and support for those initiating therapy or for better choices of drugs with fewer side-effects.

Fourth, consider any locally relevant factors affecting the epidemic that may require increased focus in advocacy

In some places there may be locally unique contributors to new infections that require attention. For example, in China the outbreak among former plasma donors in the mid-1990s was a major contributor to the epidemic in a number of provinces. In the Philippines, overseas contract workers continue to contribute disproportionately to

the epidemic, almost one-third of detected infections. In cases such as these, if current responses do not contain prevention and care components addressing the special needs of these groups, aggressive advocacy may be needed to ensure adequate resources and capacity to add those components.

Fifth, consider advocacy on the most important gaps in your knowledge of the epidemic

Sometimes the thing that keeps us from responding is that we don't have a clear picture or know enough about the epidemic or the response. As you collected information from various sources during the A² process, one of the things you did was keep a list of the most important data gaps. Depending on the country, this might include a lack of availability of quality surveillance data, limited information on coverage and effectiveness of programs, a lack of nationally representative behavioral data that can tell you the size of the client population, etc. Prioritize this list and consider adding the most important data gaps to your list of issues for advocacy. Having this on your list will help you to remember to lobby that international donor to support a national behavioral survey or to convince the national health survey people to add a few questions on risk behaviors for HIV.

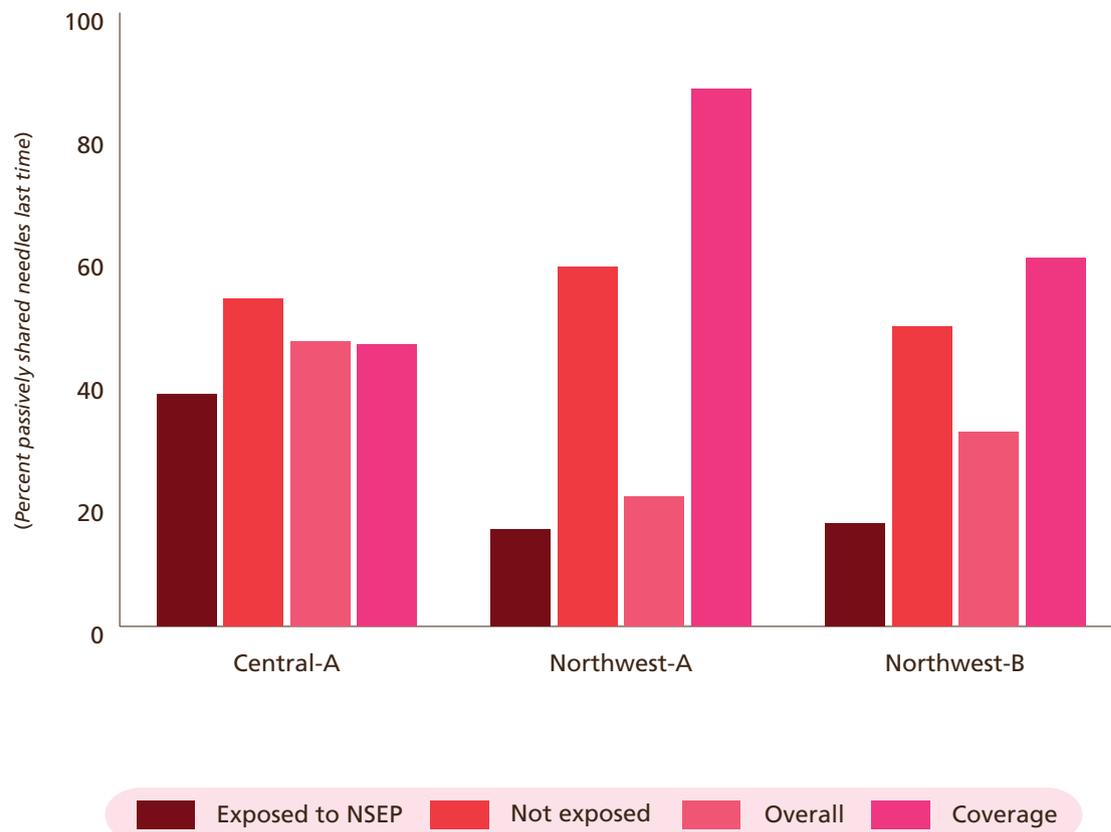


Figure 11.8.

The percentage of IDUs using someone else's equipment at last injection by exposure to needle and syringe exchange programs (NSEP) for several surveillance sites in Bangladesh. The rightmost bar in each group shows the coverage of programs in each of the sites.

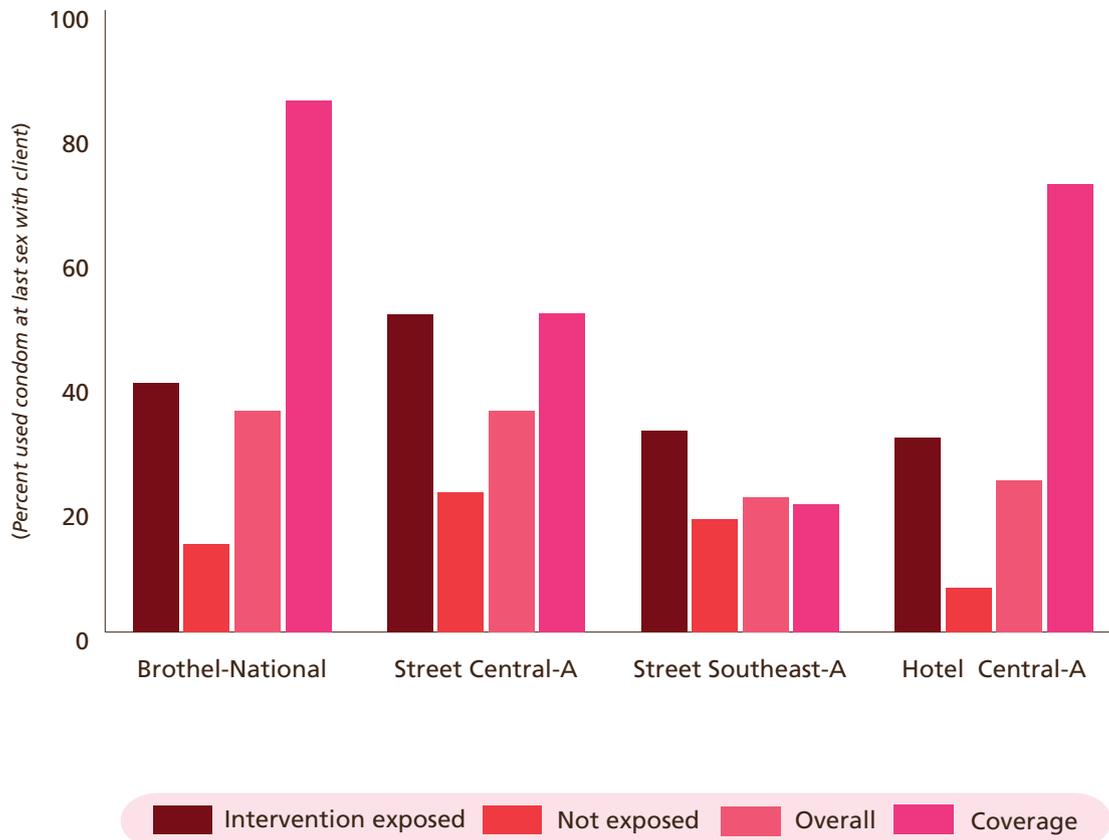


Figure 11.9. Common use at last sex among brothel-, street-, and hotel-based sex workers in sites in Bangladesh. The rightmost bar in each group shows the coverage of programs in each of the sites.

To identify advocacy issues – listen to what people have to say about why it's not working

A careful examination of the data has already identified a number of potential advocacy issues based on what is not working (e.g., the need to mobilize more resources, a need to reallocate existing resources to more affected populations, unmatched prevention or care priorities, etc). But while these problems are legitimate advocacy issues in their own right, sometimes they cannot be corrected until you address the underlying causes or influences. This brings you to another layer of advocacy issues, those that come from identifying the reasons why responses are failing or why resources have not been allocated. This brings you into the realm of the environment and context in which prevention and care, and the decisions about them, occur – understanding these is critical to advocating effectively for stronger, more effective and more efficient responses.

The next step: identify reasons why responses are failing

Responses to the epidemic can fail for a number of immediate reasons outlined in the previous section: they have low coverage, the programs chosen are ineffective, or the resources are inadequate. But if you're going to correct these things, you need to understand why they are the way they are. Why is coverage low? Why are the programs not effective? Why are there too few resources?

Let's suppose you go around and ask a number of people the following questions. In an average Asian country, you

might get some of the following answers (and the authors have heard every one of these in one place or another):

WHY IS COVERAGE LOW AMONG MSM? MAYBE BECAUSE...

- Nobody told us there was a problem among MSM (*MSM community member*).
- There's nobody who knows how to do prevention among MSM in my country (*national program manager*).
- The MSM community doesn't seem to be interested in the problem (*nurse*).
- In my country, well behaved people don't do that (*man on the street*).
- I can't support programs for MSM without losing votes (*politician*).
- My partner thinks I'm fooling around if I use a condom (*MSM community member*).

WHY AREN'T THERE ENOUGH RESOURCES TO PROVIDE CLEAN INJECTING EQUIPMENT TO IDUs? MAYBE BECAUSE...

- They're a small group so they won't produce many infections, and it's a self-limiting epidemic anyway (*international expert*).
- We don't have enough resources to cover everybody (*finance ministry staff*).
- Distribution of needles is against paraphernalia laws (*precinct captain*).
- Programs for injecting drug users are ineffective (*government staff*).
- We don't want to encourage drug use, so we don't pay for that (*Prime Minister*).

WHY IS THE EFFECTIVENESS OF CONDOM PROMOTION IN SEX WORK SO LOW? MAYBE BECAUSE...

- The NGOs doing it don't do a good job (*government prevention staff*).
- It's illegal in my country, so we get hassled by police (*outreach worker*).
- We're not treating STIs with the right drugs, so even though the condom use goes up, HIV transmission continues (*researcher*).
- He's married, so I know he's safe (*sex worker*).
- The clients will not use condoms (*sex worker*).
- If a sex worker carries a condom, she gets arrested by the police (*NGO staff*).
- Condoms cost too much for sex workers to buy (*NGO staff*).
- The church doesn't like us to distribute condoms (*outreach worker*).

Many factors potentially influence decision-making and weaken program implementation

Look a little more closely at these answers; they tend to fall into several major categories:

- **Lack of knowledge or understanding of the epidemic by the decision-makers or the affected communities** (Nobody told us there was a problem among MSM. They're a small group so they won't produce many infections. He's married, so I know he's safe. Programs for injecting drug users are ineffective).
- **Stigma and discrimination.** (I can't support programs for MSM without losing votes. In my country, well behaved people don't do that. We don't want to encourage drug use, so we don't pay for that).

- **Legal barriers** (It's illegal in my country, so we get hassled by police. If a sex worker carries a condom, she gets arrested by the police. Distribution of needles is against paraphernalia laws).
- **Economic barriers or resource constraints** (Condoms cost too much for sex workers to buy. We don't have enough resources to cover everybody. We're not treating STIs with the right drugs).
- **Social and cultural barriers** (My partner thinks I'm fooling around if I use a condom. The church doesn't like us to distribute condoms. The clients will not use condoms).
- **Capacity limitations** (The MSM community doesn't seem to be interested in the problem. There's nobody who knows how to do prevention among MSM in my country. The NGOs doing it don't do a good job).

And, of course, in your local environment there may be many other factors that come into play. That's why you need to draw on local expertise and local information to determine why the policies and programs with the greatest impact aren't currently being implemented.

Identify as advocacy issues the major factors which prevent good policy and program decisions from being made and weaken the implementation of effective programs

These examples start to give you some idea of the complexities surrounding the decisions made about HIV prevention and care. They can also interfere with the implementation of effective programs in the field. As discussed in Chapter 8, the effectiveness of HIV/AIDS prevention and care is greatly

affected by the social, economic and cultural environment. In a similar way, the policy decisions regarding HIV/AIDS are shaped and affected by the financial, political, legal, and social environment in which they are made. Unless these factors are taken into account, it may be difficult to influence decision-making.

For each important piece of the response that isn't working you need to look at these types of underlying issues and determine which are the most important. Which are the critical ones that are keeping the response from working? Which ones need to be addressed through targeted advocacy to create a better environment in which the right decisions about prevention and care can be made and effective prevention and care programs can be implemented? Once you've identified these, you have another set of important advocacy issues to add to your list.

How do you identify the more important of these issues limiting program effectiveness or shaping decisions in your setting?

In order to locate advocacy issues related to the whys of the response, a number of avenues are open to you:

- **First prioritize the response issues.**
From your earlier analysis or your discussions with people who understand your epidemic well, identify the most important components of the response and that are missing, weak or ineffective. There are many components to the response, but some are more important than others – and in A² it's important to keep your focus on the big issues (i.e., the most important ones that are keeping the overall response from being effective). Make a list of the most important response elements from your analysis and from your discussions with people, and then prioritize it.
- **Review the literature you've gathered for contextual and environmental factors surrounding your priority response issues.**
Some of the reports and documents that you collected earlier discuss issues surrounding the response. They may make hypotheses or suppositions about why things work or don't work. They might lay out the factors that the authors see impeding the response. Often these things show up in the discussion section of published papers, or in the next steps or evaluation sections of NGO reports. In a few cases, the researchers or organizations may have actually quantified some of the larger issues affecting the response in surveys or explored them in more depth in qualitative studies. Hopefully, as you went through the documents you collected, you already extracted some of this information as recommended in Chapters 3 and 8. Review the lists you made, locate relevant topics or issues and go back and review the original source material.
- **Use what you've learned from people already.**
As part of the A² process so far, you have talked to a lot of people. When you were out seeking epidemiological and behavioral data, you talked to numerous researchers, NGOs and CBOs. You created a Technical Working Group to help you in locating potential sources of information, provide expert advice, and review your results and findings. When you went to gather information on responses, you held meetings with various program managers, community members and government officials. All of these people hold part of the answer as to why the response is the way it is. Invariably, many have shared with you their views on the epidemic and the responses to it. If you sought their inputs on the context, environment, barriers and facilitators of the response, as recommended in Chapter 8, you

probably already have some idea of the things affecting local responses and influencing local decisions. You may also have some knowledge from your discussions of the things that they do or don't understand about the epidemic, the biases they have, or the constraints they face in responding. If these things are preventing them from making the decisions needed for effective response, they may become advocacy issues.

- **Seek additional input on priority issues from those who know the situation best.**

Starting with the highest priority weak or missing pieces of the response, locate people who can help you understand why things aren't working. For example, if your incidence data show that MSM are the largest contributor to new infections, but there are only small pilot programs for MSM, you should find out why. Locate some of the leaders of the MSM community and ask them why responses are weak. Talk to some community members themselves and see what they say; you may sometimes get a very different picture than what you hear from the leaders. Go to NGOs that work with other affected communities and ask them why they aren't doing programs for MSM. Talk to some of the policymakers to see if they understand the contribution that MSM are making to the epidemic. You may find that numerous barriers exist to mounting effective responses for MSM at the community, institutional and governmental level. Maybe the community worries that addressing HIV/AIDS will stigmatize them further, so they prefer to ignore the problem. Maybe the policymakers haven't heard that local MSM are getting infected—invisibility can be a major barrier to responding. Maybe the community development NGOs doing programs don't want to work with MSM, whom they view negatively. Only by knowing what

these barriers are, can you recognize the need for effective advocacy to address them.

- **Trust but verify – seek multiple inputs to come to a realistic understanding of what is happening.**

It's all well and good to talk to people and seek their inputs, but you need to realize several things:

- What they tell you may be filtered through their own **biases** and **misunderstandings** of the situation. For example, a policymaker who does not support programs with IDUs may tell you that the problem is that when they set up prevention programs, the IDUs don't use them so they're ineffective. But, the real reason may be that he sees HIV as appropriate "punishment" for IDUs.
- They may actually have **limited knowledge** of the situation and why responses aren't working. People often are placed in positions where being an expert is expected. This does not mean that they actually are. Somebody who spends all their time behind a desk and has never actually visited a prevention program in the field or talked to community members probably doesn't have a very good understanding of the situation. However, their job may require them to act as if they do.
- They may be **seeking to place the blame** for ineffective responses elsewhere. If an NGO has been working with sex workers for a long time, but the condom use remains very low, they may not be doing a very good job. However, if they think it affects their future funding, they will not admit that their programs are not working. They may say: the police keep harassing us or claim that government condom supplies are erratic or

even make up service statistics to show they are working, in some cases.

- They may **see only one side** of a much more complex situation. Take for example the question of providing CD4 testing in a resource limited situation. An advocacy NGO may tell you that the problem is that the government has no interest in setting up CD4 testing services. A government official may tell you that the problem is a lack of laboratory capacity. A local doctor may say that they got the equipment, but there is no training available, even though they would like to provide the service. There may be some truth in what each of them says or there may not.

Triangulate, triangulate, triangulate to identify the advocacy issues behind why responses aren't working. In the complex worlds of HIV/AIDS prevention, care and decision-making, the determinants and causes of poor responses or bad decisions are often multifactorial. In such a situation, people construct their own worldviews of what is going on, views which reflect their own priorities. Your goal is to try to get a clear picture of what is important and what is not. This means you must always seek inputs from various people, review what people say in light of any actual data on the context or environment of responses, and triangulate to arrive at a clear picture of what is actually happening. You need to be something of a detective, floating alternative theories and testing them against what the various suspects and the evidence tell you, until you identify the real perpetrator (or perpetrators) behind bad responses to the epidemic. The big factors preventing an effective response become a potential set of advocacy issues.

Addressing stigma and discrimination is essential to effective and efficient responses

One set of barriers deserves close attention and focus: the barriers created by stigma and discrimination. They are particularly insidious because the very presence of stigma and discrimination often encourages people to deny its existence, while giving "other" reasons why they don't want to do what's necessary to contain the epidemic, or, in extreme cases, even actively fighting against critical programs for affected communities. With Asian epidemics affecting many marginalized populations such as sex workers, men who have sex with men, and injecting drug users, stigma and discrimination loom large in the policymaking environment.

So that everyone comes from a common understanding, the definitions of stigma and discrimination in the context of HIV are:

- **Stigma** is a process of devaluing people either living with or associated with HIV or AIDS. HIV-related stigma often comes from the underlying stigma associated with sex and injecting drug use – two of the primary routes of HIV infection.
- **Discrimination** follows stigma, and is the unfair and unjust treatment of a person based on his or her real or perceived HIV status or his or her membership in a marginalized population associated with HIV. Discrimination often extends beyond people known or suspected to have HIV or AIDS and groups perceptually associated with HIV to the families of people with HIV or AIDS.

Stigma and discrimination have many negative psychological effects and can lead to feelings of low self-worth and despair. They also erect major barriers to rational decision-making on public health issues.

Discrimination has serious public health consequences and comes in many forms

Non-discrimination has been recognized as a core human right: one that is essential to ensuring human development, well-being and dignity. Major public health consequences of HIV-related discrimination include:

- **Discrimination instills fear and intolerance.** It creates a climate that interferes with effective HIV prevention, treatment, care and support programs, by discouraging individuals from coming forward for HIV testing, from seeking treatment, and from seeking information on how to protect their own and others' health. It thus heightens the adverse impacts of the epidemic.
- **Discrimination may engender a dangerous complacency** in individuals and groups who are not the particular subject of HIV prevention campaigns and who therefore assume they are not at risk.
- **Discrimination against people living with or suspected of living with HIV tends to exacerbate existing forms of social marginalization** such as racism, sex discrimination and homophobia. It heightens the vulnerability of those who are already vulnerable, and impedes their ability to deal with their own HIV infection or that of a family member or associate.

People living with and affected by HIV face many forms of discrimination. Some forms of discrimination are obvious, such as physical violence. Others may be more subtle, such as a health care provider who declines to provide a service to people with HIV or their families on the basis that they are "fully booked," while taking other patients who do not have HIV. Some affect their ability to support themselves or their families, for example, being refused work or dismissed from a job. Still others, such as refusing schooling to children from a family affected by HIV, deny future opportunities to those children. In extreme cases, communities and even immediate families have shunned or rejected people.

Stigma and discrimination make for bad decisions on HIV responses and raise future treatment costs greatly

But even more harmful is the extensive damage that stigma and discrimination do by negatively influencing the decisions made regarding HIV policies and programs. These impacts manifest in many ways:

- **They affect resource allocation decisions, producing less effective responses and costing lives.** Often decision-makers choose not to fund programs for MSM, IDUs or FSWs. This has major consequences for the effectiveness of the response, and, as seen earlier in the chapter may leave the country vulnerable to serious downstream impacts from failure to take advantage of early prevention opportunities.
- **They foster ineffective and inefficient programs.** Stigma and discrimination can greatly reduce the effectiveness

and efficiency of programs. For example, consider the arrest and confinement programs implemented in many countries to deal with illegal drug use. These programs have been shown to be ineffective in rehabilitating people who use drugs. The relapse rate for people who have been subject to compulsory residential rehabilitation is high, and in many cases there is evidence that drug use continues in rehabilitation centers, including drug use involving the sharing of injecting equipment. Periods of rehabilitation can last for as long as four or five years, and in addition to being ineffective, economic analyses have shown that these programs are provided at enormous public cost. Hence they are also inefficient. In some cases, these programs have even become fertile breeding grounds for HIV with those incarcerated having many times the risk of contracting HIV as those not.

- **They incur substantial downstream costs.** The prevention failures attributable to stigma and discrimination, because they have the effect of increasing HIV infections among the most affected populations in Asian epidemics, will incur substantial care and treatment costs over the next couple of decades. As the example from Hong Kong in Chapter 10 showed, failure to do prevention among MSM today may generate huge and sustained annual costs for antiretroviral therapy in the future.

Until recently, the lack of government-funded programs addressing HIV transmission through sex between men has served as a stark reminder of the effects which stigma, discrimination and denial have had in shaping responses to the epidemic. While some national HIV sentinel surveillance systems have recently begun collecting data on HIV prevalence among MSM, small scale studies have for some years suggested that HIV prevalence rates in this population are many times higher than the national average, yet little to nothing was done. While some governments now monitor HIV prevalence rates among MSM in annual sentinel surveillance, and allocate some limited additional funds for HIV prevention programs for MSM, a great deal of work and resources are needed to scale up HIV prevention programs for MSM to the level needed to turn around the still increasing rates of HIV infection seen in far too many locations in Asia.

Drug use in general, and injecting drug use in particular, also frequently elicit strong reactions and condemnation both from governments and from civil society. While international experience has shown that drug use is most effectively treated as a health rather than a criminal or moral issue, the responses of most governments in the region to injecting drug use demonstrate a lack of understanding of the nature of substance addiction, and of the physical and psychological effects of various drugs. The range of services required to help drug-addicted people overcome their addiction, and the

harm reduction services necessary for protection against HIV, overdose, and other drug-related harms, are in many cases unavailable. Access to oral substitution therapy is being scaled up in some countries, and forms a useful part of the spectrum of services and treatments which drug-addicted people need to overcome their addiction, and to avoid HIV infection and other drug-related harms. Hong Kong is a good example of what can be accomplished when drug use is treated with a public health, rather than a punitive, approach. Despite substantial levels of HIV infection among IDUs in nearby provinces in Southern China, HIV among IDUs in Hong Kong remains extremely low due to near universal access to methadone treatment, policies allowing purchase of clean needles, and a strong public health orientation among those working with the drug users. However no other country in Asia has yet made available the required range of treatments and services on the scale necessary to effectively address the various forms of drug-related harm including HIV transmission.

Programs that respect people's rights are more effective

Experience also shows that HIV prevention, treatment and care programs are more effective when they respect the human rights of populations that programs seek to reach. Unless these programs are implemented in an environment which actively seeks to reduce the stigma and discrimination associated with HIV infection and vulnerability, they are substantially

less effective. For example, sex workers in many places report that they avoid sexual health check-ups where the staff of clinics are rude, or rough in their treatment of sex workers. In a number of countries, the impunity with which police harass and assault sex workers and MSM found to be carrying condoms contributes to the HIV vulnerability of these groups. In some cases, police also harass outreach workers who provide HIV prevention information and equipment to sex workers and MSM, further contributing to their HIV vulnerability. The practice by police of treating the possession of injecting equipment as evidence of the commission of an offence discourages injecting drug users from obtaining and using sterile injecting equipment. This can lead to an increase in the sharing of injecting equipment, and to increased rates of HIV infection as a result. HIV and AIDS-related discrimination discourages people from being tested for HIV, and from accessing information, prevention, treatment and other services, thus heightening the impact of the epidemic. A supportive legal and policy environment is important, if programs are to achieve maximum impact in preventing HIV infection, and mitigating the impact of the epidemic on individuals, families and communities.

A² addresses stigma and discrimination by exploring their consequences

Reducing HIV-related stigma and discrimination promotes the dignity and well-being of people affected, and it is an important public health measure that creates a supportive

environment for HIV education, prevention, treatment, care and support programs. One of the ways in which the A² Project seeks to reduce stigma and discrimination is by providing policymakers and program designers with sound evidence of the efficiency and effectiveness of policies and programs that are evidence-based, rather than stigmatizing or discriminatory towards people living with or affected by HIV. By showing decision-makers that choices dictated by stigma and discrimination produce fewer benefits, generate far more infections, and increase future costs to the country, A² moves the decision-making to a more rational foundation. The hope is that, in many cases, this can counteract the influence of stigma and discrimination on the decision-making process. By these means, A² aims to promote increased political commitment and improved decision-making, better monitoring and understanding of epidemic dynamics, increased and more efficient allocation of resources, and a reduction in stigma and discrimination in the development and implementation of national and provincial responses to the epidemic.

Making a strong case to policymakers can help to limit the effects of stigma and discrimination on policy and program decisions

The populations most affected by HIV in Asia – sex workers and clients, injecting drug users, and men who have sex with men – are already socially stigmatized or hidden. HIV vulnerability and infection further adds to the stigma faced by these populations, and presents a challenge to policymakers, who may be unwilling to allocate resources to “politically

unpopular” groups. Sound epidemiological and behavioral data, and a thorough analysis of the programs which provide effective HIV prevention and impact mitigation, can be strong weapons to counter stigma and discrimination, by proving how public health programs for socially marginalized groups can protect not only members of those groups, but also their sexual partners and the broader population, from a growing HIV epidemic.

HIV prevention programs for most-at-risk populations benefit society as a whole, both in the number of HIV infections averted, and in future health care and other economic costs saved through HIV prevention. By seeking to eliminate the barriers erected by stigma and discrimination, A² seeks to maximize the effectiveness of responses to HIV and to minimize the long-term impacts of the epidemic.

To identify advocacy issues – look at who’s involved or not involved and why not

A final set of potential advocacy issues centers around who is and who is not involved in the response to the epidemic. Implementing large-scale, effective HIV prevention and care requires actively engaged communities, an adequate number of appropriately trained personnel, and decision-makers who provide a supportive environment and make the resources available for them to do their jobs. If any one of these components is missing, responses will be weak

and ineffective and HIV will continue to spread and inflict damage. Thus, essential advocacy issues may arise around mobilizing communities, building capacity, and convincing decision-makers to properly support HIV prevention and care. This section explores the roles and the types of issues that are sometimes seen for each of these groups.

Community awareness and engagement are critical to delivering quality prevention and care

United States Secretary of State Hillary Clinton said “it takes a village,” to raise a child, and the same applies to HIV prevention and care. Without the engagement of communities, responses to HIV/AIDS will be greatly weakened. Communities have a number of essential roles in HIV programs and the decisions surrounding them, each of which may call for advocacy attention:

- **Community knowledge is required to build appropriate programs, creating an important role for communities in decision-making processes.**

There is a common misconception that designing programs for sex workers, MSM and IDUs is easy; that what needs to be done is already well-known and that there are turn-key solutions. However, there are huge variations among and within the countries of Asia in the way risk plays out, in the legal and social barriers to prevention and care, and in the cohesiveness of these very diverse communities. Developing an effective program for any of these marginalized populations requires understanding their local

situation, their concerns, their social networks and their attitudes. For someone on the outside, the learning curve can be quite steep. For a member of the community who lives in that situation, shares those concerns, is a member of the social networks and knows the attitudes and behaviors of his or her peers – there is no learning curve regarding the community. They have knowledge that is crucial to designing programs that will work in their local environment. Stigma and discrimination often make it difficult for policymakers to work with members of marginalized communities; but, if programs for them are to be effective, community members with appropriate knowledge need to be involved in the decisions about which programs are appropriate and how they are to be carried out. Quite often an advocacy issue arises around bringing concerned community members into decision-making processes in a meaningful way.

- **Community engagement is necessary to take programs to scale.**

However, that does not mean there is no learning curve for a community member. If someone from the community is to become involved in HIV prevention and care, they do need to learn essential prevention or care skills. This requires that opportunities be created within the community to attain those skills and resources provided to enable people to apply them on an ongoing basis. Furthermore, if prevention and care are to be brought to scale, usually the community must be actively engaged. This means,

first that they acknowledge there is a problem, and second that sufficient numbers of community members have an interest in addressing the problem. This is not always easy. Some communities are less cohesive than others and some amount of community building may be required, if it is deemed appropriate and likely to work in the local setting. Other communities are concerned about specific issues such as increased stigmatization or discrimination if they are associated with HIV in public media. This can lead them to reject programs for prevention and care or to go into total denial that there is even an HIV problem among them. This may require you to add an item to the advocacy agenda about raising the level of community awareness of HIV and its impacts.

- **Communities must foster a supportive environment for prevention and care.**

People make prevention decisions in the context of a community. If community norms do not support taking preventive measures, the odds of someone using a condom or not sharing a needle decrease substantially. If, in fact, qualitative data or conversations with community members show this to be an issue, advocacy may be needed to engender and build norms of protecting oneself and others and building a supportive environment for HIV treatment and care within the community itself. Ultimately

prevention responses occur at the community level, so this can be an important issue at a nation-wide or province-wide scale.

Capacity to respond appropriately must be built

However, the village consists not only of community members, but also of NGO staff, government health and social workers, doctors and nurses and others. Responding to an epidemic requires all of these people have the appropriate training and financial and logistical support to play their role. Thus, advocacy may be needed to encourage building sufficient capacity to respond at a national or provincial scale. Some specific capacity related issues that arise in Asian settings include:

- **Building government capacity to work with affected populations.**

Ultimately bringing responses to national scale will normally involve engagement on the part of the government – they have the largest group of health and social welfare workers in most countries. However, government workers have little experience working with the types of affected populations that are seen in the epidemics of Asia. The services they offer (e.g., STI or medical care) are sometimes not supportive or even hostile to members of affected

communities. They also often have little experience working with HIV and share many of the same fears and concerns regarding it as the general public. Accordingly, an advocacy issue may arise around building appropriate linkages between government staff and affected communities or around raising their HIV awareness.

- **Increasing NGO and CBO capacity and willingness to engage in HIV work.**

In some countries, development NGO capacity is strong. In a few countries, the development sector even provides major services when the government is largely dysfunctional. However, once again the issue of stigma and discrimination can become important. Women's groups may not be willing to get involved in programs for sex workers – in fact, in some countries they have actively argued against the implementation of such programs. If problems such as this are encountered, active advocacy may be needed to get development NGOs engaged in HIV issues and working with affected communities or to get other groups to stop opposing urgently needed programs.

- **Providing communities with the training and resources needed to sustain active engagement.**

Finally, as mentioned earlier, communities have an important role to play. However, while some think that communities can sustain prevention and care

programs with volunteers, this is an unrealistic expectation. Members of communities who become more active in HIV prevention and care require training and salaries to be able to sustain a long-term commitment. This can create the need to lobby decision-makers and budgeters to provide appropriate resource levels to community programs so that they can go to scale in a sustainable fashion.

Decision-makers need to create a supportive environment and provide the resources

There may be advocacy issues around which decision-makers are involved and what they need to do. Decision-makers can be found at a number of different levels. At the highest level, are the government decision-makers including Prime Ministers, cabinet members or ministry heads, members of legislative bodies, national AIDS program managers or government bureaucrats. There are decision-makers at the international level: international NGOs, the donors, the United Nations. There are decision-makers within local NGOs and CBOs: program managers or office and field staff. And, very importantly, there are decision-makers within the communities: leaders who help to set community norms and standards and community members who make individual day-to-day decisions on prevention, treatment and care issues.



Each of these key decision-makers requires valid and appropriate information about HIV and the most effective way to respond to it and then they need to act on that information. Depending on your local situation, advocacy issues may revolve around engaging them, getting the right information to them and influencing their decisions. However, as usual, you need to be strategic, as you do not have the personnel or resources to reach out to everyone and fill everyone's information needs.

Some of the important things to keep in mind as you consider which decision-makers you should try to work with:

- **The right decision-makers need to be engaged.**
In some countries the advocacy issue may be simply getting the right people interested in HIV issues, educated about the local epidemic and involved in the decision-making process. Certainly, many countries have put a lot of effort into bringing high-level government officials on board or engaging government ministers in HIV responses. However, this should be done judiciously. The people you seek

to involve should be those who can actually make a difference. One of the early mistakes in implementation of multisectoral approaches was to seek to engage everybody, even those for whom HIV was a completely peripheral issue. As a result, resources were spread thin and responses often suffered. Thus, in deciding who to bring more actively into the AIDS discussion in your country or province at any level (government, international, NGO or community), think about the impact they can actually have. If the person can play a critical role in mobilizing resources or in moving the response in the right directions, engaging them may constitute an appropriate advocacy issue.

- **Decision-makers at all these levels need to make the right decisions.**
A² is about evidence-based advocacy, and a primary job of the A² team is to get the right information to the people who can make a difference. However, information is not the only factor influencing their decisions. You must also be cognizant of the other

factors that determine what these decision-makers decide to do. If you can realistically do something about some of those factors (e.g., to build political pressure in support of HIV programs or reduce religious opposition), this may suggest items to be added to the advocacy agenda. Again, what you choose to do will be determined by who you seek to influence, what you hope to accomplish and what's important in your local setting.

- **Laws and policies need to support appropriate prevention and care.**

Some of the major barriers to effective HIV responses are legal or policy-based. Examples have been given earlier in this chapter, such as the policy of arresting sex workers for carrying condoms. However, again, you need to be realistic about what you can achieve. While many feel that legalization of sex work would be the best approach to resolving this issue, in the current political environment that is unrealistic in most places. Thus, if you wish to advocate for sex workers, it may be better to promote decriminalization or to encourage local police to be less harassing and coercive and more supportive of prevention

efforts. Just as scenarios had to be realistic, so do the advocacy issues you choose around legal and policy matters.

- **Adequate resources must be made available for an effective response.**

The need for resource mobilization was discussed in the opening sections of this chapter. However, it is raised again here in the context of the decision-makers because they are the ones who generate the resources or allocate the resources to specific programs. Your scenarios can help them to identify which programs will work best, but they may not act on this without receiving an additional push through advocacy. Also, as mentioned in the earlier discussion of community and capacity, resources directed to the community are necessary to sustain effective responses. This may be more challenging since there may be concerns about promoting socially unacceptable behaviors. Scenarios can illustrate the value of this approach, but it may require substantial advocacy to reach the desired objective. Remember, if the resources are not directed to the right programs, the response will remain ineffective.

A big part of getting the response scaled up is getting the right people involved. Choose your advocacy targets and issues carefully. If they are focused, feasible and grounded in what is realistically achievable, you will multiply your impact many-fold.

Deciding where to focus – selecting the priority advocacy issues

You can't solve every problem – nobody can. And that means you've got to be selective. As you've gone through this chapter, you have probably thought of many, many potential advocacy issues. Some are big, some are small. Now you need to prioritize them. Keeping in mind that A² is trying to drive the overall response in more productive directions, consider each possible advocacy issue in terms of the following questions:

- **What changes in the response will have the biggest immediate impact on the epidemic?**
Get the biggest issues out of the way first. That way you can have the maximum impact on the epidemic and then come back and clean up the smaller issues later. This will involve looking at what the data and analysis tell you about the programs with the

greatest effect in slowing or reversing the epidemic or providing better care to people living with HIV.

- **What are the biggest barriers to implementing effective programs?**
Identify the biggest problems that are keeping people from responding effectively to your "big impact" programs. If you can think of ways that these can be resolved in a realistic time frame, give them a higher priority.
- **What essential capacities to respond are weak or missing?**
Condoms don't prevent HIV, people do. Identifying and designing the best HIV prevention and care programs in the world won't make a whit of difference if you don't have the people to carry it out at a scale that matters. This means capacity constraints are legitimate and important potential advocacy issues. Look at which of the many capacity constraints are really holding back the response and consider targeting them first.
- **Are there opportunities or situations arising that you can capitalize on for advocacy?**
HIV advocacy actually needs to be an opportunistic process. If you see a major opportunity to involve your A² team in a national strategic planning process, in preparing plans for universal access, or similar

activities, take it. The Thailand A² team capitalized on both of these and helped to move the country to adopt a prevention goal for the first time in over a decade.

Remember, working in close concert with others, you've got to identify a manageable number of issues that are the most critical to improving your national or provincial response. The next two chapters will spend some time discussing how to prioritize and select your top priorities and then how to convert them into a concrete advocacy action plan. Like the process of scenario building, you cannot do this in isolation – your A² team is only one of many groups trying to influence the direction of programs and policies. Thus, you need to engage partners to assist you in deciding which of the potential advocacy issues are most important, which are actionable in the current environment, and which might actually be achievable through concerted and properly targeted advocacy.

Start building advocacy partnerships with those who share your concerns

Advocacy is hard work – you're not going to be able to do this alone. You will need partners who help to develop the

goals of advocacy and who will help in influencing decision-makers. Build on the contacts you've made throughout the A² process to identify potential partners and sound them out for interest, while simultaneously seeking to locate others who share your concerns. Even as you are identifying key advocacy issues, you need to begin the process of engaging advocacy partners. Good partnerships require that people be involved from the start – they need to have a say in defining the advocacy issues if they are to have a sense of ownership that will lead to sustained and productive involvement.

If the issues you choose are important enough, there are many who will care about them. There are natural partners waiting to be found and natural coalitions to be formed. As you locate these potential advocacy partners, make them aware of what A² can offer in terms of bringing concrete analysis and evidence-based understanding of the local epidemic to the table. They may have political access, communications skills or access to a particular constituency that can help you to convert your ideas about what makes for better responses into actual improved responses on the ground.

CHANGE

Chapter 12

MAPPING THE POLICY LANDSCAPE:
DECISION-MAKING IN THE LOCAL HIV/AIDS WORLD

[an overview]

[an overview]

Chapter 12

MAPPING THE POLICY LANDSCAPE: DECISION-MAKING IN THE LOCAL HIV/AIDS WORLD

Having now identified some of the most important issues keeping your response from being maximally effective, you must now think about how to translate this into improved responses on the ground. Policies and programs do not change by themselves. They change when people make choices: choices about discontinuing ineffective and failed programs, choices about starting new programs, choices about mobilizing or using resources, that is, choices about the future. That requires asking a few questions.

Who makes decisions locally?

Before you can even think about advocacy around a particular policy issue, you need to know who you need to influence, i.e, who is the target audience for your advocacy. Depending on the specific issue you're looking at, you may need to influence any of:

- Government and political authorities
- National and international donors
- Program managers and other implementers
- People living with HIV and AIDS
- Affected communities
- The public and/or influential figures in the community
- The media
- Professional or institutional groups

Each of these groups will have different interests, different information needs, and different willingness to engage on your issue—requiring different advocacy strategies and approaches, and audience-specific advocacy materials or activities meeting their needs. Any, or all, of them may be possible target audiences. To start the process of determining your target audience and what is needed to get their support, ask:

How are policies or decisions in regard to your chosen issue made? Create a policy process map.

This requires determining several things: 1) how the issue is introduced into the decision-making process; 2) what the formal and informal processes for discussing, debating or amending a proposed policy or decision looks like; 3) who is involved in that process; 4) how it is approved or rejected; and 5) whether it then needs to move to another level of decision-making or to implementation. You may need assistance in mapping complex policy processes or environments. Don't hesitate to work with current or former government staff, supportive members of the groups you're trying to influence, university policy researchers or others to build a solid understanding of the process.

Remember, advocacy can have both primary and secondary target audiences.

One of the things you learn in generating your policy map is who actually makes the decisions or policies. These people or institutions are obviously the primary audience for your advocacy efforts. However, decisions are not made in a vacuum; these decision-makers are influenced by those around them. That means there may be other secondary target audiences who can help you to make the case to the decision-makers. There may also be others who might lend their support to your advocacy campaign. These, too, can become important secondary target audiences, whom you seek to enlist in support of the process.

Who supports or opposes what you're trying to achieve? The power map.

HIV/AIDS often generates strong feelings, touching as it does on issues of sex and drugs. Accordingly you should not start advocacy without knowing who your potential allies and opponents are. This is done by creating a power map that identifies the primary and secondary audiences who may support, remain neutral on, or oppose your proposed changes and the strength of their support or opposition. This can help you to determine where your advocacy efforts need to focus, identify specific advocacy actions that may be needed, or highlight specific threats that need to be neutralized.

What is the interest of the various target audiences in the issue?

Once you know who the players are, you need to determine their level of interest. What do they know or not know about the issue? Have they supported or opposed it in the past; and, if so, how strongly? What are the potential benefits or costs to this group if action is taken on your issue? Answering these questions will help you to define your overall strategy in moving forward and tailor your advocacy messages to address their needs or concerns.

What are the barriers and facilitators to appropriate policies or decisions?

Whenever decisions are made, people operate under constraints. Budgets need to be done by a certain date. Only limited resources are available and there are competing priorities. Public pressure can inhibit or facilitate public policy actions around controversial topics. For your chosen advocacy issue, pull together the material you collected, draw on the discussions you've held, and list the major barriers to action or implementation along with the natural facilitators. Also keep an eye open for opportunities you can take advantage of – you need to be opportunistic and take advantage of other campaigns, upcoming planning processes or other happenings that focus attention on your issue. These can be used to move your advocacy agenda ahead, and they will need to be factored into the preparation of a concrete advocacy plan, discussed in more depth in Chapter 15.

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DECISION-MAKING IN THE LOCAL HIV/AIDS WORLD

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Chapter 12

MAPPING THE POLICY LANDSCAPE: DECISION-MAKING IN THE LOCAL HIV/AIDS WORLD

Chris Ward and Tim Brown

How does change occur?

In virtually every country the HIV response is far from perfect. Important components of the epidemic remain unaddressed, ineffective programs are implemented and sustained, and those with needs are badly underserved. Changes are clearly needed.

Understanding the process of change makes for informed advocacy

Many people think change is a random and haphazard process that takes a long time, but the reality is that change can be motivated, accelerated, and achieved more quickly if you understand the process of change and intervene in a focused, directed way at key points in that process. Earlier in the A² process, when you sought to determine what prevention programs would be most effective in addressing your local HIV epidemic, you undertook a systematic, careful process of collecting data and using it to build a clear understanding of the epidemic and to assess the impact of different programs. Effectively advocating for change requires a similar systematic information collection effort to understand the policy process, identify those who need be influenced, determine who and what influences them, and then mount activities that use this knowledge to efficiently and effectively promote change.

Think about how change generally occurs. First, there must be a desire for change, based either on dissatisfaction with the status quo or appreciation of the benefits of better programs and policies. Without this, things will usually stay as they are. Second, those who are dissatisfied or who recognize the benefits must convince those who make the decisions to appropriately change policies and programs and make resources available to implement the desired changes. Third, barriers to making the changes must be overcome. And, finally, somebody must have the capacity and resources to actually implement the changes.

Effective advocacy collects and uses information at each stage of change

Unless people are aware of the weaknesses and problems in the current response or that a better response is possible, there is no desire for change. In Chapter 11 you identified critical advocacy issues that were impeding your response - these data-driven priorities form the basis of your advocacy agenda. But who can act on these issues and make change happen? In other words, who needs to be made aware of these issues through targeted advocacy? Lacking the resources to influence everyone, you need to identify the most important decision-makers, learn how decisions are made, and understand what influences the individuals and institutions with decision-making authority. This means you

must gather information about the key stakeholders in your setting, their motivations and power relationships, and your local decision-making processes. You must also understand what stands in the way of change – what are the barriers? Are they legal, religious, capacity-related, financial, etc.? An effective advocacy strategy needs to address these to ensure that change becomes possible.

Thus, just as analysis required gathering information about the epidemic, advocacy in A² requires gathering information about decision-makers, decision-making processes, and the factors that make change more difficult. This information, the focus of this chapter, will form the basis of a targeted advocacy plan, to be discussed in depth in Chapter 13.

Who makes the decisions? Considering whom you need to reach

Determining who we need to reach, i.e., your advocacy targets, is a key step in planning an advocacy activity. Having identified your priority advocacy issue, the identity of your target audience will influence both the form and the content of the information you present. Whether working at national or provincial level in the HIV/AIDS world, a number of key agencies and individuals make and influence decisions:

- **Government and political authorities**, who set national and local policies regarding HIV/AIDS and related issues, e.g., drug policy or access to HIV-related prevention and care, and allocate budgets for programs.
- **Donors**, who often control a substantial portion of the resources allocated to HIV responses and influence the targeting and programming of those resources.
- **Program managers** in government, national and international NGOs, and CBOs, who play a key role in the development and implementation of programs and operational policies.
- **Affected communities and people living with HIV and AIDS**, who often understand the problem best, can provide information on what is feasible, and must play a central role in the implementation of effective programs.
- **The public and the media**, who help to shape the environment in which decisions are made and programs are implemented, often exerting substantial influence on those actually making the decisions.

- **Professional or institutional groups**, such as medical societies or businesses, who set or implement policies affecting HIV responses, e.g., ethical standards for provision of care or nondiscrimination policies.

Depending on the advocacy issue at hand, one, some or all of the above may need to be reached. Once your advocacy issues are decided, you must consider which stakeholders make and influence the decisions and target your advocacy strategy accordingly. Keep the following things in mind about the potential advocacy targets as you do this.

Government and donors play a central role in formulating policies and directing resources in most places

Governments, at both national and local level, are usually responsible for setting high-level policies on HIV related issues. They also provide a substantial fraction of the resources for responding to HIV in any country; and, in many cases, government employees are the primary implementers of major parts of the program. This often makes them the primary target for advocacy.

But, while it is the official role of government to make policy, there are often other important policy actors, including bilateral and multilateral donors. The influence of donors on the policy environment varies from country to country. In some countries in which the A² Project is implemented, donors rather than governments provide the

major portion of resources allocated to responding to HIV. For this reason, advocates should always consider the role of donors, alongside that of government, when seeking to bring about changes in the HIV policy environment. In a handful of cases donors will constitute the primary audience for advocacy messages, having the capacity to bring about policy changes through their control of a substantial portion of the resources allocated to the HIV response. In other cases, donors will be secondary but still important audiences for advocacy messages, and will often have relationships with government recipients of aid grants that allow them to advocate for particular policy or program changes.

Major donors for HIV programs in Asia include USAID, DFID, AusAID, the Global Fund for AIDS, Tuberculosis and Malaria (GFATM), the Bill and Melinda Gates Foundation and the European Union. This is not an exhaustive list, and where you do not already have this information, you should familiarize yourself with the amount of funding different donors contribute to HIV programs in your country or province, the activities funded by donors, and donors' policies and priorities for HIV programs. In most countries in the region there are forums for coordination between donors, and between donors and governments. For the Global Fund specifically, there is the Country Coordinating Mechanism (CCM), which encourages civil society involvement in decision-making about Global Fund priorities for the country, although with varying levels of success. You should be informed of and take opportunities to participate in and contribute inputs to such forums where possible.

Program managers and implementers often play a significant role through the development and implementation of operational policies and procedures

While official policies serve as statements of principle, indicators of policymakers' stances on issues, and educative tools to guide public opinion, the impact of policies ultimately derives from the extent to which they are actually implemented. It is an unfortunate fact that policies are commonly adopted even though resources, legal frameworks, and political will are insufficient to ensure their implementation. The effectiveness of the national or provincial policy is then determined by operational policies and procedures set by those at lower levels in charge of implementing the policy. These operational policies and procedures may or may not be well-documented, but they frequently play a significant role in determining the allocation of resources locally and the level of access to services.

A good example is access to methadone maintenance treatment for opiate addiction, which provides an important avenue for prevention and an effective approach for reducing HIV risk. In most countries, methadone is a restricted substance, the possession or use of which is either illegal, or subject to strict controls determining who is permitted to possess and dispense it. While laws at either the national or provincial level will usually determine whether methadone can be legally dispensed, operational policies, made by lower level authorities, often play a major part in determin-

ing which opiate-addicted individuals can access methadone. Regulations made by Health Department Officials at provincial or lower levels, or even by managers of individual clinics, sometimes include factors such as whether or how many times a person has been through detoxification treatment or residential rehabilitation for opiate addiction. A requirement that one has "failed" or relapsed into drug use one or more times before being entitled to access methadone increases the risk that a person who injects drugs will become infected with HIV before they gain access to methadone. Fees may be imposed locally to allow health authorities to recover some or all of the cost of administering the treatment, but even relatively low fees may prevent access by drug users who are unemployed or otherwise unable to pay. Factors such as the hours during which methadone is dispensed, how many doses a patient can receive during a single visit, and whether their access to methadone is limited to a single clinic, can all influence whether a person is granted access to methadone. These factors can also influence the extent to which a person is able to maintain their adherence to a methadone treatment regime.

It is important, when identifying priority issues for advocacy and deciding how to address them that any relevant operational policies and procedures are taken into account and that advocacy with those making these policies is included as needed. One of the best ways of finding out what operational policies are impacting the response is to consult with members of the communities affected by these policies, which in the case of methadone means drug users addicted



to opiates. They will have a clear picture of how things are playing out on the ground, the actual operational policies in place, and the positive and negative aspects of those operational policies.

Engaging affected communities and people living with HIV and AIDS in decision-making leads to improved policies and programs

Because the communities most heavily affected by HIV and AIDS are often stigmatized and not well understood by outsiders, it is difficult to design and implement good policies and programs without their involvement. Policies which are made or programs which are designed without considering the needs and opinions of affected communities are likely to be rejected or, if implemented, prove ineffective. The efficacy of programs is to a great extent determined by their acceptance within the community. If the community does not consider HIV/AIDS to be an important issue for them, it will be difficult to mobilize them to take protective measures, create a social environment that supports safe behaviors and protects members affected by HIV, or to take responsibility for actively responding to the epidemic in their community. This means the communities themselves must often be targets of early, focused advocacy.

And, make no mistake, their involvement is crucial to an effective response. People with direct, personal experience of the epidemic have an expertise which adds value to the analysis of and response to the epidemic at all levels. Who

better to advise on the design and delivery of appropriate and sensitive services? Who better understands the challenges of HIV prevention than people who have become infected with HIV, or are engaged in activities which carry a risk of HIV infection? Who better understands the barriers that people living with or affected by HIV and AIDS may face in accessing information and services? The meaningful involvement of people living with HIV and AIDS and affected communities is essential to developing better responses to the epidemic.

Engaging affected community leaders and organizations of people living with HIV and AIDS at the early stages of policy formulation and decision making can help to ensure the policies and programs chosen are both relevant and feasible. Building strong support within the community and within organizations of people living with HIV and AIDS can help in building preventive social norms, providing support for affected community members, and identifying staff and volunteers to join the effort, thereby accelerating the implementation of the policies and programs selected.

The nations of the world long ago recognized the importance of involving those living with or affected by HIV. At the Paris AIDS summit in 1994 a total of 42 countries adopted the principle of greater involvement of people living with HIV/AIDS (GIPA). GIPA has two important components: 1) recognizing the important contribution that people living with HIV and AIDS and members of affected populations can make to the response to the epidemic; and 2) creating space within society for their involvement and active par-

ticipation in that response. The Paris declaration particularly emphasizes the role of networks of people living with HIV and AIDS and of community-based organizations. The GIPA principle will ideally be applied at all levels: participation in decision-making or policymaking bodies; recruitment as experts with a unique knowledge of affected populations and the issues facing people living with HIV and AIDS; involvement in design, adaptation, implementation and evaluation of interventions; and as a community resource to educate others about HIV-related issues.

NOTE: a much more extensive discussion of the GIPA principle is contained in the supplementary materials for this chapter in the Implementer's track.

However, involving people living with and affected by HIV and AIDS presents some challenges. Often it is difficult for someone with HIV to publicly acknowledge their HIV status or for someone from an affected population to be open about their membership in that population because of the pressures created by stigma and discrimination. This may require taking precautions to protect people who disclose their positive HIV status or their membership in an affected population. It is also important to stress that "involvement" should not necessitate disclosing one's HIV status or membership in an affected population. Steps must be taken to create an environment which gives people a choice about disclosing their status or group membership, but which still gives them a full opportunity to participate regardless of such disclosure.

In addition, while people living with and affected by HIV and AIDS have unique expertise to share, they sometimes lack the necessary skills, self-confidence, resources and standing to participate fully as equal members of decision-making bodies or expert panels. Thus, implementing GIPA may require providing them training in presentation and communication skills, building their program planning and monitoring abilities, creating a supportive and protective environment in the relevant organizations and committees, or providing financial and other support as needed to ensure their active and continued involvement. There is often an expectation that any involvement will be on a volunteer basis, even when individuals living with HIV and AIDS and community-based organizations from affected populations are taking on major roles as implementers. However, this is unrealistic. As the Commission on AIDS in Asia has emphasized, if affected individuals and communities are to be engaged as full partners in a sustained response, adequate resources must be provided by governments, donors and the private sector for that participation.

Targeted high-level advocacy may be needed to build support for involvement of those living with HIV and AIDS and communities affected by HIV in the response

Because of the stigmatized nature of the populations affected by HIV and the stigma attached to HIV itself, many higher-level decision-makers and policymakers are

unwilling to work with them, despite the expertise they bring to decisions about policies and programs. When members of these communities and people living with HIV and AIDS are engaged in policy processes, it is often in a tokenistic and disempowered form. They are asked to sit in decision-making bodies, but their input is neither sought nor accepted, resulting in ineffective policies and approaches being adopted.

The need to ensure that the voices of those affected by HIV are heard creates an urgent need for preliminary advocacy for their active involvement with those who head national committees, agencies planning HIV activities, and other policymaking and programming bodies. This advocacy should aim to raise their awareness of the value that affected community members and people living with HIV and AIDS bring to the policy process. It should help them understand that people living with and affected by HIV and AIDS have a right to be fully involved and want to be involved in solving the problems posed by the epidemic, as they are the people most affected by HIV policies and programs.

GIPA has many benefits. Responses become more focused, more effective and more extensive. Contributing their expertise and experience can remind those from affected communities just how valuable and productive they are, and can help counter internalized feelings of stigma or low self worth. At the societal level, publicly acknowledged involvement of people affected by the epidemic helps reduce stigma and discrimination, and reminds us that people living with and affected by HIV and AIDS are an essential part of the response. You should always work to make GIPA a reality through your advocacy activities.

Reaching the public and the media is sometimes an essential step in creating an environment to support the policies and programs needed

When levels of HIV-related stigma and discrimination are high, people are discouraged from accessing prevention, treatment and care services. If the public is strongly opposed to the

prevention programs for most-at-risk populations required to contain the epidemic, politicians will be hard-pressed to support them publicly. If people living with HIV and AIDS suffer from workplace discrimination and lose their jobs, additional demands for support programs will be created. When there is little awareness of the presence of HIV in the population, many people may not even be aware they are at risk. Factors such as these make it important in some situations that advocacy be done to shape public opinion, reduce stigma and discrimination, raise awareness and build support for the policies and programs needed.

One of the most effective ways of accomplishing this is to work through mass media. This may require building support among key opinion makers, reporters, or television producers as potential allies in doing advocacy with the public. Working HIV/AIDS themes into popular dramas or movies can assist in normalizing HIV. Governments can play an effective role in reducing HIV related stigma and discrimination, through such means as public awareness campaigns promoting respect and

compassion rather than stigma and discrimination. Programs for youth in schools can help to reduce the level of stigma and discrimination against those living with HIV and AIDS. If stigma and discrimination or opposition to necessary programs is strong, advocacy activities such as these may prove an essential component of your advocacy agenda.

However, in some situations it may be better to keep a low profile and avoid highlighting your issue in the media. Some of the issues around HIV and AIDS are highly controversial or extremely complex. These issues may be better served by working quietly behind the scenes or with very narrowly targeted messages to specific affected populations rather than by giving them a high public profile. For each of your advocacy issues you always need to consider the possibility that media campaigns may have negative consequences in planning your advocacy approach. For example, implementing prevention programs for MSM is increasingly important in addressing most Asian epidemics; however, male same-sex behavior is still stigmatized in much of Asia. Media attention that focuses



excessively on the role of MSM in the epidemic may increase discrimination against MSM and make it more difficult to implement these essential programs. Furthermore, drawing too much attention to this issue in the media may damage your relationships with the MSM community, once again impacting the effectiveness of your programs. As a consequence, for each of your chosen advocacy issues you need to consider carefully in your own situation whether and how to present the issue to the public.

Address institutional and professional policies that affect HIV prevention, care and impact mitigation

Policy is made at all levels. At the national level, one might adopt a law forbidding discrimination on the grounds of person's HIV status. However, unless this is enforced and protections provided for those who challenge discrimination, it may have little impact. Often, creating and enforcing institutional or professional policies at a lower level can address many of the problems faced by people living with HIV and AIDS. Consider the impact of adopting and enforcing professional ethical standards among doctors and nurses requiring provision of care to everyone regardless of HIV status. This might be achievable through advocacy with hospital authorities and medical professional societies by providing them data on how serious the problem has become. Similarly, advocating with employers to adopt

policies of extending medical care to those living with HIV rather than replacing them so as to reduce retraining and restaffing costs can go a long way toward improving the quality of life for those affected and their families. Thus, you should consider whether there are professional societies or specific large institutions that you can target for advocacy. Look for those groups whose policies will impact a large number of people, e.g., medical professional societies, teachers' groups, large companies or government ministries with oversight authority.

How are policies and decisions actually made? Mapping the local policy process

Policymaking generally occurs in a complex environment. Multiple sources of information, some more valid than others, may be consulted – or, in some cases, disregarded if they don't agree with the politically desired outcome. Many individuals and organizations play a role at different stages. Complex power relationships between the different actors sometimes drive or affect policy formulation. Different individuals, agencies, and stakeholders may have varying levels of influence on the outcome. Decisions may be made through well-defined, formal and open processes, through extremely amorphous, informal and opaque processes, or

through some combination of these. With HIV and AIDS, politics frequently comes into play.

At this point, you've spent time thinking about who is involved in policymaking and decision-making around your advocacy issue; now it's time to think about how policies and decisions are made and what role those people play in that process. To define an effective advocacy strategy you need a thorough understanding of the policy process as regards your advocacy issue. Only by understanding the way that process works can you hope to locate opportunities for influencing it and identify the people or institutions that control the decisions made at various steps in the process. Some of these people are likely to become your primary advocacy targets.

A policy process map helps you to understand the policy process

The policy process map is a graph or chart that shows the essential steps taken in formulating a policy or program, which may include, among other items:

- Initial brainstorming on the policy or program,
- Gathering required information to inform the program or policy,
- Recommendations made by experts or outside bodies,
- Formulation of a draft,

- Review of and solicitation of comments on the draft (public, expert or legal),
- Approval of the draft proposal,
- Consideration of budgetary and financial implications of the proposal,
- Submission of the draft through official channels for approval or political action,
- Intermediate steps in the process of approving or voting on the proposal,
- Final approval and sign off,
- Additional steps in translating the proposal into an action plan,
- Various stages of implementation

Figure 12.1 shows an example of what a policy process map might look like for adopting a national policy on ART care. As you prepare your policy process map, you should note exactly how each step is carried out. Is it through public meetings, discussions among closed groups, action or decision by one individual, or some other approach? You should also note all the actors involved at that stage; some of these are potential targets for advocacy. Finally, you should specifically highlight any opportunities at that step for input to the process by various individuals or agencies, including your A² team. By providing relevant and evidence-based information to those individuals or agencies when these opportunities arise, you may be able to influence the course of policy formulation.

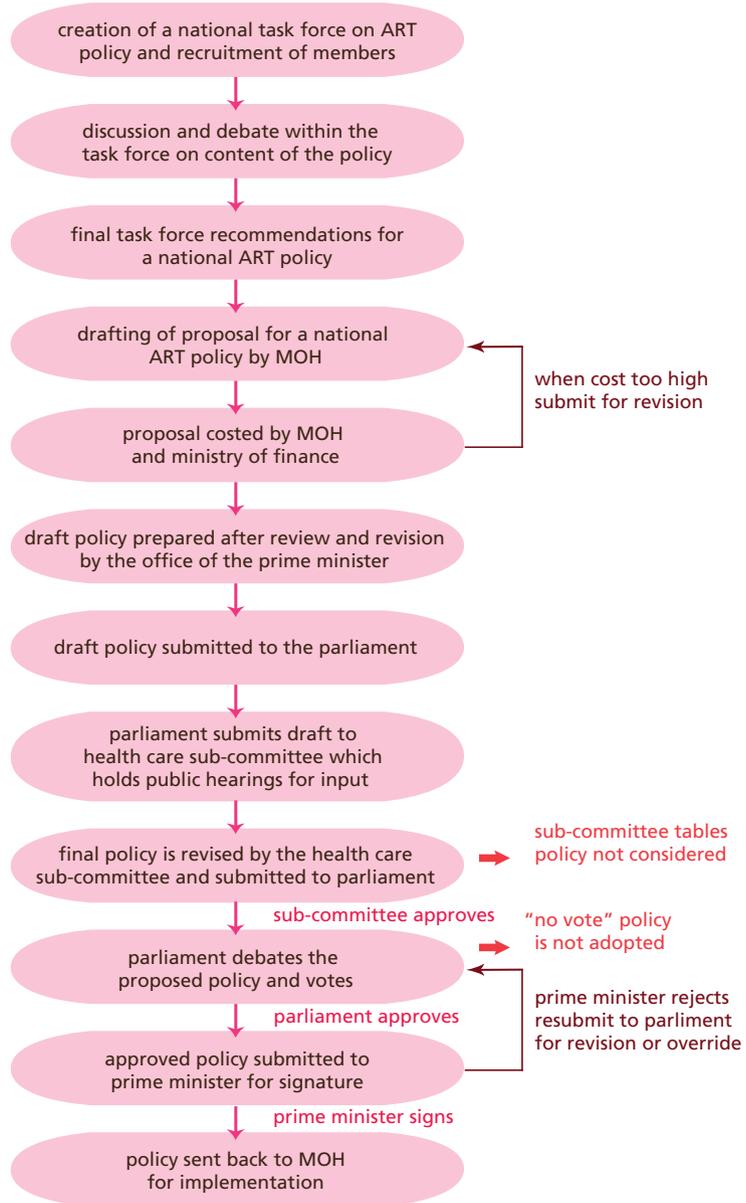


Figure 12.1.
 Process map for adoption of a national policy on antiretroviral care (ART).

Examining each step in the policy process in more detail will help you refine your thinking and identify opportunities for advocacy

You may find it useful for each step in the process to generate a table containing key pieces of information relevant to your advocacy efforts. For example, suppose your long-term advocacy goal is to expand antiretroviral care to everyone in need and a draft national policy is being prepared on ART (the fourth step in the map in Figure 12.1). You might include the following information in your table for that step:

- A description of the step (e.g., prepare a proposal on national ART policy).
- A description of the formal process involved (e.g., policy proposal is generated by the office of the Minister of Health).
- A description of the informal processes involved (e.g., recommendations for a policy from the ART task force are discussed informally by the administrative director of the Health Ministry with staff from the Hospital Authority, members of the national AIDS Committee (NAC), and the national AIDS program manager. Proposal is then drafted by the administrative director).
- A listing of the decision-makers and others involved (e.g., the Minister of Health, administrative director, head of the Hospital Authority, secretariat of the NAC, and the national program manager).
- A listing of possible ways that you can influence the process at this stage (e.g., provide the national program manager with a cost-benefit analysis of the value of expanding ART care, serve as an information resource to the secretariat of the NAC on

costs of ART and prevention, meet with international agencies promoting universal access to encourage them to lobby with the Minister of Health for expanded care).

Once you have created your policy process map and carefully reviewed each step, you'll have identified a substantial number of opportunities for advocacy and potential advocacy targets. Later, when you draft your advocacy action plan, this information can be reviewed and the opportunities and targets prioritized to select the ones most likely to result in a positive outcome.

Mapping government decision-making processes is essential to designing an effective advocacy campaign

Governments are often the primary decision-makers concerning policies, either at the national or sub-national level (depending on the policies you wish to influence). You need to map government policymaking processes, from the stage at which ideas for policy change are generated, through processes of drafting, consultation, revision, finalization, and ratification. Often the most effective way to thoroughly map government decision-making processes will be to work in collaboration with either a current or former government staff member or an academic institution. Consider commissioning a paper from a policymaker on the policymaking process, which identifies points of entry at which people from outside of government can participate in and contribute to policymaking processes. Such local technical advice is essential to ensure that all steps in the policymaking process, and all relevant decision-makers, whether individuals, committees, multilateral forums, etc. are accurately mapped.

This approach was taken by the A² Project in Yunnan and has produced a valuable resource for A² project staff and advocacy partners in understanding government policymaking processes and identifying points at which they could participate in policymaking processes. These points of entry might include attendance at consultative meetings, providing written submissions on policy issues under consideration by government, and working in collaboration with government agencies to produce technical analyses or policy options papers. You will be more effective in achieving your advocacy goals and objectives when you can demonstrate your usefulness to governments as contributors to the policy development process. The A² Project, involving collaboration between local and international organizations, and using state-of-the-art modeling tools such as AEM and the Goals Model, allows you to contribute information to government policymaking processes that would otherwise be unavailable. This is one means by which you can promote A²'s involvement in policymaking processes. Consider also involving other partners in your advocacy efforts. International organizations may have access to and experience with international best-practice materials regarding HIV policy development, and can use this access and experience to provide the government with additional alternatives to consider when developing a new policy, or taking action to resolve a policy problem.

In many cases you will be dealing with implementing or changing local operational policies, which are generated independent of the national government, and affect the ability to respond effectively. In one Asian country, for example, the national policy was changed by the Ministry of Interior to forbid using condoms as evidence of involvement in sex work; however, local police continued to arrest sex workers for condom possession. In this case,

your concern would be to change local operational policies. Your policy map would then involve looking at the steps that would be required to change the local policy and who you would need to influence, assuming that this was deemed to be a feasible advocacy objective.

Refining your targets - primary and secondary audiences and power maps

It is important that you accurately identify potential target audiences for advocacy activities. As outlined in the previous section, the first step in doing this involves understanding the policymaking process and gathering information about the role which different actors play at each step in the development, ratification, and implementation of policies. However, once you have identified these potential target audiences, you need to understand them better. Who and what influences them? Why and how strongly do they support or oppose what you're trying to achieve? What do they stand to gain or lose if you achieve your advocacy goal? Once again this requires that you go into information collection mode to learn more about them.

Advocacy has both primary and secondary targets – those who make the decisions and the ones who influence them

To increase your chances of success, you must identify and study the various individuals and groups that may support your advocacy issue and goal as well as those that may

oppose it. Specific advocacy campaign target audiences must be determined for each advocacy objective to be achieved. These targets will include primary target audiences—the persons and/or institutional bodies that themselves hold the decision-making authority—as well as secondary target audiences—persons and/or institutional bodies that directly or indirectly influence the decision-makers. Gathering and documenting information about these audiences helps you target your advocacy activities, develop effective messages, and select appropriate channels of communication.

While the categories of people in the target audience will vary from setting to setting, the HIV policy target audience usually includes some combination of political leaders, national and local government officials, religious leaders, private and public sector service providers, groups of people living with HIV and AIDS, affected communities and NGOs serving them (e.g. sex workers, MSM, IDUs), the media, community and traditional leaders, women's organizations, professional associations, and business and civic groups. In some places and for some issues, the range of audiences is even wider and may encompass groups that are unlikely ever to meet each other, such as foreign donors and traditional healers.

Once potential audiences are identified, determine the level of support or opposition expected from them – do this for both primary and secondary target audiences

For many reasons—religious, cultural, and historical—HIV-related issues are often controversial. People on both sides of the issue feel strongly that their position is the right one; therefore, they are likely to devote consider-

able energy, and sometimes resources, to supporting that position. Whether opposition is mild or strong, you should be prepared to address it in ways that are most beneficial to your own efforts. The best advice is to be as informed as possible about the opposition's specific attitudes, and the extent and nature of their support. This will enable you to preempt oppositional efforts with messages that anticipate and refute the opponents' arguments.

On the other side of the coin, you and your advocacy partners should also consider broadening your own support base through numbers and diversity. The larger the number of persons and/or types of groups working to achieve the advocacy objective, the greater is the chance of success. Advocacy groups can create coalitions with other groups or formal networks, expand their own membership, create alliances with commercial or private sector entities, and/or generate public and community support to enlarge their support base.

Don't forget the “undecided” or neutral parties

In some cases, the best investment of time and energy is to appeal to the neutral public or less-engaged members of affected populations, who may be open to reasonable well-expressed appeals for support, and who lack strong objections to the relevant issue to begin with. The same logic applies to those decision-makers who are known to be “neutral” or “undecided” on an issue. There will still be decision-makers who, although not openly opposed to an advocacy goal, hesitate to voice an opinion due to the controversial nature of the HIV related issues; they may support the advocacy efforts in private but prefer to appear neutral in public. By learning about their position on the issues and the pressures they face, you and your advocacy partners will

know if it is worth directing some effort to convincing these influential “neutrals” to join and publicly support your campaign, or to lend their support in less public, but still potentially beneficial, ways.

Collaborate with your advocacy partners to build a power map to help bring your knowledge together and crystallize your thinking

A useful tool for analyzing potential audiences for advocacy is the power map, illustrated in Figure 12.2. A power map is best constructed by you and your advocacy partners brainstorming who the potential primary and secondary audiences are and what their level of support or opposition to your advocacy objective is. This is best done as a group exercise, so that knowledge and experience about the audiences from different sources are pooled in order to identify the people and/or institutions which have the power to make the policy change, or take the policy action, you are seeking to achieve. Symbols representing members of the target audience are placed on the power map according to whether they are supportive (left-hand side of the map), neutral (center of the map), or opposed (right hand side of the map). You may want to use the size of the symbol to indicate the relative importance and influence of each decision-maker.

In addition to identifying and “mapping” the decision-makers for your advocacy objective, it is also useful to identify and “map” other individuals or institutions who may be able to influence decision-makers. In the power mapping exercise, those people or institutions who have the power to make the policy change you are seeking are referred to as the “primary target audience”. People or institutions with an interest in an issue are referred to as the “secondary target audience”. Members of the secondary target audience may be people or institutions who have access to or influence over members of the primary target audience, or they may be willing to join a coalition of organizations committed to achieving a particular advocacy objective. As with the primary target audience, symbols representing members of the secondary target audience should also be placed on the power map at left, center, or right, to indicate support, neutrality, or opposition to the advocacy objective.

Through collaboration between members of your advocacy group or coalition, you should be able to create a power map which provides a clear representation of the sum of your advocacy group’s knowledge about both its primary and secondary target audiences. While other methods can be used to analyze target audiences in more detail, the power map provides a vivid and accessible representation of your collective knowledge of the relevant target audience for a particular advocacy issue.

Advocacy objective: Ministry of Health adopts 100% condoms policy by August 2010

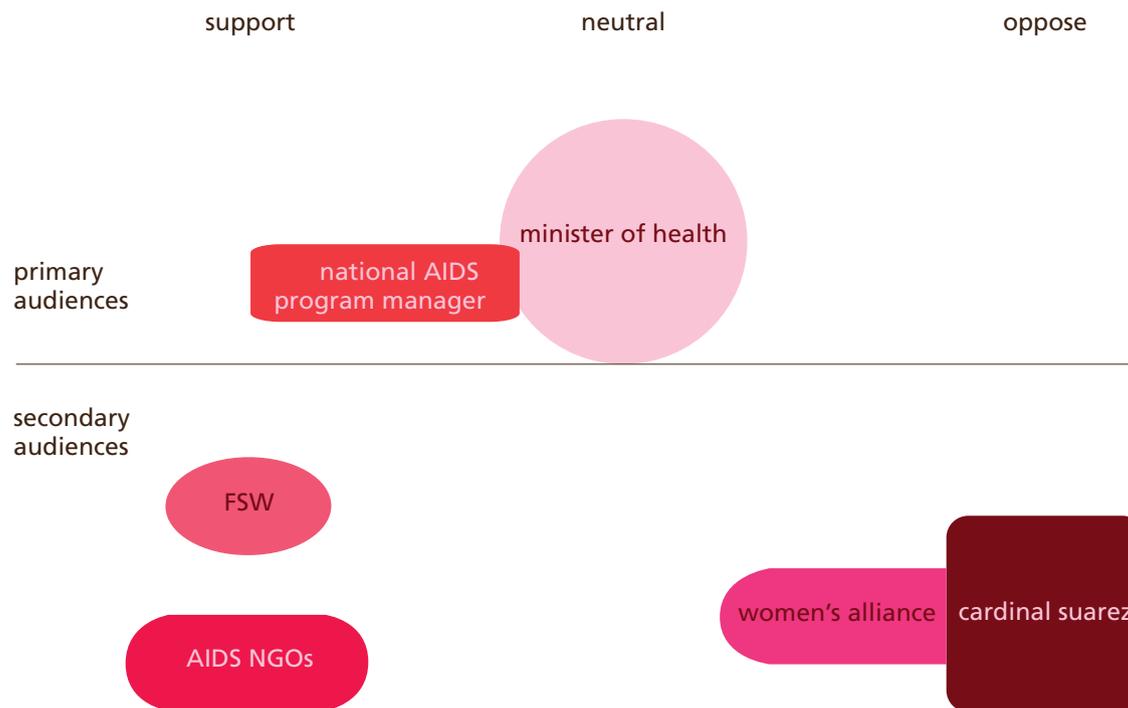


Figure 12.2.
An example of a power map for comparatively assessing advocacy targets.



Gather additional information about the important primary and secondary audiences

Part of planning for advocacy is to come to a more complete understanding of the positions and concerns of potential advocacy targets. For each possible primary audience it's valuable to ascertain the following:

- **What is this individual or organization's level of knowledge regarding the advocacy issue?**
Are they well-informed? Do they have major misunderstandings or knowledge gaps? This will help you to identify the types of "information products" your A² team can produce to move them to support your advocacy objective.
- **What is their level of demonstrated support or opposition toward the issue?**
Have they actively supported or opposed this issue in the past? How strong has their opposition or support been? Are they neutral, or do you just not know where they stand? Knowing who your friends and opposition are is essential to planning how to proceed.
- **What are the potential cost and benefits to them regarding the advocacy issue?**
Do they stand to lose power, resources or political standing if your advocacy objective is achieved? Do they stand to benefit substantially? Will it improve their public image or their political power? Do they have competing interests, i.e., other issues important to them that will suffer from achieving the objective? If you understand their needs, you are more likely to be able to figure out how to approach them.
- **Who influences them, i.e., who are the secondary target audiences?**
Do they respond to public pressure? Can support for your objective from international agencies move them? Are there particular people they are more likely to listen to on this issue? For particularly important primary audiences with decision-making authority, you may want to enlist one or more secondary audiences to help to convince them.
- **How realistic is it to try to change their opinion?**
Are they so firm in their position that it is unlikely

to change? To what extent do they respond to pressure from others? Are they constrained by political, financial, religious or cultural forces from changing their position? If it is not truly feasible to change their position, you waste energy trying to do so – energy that can be more effectively applied to building support among others.

The A² advocacy training manual in the Implementer's track includes a "target audience analysis form" which allows you to record this additional information about your primary and secondary target audiences. As you fill in this form in collaboration with your advocacy partners, there will be things that none of you know, i.e., advocacy information gaps. The form will help you to identify these. As in the other steps of the A² process, it will be important for you to fill these information gaps to the extent possible. This will make for more appropriate and specific advocacy activities that are more likely to achieve their objectives.

For example, if your advocacy group doesn't know the attitude of a key member of the target audience towards your advocacy issue, then this indicates the need for

further "research" to ensure you have all relevant knowledge, and can approach the various members of your target audience in the most appropriate way for each. (Note that "research" in this case may consist of talking to the individual in question and to those around them to ascertain their position on the topic). Different strategies may be adopted in communicating with members of the target audience who have demonstrated support and those who have demonstrated opposition. Where a target audience member has demonstrated support, they may be agreeable to participation in public activities to further support the achievement of your advocacy objective, while those opposed may have to be reached in private. While they may avoid public debate, they may agree to meet with and hear reasons why you believe they should support your advocacy objective. If they are not prepared meet with you, you can communicate with them regarding your advocacy objective through the provision of briefing papers or other written resources.

Members of the secondary target audience may be able to play a useful role in helping you to gain access to or influence with members of your primary target audience. They may have personal or professional connections to the decision-makers you are trying to reach, might lend

their personal support to the achievement of your advocacy objective, and may be able to facilitate access by you or other members of your advocacy group to the decision-makers you wish to reach.

What other factors affect decision-making and change?

Process constraints, barriers to change, facilitators and competing needs

Decisions and changes are not made in a vacuum, instead they form in an environment with a complex mix of decision-making approaches, constraints, roadblocks, competing needs, and personalities. Understanding the decision-making environment is also essential to crafting effective advocacy.

As noted above, government policy making processes are generally complex, involving numerous actors and actions over a period of time before a policy is officially adopted or ratified. Countries and provinces generally have policy-making processes which are specific to HIV, usually including

some national institution with responsibility for coordinating the national response, which often has provincial level counterparts.

Understand your national and provincial HIV planning processes and how they work, including time frames and deadlines

The government HIV/AIDS policies that result from these processes are embedded and embodied in a mixture of long-term national AIDS plans, provincial AIDS plans, annual operational plans at both national and provincial level, laws, and operational policies. If you are to advocate effectively, you must understand how these planning and policy processes work. Learn about any constraints imposed by the process, e.g., limitations on who has input to the process at different stages or the format in which debate and discussion on issues occurs. It is particularly important to be aware of the exact timing of the various stages of these policy-formulating activities, as they often provide unique opportunities for inputs to the policy process that can greatly improve the national response. If you miss the deadlines for input, you may not get another opportunity.

In most countries, there are long-term national AIDS plans, normally of four to five years duration. The planning cycle for these plans will normally start a year or two before

the plan is to take effect. During this time, reviews of the previous long-term plan are done and input is sought from government agencies, NGOs, affected communities, people living with HIV and AIDS and the public. In many countries, attempts are made to project and anticipate longer-term impacts of the epidemic as part of this planning process. This presents a unique opportunity for A², which has much to offer these national processes in terms of numerical inputs, policy analyses and costing. If possible, your local A² team should seek to become involved in the formulation of long-term national plans by joining technical working groups, providing needed data inputs, and offering targeted policy briefs and reports on important issues. This has proven an effective way of influencing policy in various places.

These long-term planning activities, in turn, are then translated into annual plans at the level of the national AIDS program and the various ministries and other agencies involved. In addition, in most locations where the A² Project has been implemented, there is also an annual cycle at the provincial level of reviewing the provincial level HIV strategy and response, involving departments from across a range of government departments. Different government offices have responsibility for the response to HIV, related programs such as access to methadone, and activities such as law enforcement that often affect the HIV response. Your local A² team should try to build collaborative relationships

with both political and technical institutions responsible for HIV in the relevant country or province. In addition to the national level coordinating body, there is likely to be a provincial AIDS office or section of the Public Health Department responsible for coordinating HIV policies and programs across government departments.

Identify barriers to change and strongly support partners who can help you facilitate it

The relationship of HIV and AIDS to sex and drugs, however, often imposes substantial barriers to change. Stigma and discrimination often affect the policymaking process, making politicians and the public resistant to mounting programs for at risk populations. Discrimination against people with HIV sometimes makes it difficult for them to become involved in policymaking processes. Major political powers, such as the police, may be opposed to making necessary legal changes to allow HIV activities to proceed unimpeded. Religious fundamentalists may stand in the way of urgently needed condom distribution programs.

The actual barriers will vary from place to place, but one of the reasons you have been collecting information on contextual issues around HIV is so that you understand these barriers. Sit with your advocacy partners and draw up a prioritized list of local barriers that stand in the way of making

the right decisions and the necessary changes. This list can then help you to identify which of these barriers need to fall in order for positive changes to occur. Addressing these barriers then becomes part of your advocacy planning.

With the major barriers identified, you need to locate partners who can help you to change them. For example, if police action against injecting drug users keeps needle exchange from working, you need to try to change the operational policies regarding possession of needles. In some places, this has been done by locating sympathetic local police officials who understand the HIV situation and then working with them to relax enforcement actions, i.e., getting them to “look the other way”. In fact, many needle exchange programs in the United States have been initially implemented this way before obtaining more formal approvals at the local level.

This is often one of the most effective approaches to making change: identify one or more supportive individuals within policy-relevant organizations and provide them the

information and moral support they need to make the case for change within their own organization. They don't necessarily need to be a high-level decision maker to function as a change agent from within. With time, as the number of such individuals grows or these individuals move to positions with more decision-making responsibility, change begins to occur on a larger scale.

Consider competing needs and financial constraints

It is also extremely important as you advocate for HIV programs to remember that the people making decisions often have responsibilities that go beyond HIV. If you're dealing with the Minister of Health, he or she is also responsible for tuberculosis, childhood diseases, chronic diseases, preventive care, etc. This means he or she must make choices, so it is often important that you explain to them why HIV is such a critical need. Remember also that they operate within constrained budgets; they cannot fund everything. While it is easy to draw up a “shopping list” of policies and

programs that will reduce HIV infection, provide care and mitigate the impact of the epidemic, more often than not these have never been costed nationally. Thus, national or provincial HIV strategies are developed without regard to the cost of their implementation, and as a result remain merely statements of principle, rather than guides to actions which build an effective response to the epidemic. One of the benefits of the A² project is that through the use of the Goals Model, you can provide governments with information regarding the cost and the benefits of implementing national or provincial level HIV policies and programs. Information generated through the linking of Goals and AEM can demonstrate the expected impact of different patterns of resource allocation for prevention on the number of infections averted in the future and projected health care costs. As discussed earlier, this is an invaluable tool for prioritizing the most important HIV programs and demonstrating their cost-effectiveness relative to other public health priorities.

One of the major barriers to effective HIV programs is the perceived "political risk" to decision-makers who spend money on programs for sex workers or men who have sex with men. But armed with the information from A², with a clear picture of downstream impacts, infections averted, and treatment costs saved, it becomes much easier for policymakers to justify such decisions. Having such a clear understanding of the factors driving the epidemic enables decision-makers to choose between competing needs based on knowledge of which programs will have the greatest impact on the epidemic. Decisions based on accurate knowledge can help overcome the stigma and discrimination which, in the absence of sound evidence, so often play a significant role in decisions as to how resources for HIV programs will be allocated.

CHANGE

Chapter 13

HOW DO WE REACH THE DECISION-MAKERS?
ADVOCACY IN THE A² CONTEXT

[an overview]

[an overview]

Chapter 13

HOW DO WE REACH THE DECISION-MAKERS?

ADVOCACY IN THE A² CONTEXT

Promoting evidence-based advocacy is a core goal of the A² project. Many people think of advocacy as an amorphous process, wandering randomly until it stumbles upon the desired goal. This is one of the reasons why so many advocacy efforts fail. Reaching decision-makers with appropriately crafted messages regarding important policy issues requires a range of skills. It also requires solid knowledge of the decision-making environment, careful planning, and good implementation of appropriate and relevant activities with targeted messages. Some of the specific requirements include:

Form advocacy partnerships.

It is usually the case that the greater the range of people and organizations involved in an advocacy campaign, the greater are the chances that the campaign will succeed. Using what you have learned about who's engaged in the HIV/AIDS response, what the policy process looks like and what other people's interests are, identify potential allies. Their goals and objectives should align or be synergistic with your own; their involvement should strengthen the advocacy effort. When forming such partnerships, however, be cognizant of your potential partners' own agendas and any possible conflicts with your advocacy objectives. Possible partners can be drawn from the full range of HIV/AIDS stakeholders, including government officials, donor representatives, people living with HIV, affected communities, or NGO and CBO staff, among others. Given the value of what they bring to the table and their frequent marginalization in decision-making processes, special efforts are needed to involve people living with HIV and members of affected communities in the process.

Prioritize issues, selecting important and realistic ones for attention.

The most effective advocacy strategy ever devised will be wasted if it is used to pursue a trivial or inappropriate advocacy goal. In Chapter 11 you considered possible advocacy issues, paying careful attention

to their actual impact on the epidemic. In A², the level of overall impact on the epidemic is one of the most important considerations, because you seek to make a major difference. However, other factors must also influence the issues chosen, for example, the expected level of support or opposition, the resulting magnitude of improvements in people's day-to-day lives, if they're supportive of others' goals and priorities, whether they have a clear policy solution, or whether this can be achieved in a reasonable time frame. Working with your advocacy partners, you need to define the priority issue or issues on which it will focus. Often, evaluating issues based upon commonly agreed criteria helps to focus this discussion and build consensus more quickly.

Craft specific advocacy goals and objectives.

Once you've picked your priority advocacy issue, you need to set specific advocacy goals and objectives. The advocacy goal is the specific long-term result you seek to achieve over the next three to five years. The goal is achieved by setting a number of advocacy objectives, i.e., short-term targets that contribute to achieving the long-term goal. Good advocacy objectives meet the SMART criteria; they are Specific, Measurable, Achievable, Realistic and Time-Bound. These criteria are useful not only in identifying appropriate advocacy objectives, but also ensure that those doing advocacy will be able to monitor and evaluate their activities. Yes, advocacy, just like prevention and care programs, requires monitoring and evaluation.

Develop and deliver relevant advocacy messages through appropriate communication channels.

Advocacy communication can take many forms, e.g., face-to-face meetings, written communication such as briefing papers, public meetings or stakeholder forums, media interviews or press releases. Choosing the appropriate medium for your advocacy communication will depend on various factors

including what you aim to achieve, the environment in which you are working, and the resources at your disposal. Advocacy communication aims to achieve one or more of the following outcomes: 1) inform a target audience about the advocacy issue; 2) persuade the target audience that the advocacy issue is important; or 3) move the target audience to take action in support of your advocacy objective. The crafting of the specific message or messages to be sent depends on the intended advocacy objective, the target audience, and how you intend to deliver it. In A², it is important to make good use of data and careful analysis to back up your arguments. Use of locally relevant evidence makes a strong argument even more compelling to local decision-makers.

Have a careful and well thought out advocacy action plan.

Advocacy campaigns should be the subject of careful planning. While some advocacy opportunities may arise unexpectedly, and you should certainly capitalize upon them, most of your advocacy can be planned well in advance. Just like any good management plan an advocacy action plan should: 1) lay out specific activities; 2) assign responsibility to someone or some organization for each of those activities; 3) specify the resources needed to implement those activities and make those resources available in a timely fashion; 4) set a specific timeline for each activity and for the overall plan, coordinating activities where needed; 5) include specific objectives and expected outcomes; and 6) have an adequately resourced monitoring and evaluation component to ensure those objectives are met and outcomes delivered. Without such a plan and clearly designated responsibilities, collaborative activities are likely to break down and you are less likely to achieve your advocacy objectives.

CHRIS WARD

TIM BROWN

Chapter 13

HOW DO WE REACH THE DECISION-MAKERS?
ADVOCACY IN THE A² CONTEXT

[concepts and content]

Chapter 13

HOW DO WE REACH THE DECISION-MAKERS? ADVOCACY IN THE A² CONTEXT

Chris Ward and Tim Brown

One of the reasons many advocacy efforts fail is because people do not go about them in a systematic way. They formulate their advocacy in generalities instead of defining very specific and locally relevant goals and objectives. They don't make good use of available data to bolster and lend credibility to their advocacy messages. They don't take the time to understand the decision-making process and identify the points in that process where they can intervene most effectively. They don't try to understand the motivations, current knowledge, and concerns of those making the decisions. If any of these pieces is missing, advocacy is likely to prove much less effective and change will be difficult or remain out of reach.

If you've followed the A² process up to this point, you have used the wealth of information you've collected to identify a number of priority advocacy issues – the most important things that need to change to strengthen your response. Depending on your situation these might include poor targeting of prevention programs, weaknesses in the treatment and impact mitigation response, lack of financial and personnel resources, issues surrounding stigma and discrimination, or any number of other items specific to your country or province. You have also collected a substantial amount of advocacy relevant information about the policy landscape: how decisions are made, who makes those decisions, who influences them and what barriers exist to

making much needed changes. Now it is time to put all this information to good use to define the specific actions, targets, products, and outcomes you expect from your advocacy. Like any good business, you need a plan.

Start by forming advocacy partnerships – voices in harmony are stronger than one

Your A² team is only one of a large number of communities, agencies, organizations and individuals concerned about the issues surrounding HIV and AIDS. Experience has shown that the more people and organizations become involved in an advocacy campaign, the more likely that campaign is to produce real and lasting change.

Use what you've learned so far to identify potential advocacy partners

During the A² process you have met with a lot of people, asked them to share data and tell you their concerns, and discussed issues with them. You have involved various experts in your Technical Working Groups and other activities. You've talked with government staff, NGO program

managers, community leaders, donors and people living with HIV. In the process you have been forming a subconscious picture in your mind of the players in your country's response. You have a pretty good idea of who is responding and who is not. You've certainly found some people who are extremely concerned about HIV issues and dedicated to the cause. You've found others who really don't care or who actively oppose some of the programs central to an effective response.

Use this knowledge to identify those who have a common interest in addressing the advocacy issues that are most important. These become your potential advocacy allies. They might include AIDS-related NGOs and service organizations, people living with HIV and AIDS, CBOs and members of communities affected disproportionately by HIV, sympathetic government officials, international donors or development agencies, reporters and newscasters, or anyone else who shares your concerns.

Give high priority to involving people living with HIV and AIDS and members of affected communities in your advocacy coalition

It is not only data and modeling that help identify priority advocacy issues and motivate people to act. The experiences

of people living with or affected by HIV should also play an important role in determining your priorities. Some factors which significantly affect responses, such as the treatment of most-at-risk populations by police, financial barriers to accessing ART, or methadone maintenance treatment, will not be revealed by modeling, but by listening to, involving, and incorporating the concerns of people and communities affected by the epidemic. In doing advocacy, you will often find that some of the people you're trying to reach find first-person accounts and personal experience more moving than dry facts or models. These argue powerfully for giving people living with HIV and AIDS a central role in your advocacy activities.

In some cases, people living with HIV and AIDS and members of affected communities may be reluctant to get involved. If so, you should try to understand and respond to their concerns and encourage their participation. Are they unaware that HIV is an issue for their larger community? Are they afraid of public exposure? Are they concerned that HIV will make a bad situation worse, leading to even more discrimination against them? Once you know their concerns, you can take steps to structure your advocacy coalition to address them. If the concern is public exposure, then structure meetings and activities to prevent disclosure. If it's lack of knowledge, the mere act of providing information about the way the epidemic affects the community can

act as a catalyst for community mobilization and for the greater involvement of people living with HIV and AIDS in the design, implementation, and evaluation of HIV policies and programs. If it's increased discrimination, maybe you need to convince them to tackle that issue head-on. Keep in mind that your advocacy coalition will be stronger if they partner with you.

Select members for an advocacy coalition – your A² Advocacy and Data Use Group

Building from the organizations or individuals that have shown a strong interest in advocating for better responses, organize an Advocacy and Data Use Group. The membership of this group will depend on the advocacy issues you've chosen and may vary flexibly from time to time as the advocacy focus of your activities changes. Organize the group around a central core of highly motivated members who share your concern on the critical issues, are able to contribute concretely to advocacy activities, share a willingness to work with others, and, whenever possible, have established linkages into decision-making processes. Additional members can be brought in as needed to address specific issues or concerns that arise or to provide access to policymaking processes. As you did with your Technical Working Group, select the members of the Advocacy and Data Use Group for their individual expertise and knowledge, not because they "represent" an organization. Your Advocacy and Data Use Group might also include or be prepared to draw upon some of the members of your Technical Working Group or

the analytic component of your core A² team. This will keep the group grounded in the data and help to ensure your advocacy remains heavily evidence-based.

Does this mean you should link up with everyone? No! As in other parts of the A² process it is important that you carefully consider and gather information on potential partners before you invite them to join your coalition. Be cognizant of the agenda of your potential partners and make sure it aligns with your own advocacy goals. Talk to others about the way these partners are perceived. If people have a negative opinion of them, pre-existing biases may impede your advocacy efforts. Also, ask around and find out how well potential partners play with others. Nothing is more disruptive to the smooth functioning of an advocacy team than an individual or organization who alienates others in the group or constantly engages in disruptive outbursts. Take factors such as these into account as you form a group that will be at the core of your advocacy activities.

Collaboratively prioritize issues by importance and feasibility

Impact is only one determinant of issue priority. One of the first tasks for your Advocacy and Data Use Group is to prioritize the advocacy issues. Unfortunately, nobody has sufficient resources or time to be able to advocate on all the issues that might improve HIV responses – so you need to focus. In Chapter 11 you considered and listed possible

advocacy issues, trying to identify those that would have the greatest impact on the epidemic based on the evidence you've collected and analyses you've done. However, in choosing the issues on which you will actually act, a number of other considerations come into play:

- **Will this issue affect a large number of people?**
In general, if you have identified high impact issues, they will affect large numbers of people. However, in prioritizing among them you might wish to give those issues that affect more people a higher weight.
- **Will addressing this issue make a real difference in people's lives?**
Expanding a mass media campaign for the general population may reach many people, but such campaigns rarely produce much behavior change. On the other hand, a targeted program for sex workers will protect them and their clients from HIV infection, protecting millions of sex workers, clients and their families from loss of income, stigma and discrimination, premature death and orphaning in the future. In general, you want to prioritize the issues that will make real improvements in people's lives now or in the future.
- **How strong is the support or opposition on this issue?**
If there is a strong pre-existing constituency for this issue, as there is for preventing mother to child transmission, it may be much easier to generate support. On the other hand, if there is strong opposition on the issue, as there might be for legalizing drug use as part of a national HIV risk reduction strategy, it may be almost impossible to make progress. Political realities must always be factored into your thinking or your efforts will be ineffectual.
- **Are there others who are interested in this issue?**
One of the key factors in determining what to address is whether there are others who share your concern, i.e., is it possible to form a natural advocacy coalition around the issue? If many organizations are prepared to take this issue on, a strong advocacy movement is possible and is more likely to make a difference. If nobody is interested, you'll be hard-pressed to accomplish much. If the issue is of particularly high impact and importance but there is no interest in addressing it, perhaps your advocacy should be focused on generating interest among the stakeholders first.
- **Is the change needed at national level or some other level – and do you have access to the decision-making process?**
Consider the level at which the change must be made and whether you have access at that level. If it involves a change in national policy, but national policies will not be reevaluated for the next three years, perhaps you should consider trying to address



it at the operational policy level instead. If you and your advocacy partners don't have any access to those who must make the change, you may need to operate through intermediaries. This may greatly reduce the effectiveness of your advocacy.

- **Is there a clear policy solution to this issue?**
If you cannot clearly formulate a policy solution for this advocacy issue, it will be difficult to choose concrete advocacy actions to address it. Try to think of ways to address it more concretely.
- **Is it feasible to address this issue?**
Not every potential advocacy issue is immediately amenable to change. Sometimes there are legal restrictions that prevent the issue from being addressed at present. Sometimes budgetary constraints are operating. Sometimes extremely strong political opposition makes it impossible to even discuss the issue. Always consider whether taking on this issue is realistic – if not, it should be a lower priority or you should focus your advocacy on the things that prevent you from taking it on.
- **Are there preconditions that must be met before this issue can be addressed?**
If an issue is not feasible at present, perhaps it is because something else must change first. For example, if your goal is to introduce a policy of 100% condom use by sex workers and clients but sex establishments are shut down by police if condoms are found on the premises, you may need to do advocacy to change police policy first.

- **What is the time frame for making change on this issue?**

Everybody wants to see success. However, sometimes changes can take a generation or more. Other times, policies can be changed in a few months. Consider how long it is likely to take to bring about the desired change and factor that into your priorities.

Collaboratively choose your advocacy issues with your advocacy partners

While all the advocacy issues you identified are important, your A² team cannot make the decisions on which ones to tackle by itself. Instead, you must convene your advocacy coalition and review the possible choices together, taking into consideration and discussing the factors outlined above. You should hold a meeting or a series of meetings to look at possible advocacy issues, consider the important ones you've identified earlier in the A² process, add in any additional issues your partners may see as critical, and agree on the most important issues to actually address. This will ensure that everyone is working toward the same goals. Not everyone in your coalition will agree on the comparative importance of different advocacy issues. Therefore, in making choices it is often valuable to decide on a set of criteria for determining the prioritization before you start. These criteria might include any of the factors listed above or additional things that arise in your own setting. Experience has shown that if the group does set clear and agreed upon criteria before trying to prioritize, the process is faster, more harmonious and more likely to achieve consensus on the most important issues. The A² advocacy training curriculum in the Implementer's track includes a

module on prioritizing advocacy issues, with exercises using personal experience and opinion to ascertain priorities, as well as a more systematic “checklist” system, which requires advocates to rate various features of the different advocacy issues they have identified. These features include practical considerations such as whether widespread support can be generated for the issue, and whether it is achievable in the political environment in which you work. Advocates must always be realists.

Map out where you’re going – set your advocacy objectives and goals

Start by giving your vision for the future – your advocacy goal

Now that you and your advocacy partners have agreed on the issues, you need to translate this into specific actionable goals and objectives. In A² an **advocacy goal** is defined as the long-term result that you seek to achieve over a three to five year time frame. It is a statement of your vision for change, of the way you see policy and the policy environment changing as a result of your advocacy. For example, your advocacy goal might be that “all people living with HIV in need of ART will receive it” or that “the government will ensure free, regular STI care to all sex workers”.

Break your goal into smaller intermediate objectives that move you toward your goal. You get to your advocacy goal by defining and achieving a number of shorter-term

advocacy objectives, these are smaller, realistic steps towards reaching your advocacy goal. An **advocacy objective** is a shorter-term target, typically accomplished within one or two years, that contributes to progress toward your advocacy goal. Typically formulating advocacy objectives requires understanding the process by which decisions are made, who the decision-makers are, and how they might be influenced. For example, advocacy objectives for the goal on ART access might include: “for the Ministry of Health to define a standard formulary of ART drugs by the end of 2009” and “to secure a commitment from the Ministry of Health to adopt a policy of affordable access for all people in need of ART within one year”. Advocacy objectives for the STI care goal might be: “to have the Parliament adopt a law in the next legislative session requiring all establishments where sexual services are available to provide free STI diagnosis and treatment to women working there”, “for the Ministry of Health to institute a regulatory system to enforce this law within one year of passage”, and “for the STI Treatment service to commit to providing STI care in 50% of its clinics within 6 months and all clinics within one year”.

While the advocacy goal is more of a vision statement, an advocacy objective should be very precisely stated and will later help you define the actual advocacy activities required. One way of ensuring this is to make advocacy objectives that meet the SMART criteria. That is, objectives should be:

- **Specific,**
- **Measurable,**
- **Achievable,**
- **Realistic, and**
- **Time bound**

“Specific” means that the objective is clearly defined and unambiguous: you know *who* is going to do it and *what* they are going to do. “Measurable” says that progress toward the goal or attainment of the goal can be objectively measured by an outside observer. “Achievable” means that the objective can be reached in the allowed time, even if you have to stretch a little or push hard to make it happen. If you set the goal too high, it will not be achievable and you will set yourself up for a lot of frustration and ultimately failure. “Realistic” means that the skills set to do this exists and that a concrete plan can be designed that allows you to reach the goal from where you are today. Finally, “time bound” means that there is a well-specified time frame built into the objective, i.e., that it will be accomplished by a certain point in time. The SMART criteria help you make your advocacy objectives concrete and encourage you to think about who has to do it, how it’s going to be done, and what’s really possible. These criteria also assist greatly in monitoring and evaluation of advocacy activities by encouraging the adoption of objectives which are measurable, as well as time-bound. This gives you and your advocacy coalition a date to work towards for achievement of the advocacy objectives and helps you make steady progress toward reaching your goal.

There are several key elements that are part of any advocacy objective:

- **An actor.**
The objective should clearly state the person or institution that needs to take the required decision or policy action.
- **An action.**
The action is exactly what you expect the policymaker or decision-maker to do. It may be to adopt a policy, pass a law, allocate budget, etc.
- **A time frame.**
This is the deadline for completion of the desired action by the actor.
- **An outcome.**
This is what you expect to result once the objective is achieved, e.g., a policy in place, a service provided, etc.

Setting SMART advocacy objectives that clearly define the actors, actions, time frames and outcomes contributes to the achievement of your advocacy goal. There may be a number of objectives that contribute to the achievement of any particular advocacy goal – and depending on your resources for advocacy you may have one or more goals. Normally, advocacy objectives will have a shorter timeframe for completion than

the advocacy goal itself. Basically, advocacy objectives represent benchmarks along the way to assess your progress toward achieving the advocacy goal.

Craft your advocacy toolbox with effective, evidence-based advocacy communications

After prioritizing the issues and formulating your advocacy objectives, you and your advocacy partners know what you want to change. The next question to answer is what tools are at your disposal to promote these changes? In general, we promote change through communication. A number of forms of communication for advocacy are available including one-on-one meetings or discussions with key policymakers and others whose support you seek, briefings or question and answer sessions for larger groups, policy briefs, use of mass media, and technical reports. Which of these you choose depends on who you are trying to reach, how long you have to make your point, the information needs of your advocacy targets, the capacity of your advocacy team, and the resources you have available for advocacy. Before examining the use of these tools for advocacy in more depth, let's look at some general objectives and characteristics of good advocacy communication.

Advocacy communication – informing, persuading and generating action

Think for a second about what you are trying to accomplish with advocacy communication. You have three goals:

- **Inform** the target audience about the advocacy issue;
- **Persuade** them that the advocacy issue is important;
- **Move** them to take action.

Informing them does not mean making them experts on the issue, it means giving them that subset of data or knowledge which helps them to understand the issue and its relevance to them. Persuading involves using that information to convince them that the issue is important and affects them in some way. Moving them to action means convincing them that something needs to be done and getting them to agree to take specific actions in support of your advocacy objective. These three goals are at the heart of advocacy communication.

What makes for effective and ineffective advocacy communication?

If you're trying to reach the average policymaker, community member or the general public, your messages need to share some common characteristics.

Experience shows that the most effective advocacy communication is:

- Simple
- Concise
- Expressed in audience appropriate language
- Focused on the actions you want them to take
- Delivered in a tone which is consistent with the nature of the message
- Delivered by a credible spokesperson.

On the other hand, if you want to lose or confuse your audience, i.e., to do ineffective advocacy communication, then make it:

- Complex and detailed
- Overly long
- Uninteresting (i.e., boring)
- Use inappropriate language, expressions, or images
- Irrelevant to the audience

Is there an inherent contradiction between the complexity of what you've done in A² and what constitutes effective advocacy communication?

Certainly much of the data you've collected and the analyses you've done as part of the A² process have been

extremely technical in nature, which, on the surface, doesn't always lend itself to being simple and concise. Many people think that they can influence others by drowning them in a deluge of detailed data and comprehensive, well-crafted analysis. More often than not these people, including most A² synthesis specialists, come from a research background and are perfectly comfortable with long, convoluted reports that contain lots of charts and tables. They write in complex sentences and generate detailed reports that require days if not weeks to digest. Every sentence they write is qualified with "if...", "depending on..", "...but only when...".

By contrast, your average decision-maker is a busy person, with extreme demands on his or her time, who likes you to get right to the bottom line – he or she needs to size up the situation quickly and only wants the essentials. If you're talking to a community group, discussing sample sizes, standard errors and confidence intervals is likely to confuse those few people that you haven't already put to sleep. Thus, there appears to be a mismatch between the way messages need to be crafted for effective advocacy communication and the detailed level of information that comes out of an A² analysis. At first glance, it may in fact appear that the A² process lends itself more to ineffective advocacy communication by the criteria listed above (complex, detailed, long, ...). So is there an inherent contradiction?

No, you always distill down the results of your analysis to simpler messages that fit your audience's needs

The issue is not the complexity of the analysis you've done, it's the complexity of the message that is prepared from that analysis. Politicians long ago learned that you need to distill complex policy messages into a much simpler form for the public to digest them. The same is true with the results of your A² analyses. You need to take the most important findings and recommendations for action from those analyses and put them in a form that is simple, interesting, relevant and targeted at your audience. This means that you do not present detailed data charts and tables, but pull out one or two key numbers or simple figures that support your case. You don't present the details of the analysis and the boring, tedious details of how you did it, but only its important policy relevant findings and results. That is, you extract from your analysis the things that are relevant to your target audience and present them in clear, simple language that your audience understands. Clearly this requires someone who understands the target audience, has the skills to translate complex issues into simple language, can show its relevance to the audience, and is effective in delivering these messages.

There are reasons why synthesis specialists and advocacy specialists are different people

Unfortunately, the majority of researchers lack one or more of these skills, and most synthesis specialists are from a research background. Most researchers and synthesis specialists don't work closely with or understand policymakers, tend to focus on details, speak in complex sentences and disciplinary jargon, and are usually not the best people to be generating and delivering your advocacy messages. Instead, you need people who specialize in advocacy communication and know how to generate a compelling message from what is often rather dry data and analysis. This is why in A² the synthesis specialists and the advocacy specialists are different people. Different skills sets are needed to evaluate data and generate analyses than to communicate with decision-makers and the typical audiences with whom you will be doing advocacy.

This doesn't mean the synthesis specialist is out of the loop when you're heavily engaged in advocacy. As your advocacy program advances you may discover additional analyses that need to be done to influence or fill urgent information requests from key stakeholders. The synthesis specialist may need to interpret data and analyses and review advocacy materials prepared to make sure facts and findings are



technically accurate and not misrepresented. They can serve a critical role by providing detailed technical briefings, when needed, which can fill the needs of stakeholders, especially during national planning processes, or help to establish the credibility of the advocacy messages coming out of the A² team. Remember – in A², analysis and advocacy operate synergistically, with advocacy generating requests for specific data and analyses to back up its messages and analysis keeping the advocacy grounded in convincing, locally relevant evidence.

Build your data and policy analyses into accurately targeted policy messages and briefs

When you formulated advocacy objectives, you became much more specific about who you wanted to reach and what policy or program related actions you wanted them to take. For each objective you have identified one or more primary advocacy targets. From your power map, you also have some idea of who influences these people or organizations, i.e., secondary advocacy targets. Now you need to decide how to gain their support. How do you, acting as an advocacy specialist, go about determining which A² results to present and how to present them?

Evaluate the information needs of your primary and secondary advocacy targets in relation to your advocacy objective

During the building of your policy process maps and power maps, you gathered additional information about potential advocacy targets: what they knew or didn't know about your advocacy issue, whether they supported or opposed it and why, what they stood to gain or lose if the advocacy issue was addressed, and who influenced them. Look at this information for your primary and secondary advocacy targets. Do they have any knowledge gaps that affect their position on the objective? If so, you can provide that information to them as a first step in gaining their support. Can you present data or the results of some specific analysis that shows them the benefits of them taking the action you propose? This will increase the chances they'll support you. Can you illustrate for them the costs of their not acting, perhaps stirring them to act? In short, what information is going to convince them to support your proposed changes? In deciding which analyses to present to them, you also need to consider any constraints under which they operate. Proposing a policy action that is illegal or a political position that costs them their jobs is not likely to meet with success. Thus, you need to be careful that the actions you're proposing for them are realistic, generate benefits they can recognize, and don't create costs they won't pay.

Consider the best form for delivering that information to your audiences

A wide variety of mediums can be used to reach decision-makers and those who influence their decisions. The most commonly used ones, policy briefing papers and face-to-face meetings with policymakers, are only two of the many possible ways of communicating advocacy messages. Which method you choose will depend on:

- Who is your target audience?
- What do you hope to achieve from this particular advocacy communication activity?
- What kind of environment are you working in?

Advocacy messages which aim to inform and persuade the public to support your advocacy issue might make use of print or electronic mass media. However, if you are working in an environment in which the system for developing government policy is highly centralized and not particularly susceptible to public opinion, then use of the mass media may not advance your cause greatly.

If your aim is to inform a policy maker about an issue, or convince that person to take action, then a face-to-face meeting at which you present a short briefing paper may be the most appropriate form of delivering your message. Sometimes you may not be able to reach the actual

decision-maker, but meetings with one or more of his key staff may be possible. Given that staff are often less busy than higher level policymakers themselves, such meetings may allow you more time to present your case and build support.

If you have sufficient resources available, you may offer to arrange a forum at which government policymakers, donors, organizations working on HIV issues, and representatives of communities most affected by the epidemic, can meet and discuss a proposal for policy change. These are just a few examples of the many different factors which should be taken into account in choosing the appropriate method and medium of communicating your advocacy objective.

If you do arrange a meeting with a high-level policymaker, be well prepared and be brief

If you should gain direct access to key policymakers, you are likely to have only a short time in which to present information regarding your advocacy issue. You should aim for a communication style, whether written or oral, which is brief, clear, evidence-based, tightly focused on the problem to be solved, and clear about the action you are requesting him or her to take.

One good way to prepare for this is described in the A² advocacy training manual – an exercise called the “one-minute message”. This exercise is designed to build skills in the crafting of succinct but comprehensive advocacy messages. The exercise requires participants, working in groups, to develop and present messages in support of an advocacy objective that takes no more than one minute. A hypothetical “advocacy opportunity” is devised by participants, who must then develop and present their advocacy message. The message, despite its brevity, must include all of the following elements:

- **Statement of the issue.**
What is the problem that needs rectifying by a policy maker or decision maker?
- **Evidence in support of the issue.**
You must be able to prove to your target audience, as concisely as possible, that you have accurately identified an important advocacy issue, demonstrated through presentation of evidence in support of your issue.
- **A human example.**
HIV policy issues concern the health, well-being, and even the chances of survival, of human beings. It helps to give an example of how the issue has affected someone personally, to remind your target audience of the human dimension of the issue you are dealing with. Give an example of how the policy issue has affected an individual person.

- **Action desired.**
Your advocacy message should clearly indicate what you are asking your target audience to do.

Before going into such a meeting, try to ascertain how long the meeting will be and who will be there. Find out as much as you can about possible participants and their concerns. Tailor your messages to the time allowed, but also prepare briefer versions of your remarks in the event that time is cut short. The “one-minute message” is good preparation should you need to be extremely brief as it imposes structure and close attention to time constraints in delivering an advocacy message. Instead of overloading the policymaker with information in your presentation, provide details in supplementary materials such as a one or two page policy brief. Bring along more detailed documents if you have them, but don’t expect the policymaker to ever read them. At best, they may get reviewed by some of his staff, so your main message better be clear right up front in your comments and policy briefs. If more than one member of your advocacy team is attending, make sure you are clear on what role each person plays in the meeting, who is actually speaking and for how long.

Policy briefs are important tools for advocates, but must be well-crafted, professional in presentation, and targeted to the audience

One of the most valuable tools at your disposal is the policy brief. They have a number of uses:

- They can form the basis of discussions for face-to-face meetings with decision-makers;
- They can be left with decision-makers following face-to-face meetings, so there is a clear record of the advocacy issue and the change which you're seeking; and
- They can be distributed to members of both the primary and secondary target audience as a way of generating knowledge of and support for an issue.

Examples of policy briefs papers can be found in the A² advocacy training manual material in the Implementer's track. While there are a range of styles and formats which can be used in effective policy briefing papers, the following are some important ideas for producing effective policy briefing papers:

- **Summarize your key message right up front.**
Begin with a brief statement of the issue and your recommendation for action. This will provide readers with a context for all the information which follows.
- **Provide evidence supporting your recommendation or request for action.**
Don't try to produce information overload; use only data or analyses directly relevant to the topic.
- **Ensure that data are clear, concise, and support the main messages you wish to convey.**
Don't spend time discussing details of how the data was collected, how the analysis was done, etc. Just make sure the reader understands that the data source is credible.
- **Think strategically when selecting your data.**
It is not possible to say everything there is to be said about an issue in a briefing paper, and the appearance of large amounts of data, graphs, or charts in a document can alienate your target readership. The inclusion of data in support of your issue is important, but must be balanced against the need to ensure that a briefing paper appears clear and readable.
- **Target your policy brief to your specific audience.**
A policy brief for the head of the national AIDS program will be different from a policy brief for the Minister of Health. In general, you be trying to convince them to take different actions. The national program manager may need less detailed information about HIV-related issues than the Minister of Health, since he deals with them on a daily basis. Always review your policy brief to assure its content is relevant, at the right level, and appropriately targeted for your audience.
- **Ensure that graphs, tables, or charts, are clearly labeled.**
Readers should not have to search the document in order to understand what data are being presented, or why. Be sure to use language that your target audience can understand. Don't speak in technical jargon and "AIDS-speak" – they won't understand you.

- **Use headings and other formatting to guide readers through the content of the document.**

Often the policymaker will review the brief in one or two minutes. If they can get the important points by reading the headings, bullets and italicized or bolded material, you're more likely to get through to them. You may want to consider the use of boxed text or "pull out" quotes in bold or large font to emphasize key points.
- **Use a legible font size.**

Make sure it is sufficiently large to ensure readability by the average reader. Squeezing ten pages of material into two pages by using a small font guarantees nobody will read it.
- **Try to keep references such as footnotes to a minimum,** as they can distract readers from the flow of information presented in the document. Some briefing papers place all references as endnotes on a separate page at the end of the document. This approach ensures that references are available for readers who choose to read them, but are more easily passed over by readers who only have sufficient time or interest to read the main text.
- **Make it look professional and attractive.**

Where resources permit, consider the use of color in the briefing paper. Appropriate use of color can make a document appear more interesting (and hence more likely to be read), make it appear more "professional", and can also be used to highlight key messages. Often, printing on heavier weight paper or glossier paper gives the brief a "professional" aura.

The A² advocacy training curriculum includes a module on how to produce effective policy briefs, the aim of which is to ensure that policymakers receive information from the A² Project in modes which allow them to understand and use the information without the necessity of being technical experts in all of the relevant areas.

Build relationships with A² information products that aid planning, budgeting and programming processes

An important added value of the A² Project is its ability to provide government partners new tools for the collection and analysis of HIV data, including the Asian Epidemic Model and the Goals Model, along with training in making the results of these models more accessible to policy processes. AEM and Goals have allowed for more sophisticated understanding of the epidemic in a country or province, and provide additional information on which decisions regarding the response to the epidemic can be made. Similarly, the skills and capacity building resulting from A² advocacy training, as seen in the A² advocacy curriculum in the Implementer's track, are seen as valuable not just by civil society groups, but by government staff as well. They help trainees learn new techniques of analyzing and presenting information that will assist them to secure additional resources, and more systematically identify priorities for government action. These new tools for analyzing, communicating about, and responding to the epidemic create opportunities for access to government

policymakers and program implementers by individuals and organizations involved in A².

Develop a strategy early to anticipate and meet the most essential information needs of national and provincial policy processes

The most fundamental premise of A² is that national and provincial HIV responses must be developed and adapted from a clear understanding of current epidemic dynamics and the extent to which existing programs address those dynamics. One way to promote this is to develop a strategy to meet the information needs of policymakers and program managers. This should be done through close consultation between the A² Project and government AIDS authorities. The resulting information strategy should take into account information needs at all of the significant milestones in policy making processes at national or provincial levels, as well as the regular cycle of government revision and adjustment of the response to the epidemic. Information provided at these various stages of national and provincial planning can be an important form of advocacy.

Make A² information products widely available

One outcome of such an information strategy should be the distribution of a series of A² information products of broad utility – synthesis reports, modeling reports, costing studies, etc. They should be widely disseminated to those who may benefit from the data and analyses they contain. These can become frequently used references for those planning national and provincial responses and programs.

SYNTHESIS REPORTS

Your A² synthesis report draws together a large amount of available epidemiological, behavioral, economic, and program data. It should be produced as early as possible in the implementation cycle of the project, to provide a basis from which the project, government authorities, planners and donors can quickly understand what is currently known about your epidemic and the most important factors driving it.

AEM AND GOALS TECHNICAL REPORTS

The Asian Epidemic Model projection for your country or province charts the history and likely future course of the epidemic. The Goals Model assesses previous and current HIV spending, compares patterns of resource allocation against the factors driving an epidemic, and analyzes the proportion of resources spent on various program responses such as prevention, STI treatment, access to ARV medication, etc. Technical reports on your AEM and Goals models will provide useful inputs to numerous planning and budgeting exercises that need a more quantitative picture of the epidemic.

POLICY BRIEFS ON ALTERNATIVE POLICY AND PROGRAM CHOICES

Used together Goals and AEM allow direct comparison of the effect on the epidemic of alternative patterns of resource allocation and allow you to assess their effectiveness and cost-effectiveness. Generating policy briefs or short technical reports summarizing the findings of analyses of alternative responses can help those charged with planning for the future. Remember that policymakers and program planners often lack the time or expertise to do such analyses themselves. If presented in ways that are accessible and useful, such materials will strengthen your relationships and provide expanded avenues for evidence to influence policy.

Putting all the pieces together for effective advocacy – the advocacy action plan

By now you and your advocacy partners have a pretty good idea of what you're advocating for, who you need to reach and the ways you might reach them. So now you need to organize so that everybody knows what they're doing and what they're responsible for – in short, you need a plan. Advocacy does not happen by itself. Somebody needs to arrange the meetings, prepare the policy briefs, organize the policy forums, etc. This brings you to the final step: advocacy planning. Advocacy planning puts the analysis, strategic choice of issues, and articulated goals and objectives into a concrete plan for action with assigned responsibilities. In A², we call this the advocacy action plan.

Developing the action plan provides an excellent opportunity for advocates to work as a team. This implementation plan for your advocacy activities should be developed with input from and the consensus of the entire group of advocates who will be involved, and in consultation with the populations they represent or serve, in order to create a sense of shared ownership and commitment to the plan and the strategy. In

practical terms, the plan must be developed collaboratively as a team effort with your advocacy partners, because only they know what resources they can bring to the table and what specific activities they're willing to take on.

Convert each advocacy objective into a set of well-defined activities to accomplish it

Now is the time to use what you've learned about how policy and program decisions are made in your country or province. Consider what you know about the policy process, who it involves, and identify possible points of intervention. Brainstorm with your advocacy partners about which potential activities will be most likely to make progress toward meeting your objective. Prioritize possible activities in terms of their likely effect, feasibility and personnel and financial costs, then select that subset of activities most likely to have an impact that are within your budget and personnel constraints.

Any single objective will probably end up being converted into a number of specific activities, especially if you need to reach multiple primary and secondary audiences and have multiple advocacy partners involved. An activity might be the writing of a policy brief, attending a planning meeting for national strategic planning, working with leaders of affected

communities to develop a targeted brochure to raise community awareness, organizing and coordinating a working group, etc. The actual activities will depend very much on the policy process, objectives, target audiences, and who is in your advocacy coalition.

Lay out the details of each planned activity in your action plan

In particular, for each activity your action plan should specify, at a minimum, the following things:

- **The target audience.**
Describe the target audience completely, including how many people are expected to be reached.
- **A complete description of the activity.**
Make this a comprehensive enough description that everyone on your advocacy team is clear about what is to be done.
- **Person and organization responsible.**
Every activity needs to be assigned to a particular individual, with broader oversight responsibility given to one of the partner organizations. If nobody is responsible, things end up not getting done.
- **Resources needed.**
Advocacy activities, like any other activity, require financial and human resources. Brochures need to be written; and, if this requires a media consultant, budget must be allocated for this. Meetings need to be held in meeting rooms. If your local organization's meeting room is too small you may need to budget for a meeting room and refreshments at a hotel. Specify these resources, both financially, and also in terms of personnel time so that you have a clear picture of the resources required. Needless to say, you need sufficient money in your budget to pay for these things and bodies to do them, or the activity will not occur.
- **Time frame.**
Specify precisely when this activity is expected to occur, and also allocate time for any necessary preparation or follow-up that may be needed.
- **Expected outcomes.**
Concisely state what you expect to get out of this activity and be certain that you know how this relates to your advocacy objective.
- **Monitoring and evaluation plan.**
Any businessman will tell you that any business plan

requires monitoring and evaluation. You need to be able to assess progress toward your goals. You need to know if the expected outcome of a particular activity is delivered or not. In general, this is done by specifying indicators and ways of documenting the activity.

A simplified example of an action plan is attached at the end of the chapter. It is important to keep in mind that each action or activity planned is designed to contribute to achieving the desired advocacy objective: that is, convincing the key decision-maker or institution who is your target audience to take a specific action. Other aims of an action plan can be to inform and persuade members of primary and secondary target audiences to build a more supportive environment for change to occur. In some cases, you may need to build public or community awareness of and support for an issue. Think broadly about what activities are needed, but concretely about the time and resources needed for each activity you choose.

Prepare a timeline, an overall budget, and an individual responsibilities list

After you've identified your activities and their time frames, prepare a master timeline to make sure that activities which depend on other activities being completed (e.g., a meeting with the Minister of Health before which a policy brief must be done) are properly ordered. The Gantt chart is the tool businessmen and planners most commonly used for doing this. Also, once you get each activity laid out, pull together a master budget and personnel responsibilities list to make sure that you have the resources needed to implement the plan and that everybody knows exactly what they are responsible for. Including activities you can't afford in your advocacy plan or ones nobody has responsibility for sets you up for failure.

Establish appropriate indicators to follow the progress of and assess the success of your plan

Like any business, you must regularly assess progress toward your objective and make midcourse adjustments if your plan is falling short. This means you need objective, concrete indicators of progress and impact for each activity. For example, if your objective is to provide input to a national strategic planning meeting on MSM, your indicators of progress might include number of meetings attended and policy briefs delivered. If you're looking for indicators of impact of this activity, you might have an indicator such as the number of times your policy brief is referenced in official documents or in mass media outlets.

Indicators should be linked to the advocacy communication model discussed earlier of informing, persuading, and moving to action. Indicators tell us what happened as a result of an advocacy activity, but they can also serve as red flags for areas where we need to focus more attention. Failure to achieve any indicator should always be tied to specific actions that are taken to correct the problem. To develop indicators, ask yourself:

INFORM:

Did the target audience receive the information?

- If yes - what is the evidence that the information was received?
- If no - why not? What did we learn? What do we do now?

PERSUADE:

Did the target audience change their attitude?

- If yes - what is the evidence of the change of attitude?
- If no - why not? Did we offend them? What did we miss? What do we do now?

Did the target audience decide to support the advocacy objective?

- If yes - what is the evidence of support?
- If no - why not? What else is necessary? What do we do now?

MOVE TO ACTION:

Did the target audience do something that will help you achieve your objective?

- If yes - what is the evidence of the action taken?
- If no - why not? What are the barriers? Who can help overcome the barriers?

IMPACT: WAS THE ADVOCACY OBJECTIVE ACHIEVED?

Did policies, laws, or financing change?

- If yes - what is the evidence?
- If no – is it time to re-evaluate the strategy? What next?

Part of your monitoring and evaluation plan should always be a regular collaborative review, perhaps quarterly, with your

advocacy coalition of the indicators and the progress being made in implementing your plan. Again, if the indicators are not showing progress, changes to the action plan must be made to correct this.

Take into account local conditions and norms that affect how you advocate

The advocacy activities chosen must reflect local conditions and processes if they are to be effective. In some systems of government and countries, effective advocacy can involve a variety of public activities such as debates on the merits of proposed policy changes, street marches or meetings to demonstrate community support for an issue, or the use of the media to reach wide audiences with advocacy messages. In other systems of government or countries, public discourse on the merits of government policy, criticism of existing policies, or advocating change may be seen as disrespectful of government officials, and may in fact impede the process of policy change by offending social norms of harmony or respect for authority. In most cases, advocacy activities must be undertaken in a way that is consistent with accepted social traditions. There may be cases in which advocates make a conscious decision to flout social norms, knowing that to do so will guarantee that their demands are noticed. However such decisions should only be made by advocates who are members of the local population in which the action is proposed to take place – and, even then, only with careful consideration of possible negative consequences of doing so.

Pay attention to what's happening around you – good advocacy is both planned and opportunistic

So now you have a plan – go out and do it! By having a detailed plan with clearly assigned responsibilities, you should make good progress toward achieving your objectives and ultimately your advocacy goal. But no plan is perfect. Advocacy is to a great extent a political process, and the political environment sometimes changes rapidly. This can create both barriers and opportunities. So be prepared to adapt. Just like a good HIV response, a good advocacy plan regularly reassesses the situation and adapts to address obstacles or take advantage of opportunities.

If public opposition to important programs develops, you may need to adjust your advocacy plan to reflect that. This might be done by adding new activities to influence public opinion, or by changing your approach to work around that opposition. For example, in the mid-1990s as needle exchange was being promoted in the United States, a very conservative national

legislature came to power, vehemently opposed to such programs. Sensing political risk, President Clinton quickly dropped his support for such programs. In response, local communities and health authorities moved from advocating strongly for legalization of these programs at the national level to a more “under the radar” approach of adopting them locally to avoid conflicts with the legislature. This successfully allowed needle exchange programs to continue in the US.

You also need to watch for unexpected opportunities that may arise. Very often specific events, such as meetings or personnel changes, come up and give you an opportunity to push the advocacy agenda ahead quickly. For example, in 2005 Thailand hosted a major Universal Access meeting. Shortly thereafter, a Thai national was chosen to head the UNAIDS Programme Coordinating Board. This created an extremely high international profile for Thailand's response to HIV and presented a unique opportunity to push for the strengthening of prevention programs in the country. Working closely with government and civil society partners over the next couple of years, the Thailand A² team helped to translate these events into an expanded national commitment to HIV prevention and increased resources for HIV prevention.

Advocacy Implementation Plan

advocacy objective : In next budget, MOH to increase funding for HIV prevention program for MSM by 50%

Target Audience	Activities	Person Responsible	Resources Needed	Time frame	Monitoring and Evaluation		
					Expected outcome	Indicator	Documentation
<ul style="list-style-type: none"> • 25 journalists 	<ul style="list-style-type: none"> • Training on MSM and HIV issues for media 	<ul style="list-style-type: none"> • Suneeta Bijay 	<ul style="list-style-type: none"> • Project staff • Media consultant 	<ul style="list-style-type: none"> • June 	<ul style="list-style-type: none"> • Increase awareness of gap between need and funding 	<ul style="list-style-type: none"> • Reporting on need for increased funding 	<ul style="list-style-type: none"> • Copies of print articles • Record of TV or radio reporting
<ul style="list-style-type: none"> • NGOs • Key program planners in MOH 	<ul style="list-style-type: none"> • Meetings to disseminate results to key stakeholders 	<ul style="list-style-type: none"> • Bhoraj Bijay 	<ul style="list-style-type: none"> • Project staff • Writer • Designer 	<ul style="list-style-type: none"> • June 	<ul style="list-style-type: none"> • Increase awareness of gap between need and funding • Agreement that additional funds needed 	<ul style="list-style-type: none"> • NGOs plan advocacy activities • MOH advises they agree 	<ul style="list-style-type: none"> • Minutes of meetings • Documented advocacy activities • Minutes of meetings, letter advising agreement
<ul style="list-style-type: none"> • MOH members of budget committee 	<ul style="list-style-type: none"> • Meetings with key MOH decision-makers 	<ul style="list-style-type: none"> • Bijay Etra 	<ul style="list-style-type: none"> • NGO allies • Supportive MOH staff 	<ul style="list-style-type: none"> • August 	<ul style="list-style-type: none"> • Persuade to increase funding for MSM programs by 50% 	<ul style="list-style-type: none"> • Increase in budget 	<ul style="list-style-type: none"> • Budget figures • Announcement by MOH • Media reports of additional expenditure

Figure 13.1. An example of a form for advocacy action planning.

EXPERIENCE

Chapter 14

PUTTING IT ALL TOGETHER:
A² IN PRACTICE

[an overview]

p. from analysis to action: the A² approach

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[an overview]

Chapter 14

PUTTING IT ALL TOGETHER:

A² IN PRACTICE

There is no doubt that A² is an ambitious process. Pulling together diverse sources of existing data and using them to systematically examine current responses and the impact of alternative future responses is challenging and difficult work. Taking these analyses into the realm of policy advocacy to improve responses is no less daunting. Yet, despite the challenges, the A² country teams have implemented the process and have influenced real-world policies and programs in their countries or provinces. This chapter explores what has been accomplished and how it was done, stresses some of the lessons learned, and suggests ways to improve the next generation of A² projects.

What policy changes has A² contributed to in each country?

The A² process has helped to move responses in positive directions in each of the sites. Samples of some of the changes that have occurred with support from the A² country teams include:

Bangladesh:

- As part of the A² process, multiple data sources were pulled together in a series of collaborative meetings to produce and disseminate size estimates for at-risk populations for the first time.
- AEM modeling work led to increased focus on programs for at-risk populations in donor funding including USAID's Bangladesh AIDS Project and the consolidation of GFATM Rounds 2 and 6.

Guangxi, China:

- Modeling showing a substantial contribution of MSM to the epidemic led to an increased focus on MSM in the provincial five year HIV/AIDS action plan and increased resources for MSM interventions.
- Based on policy and cost-analysis scenarios, the government of Luzhai county mobilized special funds for HIV prevention and increased the number of government staff working on HIV/AIDS.

Yunnan, China:

- In response to prevention scenarios, authorities made refinements to the five year action plan that included new targeted initiatives for at-risk populations, including scaling up of condom promotion among FSW and programs for MSM in Kunming.
- After hearing the case for increased resource allocation based on A² analysis results at the State Council Meeting in Beijing in August 2007, the national government allocated 114 million RMB to support HIV/AIDS prevention and control in Yunnan.

Ho Chi Minh City, Vietnam:

- Using AEM/Goals analyses of programmatic impact of prevention alternatives, Ho Chi Minh City (HCMC) adapted the provincial HIV plan to increase the focus on harm reduction and prevention for most-at-risk populations, including FSW, IDU and MSM.
- HCMC increased targeted funding for prevention among most-at-risk populations from 1.4 billion VND in 2005 to 15.9 billion in 2006 and 21.9 billion in 2007.

Thailand:

- By demonstrating that additional prevention gains were achievable with modest investment, the Thailand team supported the adoption of a national HIV prevention goal of cutting HIV incidence in half by 2010.
- The Health Security Office allocated 500 million baht of increased funding for prevention among youth and at-risk populations in support of the national prevention goal.

What lessons have been learned in implementing A²?

The picture of the A² process presented in these guidelines is an ideal one. As would be expected, the process did not play out exactly the way it is presented here in each of the sites. Adaptations were made in response to local institutional arrangements, skill and time limitations of the individuals recruited for the process, and realities on the ground. Many of these changes are detailed in the chapter, but some general lessons have emerged:

- **The A² approach requires substantial time commitment and resources.**
Implementation of the full A² package is not necessarily appropriate in resource-constrained situations, but significant policy or program change can still be achieved without implementation of the ‘full package’.
- **Adequate country/provincial team technical capacities and availability are essential for successful and timely implementation.**
Many delays were encountered because many A² team members had other responsibilities or insufficient time to devote to the process. Whenever possible, the synthesis and advocacy specialist should be full-time A² project positions located in the same organization.
- **Technical support and external review of initial results are essential in the early phases.**
At project design, implementers should conduct realistic assessments of country/provincial team technical capacities, the amount of training and technical support required, possible providers of this support, and the capacity, availability and resources of these providers to deliver necessary training and technical support.
- **Linkage of project processes and team members to local HIV strategic planning organizations and processes promotes greater project impact.**
The local partner institution recruited should have influence on local HIV strategic planning and implementers should identify and enlist country or provincial team members who are well respected in their fields of analysis or advocacy and linked to key strategic planning processes.

- **Building strategic partnerships and engaging communities and people living with HIV is essential.**

The impact of A² will be greatly enhanced if more people are engaged in or aware of the process. Every effort should be made to collaborate with others, to bring national program partners and donors into the picture, and to more proactively engage with communities and people living with HIV. The advocacy specialist has a special responsibility to ensure policy solutions and advocacy efforts are acceptable to and involve affected communities and those living with HIV. Their engagement is an important part of strengthening responses.

- **A sustained focus on advocacy needs to be instilled in all team members and ongoing advocacy mentoring and training provided.**

There was a tendency in many sites to focus on the technical details of data analysis, with less attention to the advocacy components. The advocacy specialist should be recruited early in the process and tasked with keeping a focus on advocacy throughout.

- **Substantial effort should be put into establishing and maintaining functioning Technical Working Groups and Advocacy and Data Use Working Groups.**

Where possible, consider engaging an existing national or provincial HIV advisory group to serve the role of the Technical Working Group. But, while such bodies often exist on the analysis side, they do not on the advocacy side. This requires effort be put into recruiting members with appropriate policy and community linkages for the Advocacy and Data Use Working Group early in the process.

Many feel that if these lessons learned are taken into account, the process can achieve even more policy change than it has so far.

What will the next generation of A² look like?

Much has been learned since the process was initiated in 2004. However, the fundamentals are sound and the process does work. With that said, several things can improve the project's effectiveness in future rounds:

- **Improve the tools to reduce training and technical support requirements.**
The A² tools in their original form required substantial training. Over the course of the project, they have been simplified substantially. However, further work is underway to merge AEM and Goals into a single, streamlined and better documented package and to add additional validation and error checks. Tools to automatically generate useful policy outputs are being added to the A² repertoire.
- **Develop a simplified version, A² Lite, for sub-national or sub-provincial application.**
Increasingly, decisions are being made at the local level as a result of decentralization or devolution. This requires a simplified version of this process, which reduces the data requirements and greatly simplifies the tools and advocacy approaches for application with minimal training. These are under development by the A² Regional Support Team for testing in Thailand and Vietnam in the near future.
- **Form linkages with existing national strategic information and monitoring and evaluation activities.**
Strengthening these ties will benefit both sides. A² has much to offer national efforts in strategic planning and evaluation of national responses. At the same time, these systems are increasingly gathering new data that could strengthen the A² activities, but which would also benefit from the additional review and quality control that A² could offer.
- **Consider establishing A² in a national policy analysis unit.**
Such units, recommended by the Commission on AIDS in Asia, can build on past experience with A² to provide sustainable support for policy analyses, national program evaluation and response strengthening.

JEREMY ROSS

TIM BROWN

A² COUNTRY TEAMS

Chapter 14

PUTTING IT ALL TOGETHER:
A² IN PRACTICE

[concepts and content]

Chapter 14

PUTTING IT ALL TOGETHER:

A² IN PRACTICE

Jeremy Ross, Tim Brown and the A² Country Teams

Learning from real world examples of the A² process in action

In mid-2003, the Regional Development Mission for Asia (RDMA) of the United States Agency for International Development (USAID) opened in Bangkok. The Mission health staff were deeply concerned about the continuing growth of HIV epidemics around the region. At the same time, staff at Family Health International (FHI), East-West Center (EWC) and Futures Group International had become increasingly frustrated with the stagnation of country responses in Asia even in the face of a steady accumulation of epidemiological and behavioral data showing steady epidemic growth. At the USAID Regional Retreat in September 2003 these groups came together and the concept of integrating analysis and advocacy was discussed with interest. Shortly thereafter, USAID | RDMA mobilized resources to support the project.

A² has now been implemented in five sites

Over the next 6 months the regional A² partners worked to identify potential sites for this project and locate local partners in those sites. After careful consideration, a decision was made to implement the Analysis and Advocacy project in five geographic locations at various stages of the epidemic:

- **Bangladesh** - a country with high levels of risk but, so far, low levels of HIV
- **Guangxi, China** - a large province in China with a steadily growing epidemic
- **Yunnan, China** - the southern Chinese province which saw the earliest growth of the epidemic among injecting drug users
- **Ho Chi Minh City, Vietnam** - the largest city in Vietnam with a serious epidemic accounting for one-third of reported HIV cases in the country
- **Thailand** - a country that has reversed the growth of the epidemic

These places were chosen because they showed strong local interest in improving HIV responses and they covered the full range of epidemic types in Asia. Starting in mid-2004, in-country collaborators in these sites worked with the A² Regional Support Team to pilot and test the concepts and ideas presented in these guidelines.

Five years of experience in these sites have taught us valuable lessons on implementing A² and improving responses

During this period, country teams were trained on the tools and approaches of A², analyzed their local epidemics,

built partnerships for advocacy and produced real policy change in various forms. In the process, numerous adaptations were made to the structures and steps outlined in Chapter 1. After a brief review of the original structure proposed for A² teams and the expected steps in the process, this chapter discusses the actual experiences in each of the primary sites.

This includes discussion of the actual local structures built for A² and changes in the process as originally envisioned. This chapter also looks at what was achieved in terms of realization of the project's unique features, achievement of project objectives (such as building capacity for data analysis and advocacy and achieving policy or program impact) and any reasons or factors that either supported or hindered project achievements. Important lessons learned from the countries' experiences are then presented to provide guidance for those considering the implementation of similar efforts in other locales.

NOTE: In discussing policy outcomes, it is important to understand that A² activities do not occur in isolation, but are part of a larger concurrent set of other activities, policy initiatives, and social, economic and cultural changes. In such an environment, it is difficult to attribute a given policy change or set of resources mobilized to any one activity. Thus, in discussing the policy or program changes that occurred, we want to be clear that we are not claiming they are the result of the A² process alone. Many other synergistic and supportive activities also contributed, but we do feel that A² itself made a significant contribution to the changes reported.

The A² “ideal” - specific steps carried out by dedicated personnel

The A² process has a number of essential steps

Chapter 1 presented this process as originally envisioned by the regional FHI, EWC and Futures Group team. The core steps in the A² process are:

1. Pulling together available information, identifying gaps in knowledge, and filling them;
2. Using this existing information to build models of the local epidemic with AEM and Goals;
3. Exploring alternative policy and program choices with those models;
4. Mapping and understanding the policy landscape and using that knowledge to develop plans to effectively advocate for improved responses; and,
5. Working with various partners to translate this understanding into action.

Without a doubt, A² is an ambitious process, but properly carried out it held the hope of producing significant policy change and improving national and provincial responses. Recognizing the amount of work required and the need for buy-in from local experts to build the credibility of the results, an idealized structure was proposed for the local A² teams when the project was conceived in late 2003. This idealized structure is shown in Figure 14.1.

The A² country team has multiple components

At the core of the team are one or more full-time synthesis specialists and one or more full-time advocacy specialists, hosted at an appropriate local institution. They are supported by a Technical Working Group (TWG) and an Advocacy and Data Use Group (ADUG) composed of local experts, who help to guide the process and review the outcomes. The specialists also receive extensive training and technical

support from an A² Regional Support Team drawn from the regional collaborating agencies: Family Health International (FHI), East-West Center (EWC), and the USAID I Health Policy Initiative (HPI) through RTI International and, in earlier years, Futures Group International. The synthesis and advocacy specialists serve as the “glue” interconnecting those who have data and contribute to the analyses and those whom the process seeks to influence.

With dedicated personnel, it was expected that the A² process outlined above would be a cyclical process of analysis and advocacy with about a two-year time frame. The first year would be largely dedicated to gathering information, building models, and developing relationships. The second year would then put more focus on partnerships and advocacy while sustaining less intensive information gathering and analysis activities. This cycle would then repeat as the epidemic and the responses to it evolved over time.

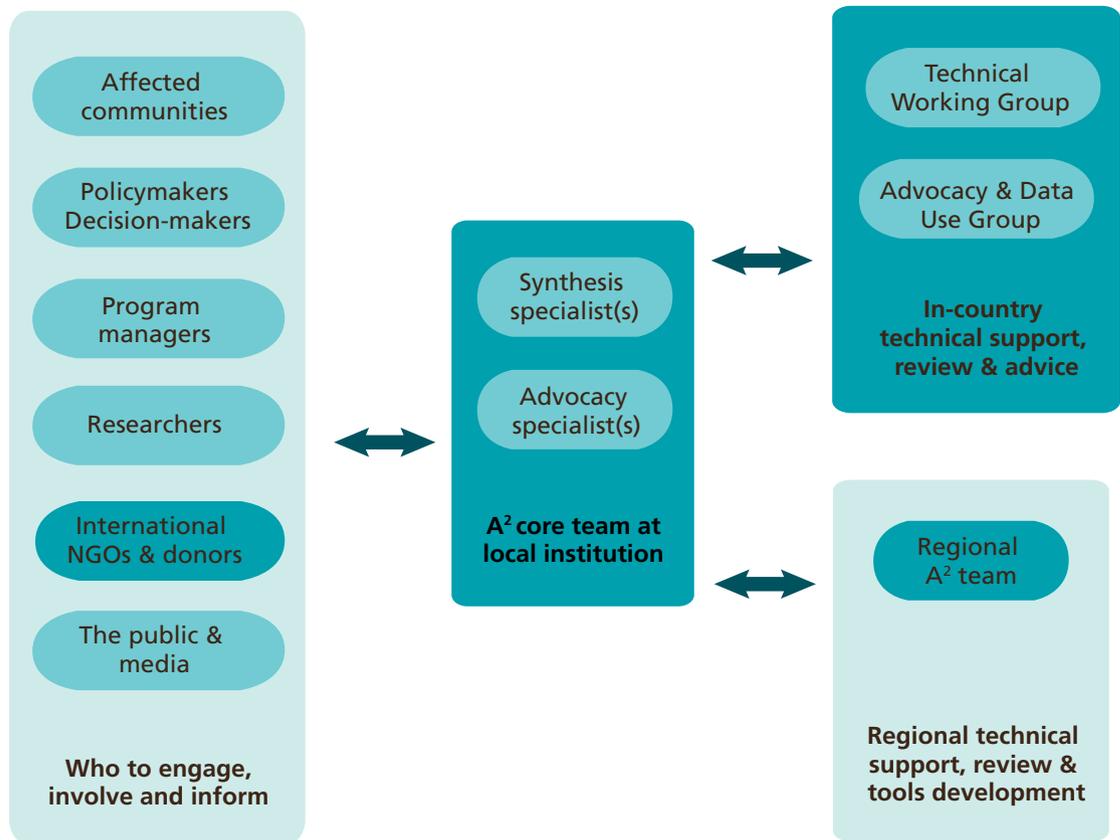


Figure 14.1.
The idealized structure of an A² team in-country.



What happened in practice?

A unique implementation in each site

Significant variations from the process and structures outlined above were seen in response to local situations

The A² Regional Support Team recognized from the start that the process and structures outlined above will always need to be adapted to fit local institutions, capacities and constraints. As expected, the actual project implementation in Bangladesh, Thailand, Vietnam and Guangxi and Yunnan required changes in the idealized A² process in timelines, process, and team structure (see site specific sections that follow for details).

Without exception, implementation of the A² process and its activities took longer than had been anticipated and planned for originally

Identification and training of qualified synthesis specialists and advocacy specialists often took time, and staff turnover was an issue in some sites. Synthesis and advocacy specialists were often not full-time on the A² project and their other duties on occasion forced an extension of the timeline. The analysis tools available in the early stages

of the project had a steep training curve and required substantial technical support from the regional team, which was sometimes unable to respond quickly due to competing demands on their time. In addition, time was occasionally needed to build trust among collaborating partners to enable the teams to work around sensitivities over data ownership and use.

Each site followed a unique path in implementing the project and achieving its objectives

In terms of process, additional activities needed to be added in some places, e.g., the spinoff of an independent agency (Policy Research and Development Institute Foundation) to conduct A² in Thailand or the establishment of provincial structures to conduct A² there. In others, essential steps, such as policy mapping or development of a Goals model, were delayed until late in the process because of lack of an advocacy partner in-country. Significant changes in the policy environment sometimes created challenges, e.g., the overthrow of the government in Thailand slowed progress in implementing policy change and mobilizing resources.

A² team structures were adapted to fit local institutions, resource/personnel constraints, and the realities of a multi-partner collaboration

This led to various complications. In Bangladesh, no interested local partner could be found and most activities ended up being conducted by FHI Bangladesh in collaboration with local experts. In China, analysis and advocacy activities were conducted by separate agencies. This led to coordination issues and more limited linkages between analysis and advocacy than might be desired. In some sites, analysis and advocacy responsibilities were apportioned among multiple part-time staff instead of having a single dedicated synthesis or advocacy specialist, increasing training needs and slowing implementation. In some sites, the full supporting role of TWGs and ADUGs was not realized and these groups were sometimes marginally operational with inconsistent membership and irregular meetings. In other sites, existing advisory bodies were instead tasked with filling the role of the advisory groups.

However, despite the various complications, the project objective of policy change to improve responses was ultimately realized

There is little question that, in some cases, these variations hindered project implementation and impact. However, the observed variations from anticipated timelines, process and structures are a natural and necessary part of any pioneering process. A² brought together diverse sources of information for the first time and analyzed responses in light of this information. It sought to improve responses by engaging multiple partners, many of whom had not previously worked closely together. As a consequence, it was sometimes a challenging and frustrating process, requiring real persistence and dedication. But, it paid real benefits. As the examples in the next sections will illustrate, it contributed to real policy change - increased awareness of the nature of local epidemics, improved focus in responses, and mobilization of resources.

A² in Bangladesh - sizing up the situation

Bangladesh - extremely low prevalence presents unique challenges

With little HIV, a sense of urgency was missing and national structures for HIV management were not strong with frequent management changes. While prevention efforts in the country had started early with the support of many international partners, indigenous capacity to work with affected populations was comparatively weak. Substantial amounts of prevention resources had been earmarked for low-risk populations, while risk behaviors among FSWs, IDUs and MSM remained high.

From a data perspective, Bangladesh was relatively rich. The country had a robust HIV surveillance system and good behavioral surveillance. Various agencies had also conducted large numbers of ad hoc studies, providing valuable information about levels of risk behavior, but detecting little HIV.

A² in Bangladesh based out of the FHI Bangladesh office with limited advocacy support. Bangladesh was one of the first countries to sign up for the A² project in late 2003, as shown in the timeline in Figure 14.2. However, attempts to find a local partner to house the A² team were unsuccessful. As a consequence, the project operated out of the FHI Bangladesh office and retained a full-time consultant as synthesis specialist. Because Futures Group had no presence in-country, the project only had provisions for conducting data synthesis and modeling until late 2006. No advocacy specialist was hired until 2007, and then only for one year, as funding for the position subsequently expired.

Initial A² activities focused around a request from UNAIDS for national HIV estimates

This request provided an opportunity to initiate the A² process in a way that supported a desirable national objective. The synthesis specialist organized an informal Technical Working Group in early 2004 to work on size estimates as a basis for assessing the HIV burden. An intensive series of

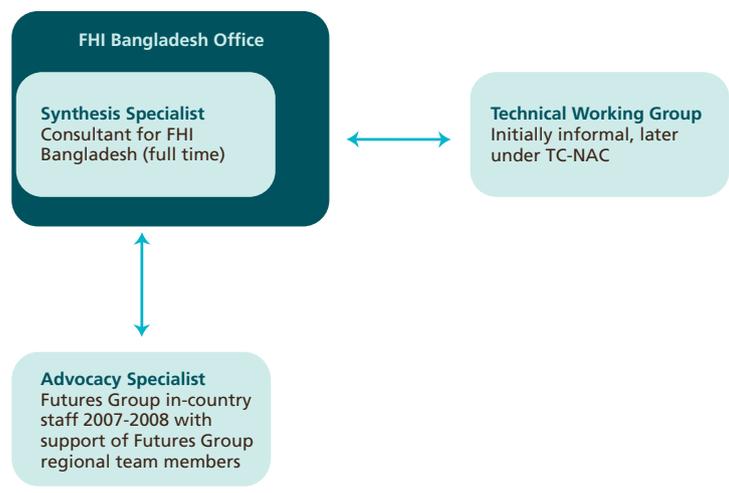
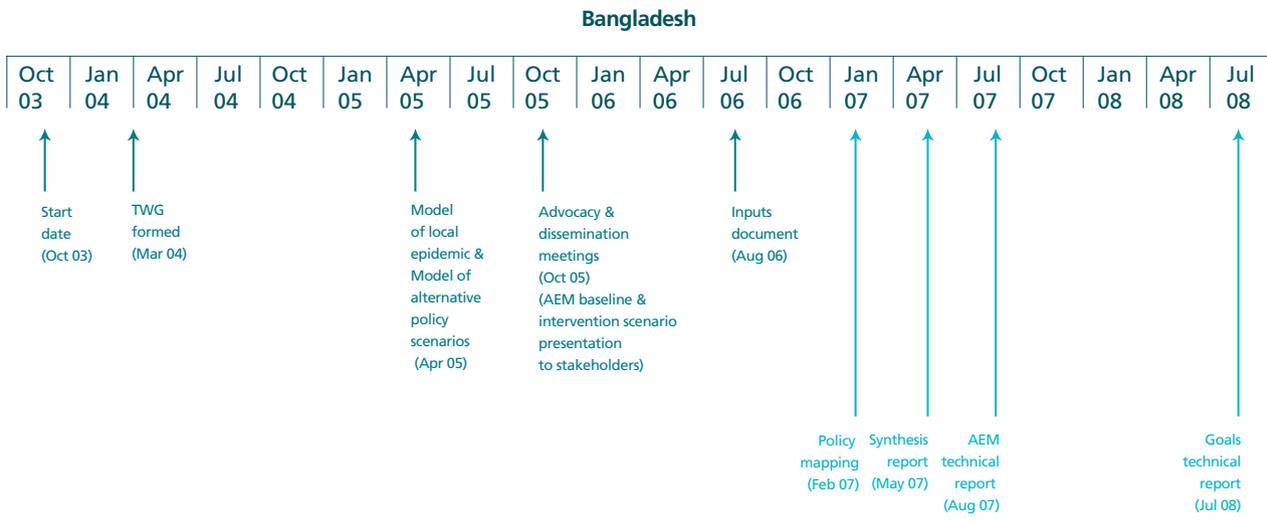


Figure 14.2. Timeline and structure of the A² process in Bangladesh. Advocacy components only came on-line in early 2007 with support from Futures Group regional team members and subsequent hire of an in-country advocacy staff person.

meetings were held to estimate the size of each important population (FSW, IDU and MSM). These meetings brought together researchers, NGO and national program staff, and members of affected communities to reach evidence-based consensus estimates on the size of these populations. The International Center for Diarrheal Disease Research, Bangladesh (ICDDR,B) and CARE Bangladesh were particularly strong partners in these efforts. Later, this Technical Working Group was officially endorsed as a sub-committee of the Technical Committee of the National AIDS Committee (TC-NAC) with the National AIDS/STD Program (NASP) serving as its secretariat. It then became part of the national process of reaching HIV estimates, which facilitated obtaining necessary government approvals.

An AEM was developed and used to brief national and international partners on the need for focused prevention

The synthesis specialist used the size estimates as inputs to develop an AEM baseline scenario for Dhaka in early 2005. Dhaka was chosen for the baseline scenario due to the relative good availability of HIV-related data. Government endorsement of the size estimates was a slow process, taking approximately one year, following which the TWG failed to

reactivate in support of project analysis and AEM modeling. This resulted largely from changes in the management of the National AIDS/STD Program (NASP) and instability in the country's HIV/AIDS funding situation.

Without a local Futures Group presence, the synthesis specialist carried out initial advocacy efforts throughout 2005 and 2006 to communicate the results of the baseline scenario to key decision-makers and in particular, the donor community. In October 2005, regional A² team members assisted the synthesis specialist in presenting the results to the NASP, local NGOs, the USAID mission and ICDDR,B. In 2006, project staff presented the Dhaka baseline scenario to local groups, a World Bank review mission for HIV/AIDS and a Bangladesh Review Mission of the United Kingdom's Department for International Development (DFID). Documents released in mid-2007 included a synthesis report, a report on the Dhaka model, and a report on the policy implications of the model.

More focused advocacy activities, including Goals, only came on line in late 2006

At this time FHI | Bangladesh contracted directly with Futures Group to carry out Goals modeling and conduct

associated advocacy activities. By early 2007, basic Goals data collection had been completed, advocacy environment mappings completed and advocacy training workshops with local stakeholders had been conducted. The synthesis specialist then led collaborative efforts to develop a national AEM as input to the Goals training workshops. However, local staffing issues made for slow progress. By mid-2008, the Goals work had been completed and national models prepared, but advocacy activities around this component of the project's data analysis was minimal.

Main accomplishments of A² Bangladesh

In terms of influencing local HIV strategic planning and achieving policy, program or resource allocation change, the major contributions of A² in Bangladesh include:

- **At-risk population size estimations** guided strategic planning to target and increase coverage of risk groups across multiple agencies.
- **More focused prevention efforts.** The HIV epidemic projections and scenarios generated by A² contributed:
 - To the scale up of programs targeting IDUs, FSWs and their clients by the National AIDS/STD Programme (NASP). These included plans by the NASP to pilot and scale up a methadone substitution program for IDUs and the promotion of condom use among clients at sex work venues.
 - To a 2 year extension of the HIV/AIDS Prevention Project (HAPP) by DFID and the World Bank, averting a large programming gap during a shift to a national pooled funding mechanism for health and nutrition.
 - To informing FHI's USAID-funded, three-year Bangladesh AIDS Project (BAP) focusing on prevention, treatment, care and support among IDUs, MSM and FSWs
 - To an emphasis by NASP, other government agencies and other partners on the need for targeted interventions in all HIV grant proposals, including the consolidation of the GFATM 2nd and 6th Rounds. This resulted from continuous advocacy by the A² team and strong support from the Bangladeshi Deputy Program Manager of the NASP.



A² in Guangxi, China - supporting provincial prevention planning

Guangxi - strong interest in addressing a late starting but serious epidemic

The epidemic in Guangxi started late. Through 1995 only 10 cases of HIV had been reported, but the epidemic then began to grow rapidly, fueled by needle sharing among IDUs. Today Guangxi province has the second-highest level of reported HIV in China. But the response has not been standing still. In recent years substantial resources have been mobilized for a multisectoral HIV prevention and care response, but it was felt these efforts needed more focus to improve their effectiveness.

A² Guangxi operates out of the Guangxi Center for Disease Control and Prevention

Among the A² sites, Guangxi is unique in that it approached the regional A² team to become involved in late 2004 - a reflection of the high level of local commitment to containing the epidemic. Although A² implementation in Guangxi began in May 2005, later than the other project sites, they moved quickly to catch up. The Guangxi

Center for Disease Control and Prevention (CDC) was identified as the lead local partner with support from the Guangxi AIDS Working Committee and the Guangxi Health Bureau as shown in Figure 14.3. The deputy director of the HIV/AIDS Division of the Guangxi CDC was designated as the synthesis specialist. Advocacy activities were based within the HPI I China country office with staff functioning part-time as advocacy specialists. A Technical Working Group with broad representation was formed in mid-2005 to guide the process.

A² Guangxi moved quickly to develop baseline AEM and Goals models

By late 2006, they had developed a baseline, completed Goals costing, modeled alternative policy scenarios, and conducted initial advocacy and dissemination meetings. A Senior Policy Symposium was held in September 2006 for high-level provincial policymakers. However, project progress then slowed somewhat as other commitments took the time of the synthesis specialist and staff turnover occurred at HPI China. As a consequence, a formal policy mapping for Guangxi was not conducted until early 2007 and then an advocacy group was formed. As implementation progressed in Guangxi, project focus and direction became increasingly determined by the Guangxi A² team at the CDC, which by 2008 was implementing updates of the local AEM model and conducting associated advocacy activities with a great degree of autonomy.

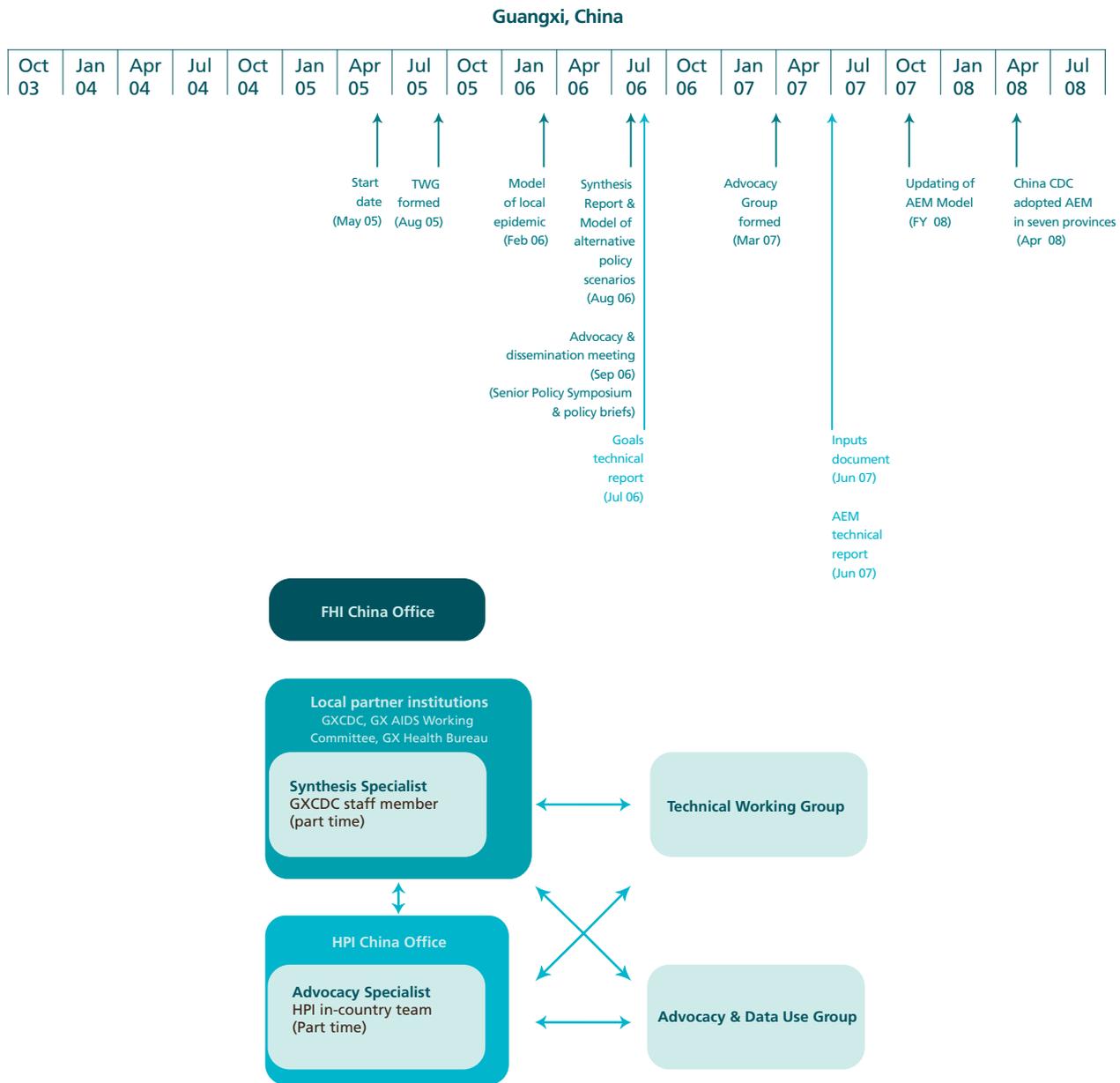


Figure 14.3. Timeline and organizational structures of A² Guangxi. The lead organization is the Guangxi Center for Disease Control and Prevention (GXCDC).

Early advocacy focus was on appropriate targeting and resource mobilization

One of the first realizations from policy analyses done in Guangxi was that there was a tremendous resource gap. Despite substantial increases in both the provincial and national contributions to HIV prevention and care, implementing Guangxi's Action Plan for 2007-2015 required almost 2 billion RMB more than was budgeted. However, achieving the targets of the Action Plan would avert half of the new infections over that period. The models also showed growing contributions to the epidemic from heterosexuals and MSM. This aided in mobilizing additional resources to expand MSM activities in a number of key cities. Benefits are also seen in the mobilization of both personnel and financial resources at the sub-provincial level, e.g., in Luzhai County, an HIV hotspot.

Main accomplishments of A² Guangxi

In terms of influencing local HIV strategic planning and achieving policy, program or resource allocation change A² in Guangxi achieved the following:

- **Increased attention to prevention needs among MSM.** A² analyses led to refinement of Guangxi's Five Year HIV/AIDS Action Plan (2006-2010) to include increased interventions targeting MSM and increased resources allocated to HIV/AIDS prevention and surveillance in the MSM community.
- **Mobilization of provincial resources.** A² projections led to an increase in the Guangxi Provincial Government's five-year HIV/AIDS prevention budget to appropriately fund MSM programs.
- **Mobilization of local resources.** Based on A² policy and cost-analysis scenarios of resource needs, the Government of Luzhai County (an HIV hotspot in Guangxi) released special funds for HIV prevention and control programs and increased the number of government-funded staff working in HIV/AIDS.
- **Major review of the Guangxi surveillance system.** As an outgrowth of the A² process, Guangxi CDC collaborated with FHI and World Bank on a major review of the surveillance system. The resulting report identified gaps in the system and made recommendations for improving it.

A² in Yunnan, China - giving prevention better focus

Yunnan - expanding responses to an early and diverse epidemic

The epidemic in Yunnan was well underway by the late 1980s. Located near the Golden Triangle, Yunnan saw a severe epidemic among IDUs. As the earliest and most serious epidemic in China, Yunnan received substantial prevention resources from provincial, national and international sources. However, the epidemic continued to spread. The question then was how to improve the effectiveness of the responses.

A² in Yunnan operates out of the Yunnan Center for Disease Control and Prevention

With over 40 staff dedicated to HIV/AIDS, Yunnan CDC plays a central role in responding to HIV in the province. After discussions with the FHI Country Director, staff from EWC visited Yunnan in early 2004 to ascertain their interest in joining the A² project. As in Guangxi, local commitment and interest in containing the epidemic was

strong. After discussions with the Director of CDC and the Director of the Provincial AIDS Office, the Yunnan CDC was selected as the local A² partner institution as illustrated in Figure 14.4. Rather than hire external staff, CDC chose to designate the Deputy Director of the HIV/AIDS Division as the synthesis specialist. However, other Yunnan CDC staff were also tasked with providing some support for the A² process and were trained by the regional team at trainings in Bangkok, Honolulu and Yunnan. To build local ownership, FHI and HPI opened provincial offices to support the project in the two provinces. As in Guangxi, advocacy activities were supported by staff from the HPI China office. It was decided that the already existing Yunnan CDC Expert Advisory Group would function as the Technical Working Group for the project.

A² began in Yunnan in September 2004 with both AEM and Goals components

The A² team, including Yunnan CDC and both FHI and HPI China offices, moved quickly to complete data synthesis and the development of a baseline AEM model of Yunnan's HIV epidemic by mid-2006. Preliminary analysis showed that part of the reason for continued epidemic growth was limited coverage due to resource gaps, with less than half of all counties having current HIV/AIDS

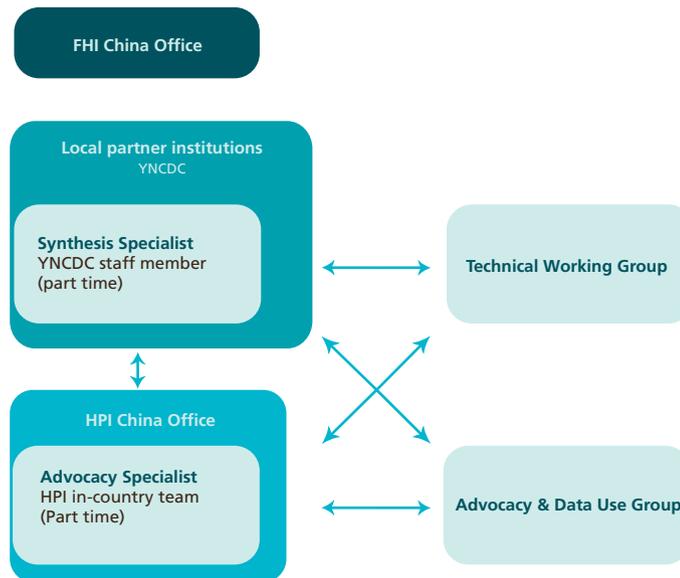
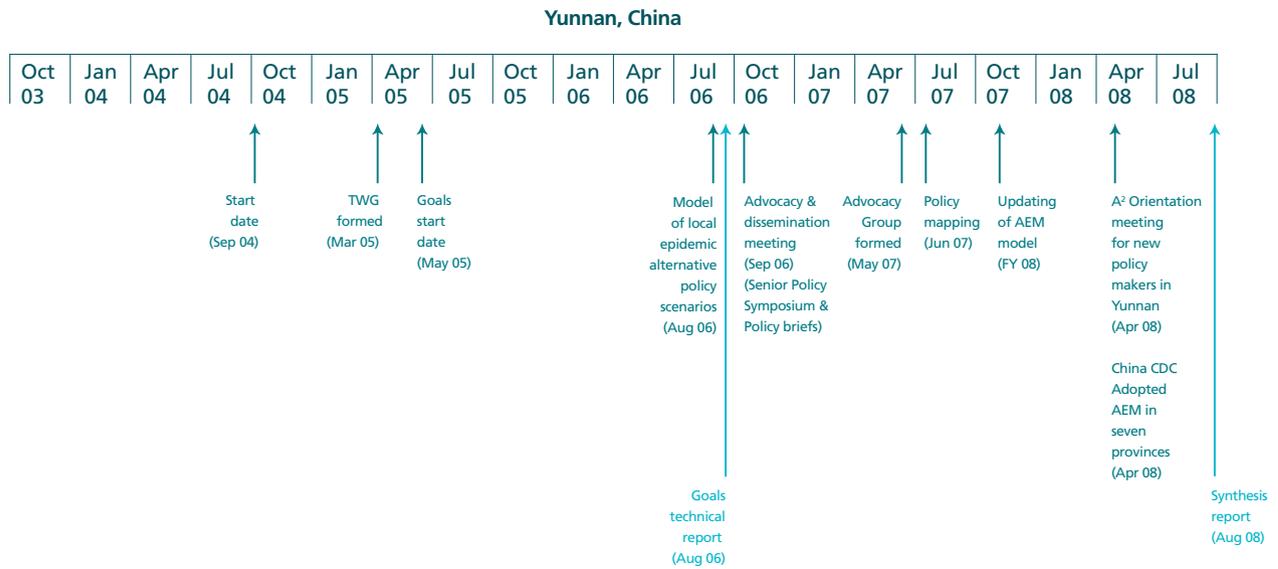


Figure 14.4. Timeline and organizational structures of A² Yunnan. The lead organization is the Yunnan Center for Disease Control and Prevention (YNCDC).

activities and low coverage levels among at-risk population including sex workers and IDUs. Great diversity was also seen within the province with only 4 prefectures having extremely high prevalence among IDUs - and these were the same prefectures where HIV was growing among sex workers and clients.

Dissemination activities focused on policymakers and planners

Goals costing and linked AEM/Goals modeling of alternative policy scenarios were completed by mid-2006 and the associated results disseminated to key provincial policymakers through policy briefs and the Yunnan Senior Policy Symposium in September 2006. This led to increased attention to the contribution of MSM to the epidemic. For reasons similar to those in Guangxi province, subsequent advocacy initiatives were less intensive than had been hoped for. Even so, substantial policy impact was achieved by the project in late 2006 and 2007 by strongly influencing refinements to Yunnan's Five Year HIV/AIDS Action Plan and annual budgets. As in Guangxi, the Yunnan A² team have since moved towards autonomous implementation of A² with updates of their local AEM model and associated advocacy activities throughout 2008.

Main accomplishments of A² Yunnan

A² in Yunnan made a number of significant contributions in policy and planning areas including:

- Modeling fed directly into policy and planning.** Yunnan's Provincial Government used A² modeling to identify populations at risk, assess resource needs and guide provincial strategic planning and proposal development.
- Increased prevention focus on FSW.** A² baseline and intervention scenarios led to refinements in Yunnan's Five Year HIV/AIDS Action Plan, 2006-2010 by Yunnan CDC, such as the inclusion of new targeted initiatives for most-at-risk populations, specifically scaling up condom promotion among FSWs.
- Increased attention to prevention among MSM.** In response to A² projections suggesting a growing contribution of MSM to new HIV infections, the Yunnan CDC, with support from the Global AIDS Program (GAP), expanded prevention efforts among MSM and allocated funds for MSM interventions in Kunming.
- Resources mobilized from the national level.** After hearing the case for increased resource allocation based on A² analysis results at the State Council Meeting in Beijing in August 2007, the national government allocated 114 million RMB to support HIV/AIDS prevention and control in Yunnan.

A² in China - a higher profile at the national level

Guangxi and Yunnan, being two of the highest profile provinces in China in terms of HIV, also gave the A² project high visibility in Beijing. In several cases, CDC staff from these two provinces presented the results of their work to the National Center for AIDS/STD Control and Prevention. Yunnan policymakers, who strongly supported the project, have also discussed it with their counterparts in Beijing and presented at the China national A² launch meeting in September 2005. This has resulted in the production of a

Chinese version of Goals and increased interest in applying AEM and Goals elsewhere in the country.

The A² project has greatly increased local and national capacity for informed policy analysis. Through the A² trainings and hands-on mentoring by the regional A² team, Yunnan CDC and Guangxi CDC have become proficient in modeling the course of their local epidemics. They now function as technical resource people for the national CDC, conducting AEM-Goals training for China CDC and advising those from other provinces on use of the tools.

In April 2008, FHI | China organized a training on AEM with participants from Yunnan, Guangxi and the national CDC. China CDC took a strong interest in using AEM for HIV projection and policy/program analysis at the national level. This led them to conduct training on AEM for participants from other provinces. At present, AEM is being used in seven provinces in China and as part of the national estimation process. Future activities to support the expanded use of AEM and Goals around the country are planned.

A² in Ho Chi Minh City, Vietnam - fine-tuning provincial action plans

Ho Chi Minh City - strong leadership battles a growing epidemic

In the 2003 Vietnamese national estimates, Ho Chi Minh City (HCMC) was home to almost one quarter of the infections in the country. Its HIV epidemic was steadily growing. But Ho Chi Minh City is also a national leader in

HIV prevention and care. The Provincial AIDS Committee (PAC) of HCMC has been active for many years, collecting extensive data, mounting a serious response and providing care for those living with HIV. Actions taken in HCMC were likely to influence responses nationwide. In early 2004, Vietnam adopted a national strategy on HIV/AIDS Prevention and Control with nine intervention components. Futures Group had agreed with the HCMC PAC to support the development of nine action plans to implement these strategies. FHI and EWC had also been working for many years with the National Institute for Hygiene and Epidemiology on estimation and projection activities, including projections for HCMC. These factors made HCMC a natural A² site.

A² in HCMC based out of the Provincial AIDS Committee office

Given its important leadership role, it was natural to base the project here as seen in Figure 14.5. After the first person hired as a synthesis specialist dropped out, the decision was made to have existing PAC staff function in this role. This made the synthesis specialist position effectively part-time, as the designated individual had significant other duties. The HPI in-country team took on the advocacy role, again one of many responsibilities. A Technical Working Group consisting of local experts and an Advocacy Group were both created to advise the project.

A² Vietnam began with analysis of surveillance data in HCMC and parallel development of a Goals model

A preliminary AEM model for HCMC was prepared by a Vietnamese team at the EWC Summer Seminar in mid-2004. However, those involved felt these initial

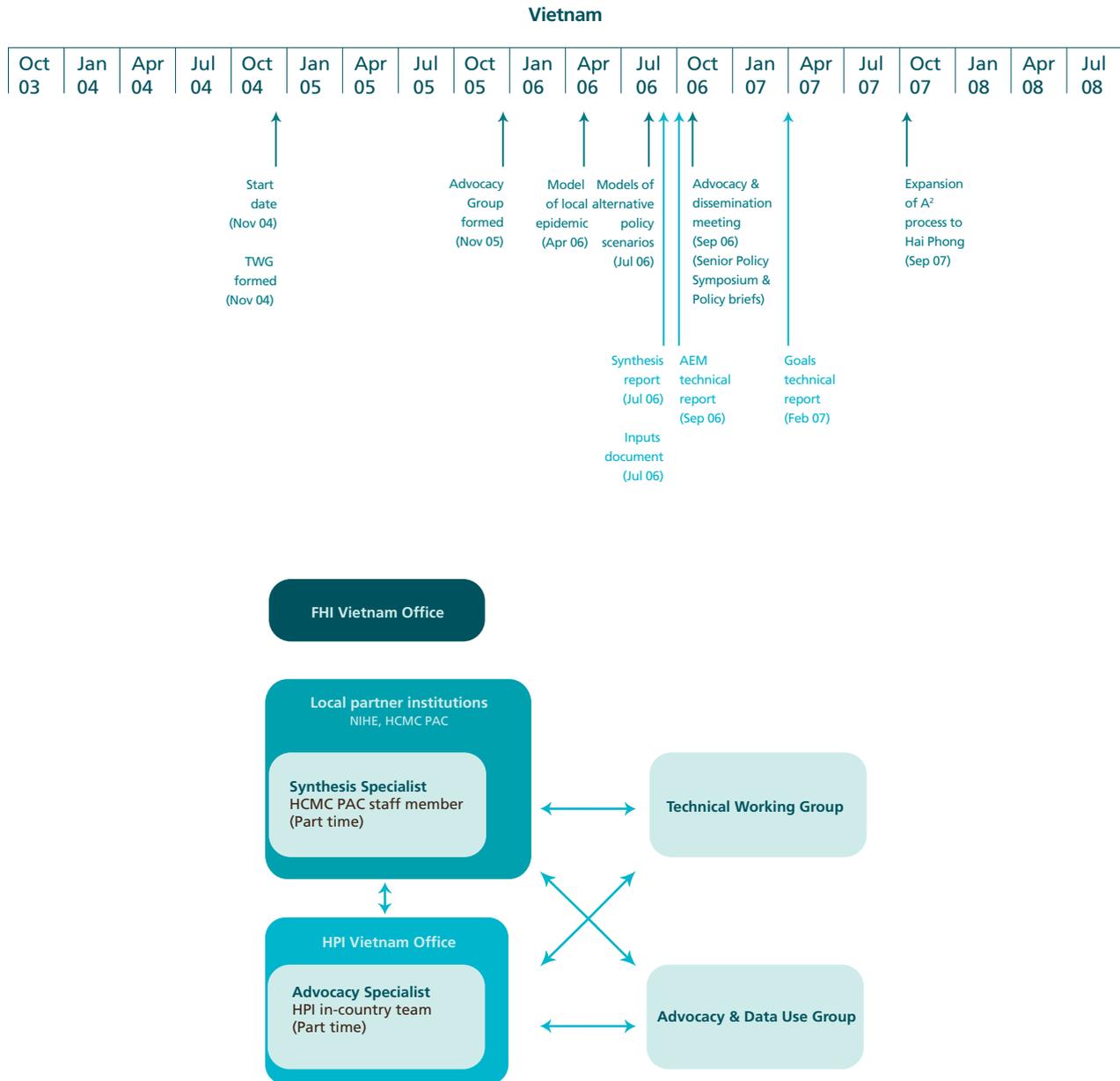


Figure 14.5.

Timeline and organizational structures of A² Vietnam. The primary local partner is the Ho Chi Minh City Provincial AIDS Committee with support from NIHE.

projections did not accurately reflect the situation. Over the next year, substantial effort was put into careful analysis of data. It was realized that surveillance data for IDU needed substantial adjustment because the population was changing over time. It also became clear that there were two IDU epidemics in HCMC. One occurred in the early 1990s among older IDUs and the second was among younger IDUs. In addition, it was found that sex workers who injected drugs were disproportionately contributing to the epidemic. This required the A² Regional Support Team to modify the Asian Epidemic Model to include this group separately. This revised version was used to prepare a more realistic HCMC model in April 2006.

On the Goals side, substantial work was needed to gather the financial data required for the Resource Needs Model. However, by late 2005 this data had been collected and it was possible to cost out prevention alternatives. In July 2006, the four prevention scenarios for HCMC discussed earlier in this volume were prepared and costed using the linked AEM and Goals models. This work culminated in the development of policy briefs and a Senior Policy Symposium in September 2006. The most effective intervention scenario for reducing HIV infections in the province,

focusing on multiple at-risk populations simultaneously, was presented to the attendees from key provincial HIV policymaking organizations.

A² helped to improve the effectiveness of the nine provincial action plans

In 2007, further advocacy using the project's data analysis contributed to the HCMC Provincial HIV/AIDS Committee's (PAC) refinement of the nine provincial HIV action plans. The revised plans increased the coverage among most-at-risk populations with harm reduction and prevention efforts and contributed to expanded resource mobilization for interventions among most-at-risk populations.

Following these successes, there is interest in developing a simplified version of AEM that can initially be used in the various PEPFAR provinces and later expanded to other provinces. This will be challenging as data availability is poorer in most provinces than in HCMC. This work will commence in late 2009. It will contribute to the development of a less data intensive and streamlined form of A² that might prove more easily replicable in other sites throughout Asia.

Main accomplishments of A² Vietnam

Working in Ho Chi Minh City, the A² project influenced local HIV strategic planning and achieved policy, program and resource allocation changes including:

- **Increased emphasis on at-risk populations including MSM.** Following A² analysis, the HCMC Provincial HIV/AIDS Committee:
 - Formally recognized MSM as a most-at-risk population in the “Nine Actions Plan.”
 - Expanded interventions in the three most-at-risk populations: FSWs, injecting drug users (IDUs) and MSM.
 - Adjusted its overall prevention goal to avert more than 16,000 new HIV cases by 2010.
- **More resources and better balanced allocations among at-risk populations.** The HCMC PAC increased the budget allocated from various sources for interventions among most-at-risk populations from 1.4 billion VND in 2005 to 15.9 billion in 2006 and 21.9 billion in 2007.

- **Availability of costs for planning purposes.** Many government offices, NGOs, local authorities, and private agencies used A² analysis and costing estimates for planning resource needs and structured mobilization. For example, the HCMC PAC used A² costing information to construct their annual AIDS plan and budget.

A² in Thailand - strengthening an effective response

Thailand - a mature response produces an epidemic in decline

At the start of A², Thailand presented a very different situation from the other sites. After the HIV epidemic exploded in the late 1980s, major national prevention efforts, focused largely on sex work, succeeded in reversing the growth of the epidemic. However, the strong emphasis on prevention that prevailed through the 1990s had weakened as national attention shifted to providing access to ART. Major gaps in the response were apparent. Programs for IDU and MSM were extremely limited, despite the fact

that these populations continued to contribute substantially to the epidemic. And, while husband-to-wife transmission contributed most of the new infections, programs to address this were non-existent. Prevention needed to be revitalized.

A² in Thailand built on previous policy work and existing collaborations to take a major role in national strategic planning

Thailand had a long history of modeling and policy analysis. As early as 1990, models of economic impact were used to mobilize the national response. In 1994 and again in 2000, national models and analyses of their implications were prepared and used to inform the preparation of national five-year AIDS strategic plans. The World Bank, the Thai Ministry of Public Health and East-West Center had prepared a policy analysis on future ART needs in 2004. All of this work took advantage of one of the most complete sets of national epidemiological and behavioral data in the world. HIV prevalence data was available for each of more than 70 provinces and many national and local level behavioral surveys had been done. However, there were indications that the policy analyses being done were not always influencing responses to the extent desired, highlighting a strong need for expanded advocacy.

The Thai Red Cross Society and East-West Center had been actively involved in these activities from the beginning and had a good working relationship with the Thai Ministry of Public Health (MOPH) and the National AIDS Program. To capitalize on these relationships, the A² project was initially housed in the Thai Red Cross Society/East-West Center Collaboration office. The FHI | Thailand Program hired a full-time synthesis specialist and seconded her to this office and also provided additional part-time technical support. The TRCS/EWC Collaboration hired a full-time advocacy specialist and two technical assistants as shown in Figure 14.6. A Technical Working Group of mid-level researchers and public health officers was recruited and provided input for a new round of modeling for 2005.

An abortive attempt was made to develop an Advocacy and Data Use Group, based on senior-level officials, but it proved difficult to arrange meetings. Furthermore, the advocacy specialist, being a junior person, had limited access to the policy apparatus. In response, a former National AIDS Program director with strong links to key national HIV strategic planning organizations and processes was recruited as an advocacy consultant. Shortly thereafter he became the head of the Thailand A² project. Another former senior government AIDS policymaker later became an A² consultant and assisted with advocacy and partner mobilization efforts.

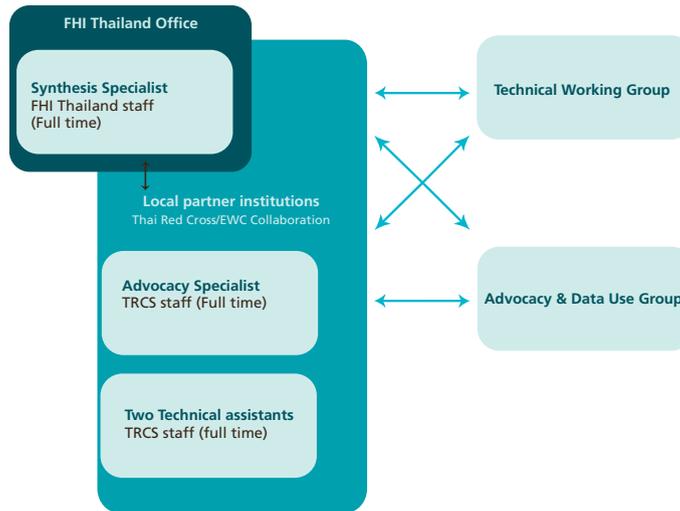
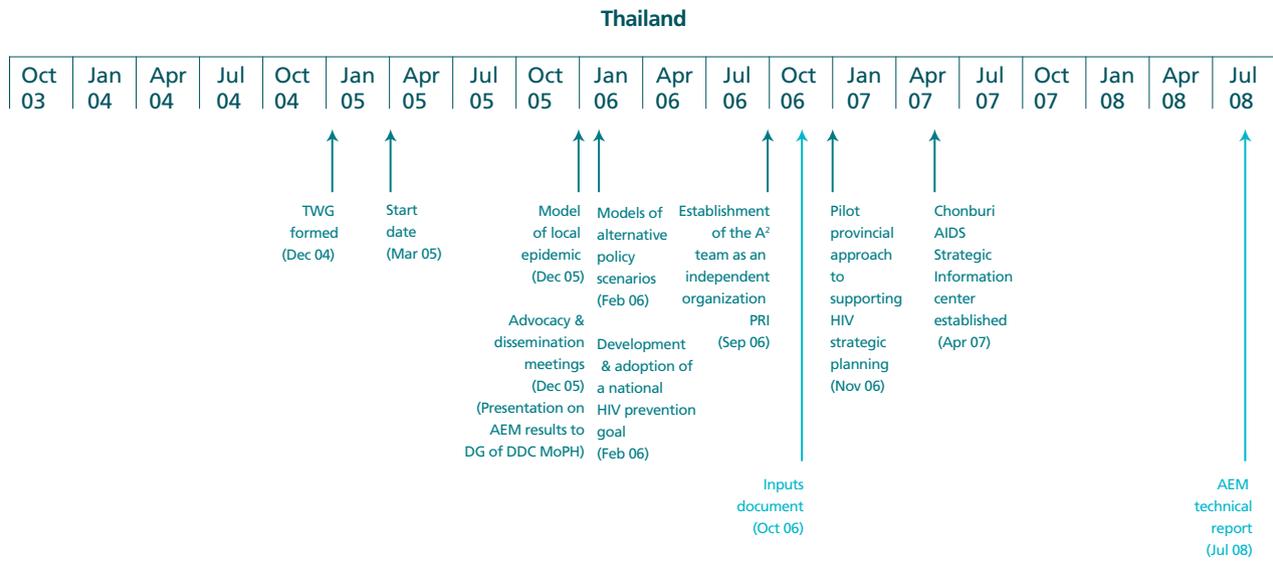


Figure 14.6. Timeline and initial structure of the Thailand A² team during the first two years of the project. Staff employed by different agencies still worked in the same office.

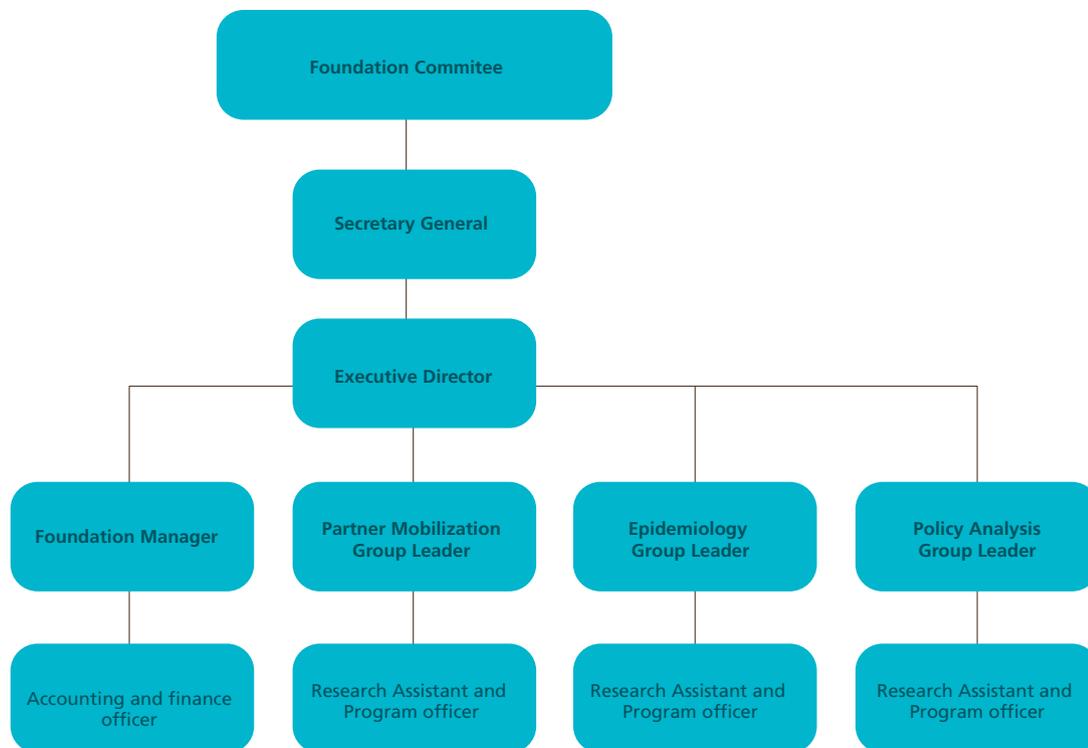


Figure 14.7.
Structure of newly created host organization for the Thailand A² team, the Policy Research and Development Institute Foundation (PRI).

In keeping with the A² project's principles of local relevance, capacity building and sustainability, in 2006 senior members of the A² Thailand team established it as an independent foundation, the Policy Research and Development Institute Foundation (PRI). PRI took responsibility for the future direction and implementation of A² in Thailand. In addition to data analysis and advocacy in support of policy and program change, PRI took on a more active and extended mandate in supporting national consortia for prevention planning and analysis in an attempt to operationalize and implement the HIV prevention policies or programs recommended (see below). They also led the mobilization of partners in order to achieve this. Given this expanded role, PRI restructured as shown in Figure 14.7 to include three A²-related branches for Partner Mobilization, Epidemiology and Data, and Policy Analysis and an administrative branch.

A² in Thailand began by updating national AEM projections and providing input to the 10th National AIDS Strategic Plan

After careful review of new data, an updated national model was presented to the MOPH in December 2005. With their ready access to data and information, members of the Thai A² team participated actively in national strategic planning meetings throughout the development of the 10th plan. In early 2006 with the support of the regional team, the A² Thailand team worked intensively to add the Goals model costing element to these projections. One critical scenario demonstrated that it was possible to cut the number of new infections in half within three years, provided adequate prevention

resources were made available. This scenario was briefed to the Director General of the Department of Disease Control with a recommendation to formulate a feasible and affordable prevention goal.

This led to development of a national HIV prevention goal to reduce HIV incidence by half in 3 years

This goal was endorsed by the National AIDS Committee in January 2006 and publicly announced in February 2006. To be consistent with the UNAIDS/WHO goal of implementing universal access by 2010, the Royal Thai Government later modified this national HIV prevention goal to be called "Towards Universal Access by 2010 Thailand National HIV and AIDS Program: Reduce New HIV Infections by Half in 2010". This was announced publicly at the UN High-Level Meeting on HIV/AIDS in New York in June 2006.

The Thai A² team members subsequently supported the formation of national-level consortia for each of the five priority subpopulations identified by the modeling: MSM, injecting drug users, discordant couples, female sex workers and their clients, and youth. These consortia were charged with developing specific HIV prevention strategies to achieve the newly adopted national HIV prevention goal. The military coup in Thailand in September 2006 and the instability in subsequent governments slowed the implementation of prevention efforts. However, recently the National Health Security Office (NHSO) has allocated 500 million baht to reduce new infections among youth and at-risk populations and these efforts have gotten back on track.

However, health decision-making is moving to local levels and so is A² Thailand

In recent years major public sector reform has decentralized AIDS program planning and decision-making to the provincial level. This has required the focus of A² activities in Thailand to shift from national to provincial level. In late 2006, PRI piloted support for HIV strategic planning at the provincial level in Chonburi province. In 2007 and 2008, PRI's work in Chonburi focused on:

- Gathering strategic information at the provincial level,
- Mobilization of provincial-level stakeholders,
- Establishment of provincial level bodies, and
- Documentation of this approach to support evidence-based HIV prevention planning in other provinces.

One of the most important bodies created is the Chonburi AIDS Strategic Information Center (ASI). The ASI has gathered and analyzed data to prepare a model for Chonburi. They also play an essential role in coordi-

nating, facilitating and mobilizing program planning and implementation among various provincial partners.

In the last year, PRI has actively leveraged GFATM and National Health and Security Office (NHSO) HIV prevention funding to begin expansion of this approach to 43 other provinces in Thailand.

Main accomplishments of A² Thailand

The Thailand A² team contributed in many ways to national and local HIV policy, resource allocation, and HIV strategic planning. Some of its contributions include:

- **A new national prevention goal.**
The A² team directly supported the development and adoption of a national HIV prevention goal to reduce HIV incidence by half in 3 years.
- **Support for the formulation of the 10th National AIDS Strategic Plan (2007-2011)** and the development of the strategies required to achieve that national HIV prevention goal.

- **Updated projections for national planning.** Thailand A² has updated the national projections and provided them to several national and international organizations.
- **Formation and facilitation of prevention intervention consortia.** The consortia, comprised of key stakeholders, are developing and costing HIV prevention strategies for 5 priority populations.
- **Mobilization of resources.** The National AIDS Committee directed funds towards prevention efforts in support of the new national prevention goal; and, for the first time, the NHSO has allocated 500 million baht to reduce new infections among youth and high-risk groups.
- **Influencing decentralized policies and planning at the provincial level.** With A² support in early 2008, the Office of the Chonburi Provincial Governor recommended the development of a four-year provincial HIV prevention plan and budget.

What lessons have been learned in implementing A²?

While A² successfully improved understanding of local epidemics, built capacity for data analysis and advocacy, influenced HIV strategic planning processes and achieved policy, program and resource allocation impacts, its achievements in these areas could have been greater. Some of this shortfall was due to secondary factors beyond the control of project implementers, for example, complicated and changing policy environments, staff turnover, political instability, or sensitivities regarding data ownership or dissemination.

However, the challenges of implementing the A² process itself may have kept it from having more impact. The process proposed in these guidelines is resource and time intensive; and, as the examples above show, the process in the field never looks exactly like the ideal presented earlier. Local conditions, staff capacities, limited access to policy processes and resource availability inevitably impose constraints on its implementation and limit what it can achieve.

If we can identify the primary factors contributing to success and the major barriers inhibiting success, we can control for many of them in project planning, staffing and implementation. The essential questions then are: 1) what lessons have we learned about what makes A² work most effectively? and 2) What should you keep in mind when you implement A² locally in order to maximize its impacts on policy and programs? Here are a few answers based on our experience:

Recognize that A² requires time, commitment and resources; either plan for this or set a more limited scope

The resource and technical support requirements for full A² implementation are substantial. Despite significant simplification over the course of the project, data collection and synthesis, modeling, and building partnerships for effective advocacy require training and take time. Those considering their own A² projects or trying to institutionalize sustainable development of evidence-based HIV policies and programs should plan to set aside sufficient resources and personnel to make it happen.

If this is not possible, look at variations of the approach more suited to local resource constraints, capacity, and availability of technical support. Implementation of the full package of A² activities is not necessarily appropriate in resource-constrained situations, but significant policy or program change can still be achieved without implementing the 'full package' by selectively choosing parts of the process. For example advocacy action plans could be developed around issues of immediate local concern using relevant subsets of data even without an HIV modeling component. The effect that a single study suggesting 28% prevalence among MSM in Bangkok had on mobilizing a local response illustrates the advocacy potential of simple data and analysis.

Allocate staff with appropriate skills sets and sufficient time to meet the demands of the process

The A² process brings together multiple data sources of different types, calls for a mix of analysis and advocacy and links diverse partners from a variety of fields. This requires three sets of skills: 1) analytic skills, i.e., the ability to critically review information, synthesize it and

conduct multiple types of analysis; 2) advocacy skills, i.e., the ability to understand and engage with policy processes, work with people and build partnerships; and 3) management skills, i.e., the ability to plan, monitor and evaluate, motivate and supervise those with analytic and advocacy skills, while sustaining relationships with government, communities, NGOs, donors, and other partners. In general, no one individual has all of these skills. This means that the team organized to conduct A² must have individuals with each of these skills sets. Thus, at a minimum an A² team needs a manager, a synthesis specialist and an advocacy specialist. Ideally, these will be full-time positions given the large number of activities and responsibilities assigned to them. The need to organize meetings, follow up on contacts, and manage budgets requires some administrative support, which can often be provided through the host organization.

One of the things slowing progress in several of the current sites was the part-time nature of the A² staff. Competing needs often kept A² work from being completed in a timely fashion. Those sites with full-time staff (Bangladesh and Thailand) or more staff (Thailand) made more rapid progress through the analytic phases of the

process. The additional staffing available in Thailand also allowed that team to engage more fully in policy processes as they happened, with various team members attending different sets of policy and planning meetings to provide input and track progress. It also gave them more ability to respond to requests from planners for additional analyses or policy inputs in a timely fashion. In Bangladesh and other sites the lack of a single designated advocacy specialist through most of the process constrained the policy impact. If you cannot allocate sufficient staff, consider implementing a more abbreviated form of A² focused on only one or two issues.

Obtain sufficient training, technical support and external review of initial results in the early phases

The early phases of the project are among the most critical. During this time, staff must be trained in the tools and skills they will need to conduct the process. Synthesis specialists must conduct their first synthesis of information from a variety of different fields, some of which are new to them. They must build their first models, which will rarely be completely correct the first time out. Advocacy specialists must initiate contacts with other



organizations and start to build partnerships. They must educate themselves on what the data is saying, so that their advocacy is evidence-based.

During this time, project management should ensure that adequate training and tools are provided. Existing team technical capacities should be assessed and a capacity building plan developed. Coordination is needed with regional staff or external agencies to arrange adequate training opportunities in-country. All staff require training in both analysis and advocacy. Synthesis specialists should learn about advocacy and advocacy specialists should learn about data and analysis. They will draw on both skills sets to effectively carry out their jobs. In several sites, it was felt that a general lack of advocacy capacity among partner NGOs and communities contributed to reduced policy impact. Thus, project implementers may want to consider extending advocacy trainings to local organizations and communities.

External technical review of data analysis, models and advocacy plans is important during this early phase. Consultants who have worked with the models in other locations can catch many mistakes that novices make in applying them. They also bring to bear experience in other countries that may inform the interpretation or help to identify problems with local data or models. Again, management needs to plan and budget for this support.

Instill a sustained focus on advocacy in the team and provide ongoing advocacy training

Too often in this initial round of A², people thought of the process as “analysis then advocacy” instead of “analysis and advocacy”. This led people to focus too intently on the analysis and to lose sight of what the project was attempting to achieve. The analysis and advocacy activities must proceed in parallel, not sequentially. Every member of the team has advocacy responsibilities of two types. First, they must help A² to market itself. Efforts to build broad local acceptance of the project are necessary and will enhance the project's policy or program impact. Second, they must advocate for improved responses by building shared understanding of the epidemic and participating in or supporting advocacy activities.

When the synthesis specialist visits organizations to collect reports, he or she needs to brief them on the project and its objectives. He or she needs to listen to the concerns of the people they visit and feed this information back to the advocacy specialist. Meetings held on topics of technical interest that bring together different sources of data also serve to educate others at the meeting about what the data says. This helps to build a common understanding of the situation, which is an act of advocacy in itself. When the project balance shifts more heavily to advocacy, the synthesis specialist and other

technical staff need to backstop the advocacy efforts by extracting and providing essential data or conducting additional analyses that support the advocacy activities.

This requires that management brief all team members on the advocacy nature of the project and their role as advocates from the very start. The team must not only be trained in the fundamentals of advocacy, but it must be provided with ongoing mentoring, coaching and additional advocacy training in response to emerging needs and increasing capacities for advocacy. It is natural for technical people to be more focused on the analytic components of the project, but they also need to recognize that they play an essential role in achieving the advocacy objectives through the meetings they hold, the conversations they have and the analyses they prepare. Thus, keeping their advocacy skills current is essential.

Co-locate analysis and advocacy capacities in the same place and take a team approach from the outset

Certainly one of the major impediments to rapid progress in most sites was the fact that analysis and advocacy were housed in different organizations. To some extent this was imposed by the multi-partner nature of the A² project at the regional level. Funding for analysis and advocacy activities flowed to different organizations with their own offices. This made coordination a major hurdle,

especially since these offices had responsibilities that went far beyond A².

In future implementations, it is strongly recommended that analysis and advocacy components of the project be located in the same office. As discussed in these guidelines, both synthesis specialists and advocacy specialists should be working closely together throughout the project. In addition, this arrangement will be more conducive to building a team spirit and a shared sense of purpose among the team members. Ultimately, A² Thailand moved toward this model, and it significantly increased the synergy between the two elements.

Involve organizations and individuals already linked into policy processes to promote greater impact

Success in A² depends critically upon involvement in actual policy processes. This is difficult for someone who has not been part of the policy process in the past. One of the most effective ways of ensuring this involvement was to recruit consultants or team leaders who had direct engagement in these processes in the past, e.g., a former National Program Director in Thailand with links to the MOPH and the National Program. Another approach was to locate the A² project in an organization that was already linked into policy processes. This was the case in Yunnan and Guangxi, where the local CDCs were already

major players in providing information to policymakers. This also gave them the standing to call meetings, engage with other partners and talk directly to officials. In Vietnam, the HCMC PAC actually had direct policymaking authority. If possible, choose a local partner institution with substantial influence on local HIV strategic planning. Also seek to enlist country/provincial team members who are well respected in their fields of analysis or advocacy and have existing linkages to key HIV strategic planning processes or organizations. This will greatly enhance the project's ability to influence outcomes.

Conduct the policy mapping step early in the process

Advocacy is by its nature local, and successful advocacy activities depend on the identification of interested partners, suitable targets for advocacy, and key HIV-policy development processes. They also require a broader understanding of the local HIV policy development context and the opportunities for or obstacles to HIV policy or program change. In most cases the policy mappings called for in these guidelines were not conducted methodically and concerted efforts to conduct detailed mappings came very late in project implementation (Bangladesh and Yunnan). This resulted in missed opportunities and wasted effort.

If conducted early enough, in addition to suggesting appropriate advocacy actions, these analyses might also strengthen the project by identifying key organizations

to join the technical or advocacy working groups and allowing integration into the project work plan of activities to address obstacles identified or take advantage of opportunities detected.

Use existing expert groups as A² working groups or allocate time and resources to sustain these groups

One of the most significant difficulties observed in the sites was sustainability of the A² Technical Working Group and Advocacy and Data Use Group. Properly constituted, these groups help to enhance the visibility and credibility of A² and its products through rigorous review and to form linkages to other organizations, additional data sources and policy processes. However, these groups rarely sustained their function in the current project sites largely due to a lack of leadership or failure to assign responsibility for their regular functioning.

In Yunnan this was not an issue for the Technical Working Group because they chose to use an existing expert advisory group to Yunnan CDC as the Technical Working Group. Each new site seeking to implement A² should consider whether such groups exist and if they would be willing provide advice to the A² project. If so, that may be the most sustainable way to proceed. Another alternative for the Technical Working Groups is to convene ad hoc working groups on specific topics of interest. This is effectively what was done in Bangladesh during the size estimations. Meetings were held for each key population,

which involved researchers, government, NGOs and community members to reach a consensus on the size of each group. The composition of these groups varied with the population being considered.

On the advocacy side, such groups are rarer. Consider if there is already another functional group, e.g., an active provincial AIDS committee or office or an NGO coalition, that might assist or be built upon to form or substitute for an Advocacy and Data Use Group. If this is the case, encourage the group to engage a broad spectrum of stakeholders including government, NGOs, affected communities and people living with HIV when advising on A² related matters.

If no such groups exist locally, then task A² team members with responsibility for each of the two groups. In these cases, it is also important to ensure adequate resources to support meetings and honoraria at a locally appropriate level.

Put effort into forming strategic alliances and partnerships

A²'s impact is amplified if more people are aware of and use the results. While these guidelines have always stressed a collaborative approach, in practice this has not always been the case. Those engaged in the A² process should seek every opportunity to collaborate with others as a primary project objective. A² activities need to engage communities, people living with HIV, govern-

ments, NGOs, donors and others with essential roles in the response. This will not happen by itself. It requires conscious effort to proactively engage these groups.

Actively engage communities and people living with HIV in the process

The first round of A² implementation was not particularly successful in engaging people living with HIV and affected communities as significant partners, yet this is essential to mounting effective responses to HIV. In some sites, the civil society sector was less developed and government officials were uncomfortable with any engagement. In others, resource and staffing limitations made it difficult. There was peripheral involvement in some sites. In HCMC, for example, people living with HIV provided inputs to the Resource Needs Modeling. In Bangladesh, community members were involved in many of the size estimation meetings; however, once the working group became "official" that engagement was no longer possible. In Thailand, such engagement has been achieved through the partner mobilization component. However, none of the current sites have achieved the same level of engagement as was seen among MSM in Hong Kong, where components of the A² project were unofficially implemented. There, specific efforts were made to inform the MSM community of the epidemic among them, to engage them in responses, and to provide them resources to respond. These efforts led to the AIDS Trust Fund providing 9 million Hong Kong dollars for prevention among MSM and to large numbers of prevention



projects being started by the community. This is the type of engagement that needs to be promoted in future incarnations of A².

To promote this engagement make sure that advocacy specialists understand their special responsibility to involve affected communities and people living with HIV. They should listen carefully and make sure the voices of people living with HIV and affected communities are heard by policymakers and by other partners. They should work closely with those affected by HIV as policy solutions and advocacy efforts are being prepared to make sure that what is proposed meets their needs and addresses their concerns. They should actively promote involvement of communities and people living with HIV in the planning, implementation, and evaluation of the response. This can only increase the effectiveness of responses.

Be opportunistic - build A² initially around a desirable national goal or process

In each case, A² teams centered initial activities upon an important and timely national or provincial goal or process. In Bangladesh, it was national size estimates. In Ho Chi Minh City, Guangxi and Yunnan, it was the development of local plans to implement recently adopted national strategies. In Thailand, it was the preparation of the 10th National AIDS Plan. By selecting such a topic as

the initial focus, you ensure the A² process' relevance to local needs and help to build its profile. Once the process' usefulness is established, it can then expand to take on other advocacy issues that come out of the analysis and discussions with partners.

Be prepared for tradeoffs and adapt as necessary

The perfect is the enemy of the good. This certainly applies in the A² project. There will always be tradeoffs. Sometimes in order to obtain sustainability, you will locate A² in an institution which cannot dedicate full-time staff or where the requisite technical abilities do not exist. Or maybe you seek to engage communities, but encounter resistance from local authorities. Then you adapt. Maybe you hire consultants to fill the gaps in the host organization's capacity and abilities. Perhaps you arrange a parallel process for communities that gets them engaged and energized, while working in parallel to convince the authorities of the value of their involvement. Be flexible and you can still have an impact.

We recognize that the A² approach is a 'gold standard' and it is resource heavy, but it does produce results. However, full implementation is not always appropriate, desirable or possible in every setting, but that doesn't mean you can't use the process. Choose the pieces that are most relevant to your local setting and available resources and use them to make a difference.

What should the next generation of A² look like?

Future directions

Building on the lessons learned in this first round of A², what should the next generation look like? While the fundamentals of the process are sound, several things can be done to make the process easier and to increase its impact. Some of these must be addressed by the regional A² team. Others can only be done in-country and should be considered seriously by anyone seeking to influence their national or local policies and improve their HIV responses. After in-depth review of first round experiences, the following recommendations have been made to support and strengthen future A² application:

Simplify and better document the A² tools to reduce the training and technical support needs

Two things slowed initial A² implementations: the need to collect extensive information from diverse sources and the complexity of the tools, i.e., AEM and Goals. Little can be done about the first. At present, in most countries no agency is tasked with pulling together information on epidemiology, behaviors, responses and their costs. This data typically resides in separate organizations and will inevitably require substantial time and work to collate

and review for quality. However, the complexity of the tools further slowed the process by creating extensive training needs and requiring intensive technical support in the early stages. After A² teams went through the process once, the next round was much easier because less new data had been recently generated and the training needs were alleviated.

How then can the training and technical support needs be reduced? The A² Regional Support Team is currently revising the tools to make them easier to use. AEM and Goals are being combined into a single package, and better documentation and tutorials are being prepared. These guidelines are the first step in that ongoing documentation process. Additional error checks are being built into AEM and Goals to reduce the likelihood of bad data being entered. New policy analysis tools are being developed, building on the analysis work of the Commission on AIDS in Asia. As they are completed, these new and revised tools will be made available to anyone interested in pursuing an A²-like process. As more experience is obtained in future full or partial A² implementations, the regional A² team partners working with USAID, UNAIDS and other regional partners will continue to refine and expand on the A² tools.

Develop a simplified version, A² Lite, more appropriate for sub-national or sub-provincial levels

Increasingly, decentralization and devolution are moving public health decision-making to local levels, but technical capacity at these levels is often limited. The full A² process is too complex for such local application. However, local decision-makers can still benefit from examination of data, filling of data gaps and analysis of the impact of different responses. They also need the skills to translate this into local action. This requires a simplified version of the A² process that greatly reduces data requirements and simplifies the tools so they require minimal training.

As mentioned earlier in this chapter, work is currently underway in Thailand to apply the process at local levels. Similar work is planned in Vietnam in the near future. The regional and country A² teams will support such activities with the goal of producing A² Lite. These simpler tools will use national defaults for many of the inputs

and require collection of only the most essential data at local level. Tool interfaces, tutorials and data collection and advocacy guidelines will be radically simplified for local use and ease of translation.

Form strong linkages between A² and existing national strategic information systems, including M&E

Current A² implementations have remained largely external to existing national strategic information systems and monitoring and evaluation (M&E) activities. This is unfortunate as they have much to offer one another.

Current strategic information and M&E systems are gathering new data that can help to fill existing data gaps and be fed into A² analyses. At the same time, many of these systems have devolved into indicator collection exercises, providing little feedback to actually improve responses. A² could help to address this concern in three ways. With its emphasis on careful review of data quality and triangulation of multiple data sources, it could help

to ensure the quality of and validate the indicators collected. Its modeling tools could contribute substantially to the evaluation of current responses and assessment of alternative future responses. Without models linking epidemiology, behavior and responses evaluation of the impact of past responses is almost impossible. Finally, its focus on advocacy could aid in bridging the gap between indicators and actual improvements in responses.

Consider creating a national/provincial policy analysis unit applying A² methodologies

One possibility for forming strong linkages between strategic information systems and responses is the creation of national or provincial policy analysis units, as recommended by the Commission on AIDS in Asia. These units would make maximum use of available data to guide, monitor and evaluate responses. The A² experience shows what is needed for such units to function effectively. They need to be adequately resourced and staffed by dedicated personnel with the right skills set to

produce A²-style analyses. They need to have responsibility for bringing all types of HIV data together. They need to work closely and interactively with policymakers and decision-makers to ensure the results are used. And they need to have direct links into the national policy and strategic planning process, either by their institutional affiliation or by involving those with these links. The A² guidelines and tools could assist such units in doing their work.

In the spirit of the Three Ones, future A² implementers should link to national or provincial strategic information processes from the very start. This can be facilitated by highlighting the value A² activities can add to the process of response evaluation and improvement. Moving in this direction can help A² to achieve its full potential and result in stronger, more effective and more efficient national/provincial responses.

analysis  advocacy

