Training Manual for Design and Costing of HIV Programs in Asia
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Foreword

During the last twenty years, resources for HIV in the Asia-Pacific region have dramatically increased although the coverage to services has remained limited. Increasing from less than 100 million per year in the late 1980’s, it is estimated that an overall figure of $1.2 billion is currently available for the HIV response. However, the services for HIV prevention during this time, have reached only 30% of the populations who need them.¹

Most countries today do have NSPs, however, only a few are costed or can be considered to prioritize activities appropriately. Furthermore, the costed plans often lack operational plans that map out activities with annual targets and estimation of human and financial resources required to effectively implement these plans. As a result, plans—which are already often under-resourced—are not focused on the interventions/activities that will have the greatest impact on the epidemic. In addition, most plans also lack quality and no standard specification for assessment of national strategic plans exists.

Starting from 2006, the Asian Development Bank (ADB) and the Joint United Nations Programme on HIV and AIDS Regional Support Team for Asia Pacific (UNAIDS RST-AP), under its ‘Evidence for Advocacy’ project, and in collaboration with the AIDS Strategy and Action Plan (ASAP) Consortium (led by UNAIDS-Geneva, the World Bank and INS-Public Health Institute in Cuernavaca, Mexico), proposed the development of a set of tools relevant to Asia, and the organization of a regional training for selected nationals from each country on the steps to develop prioritized costed plans. The trained persons would then follow up development or improvement of costed national plans in their own countries. The regional training would be followed by country-specific technical assistance to reinforce and further improve and validate the costed plans developed at the workshop. A harmonization process would be in place before the training to ensure standardization of tools so that technical assistance services, including ASAP and Technical Support Facility for South East Asia and the Pacific (TSF) would reinforce these same principles and tools in their work in countries.

Accordingly, between 15 and 26 September 2008 the first training on costed National Strategic Plans (NSP) for Asia was held in Bangkok, Thailand. Teams of officials covering different areas of expertise, including national AIDS program managers, epidemiologists, economists, practitioners and civil society from eighteen Asian countries² participated in the training. This manual is a revised version of the original manual used at the workshop and incorporates the feedback from the participants and trainers. It describes the training goal and its objectives, summarizes the lectures and exercises, and is supplemented with the reference reading that was provided.

The first phase of the training on costed NSPs was spent on learning how to prioritize population groups and geographic zones in Asian epidemics through use of appropriate tools, identify what interventions are best suited for Asia with specifications of activities, elements, their quality standards, human resource requirements and their corresponding unit cost; estimate total resource need for the country, optimize resource allocation utilizing cost-effectiveness analysis of different interventions in Asia, and effectively conduct monitoring and evaluation for mid-course correction at the project and national levels. At the end of each major session or unit,

² The 18 countries mentioned above include: Afghanistan, Bangladesh, Bhutan, Maldives, Cambodia, India, Indonesia, Laos PDR, Malaysia, Mongolia, Myanmar, Nepal, Pakistan, the Philippines, Sri Lanka, Thailand, Timor- Leste and Vietnam.
participants were asked to work in country groups to assess their own epidemic situation and the response. Then, in the second phase of the training, participants completed an ‘Asian NSP-template’ for their own country, which built upon their previous assessments and suggested improvements on the existing plan based on the lessons learned and issues discussed in the first phase.

In the mornings, plenary presentations were made by resource persons and facilitators. During the afternoons, each country team discussed further and worked together based on the information and examples presented during the morning sessions and filled in the country specific templates that identified specific activities that would strengthen strategic costing and management of their programs. On the final day, in addition to presenting the completed country templates, each country also presented their follow-up actions to be implemented in country.

Skills building sessions were offered in the evenings to provide an opportunity for hands-on exposure to specific tools, including AEM and AEM-policy analysis tool, INPUT, ArcView, the Resource Needs Model (RNM) and Millennium Development Goals (MDG) Costing tool.

During the intensive two week training period the participants and the resource people all worked towards achieving the following outcomes:

- Each country team was able to utilize a specific set of tools and apply knowledge to review their existing NSPs and revise them by developing strategic, evidence-based, prioritized plans.
- This plan was accompanied by cost supported operational plan that included plans for scaling up best practice interventions and long-term investment in management, capital, infrastructure and human resources.
- Each of the eighteen countries developed a specific follow-up action plan to strengthen their HIV and AIDS programs with strategic information and costing with technical support from TSF and UNAIDS.

Daily anonymous evaluations by participants were overall very positive, with especially high ratings for the technical presentations and skills building activities. High scores were also given to the relevance and usefulness of the workshop. There was a strong consensus that their expectations and the workshop objectives had been met. Suggestions for improvements included allowing more time for countries to share experiences, and including more skills building sessions in the future. In addition, an independent evaluation was carried out by The University of California, Los Angeles (UCLA) in collaboration with the Field Epidemiology Training Program (FETP) of Thailand. The external evaluators found that the workshop was quite successful, meeting most of the objectives set forward.

The hope is that this training manual will be adapted by others to replicate the training in their own countries or with their own audiences.
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Table of Contents

1 Introduction, Overview and Objectives 5
2 Defining populations in need and their size 19
3 Geographic prioritization 55
4 Standard package 77
5 Scaling-up the response 99
6 Estimating resource need and gap 113
7 Planning human resource 129
8 Cost-effectiveness 147
9 Optimizing the operational plan 159
Objectives and overview of this Training

Background
Despite dramatic increases in resource mobilization efforts for HIV, the Asian AIDS epidemic continues to expand and coverage the HIV prevention services remains below par. Many Asian governments have declared their commitment to HIV-related goals, such as MDG6 and Universal Access to prevention, treatment and care. In order to succeed, however, strong political commitment must be followed by evidence-based plans that are supported through strong implementation to halt and reverse the epidemics of the region.

Goal and Objectives
The main goal of this training workshop is to provide government partners with technical tools, knowledge and skills that may enable them to implement more effective national responses, through the creation of prioritized and evidence-based national strategic plans that are accompanied by necessary human resource, management and operational plans, which also include estimation of costs and measurable targets for monitoring and evaluation.

All participants should come away with an understanding of tools for developing prioritized national strategic plans, for estimating costs and for implementing operational plans to ensure a scaled-up response that will halt and reverse their HIV epidemics within the next 5 years.

This training will cover most stages of technical assessment, design and planning. Sessions will range from early stages of situational analysis, to prioritizing by sub-population, to the design, plan and management of programs, to estimating costs and measuring impacts. Because this training covers a wide range of areas, it is unlikely that a single person would have the technical expertise to master all of these tools and areas, but it is equally important and necessary that each arm of the program understands where it fits within the planning and policy scheme.

Learning Objectives
The technical details of each tool are not described; instead, this training provides an overview of the required inputs and expected outputs for each tool, how these outputs can be analyzed and used for planning, potential constraints or limitations of different tools and how to ensure quality control of the outputs. (suggested that this section is re-ordered to be consistent with the actual flow, and to give an idea of what the outline of the workshop is, from day 1-day 10)

- Prioritizing most at risk populations (e.g., sex workers, injecting drug users, men who have sex with men) for prevention by source of most new infection;
- Prioritizing sub-regions within countries or other ‘hot spots’ that should be priority regions for scaling-up prevention, treatment and impact mitigation services;
- Being familiar with different prevention interventions and identifying the most appropriate intervention suited to the priority population with necessary elements of interventions and quality standards;
- Identifying the elements of scaling up process to reach necessary geographic and population coverage (e.g., peer outreach, commodities and services, policy structures, and enabling environment including gender and cross-border issues);
- Calculating the unit cost and estimating financial resources required for implementing the strategic and operational plans;
• Interpreting and utilizing strategic information useful for developing scaled up plan and program planning (e.g., source of new infections, disease burden, geographic hot spots, size estimation of most at risk populations, resource needs, resource allocation, etc.);

• Developing and costing an operational plan that includes management, investment in capital and human resource plans, and medium-term plan for potential sources of funding, to ensure financial sustainability and effective linkages with the national budgets (health, education, etc.); and

• Assessing and evaluating data collection and strategic information currently available and standardize quality of data collection and surveillance.

Teaching Materials and Methods

The sessions and training material will cover several different areas and offers a variety of teaching methods for this training. These training methods will include:

(1) PowerPoint lectures that provide much of the basic background and context, as well as teach how to utilize the data and analysis at each step in the national strategic planning process

(2) Reference reading material with discussion questions to reinforce the principles of learning and to stimulate further discussion and thinking about the issues and analysis presented

(3) Panel discussions where national HIV specialists from other countries in the region present their own experience in different areas of planning, from prioritization, to design, to estimation of costs and program management, monitoring and evaluation.

(4) Role-play or other demonstrations of tools or methods to offer greater understanding and appreciation for the real-life application of the principles and skills taught in the lectures

(5) Exercises or case studies to practice and apply these knowledge and skills in a simulated or real-life situation

(6) Analysis of the current country (state/provincial/local) situation by working through a few key questions and evidence of the epidemic and the response.

(7) Design a key component of the national HIV plan, based on all available evidence and the tools, analysis and normative guidelines (standards) provided.

(8) Optional skills-building sessions are offered to provide further details and hands-on experience with the technical tools presented in lecture sessions

The analysis of country or local data and evidence, in the learning activities described in (6) and (7) above will feed into a process where country groups will assess a particular aspect of their current national HIV plans, following the principles and skills taught and utilizing the tools provided, in order to answer the key questions presented in the template. As different country (or state, province or district) groups finish this analysis and revision, they will be asked to post their results on their own country boards

By the end of the workshop, each country (state or province) group will compete and summarize the main points for revision or inclusion in their future HIV strategic that are well-prioritized and grounded in evidence based on the observed data and real situation. It will also lay out the key elements and components of operational, human resource and management plans that include estimation of costs and measurable targets for monitoring and evaluation.

This revised plan can be used as a basis for further discussion with other technical experts and stakeholders in the country, through clear requests for further technical assistance required from ASAP Service, the Technical Support Facility, or other donors, and more importantly, as a tool for advocacy with policy-makers.
**Structure of the Workshop**

**Lecture and presentation:** Each session will start with a didactic lecture, presented in a PowerPoint presentation by the resource person on the topic for the day.

**Group reading or exercise:** The lecture will be followed by group reading and exercise that are in your workshop folder.

**Simulation exercise or case study:** Each day the resource person will facilitate a hands-on session on the use of specific tools or describe country experiences in the application of a particular strategy.

**NSP Template:** At the end of each session, participants will be asked to assess their own epidemic situation and the current response, through a series of questions presented in the NSP template.

**Country group exercise:** Each day, participants will work in their country teams and asked to apply the principles and tools taught during the morning sessions, to the current situation observed in your country.

**Country Boards:** After each day’s closing session, the participants will post their written outputs, based on analysis of their own country’s data and situation, as a means of sharing ideas.

**Skills-building sessions:** In the evenings and during other free times, skills-building sessions will be offered that allow participants to further explore the technical tools presented in the workshop.
How to use this Training Manual

This training manual can be read as a stand-alone document or could be used as a companion to a training workshop, as has been carried out by UNAIDS, ADB, and the ASAP consortium, with TSF and UNDP, in Bangkok on 15-26 September 2008.

Each module/session in this manual will include:

1. Where this step or skill fits into the overall process of designing and costing national strategic HIV plans;
2. An overview of the main learning objectives of the session and expected skills acquired through each section;
3. Required reading material, which lays out the rationale for each steps, which tools can used and how to ensure quality control in each step;
4. A discussion or annotated bibliography of additional reading materials to provide further detail and explanation of the concepts
5. Exercises based on simulations or case studies, which will test knowledge and skill transfer
6. Producing an output that assesses the current status of the plan, according to validation criteria and standard and that suggests improvements in the plan, in light of new skill and knowledge and through analysis pf country-evidence

Suggested PowerPoint slides will also be provided as a guide, but presenters are encouraged to utilize local data and evidence to reinforce the message.
I: INTRODUCTION, OVERVIEW AND OBJECTIVES

Contents:
- Objectives and overview of this training – Swarup Sarkar
- Need for Strategic NSPs for HIV in Asia – JVR Prasada Rao
- Common characteristics and typical patterns of HIV epidemics in Asia – Tim Brown
- Sharing experiences in design and implementation of strategic and operational or action plans for HIV (group discussion)
- Core components for Effective HIV responses – Tim Brown

Objectives:
- To understand the strategic weaknesses of current national strategic plans in Asia
- To understand the justification and evidence for ‘key criteria’ for an effective response
- To understand and explain evidence why Asian epidemics follow a common pattern
- To share with peers experiences of the strategic planning process

In this section, you will learn:
- Typical characteristics of an Asian HIV epidemic
- Who are most-at-risk populations and why they are central to an effective response
- How differences in risk behaviors [especially patterns of sexual behaviors] influence the patterns and trends of HIV epidemics
Why make plans strategic?
A review of national strategic plans in the region
JVR Prasada Rao, Director, UNAIDS RST-AP
20 minutes (lecture) + 10 minutes (Q/A)

This presentation begins with a brief overview of the current state of national plans, including progress that has been made since the onset of AIDS, and the gaps that continue to persist or remain in the region. It is important that we highlight these and then

The main goal of this workshop is to provide tools and skills to government partners, to enable them to implement more effective national responses, through the creation of prioritized and evidence-based national strategic plans that are accompanied by necessary human resource, management and operational plans, which also include estimation of costs and measurable targets for monitoring and evaluation.

The objectives of this workshop, as laid out above, are primarily five-fold:

- To interpret, analyze and utilize strategic information about the epidemic and current response for planning
- To prioritize programs, populations and geographic regions:
- To recognize and identify elements and quality standards for effective interventions
- To identify the elements of scaline-up
- To calculate the unit cost and estimate total resource need
- To develop and cost an operational plan with necessary management and human resource components

More than knowing the objectives of different steps, let us first take a step back and ask: Why do we do national strategic planning?

The strategic plan should tell us:

- What does the epidemic look like?
- What factors control the growth of the epidemic (now and into the future)?
- Where do we focus for greatest impact?
- What do we need to do to reverse the trend of HIV?

To better understand how to achieve this workshop goal, we need to further look into why do countries construct strategic plans in the first place? These plans should serve as an initial step to more focused and effective responses that will reverse the HIV epidemic, prolong the lives of people living with HIV, and mitigate the impact among the families of those affected by AIDS.

A brief overview of the current regional responses show that while most countries understand the need for national strategies, several of them have estimated the cost of these strategies, and only a few identify the necessary priorities, with operational guidelines and a well-defined operational plan. This workshop will demonstrate and teach the tools needed to ensure that the strategies defined by countries have the necessary geographic and epidemiological focus; definition and monitoring of quality control; estimate of cost and lays out the necessary operational details of how the plan will be implemented over the short- to medium term.
Ten Essential Criteria for a National Strategic Plan

**One:** Does the national plan identify clear, measurable and realistic objectives?

**Two:** Do you prioritize according to information from up-to-date estimates and projections of HIV, including: (a) Size of key target populations; (b) Number of people living with HIV; (c) the number of people in need of ART; and (d) Number of orphans, vulnerable children and affected households?

**Three:** Does the national strategic plan identify priorities that are aligned and consistent with the epidemic situation, including geographic distribution and epidemiological patterns?

**Four:** Is there a single unit in the country that is responsible for managing all HIV-related data? Does this data collection include: estimation and projections, HIV testing and AIDS case reporting, surveillance, passive data, coverage and MIS data, resource estimates and expenditure, and data on the legal and policy environment and the assessment of the effectiveness of the response?

**Five:** For each intervention and/or program area in the strategic plan, are all activities clearly defined and based in local evidence of the quality required to maximize effectiveness with calculations of unit cost based on local contexts?

**Six:** Has your country conducted an estimate of the total resource needs, based on available local unit costs, demographic and epidemiological evidence, and aimed to reach targets aligned with priorities, objectives and targets identified in the national plan?

**Seven:** Does the national plan also clearly identify human resource requirements and major gaps needed to achieve the goals of the strategic plan?

**Eight:** Is there a plan for scaling-up that includes: (a) Annual coverage targets, including specific thresholds for quality of coverage, for each priority program; (b) Identification of service delivery units for each; (c) Operational guidelines or other widely accepted standard of service delivery for each priority intervention; and (d) Associated costs according to implementing agency or intervention project site for each target population and geographic region

**Nine:** Have you collected, projected and weighed all available evidence for prioritization of programs, target population groups, interventions, activities and geographic regions?

**Ten:** Is the national strategic plan accompanied by an operational plan that identifies: (a) Programmatic and population priorities and their geographic location; (b) Who is responsible for implementing interventions; (c) Estimated amount of inputs required and their allocation; (d) Monitoring indicators for management of efficient implementation; and (e) M/E indicators to measure and ensure delivery of expected outputs and outcomes
This presentation discusses the main common characteristics and patterns of HIV epidemics in Asia, and how we can make recommendations for effective HIV programs, based on these recognized patterns and characteristics.

*The following description and explanation is a summary of “Defining Success - Averting and Reversing Asian HIV epidemics” by Tim Brown, including some direct excerpts from that paper.*

**Introduction**

Although Asian countries have individual characteristics and variation, most Asian epidemics follow a similar and predictable pattern. Usually the spread of HIV is determined by the types and levels of risk behaviors in the country - specifically the sharing of contaminated needles among injecting drug users; unprotected sex between men; and unprotected sex between sex workers and their clients. It is these main risk behaviors which determine the spread and extent of HIV epidemics in the region.

**Common Characteristics of Asian Epidemics**

In many countries, epidemics among injecting drug users are the precursors of more severe and expanding national epidemics. Usually within two or three years of the start of the epidemic among injecting drug users, the HIV prevalence begins to climb among sex workers and their clients. This is seen in growing HIV prevalence in sentinel surveillance among female sex workers and male sexually transmitted infection (STI) patients, who are largely the clients of sex workers in Asian settings.

Since some 5 to 20 percent of men visit sex workers, new infections among current and former clients of sex workers will grow quickly. Over the subsequent years, then, these men will transmit HIV to their wives. This manifests itself in a slow, steady growth in antenatal clinic HIV prevalence, which usually begins a few years after the rates in male STI patients climb.

Figure 1 illustrates how chain of transmission is observed in increasing HIV among these sub-populations. The earliest infections and most ongoing new infections occurring among the populations shown in orange, and subsequent spread occurring from clients, injecting drug users and men who have sex with men to their low-risk regular female partners. In turn, some of these women transmit HIV to their newborns.

![Figure 1](image)

*Figure 1. Transmission routes of HIV in most Asian epidemics.*
This is almost a universal pattern in Asian epidemics. Figure 2 shows the growth of HIV prevalence in these key populations as seen in surveillance data in a number of Asian cities. The pattern of initial growth in HIV in injecting drug users, followed in a few years by growth among sex workers and clients (STI), which is then followed by growth in women in the population at large (using testing of pregnant women through antenatal clinics as a proxy) shows clearly in most countries.

The epidemic among men having sex with men is often a parallel epidemic, but still deserves specific 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 men who have sex with men. However, with increases in the heterosexual component of the epidemic, the focus on the epidemic among men who have sex with men was lost. Currently, however, HIV prevalence among this population is rising significantly, showing it as an increasingly important epidemic (see Figure 3).
Concentrated Nature of Asian Epidemics

Many misinterpret this Asian epidemic pattern of injecting drug users 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 heterosexual sex driving the epidemic. 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. However, except for passing it onto their unborn children, the chain of transmission will end with these women. Thus, the majority of new infections in Asia will continue to occur among the most-at-risk populations and their immediate sexual partners.

Women’s Sexual Behavior: the Limiting Factor of Asian Epidemics

The reason for this is well understood: it is mainly a result of differences in sexual and injecting risk behaviors of most men and women in Asia. A large proportion of Asian men have had sex before marriage and outside of marriage, often with sex workers, while Asian women either have not had sex before marriage or, if they did, usually only had sex with their future spouse. Similarly, Asian women are much less likely than Asian men to have sex outside of marriage.

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. Most sex workers have large numbers of clients each year, placing them at high risk for both sexually transmitted infections and HIV. This high number and turnover of clients, coupled with weak STI treatment programs, produces an environment particularly conducive to rapid HIV spread.

However, because most Asian women 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, injecting drug users or men who have sex with men 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 most 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.

Patterns in HIV Epidemics: Summary

In review, there are three key patterns that are common among (and unique to) most Asian HIV epidemics: (1) rapidly rising epidemics among injecting drug users have the effect of ‘seeding’ the heterosexual epidemic; (2) men who visit sex workers are the largest at-risk population and thus usually determine the extent, rapidity and level of the epidemics, as the heterosexual epidemic usually dominates the Asian HIV epidemic; and (3) men who have sex with men are an important epidemic, even though it does not interact or have an impact on other epidemics.

Implications for Prevention

What does such knowledge of Asian HIV epidemics imply about HIV policy in Asian countries? Using the Asian Epidemic Model (AEM) can provide additional insight and guidance in effective approaches to preventing large-scale epidemics.

Sex work gives epidemics their reach: Because men who visit sex workers make up the largest population at higher risk of HIV, it is usually the size of this group – as a proportion of the total population and relative to the number of sex workers – that determines the size and extent of the epidemic.

Delaying epidemics among injecting drug users buys time to prevent large-scale epidemics among sex workers and their clients: Because epidemics among injecting drug users will kick-start most sex work epidemics, effective prevention of injecting epidemics will slow the introduction of HIV into the sex work epidemics and provide more time to increase condom use among sex workers and their clients.
Increasing condom use to 60% turns epidemics around: in many countries, small-scale projects have demonstrated success in initiating comprehensive behavior change among a small community of sex workers and their clients; however, modeling and empirical evidence has shown that the successes of such small-scale projects are often masked by the large-scale national epidemics. Condom use must reach a level of at least 60% coverage in order to reverse the HIV epidemics in the region (see Figure 4).

![Figure 4](chart.png)

**Figure 4.** Condom use levels of 60% (red line) will reverse even low-level epidemics.

**Evidence of Prevention Success**

Thailand and Cambodia have demonstrated the potential success of large-scale programs that instill practices of regular condom use in the sex industry. Myanmar and several Southern states in India have also shown similar successes, proving that successful prevention is feasible and achievable—even with very limited resources. Through early recognition of the epidemic patterns, these countries have identified the need to focus prevention efforts on increasing condom use among sex workers and their clients.

For example, epidemiological models of the HIV epidemic in Thailand (Figure 5) illustrate the impacts of effective and decisive action in prevention in this country. In this figure, the red line represents a projection of what the HIV epidemic most likely would have looked like in Thailand, had no prevention efforts been made. The yellow line, on the other hand, shows the actual progression of the epidemic, which was estimated based on observed surveillance data. Notice that, without the effective prevention efforts made in this country, as many as 6 million people would be living with HIV in 2001—the potential of over 10% adult HIV prevalence. In Cambodia, Myanmar and parts of India, a similar impact can be observed. Although the scale and speed of reductions in infections may differ in these countries, the success of their prevention efforts and the recommendation for future prevention policy still applies to most Asian epidemics.

![Figure 5](chart.png)

**Figure 5.** Impact of effective prevention on the HIV epidemic in Thailand
Summary: Take home messages
With increasing surveillance and program data available and a better understanding of the regional commonalities of Asia’s HIV epidemics, it is possible to formulate recommendations that are tailored to the countries of this region.

Based on an analysis of currently available surveillance and behavioral data for this region and through a new-found understanding of the disparity in male and female sexual behavioral patterns in Asia, it is clear that Asian HIV epidemics will always be focused within most-at-risk populations and their immediate partners. Through a discussion of such disparity and common local patterns sexual behaviors (especially those of women) shows that a generalized epidemic is not likely to emerge from the concentrated epidemics currently observed in the region. In fact, it is hypothesized that the main reason is that women do not tend to have multiple and concurrent partners, so they often represent the end of the train; of HIV infection.

With this understanding, it is clear that the most effective prevention must focus preventing infections among most-at-risk populations and their immediate partners, as these people will make up the overwhelming majority of new infections, in any Asian country. Unfortunately, ongoing small success in individual projects is not enough; coverage of programs must spread to all affected areas in order to make a visible impact on trends of the HIV epidemics. Such successes will be possible only when there is leadership and commitment from the highest levels, to focus and implement HIV prevention efforts focused around most-at-risk populations to at least 80% of the relevant target population.

With better knowledge of these epidemics, it is possible to assess each country situation and suggest the most appropriate prevention strategy to maximize effectiveness and have an impact on reversing the trend of the epidemic.
National Strategic Plans in Asia
Sharing of experiences across countries
(to be run by the facilitator)

In groups of 8-10 people, please think about your own experiences in strategic planning for HIV in Asia, and respond to the following questions:

1) Does the national plan identify clear, measurable and realistic objectives?
2) Do your country have up-to-date estimates and projections of HIV, including:
   a. Size of key target populations
   b. Number of people living with HIV
   c. The number of people in need of ART
   d. Number of orphans, vulnerable children and affected households
3) Does the national strategic plan identify priorities that are aligned and consistent with the epidemic situation, including geographic distribution and epidemiological patterns?
4) Is there a single unit in the country that is responsible for managing all HIV-related data? Does this data collection include: estimation and projections, HIV testing and AIDS case reporting, surveillance, passive data, coverage and MIS data, resource estimates and expenditure, and data on the legal and policy environment and the assessment of the effectiveness of the response?
5) For each intervention and/or program area in the strategic plan, are all activities clearly defined and based in local evidence of the quality required to maximize effectiveness with calculations of unit cost based on local contexts?
6) Has your country conducted an estimate of the total resource needs, based on available local unit costs, demographic and epidemiological evidence, and aimed to reach targets aligned with priorities, objectives and targets identified in the national plan?
7) Does the national plan also clearly identify human resource requirements and major gaps needed to achieve the goals of the strategic plan?
8) Is there a plan for scaling-up that includes:
   a. Annual coverage targets, including specific thresholds for quality of coverage, for each priority program
   b. Identification of service delivery units for each
   c. Operational guidelines or other widely accepted standard of service delivery for each priority intervention
   d. Associated costs according to implementing agency or intervention project site for each target population and geographic region
9) Have you collected, projected and weighed all available evidence for prioritization of programs, target population groups, interventions, activities and geographic regions?
10) Is the national strategic plan accompanied by an operational plan that identifies:
   a. Programmatic and population priorities and their geographic location
   b. Who is responsible for implementing interventions
   c. Estimated amount of inputs required and their allocation
   d. Monitoring indicators for management of efficient implementation
   e. M/E indicators to measure and ensure delivery of expected outputs and outcomes
(1) Please use the space below to write down the current goals and objectives of your national strategic plan for HIV and your national AIDS program. Provide concrete references for all text.

(2) Does your national plan set goals and objectives that are specific, measurable, achievable, relevant and time-bound?

(3) Are these goals and objectives based on any assessment or process of analysis of the current situation? If so, please briefly describe the process followed and/or any documents use in setting these goals and objectives.
2. DEFINING POPULATIONS IN NEED AND THEIR SIZE

Contents:
Using data to identify population priorities for prevention
Prioritization of sub-populations for prevention
Size estimation of most-at-risk populations and assessing risk behaviors
Estimating needs for treatment and impact mitigation

Learning Objectives:
To recognize and understand what data are required for planning and for what purpose
To understand the different tools or methodologies available for prioritization and to identify the best tool to use in various settings

By the end of this session, you should be able to:
Prioritize sub-populations for prevention, based on all available data and/or modeling
Determine the number of people in need of focused prevention (SW, clients, IDU, MSM)
Use models to estimate and project HIV prevalence, ART needs, and AIDS deaths
Defining populations in need and their size

Overview: What is this session about?
In the previous session, you have learned the main common characteristics across Asian HIV epidemics and their implications for planning. You have also learned some of the main factors that influence the stage, extent, and acceleration of these epidemics; and the key data indicators linked to each of these factors.

Over the next 2-3 days, you will learn how to utilize the available epidemiological, biological and demographic data and evidence in your country in order to identify program, population and geographic priorities in the response.

This section discusses some of the main methods to analyze and utilize available data about your local (national / state / provincial / district) setting to prioritize those populations at highest risk. It will also present some of the tools available for collecting such data, and gives an overview of the issues of concern for ensuring quality of the data and analysis.

Warm-up Questions:

1. Which group would you prioritize for further prevention?
   a. the group with the highest level of HIV
   b. the group with the most new infections in the last year
   c. the group that covers the largest population
   d. other (specify) : ____________________________

True or False:

2. Sex workers, injecting drug users and men who have sex with men form the largest proportion of HIV infections in any Asian country.
   True False

3. Sex workers, injecting drug users, and men who have sex with men—if targeted through prevention efforts—can avert the largest number of new HIV infections.
   True False

What you will learn:

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

- Prioritize sub-populations for prevention, based on all available data and/or modeling
- Determine the number of people in need of focused prevention (SW, clients, IDU, MSM)
- Use models to estimate and project HIV prevalence, ART needs, and AIDS deaths
**Introduction**

The first step to planning for allocation of funds, resources and services is to identify the number of people in need of prevention, treatment, impact mitigation services, as well as strategic information and program management needs. This section will identify some of the tools and skills that we can utilize to more accurately estimate and plan for the number of people in need of these services.

The previous section showed that most-at-risk populations drive the epidemics and focusing on these groups for prevention will have the fastest and greatest impact on averting and reversing large-scale epidemics in this region.

Estimating the number of people in need of services will require discussion of

| For prevention | Who has the greatest probability of becoming infected? (i.e., who is most-at-risk of getting HIV?) | Most-at-risk populations (sex workers and their clients, IDUs, MSM) and their sexual partners |
| For treatment  | Who is currently infected and in need of treatment? | People infected with HIV who show specific symptoms or whose CD4 count < 200 |
| For impact mitigation | Who is most vulnerable to falling into poverty or losing livelihood security as a result of AIDS in the family? | Affected families living close to or below poverty, where the single-working parent dies, where children are orphaned due to AIDS. |

Acquiring the right information and analysis for policy and planning requires collection, synthesis and analysis of all available data using statistical models and spreadsheets that will be described and discussed over the next few days.
Making Choices that Matter
Prioritizing HIV responses
Tim Brown, Senior Fellow, East-West Center
40 minutes presentation + 15 minutes Q/A

This presentation provides further detail about why we need to prioritize most-at-risk populations and suggests principles for prioritizing within these most-at-risk groups, when resources are too limited and unavailable to address everything. After giving a brief overview to the issues, and discussion on the need to balance prevention and treatment, the presentation offers an introduction to some of the tools available, and how their outputs might be analyzed to plan and program the response. [slides provided by Tim Brown]

Introduction
Every Asian country has different levels of risk, and the timing of the epidemic differs across countries, which means that significant variation still occurs and that countries should analyze their local data in order to make the most effective and high-impact choices for their country. This session explains the underlying analysis of data and describes some of the tools available for prioritizing interventions to make the highest impact on reversal of the epidemic.

Prioritization is essential in HIV planning because not all prevention interventions have equal impact, and when resources are limited, it is even more important that resources are first allocated to those interventions/programs that will yield the highest impact and reverse the epidemic.

How do we prioritize? What information is needed?
Setting the right priorities requires honest and accurate answers to four major questions:

1) Choice of populations for prevention focus: Where can we have the maximum impact?
Prioritization should identify sub-populations that should be the central focus of prevention efforts in order to reverse the epidemic.

2) Balance prevention and care: without prevention, ART is unsustainable; but people are dying now
Beyond prioritizing specific sub-populations within prevention, it is also important that we also strike an appropriate balance between prevention and treatment. Guaranteeing universal access to treatment is necessary, both as an impact mitigation strategy, and right to treatment access is a basic right that should be provided to all who need it. If treatment is provided in the absence of effective prevention strategies, however, costs will quickly expand as more people require treatment and some of those continuing treatment will shift to second-generation drugs. Thus, it is essential that both treatment and prevention are given due priority.

3) Types of prevention approaches we use: Which programs actually change behavior?
In addition to the right focus on prevention, and on the right populations within prevention, countries and HIV programs should also be aware of what approaches to prevention are most successful at invoking behavior change. Strategies that penalize or punish risky behaviors are not likely to be as successful as supportive environments that provide the tools, knowledge and encouragement to people at risk to protect themselves. A more detailed discussion of suggested alternative approaches and the available evidence for their success is given in a later session.
4) Where we focus our prevention and care efforts in country: Where is the epidemic most severe?

A prioritized response must also assess and address geographic heterogeneity of the epidemic. Just as different countries show some variation of the epidemic, so too, do the different regions within the country. The need to map out the geographic locations of high-risk behaviors and HIV prevalence is also essential to appropriate planning and prioritization. The types of data and analysis required for such geographic prioritization is presented in the next session.

Why do choices matter? Compare 2 prevention efforts in Asian country:

To better understand the importance of prioritizing prevention interventions, it is useful to consider an illustrative example that compares two interventions: one focused on prevention for sex workers and their clients; and the second focused on reducing infections in young people. Later sessions of this training will address the elements and quality of intervention that are necessary for ensuring behavior change, but this example assumes that both interventions have the highest effectiveness, as suggested by successful and effective Best Practices in the region.

Based on the Sonagachi model, an effective intervention targeted at sex workers and their clients will, over the course of five years, show three significant results: (a) an increase condom use from 30% to 85%; (b) a reduction in STI prevalence among sex workers, from 30% to about 6%; and (c) a decrease in men visiting sex workers—from 10% to 5%.

Compare this to the results of youth interventions implemented in China and Thailand which, over the same 5-year period, suggest that condom use rises from 20 to 80%, while reducing the percentage of people who engage casual sex by only 20%.

Using a model of a ‘typical’ Asian epidemic, let us study the projected outcomes of these two programs. Notice that while the latter intervention, which significantly increases condom use among the youth population, has very little impact on the epidemic curve. In fact, the number of people infected looks very close to the number without any prevention intervention. On the other hand, the intervention that increases condom use in sex workers and their clients will significantly impact the epidemic curve, reducing the number of people living with HIV by as much as 75%. If we look at total infections averted in the two scenarios, this distinction is even clearer. The sex worker intervention will avert over 50 times as many infections by the year 2020.

One might question: If sex workers make up only 0.5%-0.8% of the adult female population, and in-school youth programs cover a much larger percentage of the total population (in-school young people aged 15-24 make up about 20% of the population), why is it that the sex worker program can it avert so many more infections? While sex workers may be the focus of an intervention, it is important to note that protecting sex workers from infection will have an impact on infections among other population groups, including their male clients and their wives.
As the graph to the left shows, most infections averted due to a sex worker-focussed package are not among sex workers but their male clients. In later years, then, more infections are averted among low-risk women - women who are married to these male clients - and among children, who would have been infected through parental transmission. An effective sex worker prevention intervention, therefore, protects not only sex workers but also their male clients, and consequently will also protect those potential two additional linked ‘downstream’ infections, among the wives and children of male clients, as shown.

Thus, if we are to prioritize population groups, we should consider not only infections averted in the current year of the epidemic, but also potential ‘downstream’ infections that can occur, had the epidemic taken its natural course without prevention interventions. In another example, since an IDU epidemic can kick-start or ‘seed’ a sex work epidemic, an effective harm reduction program can prevent further ‘downstream’ infections that would otherwise occur.

In setting the right priorities, there may be a slight hierarchy to our prioritization...First, if evidence of effective programs exists and they can be replicated in your country, target to reach 80% among these populations. For those most-at-risk populations or risk groups where highly effective and replicable programs do not yet exist, investments in operational research and planning should be invested for development of focused programs for these groups. Where programs can be replicated but capacity does not yet exist, some budget should go to capacity-building; however, this budget should not be diverted away from areas where programs and capacity are available, feasible, and will have an impact on the epidemic.

Although it may be the most specific and illustrative, this is not the primary data needed to effectively assess prevention priorities is to identify the sub-populations and specific modes of transmission where new infections occur.

So how do we prioritize?
Up to now, you have seen the importance of identifying the source of new infections - whether it is in terms of mode-of-transmission, sub-population or related risk behavior. The next step, then, is to ask: where might one find such data on new infections?

The answer to this question is not a simple one. One possible way is to directly measure and record the characteristics of each new infection recorded in one year. Biological tools, such as BED assay, are available to test incidence, but the biological accuracy of the test is poor, and the methods of correction, for example the serologic testing algorithm for recent HIV seroconversion (STARHS) also has potential for sampling error. With more accurate tools, such biological tests might be the most reliable source of information as they would be based on actual data, as opposed to extrapolation or statistical modeling. However, comparative case studies have shown that these tests are not accurate and tend to overestimate trends in new infections, compared to other methods such as models and prospective studies.

When such direct tests are not available, alternative methods allow us to synthesize and triangulate existing data in order to make some inferences about the dynamics of the epidemic and to provide more details about who is becoming newly infected and how they acquired such infection. This analysis would utilize any combination of available behavioral and biological data, which could include indicators such as: annual measures of HIV prevalence among specific sub-populations at-risk (especially sex workers and their clients, injecting drug users, men who have sex with men); estimates of the relative sizes of these populations; knowledge about the levels and frequency of risky behaviors (i.e., unprotected sex and needle sharing) in these populations;
and indications of other proxies, such as levels of sexually transmitted infections (STIs) and hepatitis C in injecting drug users. The UNAIDS Workbook is useful for extrapolating trends of HIV in specific population groups.

When sufficient data of an acceptable quality standard are available, models can be constructed and validated to provide further detail and insight on the estimates and projections of the make up of the epidemic trend. Such models include the EPP/Spectrum package or the Asian Epidemic Model (AEM). If they can be validated with other existing data to ensure they are representative of the current epidemic situation in the country, these tools are particularly useful because they are able to project its future progression, based on certain assumptions about the future biological, behavioral and demographic trends in the population.

---Wilson, D and Halperin D. 
The Lancet Prevention series, 2008

Even when data are insufficient to provide detail on the epidemic, programs can still be prioritized on a broad basis. Lack of data or lacking sufficient analysis of data is no excuse for not setting some priorities. Some normative guidelines or ‘rules of thumb’ can be utilized in the absence of sufficient, high-quality data. The first session has shown that most-at-risk populations should still receive the highest priority in prevention, and within those most-at-risk, there is a suggested typology that provides some guidance as to how to prioritize between these populations as well. <Table 1> provides a more detailed description of the typology, some qualitative and quantitative indicators, and the linked response that is suggested to link with each epidemic phase.

**How do you know which tool is best for you?**
The following provides a discussion of some of the main considerations and constraints in choosing the best tool for analysis, and how to assess whether the currently available data are sufficient for the required analysis.

As mentioned above, the BED assay would or other biological tool would be the most concrete measure of the number of new infections, but because these tests have not produced accurate results, they have been excluded from this discussion.

The UNAIDS Workbook is another tool that can provide some insight in terms of the relative contribution of different sub-populations to the epidemic. This tool utilizes available surveillance and size data among specific population groups (sex workers, injecting drug users, and men who have sex with men), in order to extrapolate the trends of HIV in these populations. The Workbook does not provide specific data on incidence or source of new infections, but with indications of prevalence trends, it is possible to infer the likely pattern of new infections and make decisions abut how to focus on specific population groups at particularly high risk and in urgent need of prevention education, tools and services.

Prevalence among different populations alone, however, would not be sufficient for the proper prioritization. If prevalence were the only factor, then a high prevalence a very small population – though alarming – could mask low HIV prevalence among a much larger population that also demonstrates very high risk. Thus, accurate and representative size estimates of each of the relevant sub-populations should also be factored into prioritization for prevention. The next
session will provide a more in-depth discussion on tools for size estimation and how to choose the right methodology for the target populations.

![Table of data](image)

When sufficient data are available, models can be quite useful to provide further details about the epidemic and its future. The Spectrum software, use in combination with the EPP package, can derive the epidemic curve and similarly, predict its future.

The Asian epidemic model is a much more detailed and powerful model, but its minimum data requirements are an important limitation to using this model. Even a basic model requires data on size, biological and behavioral trends for each most-at-risk population. The data intense model, however, provides significant insight on the epidemic and how to prioritize or focus on specific population groups and how such focused interventions will impact the epidemic.

Choosing the best tool for prioritization, then, is primarily determined according to the amount and quality of data available. While models like AEM and Spectrum are quite powerful tools, they are also the most resource and data-intense.

If data is not yet sufficient to complete these models, countries should initiate some collection of these data, which not only serve as inputs for many of these tools, but are also useful for analysis of the epidemic for planning and programming.

Size estimation is a good example of such data. The sizes of most-at-risk populations are key inputs to the AEM model, but these data can also be useful for planning, independent of the model. An accurate estimate of most-at-risk populations is important for estimating biological or behavioral indicators, but in particular, it is essential for measuring coverage: It is impossible to know what percentage of sex workers are reached without knowing the size of the target population. The next section will discuss different methods of size estimation and how to choose the best approach, according to characteristics of the population and surrounding environment.

Above all, however, it is important to remember that the response cannot stop because of a lack of data. Some countries have commissioned mapping studies that are resource-intensive and may take many months to complete. Such estimates are useful for planning (for example, mapping of sex workers by district in India is useful for planning and resource allocation); but at the same time, estimating resource needs or training human resource should not wait for the results of such studies. Broad national or state-level norms can be used for initial allocation, and adjusted once more precise data becomes available.
Policy makers and program planners must have the information required to understand who the priority populations for interventions are, in order to implement effective national responses to the HIV epidemic in a country. Although this seems obvious, in many cases, global and national HIV strategic planning is not led by this information. Why is prioritization of sub-populations so important? The main reason is that the interventions should aim to have the maximum impact on the growth of the epidemic, i.e., they should halt and reverse the epidemic trends in the country. This is only possible if the population source of most new infections is known, and the infection in these groups is diminished or protected by effective prevention interventions.

Often it is easier to establish non-specific interventions for the “general population,” than to address the needs of the specific populations at risk who tend to be marginalized and hard-to-reach, or whose activities are illegal or socially or morally frowned upon.

For example, look at the graph below and discuss the following questions:

![Graph showing percentage of new HIV infections that can be prevented among young people and allocation of resources for young people by the Joint UN Workplan](image)

**Figure 1:** Percentage of new HIV infections that can be prevented among young people and allocation of resources for young people by the Joint UN Workplan
• Who are high-risk young people? Low-risk young people? What are their demographic, social, cultural, and economic backgrounds?

High-risk young people, like high-risk populations are young people (usually aged 15-24 years old) who practice risky behaviors of buying or selling sex, injecting drug use or men who have sex with men. Low-risk young people on the other hand, are people in that same age group (15-24 years) who are part of the mainstream population who do not practice the risky behaviors indicated above. It could refer to students in high school or college or others who are not sex workers, male clients, IDU or MSM.

There is no clear distinction between the demographic, social, cultural or economic backgrounds of low- or high-risk people. Injectors could be college students; in some countries, young women who in school may also sell sex for money.

• What do the data shown mean? Do they look similar to or different from what you observe in your own country?

In Figure 1, nearly 95% of preventable new infections among young people occur among the adolescent most-at-risk groups, such as young drug injectors, young men who have sex with men, and young women who sell sex and their young male clients (Commission on AIDS in Asia). However, in the budget allocation of the UNAIDS Cosponsors (Unified Budget and Workplans, 2004-2005) the bulk of HIV resources (around 90%, as shown by the dark blue bar on the right), were allocated to easy-to-reach but low-risk young people in school settings, or to life-skills education that primarily addresses casual sex. This pattern of resource utilization results as shown in a minimal impact on new infections, as it can only prevent about 5% of potential new HIV infections among (all) youth.

In general, many countries do not regularly or systematically record resources available and allocation of budget to different line items or interventions. Even such data are available, most countries will not differentiate between prevention efforts for high-risk versus low-risk young populations.
Now, consider the next two graphs, which show total resource needs for HIV (Figure 2) and a comparison of resource needs versus potential for averting infections (Figure 3).

**Figure 2.** Estimated total resource needs for a comprehensive AIDS response in the Asia-Pacific region

**Figure 3.** Proportion of estimated resources required for an intervention vs the proportion of infections averted as a result of the intervention
Questions to consider:

(1) What is the estimated resource need in the latest year shown (2007)?

On this graph, estimated resource need is on the order of US$ 5 billion. A later update by the Commission has calculated need for 2007 as about US$ 6.4 billion.

(2) How much of this need do you think is currently available?

If there is no prioritization, typically what we see is too many planned activities attempting to cover all aspects of HIV prevention and care. The consequence of this population growth is an every-expanding need for resources over the year, as shown in Figure 2.

(3) If half of the estimated need (US$2.5 billion) is currently available, for HIV programs, then how would you allocate funds across different program areas? What would be your principles of prioritizing funds, and how would this result in an effective response?

Regionally, it was estimated that more expensive interventions, such as ensuring blood safety and safe injection prevent only about 1% of new HIV infections, while they can take up to 25% of the regional HIV budget (see Figure 3), i.e., they are high cost but low impact. On the other hand, interventions focused on sex workers and their clients are low cost but high impact, because they can prevent 80% of new infections but only consume 15% of the estimated regional budget.
What tools can we use to prioritize?

Facilitated by
25 minutes (group work) + 20 minutes (plenary discussion)

A. Models can be a very powerful source of information for prioritizing sub-population groups. Look at the graph below (generated by AEM based on a typical Asian Epidemic), and consider the questions below.

![Graph showing annual new infections in a hypothetical Asian population](image)

**Figure 4.** New HIV infections in a hypothetical Asian population (of 100 million), according to sub-population

(1) What program would you support if your epidemic showed the above patterns in new infections?

Based purely on the number of new infections, it seems that a client intervention would have the largest impact on averting infections. However, from this graph, there is no clear indication of the “downstream” (or subsequent) infections that could be delayed or averted as a result of an effective prevention intervention in any of these interventions, which means that this question should be considered carefully. For example, it is clear that clients make up a large proportion of the infected population. One who does not understand the dynamics of the epidemic may conclude from this that clients should be the focus. Our understanding of the epidemic and knowledge sex worker programs, however, shows that, when sex workers are empowered, an intervention that focuses on sex workers (a much smaller number of people) will avert infections in the clients as well.

If we focus on the early stages of the epidemic, prevention for injecting drug users seems the most effective method (and in the very early stages of the epidemic, this would be the right strategy). The message becomes more misleading towards the later stages, because although men who visit sex workers are the largest proportion of new infections, their dispersion in the general population makes interventions (other than mass media “targeted awareness programming”) less feasible and more costly.
In addition, in many countries, political and social acceptability of targeting such groups will also play a significant role, as some governments may opt to implement life-skills interventions that focus on staying out of injecting drug users, as opposed to harm reduction interventions, which focus more directly on HIV-related risk, for instance.

(2) Given the choice between prevention for sex workers or for clients of sex workers, which would you support most and why?

Since the largest proportion of annual new infections are occurring among clients of sex workers, it seems natural that one’s first instinct would be to focus on this group. It is important to note that, while these men represent the largest proportion of infection, they are a much larger population and difficult to distinguish from the general population. Realizing that most of these men are infected as a result of unprotected sex with a sex worker, one way to prevent infections among this group, then, is to ensure that sex workers have the knowledge, skills, tools and confidence to ensure that all their male clients use a condom. This would require very focused interventions targeted on a much smaller, population, which would likely make such prevention efforts more effective and economically feasible.

B. Both of these graphs on the next page show harm reduction interventions for injecting drug users that have the same impact on risk behaviors of IDUs: both interventions cause the percentage of shared infections to drop by 50% and the number of injections per day to fall (from 2.5 to 1.5).

(1) Why does the graph above show a much steeper drop in new infections?

In both figures, the same harm reduction program was implemented, resulting in similar changes in behavior. However, in the first program (IDU 1) implementation occurred after HIV was introduced into and circulating within the sex trade. Once HIV reaches a critical threshold among sex workers, prevention for IDU will have little impact on the overall epidemic, as the infected
population becomes increasingly (and eventually, overwhelmingly) made up of clients of sex workers, and not injecting drug users and sex workers. At this stage, even the most effective IDU intervention are likely to have a much lower impact on the overall epidemic (not lessening their importance to the people who are at risk because of their injecting behaviors).

C. In some settings, HIV is low and data are limited, which makes modeling difficult or not feasible for prioritization. In such cases, AIDS case reporting can help to give some perspective on where is the best place to focus resources for prevention.

Figure 6. Exposure categories of reported HIV infections in Hong Kong

(1) Which mode of transmission contributes the largest to new reported infections in the above graph? What kind of programming recommendations could you make based on this data?

The above graph clearly shows that most people became infected as a result of unprotected heterosexual contact.

(2) What are the limitations of using case-reporting of HIV or AIDS as the main source for prioritization? What kinds of biases may exist and how can one plan or adjust for them?

Although the graph above appears to follow the general expected pattern of the Asian epidemic, planners should always be wary in using case reporting as a main form of data analysis for prioritization. Because case reporting is usually based on testing of a very specific population (either through voluntary testing, screening of blood donors, or some other specific group), it is difficult to ensure some sort of selection bias has not occurred. For example, voluntary counseling and testing will likely exclude some people who are at high risk but do not wish to know their status (sex workers, for example, who might be punished or stigmatized for being positive); as well as a number of people who perceive themselves to be at low risk, but are actually already positive (women who are infected by their husbands, for example).

Such biases and their potential consequences should always be considered before any policy or program decisions are made on such a basis. One possible solution is to triangulate against other data available, as is shown in the next example.
D. When estimates of HIV prevalence are available, it was suggested that this could also serve as a basis for prioritization; however, sometimes HIV alone is not sufficient. Study the table below and answer the questions.

(1) **Table 1A** below shows HIV prevalence among specific sub-populations, according to the latest available data from the last round of national HIV surveillance testing. As discussed in the previous session, some information about relative priority of sub-populations can be extracted or deduced based on the levels of HIV in each group. Based on this data, among which group is the most urgent need for prevention?

<table>
<thead>
<tr>
<th>Population group</th>
<th>HIV prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Injecting drug users</td>
<td>37.5%</td>
</tr>
<tr>
<td>Sex partners of injecting drug users</td>
<td>12.5%</td>
</tr>
<tr>
<td>Female sex workers</td>
<td>2.8%</td>
</tr>
<tr>
<td>Clients of female sex workers</td>
<td>0.28%</td>
</tr>
<tr>
<td>Wives of clients of female sex workers</td>
<td>0.03%</td>
</tr>
<tr>
<td>Men who have sex with men</td>
<td>1.3%</td>
</tr>
<tr>
<td>Male sex worker</td>
<td>21.5%</td>
</tr>
<tr>
<td>Wives and girlfriends of male sex workers</td>
<td>7.1%</td>
</tr>
</tbody>
</table>

**Table 1A:** HIV Prevalence, according to sub-population in an Asian country

With just the data shown in the table above, it is difficult to definitively give a priority order for these populations. Clearly, women who are married to clients of female sex workers are still at low risk. Similarly, injectors are at much higher risk. (People with some training in epidemiological analysis, however, may note that, since HIV prevalence is already sufficiently high, it will be quite difficult to effectively contain the epidemic, without very high coverage of services.) In any case, injectors and male sex workers, who show the highest prevalence, would likely be of high priority. The most important point, however, is that one should be quite wary of decisions made without information about the relative sizes of the populations.

(2) Clearly, if we base our decision on populations with the highest HIV burden, then injecting drug users (37.5%) and male sex workers (21.5%) are at the highest risk and should be prioritized. HIV prevalence, level of risk behaviors or other biological indicators in isolation, however, may be missing other important points. Take a look at **Table 1B** below. Would you like to change your previous answer? If so, how would you change it and why?

<table>
<thead>
<tr>
<th>Population group</th>
<th>HIV prevalence</th>
<th>Population size (est.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Injecting drug users</td>
<td>37.5%</td>
<td>27,500</td>
</tr>
<tr>
<td>Sex partners of injecting drug users</td>
<td>12.5%</td>
<td>20,900</td>
</tr>
<tr>
<td>Female sex workers</td>
<td>2.8%</td>
<td>32,400</td>
</tr>
<tr>
<td>Clients of female sex workers</td>
<td>0.28%</td>
<td>1,257,000</td>
</tr>
<tr>
<td>Wives of clients of female sex workers</td>
<td>0.03%</td>
<td>808,700</td>
</tr>
<tr>
<td>Men who have sex with men</td>
<td>1.3%</td>
<td>47,800</td>
</tr>
<tr>
<td>Male sex worker</td>
<td>21.5%</td>
<td>5,500</td>
</tr>
<tr>
<td>Wives and girlfriends of male sex workers</td>
<td>7.1%</td>
<td>2,600</td>
</tr>
</tbody>
</table>

**Table 1B:** HIV Prevalence and Population estimates of some specific sub-populations

With this added information about the relative sizes of population, it is quite clear that, although male sex workers demonstrate a very high population, the total affected population (men who have sex with men + male sex workers + wives and girlfriends of male sex workers) totals less than 5% of the total at-risk population. Thus, although this very small group of people will still be at very high risk of infection, they may or may not be the highest population priority to avert a large-scale epidemic.
(3) What other additional data might help to give you a better picture of the current epidemic situation and what needs to be done?

Accurate measures of population size and HIV prevalence among specific populations can be quite useful in prioritization. However, they are not the only data. Information on the periodicity of risk behaviors, the quality of a service package and coverage and access to prevention services are all useful to provide a much clearer picture of the trends of the epidemic and in which areas countries should prioritize their finances and energies.

Data on periodicity of risk behaviors (e.g., number of clients per sex worker per week or number of injections per drug user per day) can be helpful in assessing relative risk of different populations. For example, regions of a country where sex workers see upwards of 20 clients per week are more likely to see rapid growth of HIV than those areas that average 2 client visits per sex worker per week.

Geographic distribution of population groups and their levels of risk is important because a natural mechanism for allocating and distributing is by geographic sub-region or area; therefore, it is important that the

Similarly, if modeling data are available, it could be used to identify the source of new infection and potential to avert later infection. In some regions, injecting drug users could be the largest source of new infection; however, this may mask an epidemic that has already begun among sex workers and their clients, which has the potential to have a very large impact on the overall population.

Data on the effectiveness of programs may be particularly useful when focus appears to target the right population groups and interventions, but still these programs do not demonstrate an impact on reversing the epidemic trend.
Analyzing outputs from epidemiological models

1) Figure # below represents a modeling output. The graph shows the proportion of new infections that are occurring in different risk groups. Study this graph and answer the following questions:

![Graph showing proportion of new HIV infections](image)

<table>
<thead>
<tr>
<th>Year</th>
<th>Current clients</th>
<th>Current sex workers</th>
<th>Husbands of current or former sex workers</th>
<th>Wives of current or former clients</th>
</tr>
</thead>
<tbody>
<tr>
<td>1986</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1991</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1996</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2001</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>2006</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a) Which population group or mode of transmission should receive top priority for prevention?

In the graph shown, wives of former clients make up the largest proportion of new infections, so the obvious answer would be to target these women for prevention.

b) How would you assess or measure the extent of success of your strategy?

Assessing the success of this strategy can be measured in several ways. The outcomes of this strategy could be measured in terms of the change in reported condom use between current and former clients of sex workers and their wives. However, it would be rather difficult to measure so general condom use between married couples could be used as a proxy. Alternatively, measuring the change in HIV prevalence among women visiting antenatal clinics could also serve as a proxy for tracking HIV among wives of clients of sex workers.

Both of these methodologies have their own problems. Studying condom use is difficult because there is no way to guarantee the accuracy of self-reporting of condom use. On other hand, HIV prevalence is a measure of both new HIV infections and AIDS deaths, which complicates any measures of HIV prevalence. For example, a fall in HIV prevalence – mathematically – simply means that more HIV-positive people have died than the number of people newly infected in a single year.
2) Now, look at the graph below. This graph shows the same information, but instead of proportion, it gives the number of new infections, according to different sub-populations. Study this graph and answer the same questions:

![Graph showing new HIV infections from 1986 to 2016 for different sub-populations: Current clients, Current sex workers, Husbands of current or former sex workers, Wives of current or former clients.]

a) Which population group or mode of transmission should receive top priority for prevention? Why?

This graph shows that the reason that low-risk women are becoming such a large proportion is not because their new infections are rising significantly, but primarily because infections among other significant population groups (namely, clients of sex workers) dropped dramatically – as a result of a successful intervention to increase condom use between sex workers and their clients.

It may appear that the strategy should not change significantly, but it is important to consider cause of this large reduction (from 1994-onwards). Is a program required in order to keep the total number of new infections at this low level? If the participants realize this, they may note (from the prevention presentation) that the program for sex workers (and their clients) should continue so that practices of consistent condom use are maintained and will keep new HIV infections at their observed low level.

b) How would you assess or measure the extent of success of your strategy?

Since the focus has shifted away from male clients and their wives toward male clients and sex workers, the success of the program should be measured by tracked by studying the change in condom use between female sex workers and their male clients. Alternatively, measuring STI or HIV prevalence could be an additional measurement or proxy, but this will raise some of the same issues or concerns discussed when using prevalence in ANC as a proxy in the previous question.

c) What do you expect would happen if you did not continue a program that ensured prevention of HIV among sex workers?

It is not completely clear what would happen if all prevention programs stopped. In Thailand, for example, all mass media campaigns and mass condom distribution had stopped after only a few years after the program’s demonstrated success. However, the message had a lasting effect, as fewer men visited sex workers, and those who did were certain to use condoms. Although this showed some success in Thailand and Cambodia, to a certain extent, there is still no telling if or when men would lose the motivation to continue practicing safer behaviors. If this happens, then, the epidemic is certain to expand again, as shown in the graph below.
New HIV Infections

Current clients • Current sex workers • Husbands of current or former sex workers • Wives of current or former clients
Population size estimation
Why and How?
Abu Abdul-Quader, Global AIDS Program, US-CDC
25 minutes (lecture) + 10 minutes (Q/A)

In the last lecture, people learned different methods to prioritize specific sub-populations; but to ensure that the whole target populations, in order to plan adequately and to provide a reasonable estimate of the potential costs of the program, are reached; there must be accurate estimations of the sizes of specific populations.

But size estimation is not an easy activity, in part because the sub-populations, who are the focus of HIV programs, are usually quite hidden and difficult to reach. This presentation focuses on some of the major considerations and issues in considering how to conduct size estimation, and provides a conceptual framework for choosing the right method.

Introduction:
This lecture aims to give you a quick “how-to” on estimating prevention need. In the previous lecture, it was shown that most-at-risk populations drive the epidemics and focusing on these groups for prevention will have the fastest and greatest impact on averting and reversing large-scale epidemics in this region. In this section then, estimates of the number in need of prevention services will focus on these most-at-risk populations. It will not discuss how to estimate the sizes of the more general demographic (e.g., young people or pregnant women), which can be drawn from existing census or other widely-available population or demographic survey data.

Rationale and Purpose for conducting size estimation:
There are many reasons for estimating population size, some of which were even addressed earlier:
- To identify the size of populations in need of services;
- To determine the denominator for coverage estimates;
- To serve as a basis for estimating other indicators such as HIV or STI prevalence;
- To advocate with politicians and policy-makers;
- To use as an input for estimation and projections of HIV;
- To lay out, design and plan an intervention.

Although their contribution to all of the above are quite important, size estimates are not the final goal of HIV planning, and a lack of available estimates should not hinder or stop HIV planning process. Sometimes, estimates can be expensive and time-consuming; but we should never wait to start a program. Instead, it is important to utilize current knowledge – e.g., regional averages or other available data similar countries – as an interim estimate for planning. Meanwhile, actual estimates can continue to be obtained and incorporated at several points during the planning process, including: future planning cycles, mid-term review and even in the operational plan. Need to emphasize that this is an iterative process: we cannot let the planning and implementation of programs stop in order to collect data.

Define the population
One major challenge in size estimation results from the fact that the focus is on sub-populations who are usually stigmatized by the community and, as a result, they can sometimes be hidden and difficult to reach. This presentation attempts to include and address the main 4-5 methods available, particularly for hidden populations who need HIV prevention services.

Before estimation of population sizes is conducted, we must be able to answer the questions: who and why are we counting? Size estimates used to predict HIV and to model the epidemic at a national scale will have a very different focus from an estimate targeted at intended
beneficiaries for a specific prevention service, such as early STI detection and treatment, or drug substitution therapy. In addition, men who have sex with men, for example, are often a considerable proportion of the population, but their risk behaviors vary, which means not all of them are at equal risk. When we prioritize interventions, then, it is likely that money need not address all men who have sex with men, but instead look at specifically those who have high partner turnover or are more likely to engage in risky anal sex.

With more specific definitions of the population, the bias in selection or counting will also fall, yielding a more accurate and representative description of the target population.

**Heterogeneous geographic distribution**

In any measurement, it is important to note that most risk behaviors (and it follows then, that HIV) are not evenly distributed across the country. In fact, it is more likely that risk behaviors are focused within specific zones - urban areas, infrastructure or development projects, and other flourishing economic zones. Before conducting any estimation of size, it is important to clearly articulate the purpose of the estimate and define the relevant population accordingly. Estimating injecting drug users in an urban area, for planning a drop-in center for a harm reduction project, is very different from estimating the total number of injecting drug users in a country, for generating epidemiological projections.

**Before you begin: underlying principles and pre-requisites: giving better detail to defining the population**

Before beginning the operational exercise of counting, it is important to keep in mind:

- confidentiality and respect for the individual
- implementers may not want to know because they don’t have the capacity to respond
- implementers may be unhappy if estimate is lower than current numbers
- may backfire, leading to a law enforcement response rather than a prevention response
- define geographic area, place, location, socially identifiable, feasible and ethical (confidentiality and consent)

**Methods available for size estimation**

There is no explicit hierarchy in choosing the right method for your intervention; choice of the right tool will depend on the constraints present in the specific situation, as each methodology will tackle the issue slightly differently and thus, they will bias the data in a slightly different way. It is the responsibility of the technical staff on the program to determine which methodology and which outcome would be most representative of the actual country situation. The six main methods for size estimation are:

1. **Census and enumeration** are the most reliable and comprehensive methods, as they attempt to count the total number of people in the target population or group;
   - Census methods count every individual in a population
   - Enumeration methods count only sub-set of individuals selected from a defined sample frame, and then need to multiply number according to size & structure of sample frame
2. **Population survey methods** can be conducted through existing ongoing surveys of the general population (inexpensive) or surveys of sub-populations at-risk for HIV;
3. **Multiplier methods** are conducted based on existing data of information from two sources that overlap in a known way;
4. **Capture-recapture methods** relies on conducting two independent ‘captures’ where the population is tagged and counted;
5. **Nomination (snowball) methods** are based on population networks, which are accessed and counted through chain-referral; and
6. **Respondent-driven sampling (RDS) methods** combine nomination sampling methods with a mathematical model that compensates for biased sampling expected from sampling such hidden populations.
One of the most reliable estimates would be by using census and enumeration, as this suggests that all the people in the target population or representative region are counted. For example, for counting the number of sex workers in a brothel area, the census method could be used to literally count each and every single sex worker living there. Though somewhat costly, this would not be a difficult task, since the sex workers are neither hidden nor hard-to-reach.

Similarly, if we knew that all brothel-based sex workers were based in several cities, each with the same number of brothels, one could use enumeration to count the number of sex workers in one representative brothel (or one representative urban area) and then scale-up according to the total number of brothels in the country.

When the population is easy to locate and identify, or if the population is conducive to self-identification, population survey methods could serve as a particularly useful tool. For example, some countries are able to utilize ongoing demographic health surveys to approximate the number of men visiting sex workers, and the frequency of men and women who have extra-marital or pre-marital sex, which may be useful indications of the trend and dynamics of the epidemic. Such estimates should still remain careful and wary of the potential biases in the sample population, since such household surveys automatically exclude several groups of people, such as brothel-based sex workers, mobile populations such as truckers and sailors, migrants - all of whom are at higher risk of HIV. In addition, even when people are home, they may not admit to certain behaviors due to the social stigma associated with them. For example, a man may not admit that he visits sex workers, if his wife is also present. Such issues should be considered in designing the questions and type of survey.

If the population is well-defined and easy to identify, the multiplier method could serve as an easy-to-use, inexpensive and quick tool for size estimation. It requires that the catchment area and definition of the relevant population is the same in both the existing and collected data. The number of people visiting the institute is measured and scaled against the existing figure. Say, for example, that a opioid drug substitution therapy clinic will treat some 25% of all heroine-injecting drug users. If the drug user will need substitution therapy at least once a week, then all the patients in the clinic are counted over 1 week, and it is assumed that they should represent some 25% of the total heroine-injecting population and thus the total number can be calculated in a straightforward manner. The biggest problem with this method is the difficulty in finding relevant existing data that could be used for such an exercise.

These last three methods are probably slightly more effective to count hidden and hard-to-reach populations.

The capture-recapture method, for example, offers a way to count hard-to-reach populations.

When a guide or community representative is involved, it is possible to count people in such a way that it protects their confidentiality but still arises at a reasonably representative figure. One of the biggest constraints in conducting accurate estimates using this methodology are the many assumptions that must be met in order to ensure an accurate figure. These assumptions are:

1. the two samples or captures are completely independent of each other: in other words, there is no correlation between the two samples;
2. there is no selection bias in either sample, so that everyone has an equal chance of being included in either capture;
3. people will accurately report and record whether they had been captured previously; this is usually done by handing out some kind of card or marker that can indicate whether or not someone had been captured in the last capture; and
4. there must be no significant in- or out-migration with the community, as such kinds of disruptions will have a significant impact on the size estimate - this is implicitly true of any estimation method; and several ways to correct for such differences are also presented in later sections.
Nomination (or snowball) methods are particularly useful when populations are hidden but still exist as well-connected networks. This method will require the selection of several guides or ‘seeds’ who are asked to nominate or identify a given number (about 5-10) of their peers, who are in turn asked to identify another 5-10 peers. If double-counting can be avoided and if all the networks in the community are included or ‘caught’ in the counting, then this methodology can be quite successful in producing the necessary and expected results.

How do we choose the right method?
There is no ‘best’ or ‘worst’ method in conducting size estimates; different methods are well-suited for different situations and populations, which is why defining the population you are counting and the purpose for such estimation are the real pre-requisite items before starting the estimation.

The description of each method, provided above, should provide an overview as to which method could be most effective given the population, their location and the purpose of the estimate. The matrix below attempts to offer further clarification and guidance; however, it should not be taken as an authority for choosing a method, since each local situation is different and you must select that method that is most appropriate your setting.

<table>
<thead>
<tr>
<th></th>
<th>Census and Enumeration</th>
<th>Population Survey Methods</th>
<th>Multiplier Methods</th>
<th>Capture-Recapture</th>
<th>Nomination (Snowball)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hidden populations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Hard-to-reach populations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Visible populations</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Migrant or mobile populations</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good representative sample population</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use of existing data</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Requires close engagement of community members</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Time consuming</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>High in cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>
Below are two examples of size estimation conducted on specific sub-population groups. Look at each case study, determine the methodology used and answer the questions that follow.

**Case #1:**
In a small town of 18,000 people, a few key drug users were recruited for estimation of IDUs in that city. Each drug user identified somebody till each and every lane of the city had a key contact who counted the number of injectors each key contact knew until all the names were exhausted. Double counting was checked against and definition of injectors was ensured through right definition, verification and training. This numerator of IDUs was divided by the total population of 15+ males, to get prevalence of IDUs for that town. This was then applied to the similar areas of the state, i.e. urban areas connected to the highways. This 1.5 million residing in urban areas of the state were estimated to have 1.2% of 1.5 million i.e. 18,000 IDUs for the selected part of the state. This was not an accurate estimation for the state but at least a conservative estimate and helped the country to plan and mobilize international funding for the first harm reduction project.

- **What methodology was used? How do you know?**

  The fact that several drug users were used as ‘guides’ to identify their peers and that all drug users in the city were counted indicates that enumeration was used, where it was assumed that the town has a drug user population that is representative of the country as a whole. Thus, the number determined from this count was then scaled-up to estimate the total number of injecting drug users in geographic zones that are understood to have similar prevalence of injecting drug users.

- **What kind of biases could still exist? How might you correct for them?**

  Injecting drug users were asked to identify their peers, in an attempt to avoid underreporting that could arise from stigmatization or fear of the population group. At the same time, there may still be some networks of injectors within the catchment area, who are not reached – either because they are underground or are isolated from the network of ‘counted’ IDUs. There may not be a clear and easy way to correct for this bias, except to understand that the currently available numbers probably represent an underestimate of the actual number of injectors in the region.
Case #2:
In one capital city, with a population of approximately 8 million people, it was necessary to estimate the sex worker population before implementing a prevention project. In the first phase, secondary data sources, such as police, social welfare department, different Non-Governmental Organizations (NGOs) and sex workers, were contacted. The data collected gave results that varied from 1200 to 12000.

Forty-five sex workers from 13 brothels were recruited to work as guides. The “guides” were the link between sex workers and project staff during the study. They were posted at each location where sex workers were known to frequent, and each one would approach other sex workers by identifying herself, explaining the activity and its function for planning, and assuring the sex workers about confidentiality and anonymity of the activity. She would then distribute a colored card (red) to each sex worker reached in all the identified locations. The sex worker would also be requested to identify other workers they knew in that area.

One week later, the same routine was repeated at the same location, on the same day of the week or during the same time of day. While distributing the cards, the guides asked the sex workers whether they received a red card earlier. Those who received the red card earlier were given the new pink card; those who did not receive any card during capture exercise were given both red and pink cards altogether; and the number in each group were tallied and used to calculate the population size.

What methodology was used? How do you know?

The capture-recapture method was used in this case. There are several indicators of the methodology, including the identification of sex workers through colored cards and the specific counting of sex workers who were included in both “captures.”

What kind of biases could still exist? How might you correct for them?

A capture-recapture has to follow four conditions in order to be valid: (1) there should be no correlation between the two samples; (2) there is no selection bias in either capture—in other words, everyone has an equal chance of being captured; (3) there must be accurate recording of people who had been captured in the previous sample and people who are being captured for the first time; and (4) there must be no significant in- or out-migration with the community.

There could be some selection bias due to the time of day or location where the count occurred. Consulting with and receiving recommendation from guides in terms of who may or may not be counted and why, could be useful to limit bias.

Since community members were utilized as “guides” for counting, it is likely that there was an accurate counting of women who were captured in only one versus both captures. And since the women were living in the brothels, it is unlikely that significant amount of in- or out-migration had happened over the relevant period.
We have now learned how to properly map and estimate the number of people in most-at-risk populations who require prevention services. In this session, we highlight some of the sophisticated and simpler tools available to conduct a similar estimation - for people in need of antiretroviral therapy treatment.

The World Health Organization suggests both clinical and symptomatic points for initiating antiretroviral therapy. The algorithm for treatment is given below. The clinical cut-off suggests that a patient showing mild or no symptoms should only initiate treatment if the CD4 cell count has fallen below 200 cells/mm$^3$. When symptoms are in a more advanced stage, treatment should ideally begin at a slightly higher threshold - when the CD4 is between 200 and 350 cells/mm$^3$.

Very crude estimates of ART needs can be extrapolated if information about new incidence is available or can be extracted from HIV epidemic curves. According to the WHO/UNAIDS working group on estimations and projections, people who are newly infected with HIV will on average develop AIDS and require treatment some 8 years after infection.

Since the time when such crude estimation methods became widely available, other models have also became available for estimating the number of people needing treatment. The Spectrum model, for example, calculates HIV based on preexisting data. It will, for example, take data on trends of the epidemic among specific sub-population groups, and use this data to extract and project future the future epidemic and treatment burden.
Both the Spectrum and Asian Epidemic models calculate treatment needs based on the same, widely-accepted premise. Once a person becomes infected, it will be about 8 years before that person requires treatment. If the person is not initiated into a treatment program within the next three years, the person will die. This is based on the general statistical patterns observed throughout the world affected by AIDS.

Progression from HIV Infection to AIDS Death

- **New HIV Infection**
  - Normal M 7.5yrs/F 8.5yrs, fast 6.1/6.9

- **Need for Treatment**
  - 3 years

- **AIDS Death**
  - Need for 2nd Line
  - 15% / 5%

- **First Line ART**
  - 15% FY / 5% SY

- **Second Line ART**

This model assumes that, once people receive first-line treatment, about 15% of the population will require second-generation treatment within their first year, and in every subsequent year, an additional 5% of the remaining population on treatment will need to shift to second-generation pharmaceuticals.

Similarly, since third- or later-generation drugs are not yet available, then this same progression applies to people on second-line drugs. For people who are on second-generation ARVs, about 15% will die in their first year, and additional 5% will die every subsequent year.

If countries are not yet able to set up their own estimate and projection, using either AEM or Spectrum, then some broad normative guidelines are provided, using the AEM estimate based on a typical Asian population (of approximately 100 million people in 2007). In the first ten years, then, only about 5% of people living with HIV will be in need of antiretroviral therapy. Once the epidemic has expanded into its 15th year, this need will grow to around 15% of the positive community will be in need of either first- or second-line treatment. In addition, as people initiate into treatment, their ART needs will accumulate, which would increase this figure by even more.

All of these normative standards assume that there has been little or no effort in reducing the epidemic through intensified prevention efforts. This may need to be adjusted if looking at Cambodia or Thailand, and it may be useful in comparing scenarios with- and without treatment.

Finally, impact mitigation can also be calculated - using the same models described above. To better understand what we mean and who to target for impact mitigation, we should first look at the overall impacts of the epidemic and notice who is affected the most by AIDS in their families, their homes and their communities.
HIV impacts are usually accumulated and incurred over a long period of time, which is perhaps the very reason why it is difficult to measure a significant impact of AIDS on macroeconomic indicators, such as economic growth or other impacts.

Still, the impacts of HIV on demographics are not insignificant. HIV remains the largest disease-related cause of death among one of the most productive (15-44 years) population age groups - causing more deaths than significant non-communicable diseases such as cancers and heart disease, as well as new emerging diseases like diabetes.

When studied at the household level, those impacts are even more prominent. AIDS can disrupt the income and livelihood of a family when the main working parent is unable to work productively due to the disease. Sometimes, even children are forced to leave school to earn additional income. Women tend to be stigmatized by their community and even their family as a result of an AIDS death. In one survey, a large majority of women had left their homes after the death of their husband - either voluntarily or by force.

These are the families - the ones who have little or no income, who are slipping into poverty as a result of the loss of the main breadwinner, or because of prohibitive medical and drug costs.

Thus, in estimating the need for impact mitigation, it is important to study several specific factors. First is the number of orphans and widows. Currently, the Spectrum model is the only one to provide such data explicitly, but other models may soon be available as well.

Second, it is important to sketch the profile of typical affected families. Are they rich or poor? Would they be vulnerable to sliding into poverty if the main wage-earner in the family is unable to work and because of the extra costs of drugs, travel and funeral costs? All of these are important factors for identifying the vulnerable population and may be able to be measured through population surveys (such as DHS in Cambodia, and NFHS in India). In fact, the studies in these countries showed that most male clients of female sex workers are actually in a wealthier income bracket and thus are not necessarily the center of impact mitigation programs.
(4) Does your national plan identify the number of people who are targeted for prevention, treatment and impact mitigation?

If so, please site the reference or source for these estimated numbers.

(5) Does the national plan identify which program areas and target populations receive the highest priority? If so, what is the basis for setting these priorities (please site specific evidence and provide references).

(6) Based on your current knowledge, would you change or request a recalculation of these figures? How might you adjust the priorities and estimated needs? What kind of additional information would you like to collect in making these decisions?
3: GEOGRAPHIC PRIORITIZATION

Contents:
Using data to identify geographic hot spots and priorities (panel discussion)
Identifying priority geographic regions for implementing prevention, treatment and impact mitigation services – Tobi Saidel
Data and strategic information required for identifying the ten key criteria for national plans

Learning Objectives:
To understand that HIV risk and disease is not homogeneously distribute across geographic regions and know the implications for planning
To understand and summarize the differences in periodicity and cost of data collection, the necessary institutional arrangements for implementation, and the wide range of tools available

By the end of this session, you should be able to:
Prioritize geographic regions for SW, IDU, MSM prevention interventions, rapid roll-out of treatment and impact mitigation needs
Define a service delivery package according to needs for prevention, treatment, impact mitigation and strategic information (and program management??)
Use all available data to classify each geographic zone according to the necessary service delivery package
Prioritizing geographic regions for planning (Identifying needs by geographic region)

Overview: What is this session about?
The previous session emphasized the importance of estimating the number of people in need of HIV services and prioritizing those populations according to their potential attribution to the reversal of the epidemic. With recommendations for estimating the progression of new infections, people in need of ART and households affected by HIV (where the main income-earning family member is unable to work and the family is vulnerable to poverty or livelihood insecurity, due to AIDS).

This section discusses the importance and power of assessing and analyzing the geographic distribution and heterogeneity across and within countries in Asia. In addition to showing the importance of how to prioritize time and resources for HIV, this session will also highlight the need to use such geographic zones or administrative units as a basis for planning. This will require identifying the minimum needs for prevention, treatment, impact mitigation, strategic information, and overall management according to each individual geographic zone.

Warm-up Questions:
1) Geographic mapping of HIV prevalence or AIDS cases are helpful in preventing areas both for prevention and treatment.
   True    False

2) Mapping of prevalence of HIV prevalence is very difficult and too time-consuming to be used for a fast-growing HIV epidemic.
   True    False

What you will learn:
By the end of this session, you should be able to:

- Prioritize geographic regions for SW, IDU, MSM prevention interventions, rapid roll-out of treatment and impact mitigation needs
- Define a service delivery package according to needs for prevention, treatment, impact mitigation and strategic information (and program management??)
- Use all available data to classify each geographic zone according to the necessary service delivery package
Why is geography important?

Group discussion (30 minutes + 20 minutes plenary)

(This was presented as a panel discussion in the regional workshop, but it could be re-formulated as an exercise for discussion. Suggested questions and answers are provided.)

A. Figure ## is a map of HIV prevalence in India. Do you think this map is helpful in prioritizing programs? If yes, then how?

![Map of India](source: www.worldliveindia.com/maps.htm)

(green < 0.5%; yellow 0.5% - 1.0%, orange: 1.0% - 1.5%, red >1.5%)
(Source: Kumar, Jha, et. al., *Lancet*, April 2006)

The map shows clear distinction between green areas (where HIV is very low) and the red areas, which should be the high-priority areas in the most urgent need. The geographic heterogeneity of HIV is clearly shown in the map and allows us to rule out up to half of the country in terms of HIV priority.

Since HIV is not an indicator of the type of ongoing risk behaviors, it is still possible that prevention programs should be reaching some of the green areas, but further information is needed to confirm this. And in any case, this serves as an important rough division for prioritizing programs.
B. The next figure looks specifically at one state in Indonesia, East Kalimantan. What can you infer about the epidemic in this state from looking at this map? Where are the high-priority areas? What kinds of programs would you recommend?

![Similar geographical patterns among MARPs, East Kalimantan,](image)

The map for the East Kalimantan reinforces the point that risks tend to be quite focused and concentrated within small regions. Notice that for the most part, sex workers, their male clients, and men who have sex with men are all concentrated within a few districts; and injecting drug users are focused in an even smaller area - two very small districts within this state.

C. With an HIV prevalence of less than 0.5%, Pakistan still has a rather low-level HIV epidemic that is in constant danger of expansion but also provides great opportunity for early action to avert the epidemics. The country has not been mapped by district or by state, as we saw in India and Indonesia, but the behavioral and biological surveys conducted at several key sites has shown HIV rates and significant numbers of injecting drug users throughout the country, as shown. Based on the map given below, please answer the following questions.
What kinds of programs would you like to implement and where?

The most important areas are those that have large injecting populations – particularly those with some level of HIV: Faisalabad (13.3% HIV among 22,000 IDUs) and Sukkur (5.3% HIV in some 15,000 IDUs).

What is the next piece of information you would request for more effective programming?

If we go back and consider the general progression of the epidemic, we know that usually an IDU epidemic will precede a significant epidemic among sex workers and their clients. In those regions with high HIV prevalence, then, it is important to survey the number of sex workers and their male clients there, to prioritize sex worker prevention interventions among them: Sargodha, with 51.3% HIV among IDU; and Hyderabad and Karachi, each with HIV prevalence in IDUs around 30%.

Another suggestion may be to estimate the sizes of injecting drug user populations at all the sites surveyed. This is important and should be conducted, but because the extent of the epidemic will

How can you ensure that epidemics are not emerging in other regions of the country where no data is available? What kind of personnel or regular activities would need to happen in order to ensure that prevention and treatment services will be available for people in need?
Why do geographic prioritization?
As shown in country examples (above), maps can be used to identify those specific regions that are exhibiting high risk and require more urgent action on prevention or treatment.

Maps are clearly powerful as advocacy tools and providing insight into where the top priorities for the HIV program should be. When and where surveillance data are already available, maps can be drawn to show where high prevalence of risk and/or HIV are focused, in order to show the geographic regions in most urgent need for action.

But even more important is to plan and implement programs in terms of the geographic units identifies. There is a need to find a systematic way to estimate needs for and allocate resources to prevention, treatment, impact mitigation, strategic information and program management. Organizing information in this way provides a structure within which national programs can map available resources and plan how to allocate those resources, as shown below.

- 2.5 million PLHIV
- 165,000 reported AIDS cases, (March 07)

Category Definition

- A: >1% ANC/PPTCT prevalence in any time in any of the sites in the last 3 years
- B: <1% ANC/PPTCT prevalence in all the sites during last 3 years associated with >5% prevalence in any HRG group (STD/CSW/MSM/IDU)
- C: <1% in ANC prevalence in all sites during last 3 years with <5% in all STD clinic attendees or any HRG with known hot spots (Migrants, Truckers, Large aggregation of, Factory workers, Tourist etc)
- D: <1% in ANC prevalence in all sites during last 3 years with <5% in all STD clinic attendees or any HRG or No or Poor HIV Data With No Known Hot Spots/Unknown

To do this effectively, countries must make a concerted effort to collect data for every geographic area. In those areas where surveillance data are not available, there are rapid qualitative and quantitative studies that can be done to suggest the potential for an emerging HIV epidemic in those areas.

No globally- or regionally-endorsed simple tool or system is currently available for such classification. It requires a synthesis and analysis of all biological, behavioral, social, anthropological and demographic data available for that region. In this workshop, the guideline written for the Early Alert and Response System (EARS) suggests a methodology for this analysis and classification.
Such analysis is not new, but it often happens in a very ad-hoc fashion and the work may fall beyond the realm of responsibilities in most national programs. The logic and understanding required to interpret these data are not new; they align very closely to the principles and knowledge offered in the previous sessions of this workshop. The difference here is that data at the sub-regional (state, provincial, district, sub-district) level is very sparse, which requires a greater understanding of all the data - both the qualitative as well as the quantitative - and their epidemic and programmatic implications, in analyzing the data and recommending program action.

The first step is to choose a unit of analysis. Administrative units, such as districts, states, provinces or towns, are often a useful as a basic structure, because resources are often allocated in this way and also because other data are already organized according to such administrative units. Beyond this, there is also a need to look at zones stratified across such geographic administrative units. Sometimes, concentrated pockets of sex work will emerge at or near infrastructural projects or construction sites, where many workers have migrated away from their homes and families in rural areas. These zones are often spread across more than one administrative unit, and when the

**How is an administrative unit categorized?**

It is important to note that, since there are still no well-defined tools available for such analysis, the following will present a hypothesis that should work well, though it has not yet been implemented on a large-scale national level (excepting India, where they looked at only two pieces of data as a basis for a basic first-level of analysis).

**Prevalence and frequency of risky behaviors**

The first level of analysis will depend on whatever information and data are available, but ideally one important piece of data will be the availability of size estimates for each administrative unit. India, for example, has utilized a mapping study of all the sex workers in the country as a basis for current planning and allocation of resources. Similarly, the Philippines, is also commissioning a study to map all MSM in the country. These studies, however, are expensive and time-consuming; and, as mentioned in previous sessions, the epidemic will not stay 'on-hold' while we acquire the data to plan the response. While such studies being conducted, other data can still be used to guide the response.

Identifying the presence of an injecting problem, for example, does not require a precise count of the number of injectors; such information could be ascertained by discussions with key informants in the local community or through discussions with the police. Similarly, police or even the general community could easily identify whether local brothels exist or even which neighborhoods where street-based sex workers could be found.

Some of the broad indicators of the presence of risky behaviors include:

- High volume of drug trafficking/seizures/arrests
- Proximity to high volume cross border movement
- High proportion of general population men who buy sex
- High volume of in-migrant laborers separated from their families for long periods of time (e.g., industrial hub or agricultural area)
- Presence of sizeable transport hub/stopping point for truckers
- High volume of STI cases in general or high-risk populations

But, as we discovered in the earlier presentation on prioritizing for prevention, not all risk groups face the same level of risk. A district where sex workers see 2-3 clients per week is at faces a very different level of risk from an urban area where sex workers entertain 1-2 clients per night, and - especially when resources are particularly limited - should have different levels of priority in programs. Thus, it is important to obtain all kinds of information available: not simply size of most-at-risk populations, but also frequency and level of exposure to risk.
**HIV Prevalence and Burden of Disease**

Evidence or data on biological indicators of HIV among most-at-risk populations is also vitally important, as they can be used to determine whether treatment programs should be implemented, as well as whether and how different population groups might be prioritized. For example, we found (in the earlier presentation) that if the sex work epidemic has already taken off, there is an urgent need to ensure high levels of consistent condom use among sex workers and their clients. Providing needle exchange and drug substitution are also very important, but protecting this group, at this point, will have a much smaller impact on the overall epidemic than would the sex worker intervention. And, when resources are limited, it may be necessary to show a relative priority across such programs and geographic regions.

In the absence of high-quality HIV prevalence data according to most-at-risk population, there are a few ‘red flags’ or specific indicators that can be monitored as signals for implementing programs. For example, if there is a sudden spike in reported AIDS cases or if a cluster of new HIV infections are discovered in a sub-region, either of these may denote the need for closer scrutiny of the epidemic situation and intensified implementation of prevention and treatment programs.

A synthetic analysis of all the data described here should be conducted within the local context and environment, so that it is difficult to place numerical thresholds on the number of sex workers, IDU or MSM who would constitute a high-risk zone. Instead, it may be more useful to consider, the size of these groups relative to the total population - compared to the regional averages (FSW: 0.3% - 0.8% of adult women, high-risk MSM are 0.5% of adult men, IDUs are 0.5% of adult men, clients are 2% - 10% of adult men). Statistics that fall within or higher than these averages would indicate an ‘alert’ for prevention programs. Using both these thresholds for prevalence of risk and disease burden, most countries should be able to plot their programmatic needs into four types or regions:

1. **Driven by adult multi-partner sex**
2. **Driven by most-at-risk populations**
3. **Known High Risk**
4. **Known High Risk/High Disease Burden**

A synthetic analysis of all the data described here should be conducted within the local context and environment, so that it is difficult to place numerical thresholds on the number of sex workers, IDU or MSM who would constitute a high-risk zone. Instead, it may be more useful to consider, the size of these groups relative to the total population - compared to the regional averages (FSW: 0.3% - 0.8% of adult women, high-risk MSM are 0.5% of adult men, IDUs are 0.5% of adult men, clients are 2% - 10% of adult men). Statistics that fall within or higher than these averages would indicate an ‘alert’ for prevention programs. Using both these thresholds for prevalence of risk and disease burden, most countries should be able to plot their programmatic needs into four types or regions:
Each of these “types” is then linked to several important programmatic actions, depending on the most urgent and serious needs in that region. In the later sections on scaling-up and planning human resources for the response, we will see how these “types” can be used to identify and prioritize the budget, procurement and human resource requirements for each region.

<table>
<thead>
<tr>
<th>Presence of risk?</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unknown</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
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<table>
<thead>
<tr>
<th>Disease burden</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unknown</td>
<td>low-none</td>
<td>low-medium</td>
<td>Medium-high</td>
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<tr>
<th>Strategic information</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immediate field assessment, to classify the zone into one of the 3 remaining areas</td>
<td>Regular field assessments conducted to confirm that risk is low</td>
<td>(1) Baseline data collection, including size estimation, and some survey of biological and behavioral indicators, (2) setup of MIS for monitoring indicators; and (3) monitoring of referral for HIV-positive and/or AIDS cases</td>
<td>(1) Baseline data collection, including size estimation, and some survey of biological/behavioral indicators; (2) setup of MIS indicators; (3) monitoring of referral for HIV-positive or AIDS cases; (4) monitoring of referral for HIV-positive and/or AIDS cases/deaths; and (5) Community monitoring of AIDS death and focus for impact mitigation</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Risk reduction package</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
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<tbody>
<tr>
<td>Immediately saturate prevention program for most-at-risk populations by standardized prevention programmes (SHARP)</td>
<td></td>
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<tr>
<th>Treatment package</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
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<tbody>
<tr>
<td>Saturate the antiretroviral treatment programme by standardized packages (SHARP)</td>
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<tr>
<th>Impact mitigation package</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provide impact mitigation programmes through standardized packages (SHARP)</td>
<td></td>
<td></td>
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<td></td>
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</tbody>
</table>

Type 1: insufficient data  
Type 2: known low risk  
Type 3: known high risk and low disease burden  
Type 4: known high risk and high disease burden
Identifying the relative needs for prevention, treatment, impact mitigation, strategic information and program management in each administrative unit offers a simple method to estimate need and allocate budgets and resources to have the highest impact on the epidemic.

Before final allocation of budget and human resources, the national program and planning committee/commission must seriously assess and consider the feasibility of each project on-the-ground. This means assessing the capacity of implementing organizations or service providers, as well as the legal and policy environment – at both national and local level – with respect to the population groups and strategies being implemented. The specifics of this kind of assessment are discussed in much greater detail in later parts of this manual.
Prioritizing by geographic unit

20 minutes (group work) + 20 minutes (plenary discussion)

The table below summarizes information for different districts in one state of India, Orissa. (For purposes of keeping this exercise to the time allotted for the session, some districts have been omitted.) The data on “% pos,” come from the sentinel surveillance system. The mapping data provide size estimates for selected high risk groups. The FSW, IDU, and MSM populations were defined as populations who were visible, in particular the MSM groups were defined as those higher risk MSM who cruise in public sites for potential partners, including those who might sell sex. The estimation for trucker numbers were based on the approximate number of trucks on highways that pass through the district in a week. In-migrants are estimated as the number of male seasonal labourers who work in the district and are approximated by employers. See Table 1

1) Based on the data available categorize the districts according to the four typologies (no data, low risk, high risk-low disease burden, high risk-high disease burden.

Khordha – High risk – high disease burden
Puri – High risk – unknown disease burden
Cattack – high risk – unknown disease burden
Ganjam – In conclusive - Data quality issues?
Rayagada – High risk – Low disease burden
Balangir – Low risk, but need to investigate why ANC positivity is relatively high
Nabarangaphur – No information
Nawpara – High risk – unknown disease burden
Anugal – High risk – unknown disease burden
Sambalpur – High risk – unknown disease burden

2) What is most difficult about categorizing the districts with the information available in this table? How could this be addressed?

- Disease prevalence among high risk groups is not available in many places and this table does not provide information from data sources that can be used as proxies for disease burden (e.g. VCT data, AIDS cases, etc.). These data should be gathered from sites in each district on a regular basis.
- Without familiarity with these locations or the sources of data it is difficult to assess how reliable the information is and how to interpret information that may appear inconsistent. This underscores the need to involve local people who are familiar with the districts and the data sources in the process of prioritizing geographic areas.

3) Are the thresholds described in the presentation useful for this dataset. Do you think they should be adjusted?

(a) The thresholds presented are intended to provide some guidance rather than to present hard and fast rules.
(b) Data from multiple groups and sources should be taken together to categorize a geographic area.
(c) The flexibility of the threshold will also relate to the quality and precision of the data. For example, if your size estimates have large ranges, it does not make sense to retain very strict thresholds.
(d) The consistency of data from other risk groups or among sources will provide a stronger rationale than applying the thresholds on their own. For example in Nawpara, if there were very few sex workers and 111 IDU, it may be more appropriate to categorize the district as low risk. But the presence of both a moderate number of FSW and IDU suggests that the risk potential is higher than if the district only had IDU.

4) Look at Nabarangaphur district in the West Central Region. There is very little information for this district. If this were a district in your country, what sources of data would be easily available to help you categorize this district according to low risk, high risk-low disease burden, or high risk-high disease burden?

- Countries should consider sources such as: rapid assessments, talking to local health officers or NGOs working with high risk or marginalized groups, looking at HIV testing data or AIDS case data, drug arrests or drug trafficking areas that may indicate a sizeable group of FSW, MSM, or IDU; and/or some amount of infection among these groups.
- Programs should rely on readily available data initially and plan efforts to collect more rigorous and quantitative information where feasible.

5) Khorda district has been identified as a high risk-high burden district. It is also the location of the capital city of Orissa, Bhubaneshwar. Given the data in the table, what risk groups/intervention(s) would you prioritize?

(a) IDU appear to be the group of largest size and with moderately high HIV prevalence and should be prioritized.
(b) Even though the FSW group is not as large and the prevalence in 2006 was relatively low, there have been previous years in which FSWs have greater than 5% prevalence suggesting that HIV has already taken root in this population. Interventions for FSW should also be scaled up to stem the infections that could occur in large numbers, i.e. to male clients.
(c) Studies (e.g. IBBS) to look at risk practices and the overlap between injection and sexual networks would be important for fine tuning the intervention package of services and assessing the potential number of clients and downstream infections might occur without effective interventions.

A) What additional information would you like to have to decide what intervention(s) to prioritize?

- It would be good to assess the reliability of the size estimation data for both IDU and MSM. This may include getting more information about the methodology used including the operational definitions applied to each population. (e.g. whether direct and indirect SW were counted, whether IDU were ever or current injectors, whether MSM included only those cruising in public venues, or were limited to MSW or kothi (receptive partners), etc.
- If data for previous years were available it would be more reliable for determining whether infections are occurring in this population and whether there has been a recent rapid increase or if prevalence has been low for some time. Note: Trends from sentinel surveillance data must be interpreted with caution due to the small sample sizes. It is important not to over interpret data.
Table. Numbers and HIV prevalence of sub-population groups by district and by region in India, 2006.

<table>
<thead>
<tr>
<th>Region</th>
<th>District</th>
<th>ANC</th>
<th>STD</th>
<th>FSW</th>
<th>IDU</th>
<th>MSM</th>
<th>Trucker</th>
<th>In Migrants</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>% HIV</td>
<td>% HIV</td>
<td>Mapped No</td>
<td>% HIV</td>
<td>Mapped No</td>
<td>% HIV</td>
<td>Mapped No</td>
</tr>
<tr>
<td>East Coast</td>
<td>Khordha</td>
<td>0.25</td>
<td>2**</td>
<td>0.8**</td>
<td>371</td>
<td>10.4</td>
<td>1126</td>
<td>----</td>
</tr>
<tr>
<td></td>
<td>Puri</td>
<td>0.5</td>
<td>1.2</td>
<td>---</td>
<td>103</td>
<td>----</td>
<td>212</td>
<td>----</td>
</tr>
<tr>
<td></td>
<td>Malling</td>
<td>0.75</td>
<td>2.8</td>
<td>---</td>
<td>67</td>
<td>----</td>
<td>252</td>
<td>----</td>
</tr>
<tr>
<td>Southeast</td>
<td>Ganjam</td>
<td>3.25</td>
<td>5.2</td>
<td>---</td>
<td>66</td>
<td>----</td>
<td>5</td>
<td>----</td>
</tr>
<tr>
<td></td>
<td>Rayagada</td>
<td>0.5</td>
<td>---</td>
<td>1.2</td>
<td>433</td>
<td>----</td>
<td>0</td>
<td>----</td>
</tr>
<tr>
<td>Southwest</td>
<td>Malkangiri</td>
<td>--</td>
<td>---</td>
<td>NA</td>
<td>----</td>
<td>NA</td>
<td>----</td>
<td>NA</td>
</tr>
<tr>
<td>West</td>
<td>Balangir</td>
<td>1.25</td>
<td>---</td>
<td>87</td>
<td>----</td>
<td>94</td>
<td>----</td>
<td>0</td>
</tr>
<tr>
<td>Central</td>
<td>Nabarangaphur</td>
<td>--</td>
<td>---</td>
<td>NA</td>
<td>----</td>
<td>NA</td>
<td>----</td>
<td>NA</td>
</tr>
<tr>
<td>West</td>
<td>Nawpara</td>
<td>---</td>
<td>---</td>
<td>298</td>
<td>----</td>
<td>111</td>
<td>----</td>
<td>0</td>
</tr>
<tr>
<td>Central</td>
<td>Anugal</td>
<td>1.75</td>
<td>---</td>
<td>9</td>
<td>----</td>
<td>0</td>
<td>----</td>
<td>1005</td>
</tr>
<tr>
<td>North</td>
<td>Sambalpur</td>
<td>0.5</td>
<td>0.4</td>
<td>780</td>
<td>----</td>
<td>0</td>
<td>----</td>
<td>0</td>
</tr>
</tbody>
</table>

** HIV Prevalence > 5% in previous years
Need for data analysis for action

25 minutes (lecture) + 10 minutes (Q/A)

Review of data and analysis

Up to this point, you have learned about the urgent need for better and more systematic and strategic collection and use of data at the national and local levels, so that the response will stay ahead of the epidemic and so that we know we are advocating for the right response to reach our objectives – that is, a response that is certain to rapidly halt and reverse the epidemic and mitigate the impact.

Let us do a quick review of the kinds of information and data we would need for the type of classification described previously. As you know, to identify prevention needs requires estimates of sizes of most-at-risk populations and their geographic distribution. In addition, knowing HIV prevalence and related risk behaviors are also important to appropriately prioritize the epidemic.

If all these data are reliable and available over several years, they can be used to model the epidemic and ultimately be used for prioritization, running policy scenarios and advocating for the most effective, high-impact response.

At the administrative units, we need to consider all the behavioral, biological social and anthropological data available to us. This means enlisting not only epidemiologists, but also social-behavioral scientists and knowledgeable members of the local and affected communities, to get an accurate picture of the epidemic and its potential. It also requires an expert or team of experts to pull together all of this analysis and make conclusions about the epidemic to as a result.

In the previous exercise, for example, the northern district of Sambalpur clearly demonstrates the presence of sex work, but the information about HIV levels does not indicate a significant HIV epidemic in this region.

Beyond this, there remains data needs in several additional areas:

- Data collection and synthesis to model the epidemic trends and project its future.
- MIS data used in two ways: (1) evidence to determine elements of an effective response; and (2) as measures or indicators for evaluation, reform or revision of ineffective projects.
- Estimations of cost and other economic analysis in order to mobilize and allocate resources.
- Legal policy environment, in terms of cases of discrimination or places where access to services is barred because of legal policies.

In light of all these data and their breadth in scope, consider the following:

(1) What are the characteristics or competencies of such a person or team to conduct that analysis?
(2) Do such competencies currently exist in your national AIDS program? In the Ministry of Health?

Clearly, there is a need for a new person/team or need for restructuring or a new organizational structure to effectively synthesize and analyze the data, report on it and ensure that it is utilized in planning and policy-making (revisited in the human resource section).
(1) Does your national plan identify the geographic regions (according to administrative unit) that should be the high priority and focus of the response? If so, please cite the reference or source for these data, analysis and conclusions.

(2) Based on the techniques and principles taught in this session, provide any evidence of geographic prioritization in your country. Are any maps available that may provide some guidance on what programs to prioritize and in which geographic zones?

(3) If maps of HIV or risk behavior data are not available, have any zones or geographic areas been specified as high priority for prevention, treatment or impact mitigation? What evidence did you use to set such prioritization?

(4) Has the national plan given specific priority to different geographic regions—
   a. Through the allocation of budgets?
   b. Through intense implementation and coverage?

(5) Would you change the current geographic prioritization as given in your plan, based on what you have learned? What might you change the country’s current level of geographic prioritization to improve focus of the plan? What additional data or information might you want to obtain, in order to make a better-informed decision?
4. STANDARD PACKAGE

Contents:
Identifying effective interventions with elements of the standard halt and reverse package (SHARP) - to be written / confirmed
Elements of a standard halt and reverse package (SHARP) for prevention, treatment and impact mitigation – Swarup Sarkar

Learning Objectives:
To understand the evidence for elements of interventions in different settings and among different most-at-risk populations
To know why and how interventions do not result in the desired impact on the epidemic (the need for – standard definitions of an intervention; elements of intervention for most-at-risk populations; quality criteria for each activity of the intervention; scale of coverage required to create the population effect)
To know which interventions are ineffective yet popular and to understand the strategy to move funding away from some of those activities.

By the end of this session, you should be able to:
Articulate the need for – standard definitions of an intervention; elements of intervention for most-at-risk populations; quality criteria for each activity of the intervention; scale of coverage required to create the population effect
Design an effective intervention, based on the four common elements for effective interventions
Standard halt-and-reverse package (SHARP) for prevention, treatment and impact mitigation

Overview: What is this session about?
Over the past 3 days, you have learned the arguments why:
(1) HIV epidemics in Asia are focused among MARPs
(2) Within MARPs, there are varying levels of risk which we can use to prioritize (e.g., IDU/SW interface)
(3) HIV risks and disease burden tend to be very focused in 'hot spots' or specific states or districts in the country
(4) Administrative and/or service delivery units can be prioritized and categorized according to their prevention (SW/MSM/IDU), treatment, impact mitigation and strategic information/surveillance and program management needs

Now that we have identified the priorities for prevention, treatment and impact mitigation according to geographic region, we can look at what goes into each of these programs and even into a single intervention to be implemented.

But identifying the right priorities is only half the battle. This section presents why intervention elements must be based in evidence and must meet some minimum quality criteria. It will cover the following areas:
- Why is it necessary to set an intervention standard?
- How to recognize an effective intervention: key criteria for assessment
- What are the evidence-based elements of intervention identified?
- In what ways are these elements further tailored according to the local situation?

Warm-up Questions:
1. Programs for each most at risk population are mainly:
   - Common in nature
   - Dissimilar in nature

2. Treatment programs cannot be standardized.
   - True
   - False

3. The primary objective of HIV prevention for sex workers is:
   a. To eliminate the demand and presence of sex work
   b. To minimize sex workers' risk of acquiring HIV through condom use
   c. To empower sex workers so that they can find other work
   d. To eradicate the unlawful trafficking of under-aged sex workers
   e. Other (please specify):

What you will learn:
By the end of this module, you should be able to:
- Articulate the need for - standard definitions of an intervention; elements of intervention for most-at-risk populations; quality criteria for each activity of the intervention; scale of coverage required to create the population effect
- Design an effective intervention, based on the four common elements for effective interventions
- Describe the rationale for using a standard interventions approach
- Understand what makes an most at risk intervention effective
- Describe the common elements and the standard specification that are necessary for any prevention intervention with high risk group
- Know what other interventions can negatively act on effective interventions
Elements of Intervention and their Standards
Prevention for most-at-risk populations

25 minutes (lecture) + 10 minutes (Q/A)

This presentation brings together evidence and generalizes the main elements and the quality specifications required for prevention interventions for most-at-risk populations.

Up to this point, we have learned how to prioritize sub-populations according to their current and potential contribution to the epidemic; and how to identify geographic zones that should serve as a priority for prevention, treatment, or impact mitigation, according to their behavioral and biological profile.

Prioritizing interventions, though important, is not sufficient to address the epidemic. We must make sure that interventions are designed and delivered following a standard that is based in evidence and will have an impact on the epidemic. The following examples provide some better context as to why.

Minimum coverage for Impact
Consider Sonagachi: a small but widely successful project, which empowers sex workers to educate and provide support to their peers for all HIV-related services - prevention, treatment and impact mitigation. This project has proven very effective in this environment, rapidly increasing condom use among sex workers from 20% to over 80% within the span of only 5 years. However, the project covers only one small proportion of a very large sex work epidemic that is prevalent in much of India. So the success of Sonagachi has not translated into a high overall effectiveness or significant impact of sex worker component of the response for India.

Evidence from the field, as well as through epidemiological models (AEM), has demonstrated that epidemic reversal is observed when some 50-60% of the relevant population has adopted safer behaviors.

Need for Quality Standards
On the other hand, reporting high coverage has low overall effectiveness, with little impact on the epidemic if in the quality of interventions is poor.

When submitting reports, many countries claim high levels of coverage of services; however, the definition of “one sex worker reached” can range from a sex worker who has been arrested, to an STI screening by a doctor, to a sex worker has been counseled and who fully understands the need for condoms and can effectively negotiate use of a condom with her client. The first countries to provide needle exchange and drug substitution as harm reduction efforts in this region, still observed rapidly rising levels of HIV in the IDU population - primarily because the frequency and accessibility were not insufficient.
Without a program that is able to clearly define intervention elements and their quality standards, and provide these elements at a large enough scale, it will be impossible to have a significant impact on the epidemic.

But common elements and quality standards do exist, based on existing evidence from the region. This knowledge and evidence (presented here) can and should be applied to planning, as a basis for designing effective interventions.

So, the question is then: what are the minimum standards for different interventions? And what evidence do we have to support the effectiveness of these interventions?

**What works: Prevention for Injecting Drug Users**

Evidence in harm reduction has shown that programs should include as a minimum four major components:

- **Peer education:** Studies from South Asia (Bangladesh, India) demonstrate that peer educators are able to easily reach the target groups, because they know where to look and because they are part of the community themselves. In India, peer educators were able to reach 80% of IDUs in a project site within 6 months, whereas strategies that utilized police, community leaders, family members or religious groups could reach no more than 25% of the IDUs.

- **Needle and syringe exchange:** The data from Calcutta shows that needle and syringe exchange programs are effective at keeping HIV and other BBS indicators, like Hepatitis B, low among injecting population. In addition, the evidence does not show that these programs will promote more frequent or greater drug use, as is sometimes argued.

- **Drug substitution therapy:** Evidence from a methadone substitution project, implemented through the Bangkok Metropolitan Authority (BMA), has demonstrated and impact in terms of lower HIV in the covered IDU population, as compared to the IDU population in the country as a whole, which indicates a need to replicate and scale-up this project to reach all IDUs. Data from China also reinforce the support of substitution clinics.

- **Enabling environment:** especially since drug use is illegal, it is essential that local implementing agencies and projects can advocate with local leaders, law enforcement and the community at large in order to facilitate more effective provision of and access to HIV-related services.

  Enabling environment is more than legal support and protection, however. The injector himself often has more urgent needs that surpass his concerns for protecting himself from HIV. For example, many injectors may spend their time and money on seeking prevention and treatment services for abscesses and Hepatitis, if such services are not readily available to them. It is important that, in order to address these issues, the affected community is centrally involved in the design and implementation of these interventions.

**What Doesn’t Work: Prevention for Injecting Drug Users**

Just as it is important to look at the evidence and recognize which are effective at changing behaviors and making an impact on the epidemic, it is equally important to study the evidence that excludes other politically popular strategies for providing prevention for injecting drug users. The three that we look at here are: arrest of drug users, mass testing, and education and awareness, without provision of tools and services.
First, we all know very well that drug use is illegal in all Asian countries, with penalties ranging from fines and forced rehabilitation, to imprisonment and execution.

But using arrest as a method for reducing drug use, or reducing drug related harms, are not effective. In one country, the heightened seizure of heroine and arrest of drug users, has deterred people from entering detoxification clinics; whereas once there was some moderation and understanding of the arrests, IDU felt more comfortable to approach detoxification centers.

Furthermore, of 50% of IDUs who have a criminal record and have been imprisoned, some 90% return to injecting drug use after their release.

Mass testing has also been shown to have no significant effect on changing behaviors of most-at-risk populations. A study of injecting drug users showed that knowing one’s status did not influence the level of needle sharing (69.4% among people who knew their status versus 71% among people who did not know).

What works: Prevention for Sex Workers, Part I – Peer Education Intervention

Like for injecting drug users, evidence in prevention programs for sex worker has demonstrated the need for 4 components as well:

- Peer education: Studies from a Bangladesh and India have shown that peer education is one of the most effective programs to transfer knowledge and encourage sex workers to use condoms.

- Condom distribution: Commodities need to be community-friendly. Low levels of behavior change may be a result of lack of access. In one study, the times when most condom shops are not open at the times when sex workers are most likely to purchase them; so it is important that instead, there is some method of condom distribution, through peer educators or outreach-workers.

- STI screening and early treatment: Community involvement and ownership are integral to effectively providing these services. An article in one Bangladesh (Indian?) paper documents that, a Government-run STI-clinic that was set up near a brothel, so that it could specifically provide greater access to STI services for sex workers and their clients; but it took two years before the sex workers would approach the clinic. At the same time, similar STI clinics that were managed by sex workers themselves were immediately successful, because of the inherent trust between the sex workers who are patients, and their peers who are managing the clinics.

- Enabling environment: as with drug user, since sex work is illegal, the need for a supportive enabling environment is essential to ensure that local implementing agencies and target beneficiaries can safely access and utilize services without fear of arrest or harassment. Activities in both cases are similar, with cooperation from law enforcement and local leaders as the highest priority, and urgent needs of sex workers often including child care during the night when they are working.

What works: Prevention for Sex Workers, Part II – Structural Intervention

Another successful and widely cited program of a sex worker intervention is the success of the 100% condom use program (CUP), which has shown great success in Thailand. This program had intervention components targeting both female sex workers and their male clients, which had a reinforcing impact on the epidemic. The success of the program, however, did require several conditions facilitated effective implementation:

- Coverage of all brothels approached: in negotiating and informing brothel owners or managers about why condoms are necessary and the dangers of HIV; if certain brothel owners or managers are not involve in enforcing condom use, then male clients of sex workers are much more likely to visit the agents who are less strict;
• Regular STI Screening for all sex workers: when sex workers are allowed to work only under the condition that they have been certified as negative for any STIs, including HIV, women quickly understand the importance and need to always use condoms with their clients.

• Close commitment by the police at a very high political level, and collaboration between police and public health officials at the local level: an extension of the enabling environment, it is important that police and public health officials and service providers agree to work together for the purpose of reducing HIV spread, and police agree to allow HIV prevention activities to continue, without the mass arrest of sex workers or peer educators when they are providing condoms or some other prevention activity.

• Working through brothels and in a setting that is sensitive to both social stigma and police harassment means that it is important that corruption and bribing do not exist or are kept at an absolute minimum.

How do we assess which type of intervention (peer education or structural) is best for your setting and situation? In an ideal setting, both types of interventions are needed and effectively reinforce each other, but since resources are limited, it is important to assess the feasibility for each. Structural interventions are most effective in an organized setting - when female sex workers live or work in brothels and when policy change or broad social change is possible.

**What works: Prevention for Male Clients of Sex Workers**

Little evidence exists for successful projects to change behaviors among men visiting sex workers. In many settings - particularly when resources are limited - effective sex worker interventions are understood to change the behaviors of these men. The only successful male client intervention was the mass media campaign implemented in Thailand. Under a military rule, the Thai government dedicated a few minutes of every 1 hour of airtime on the television and radio stations, to inform people about the dangers of HIV and why men should use condoms when they visit sex workers. A major part of the success was that the message was nonjudgmental, but practical in its approach. As a result of both this program and the sex worker intervention, the number of men who regularly visited female sex workers was reduced by half.

In summary, all intervention should have four common elements, plus built-in monitoring and evaluation of the program. These common activities involved and the relative quality standards are given here, while possible specifics for each individual convention are also given as an annex to this session.
<table>
<thead>
<tr>
<th>Activity</th>
<th>Sub-activity</th>
<th>Quality and Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Behavior change communication</strong></td>
<td>Outreach activities</td>
<td>bi-weekly</td>
</tr>
<tr>
<td></td>
<td>Training of PEs and trainers</td>
<td>once every 3 months; or based on extent of PE-ratio of PE to beneficiary; frequency of education—should be high if the group is marginalized, hidden or hard to reach</td>
</tr>
<tr>
<td></td>
<td>Development and distribution of communication (IEC) materials</td>
<td>once a month</td>
</tr>
<tr>
<td></td>
<td>Community reinforcement of behavior change through events</td>
<td>once every 3 months</td>
</tr>
<tr>
<td><strong>Prevention Commodities</strong></td>
<td>Delivery of prevention tools</td>
<td>based on local data for calculating need, according to prevalence or annual episodes of STDs, number of clients per night, number of injections per day, etc.</td>
</tr>
<tr>
<td></td>
<td>Provision of condoms</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Provision of lubricants</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Provision of needles and syringes</td>
<td></td>
</tr>
<tr>
<td><strong>Prevention Treatment</strong></td>
<td>Treatment of sexually transmitted infections</td>
<td>Specialist services that are non-judgmental and are open during times convenient to the target population</td>
</tr>
<tr>
<td></td>
<td>Methadone/Buprenorphine drug substitution therapy</td>
<td>Treatment centers should be nonjudgmental and should provide open access to treatment and care for anyone in need</td>
</tr>
<tr>
<td><strong>Enabling Environment</strong></td>
<td>Reaching out to local decision-makers in the communities to strengthen and support community-based interventions</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Establishing understanding and cooperation in local (physical surrounding?) communities regarding HIV/AIDS programs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Involvement of target community addressing needs, involvement in decision-making of all project activities</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Identification of local power structures, assessment of local opinion leaders, law and order, personnel, advocacy with local leaders, power holders and law/order personnel at regular intervals</td>
<td>Once a week to begin with, once a month later</td>
</tr>
<tr>
<td></td>
<td>Social mobilization of target community and group formation, addressing community needs</td>
<td>Baseline and ongoing</td>
</tr>
<tr>
<td><strong>Monitoring and Evaluation</strong></td>
<td>Continued measurement of coverage, knowledge and behavior change, utilization of local staff and PEs for regular revision of program</td>
<td>Once a month monitoring and baseline, mid-term and three-yearly evaluations</td>
</tr>
</tbody>
</table>
Based on the information provided to you in the presentation, design an intervention for a most-at-risk population that is relevant to your setting. Make sure that you clearly identify the frequency, partner or implementing agency and indicators for monitoring and evaluation of the quality for each element, as well as a brief summary of the evidence or other justification for each. The tables that follow also provide a guide as to what some of the specifications in each of the columns here could be.

Intervention for _____________________________ in _______________________________

<table>
<thead>
<tr>
<th>Element</th>
<th>Activity</th>
<th>Specific Type</th>
<th>Provider</th>
<th>Frequency/ Periodicity</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behavior change</td>
<td>Prevention</td>
<td>Prevention</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>prevention</td>
<td>Commodities</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prevention</td>
<td>Treatment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enabling</td>
<td>Environment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project management</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monitoring and Evaluation</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>
### Injecting Drug Users: Peer-education based

<table>
<thead>
<tr>
<th>Specific type</th>
<th>Provider</th>
<th>Periodicity</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td>Peer education</td>
<td>CBO</td>
<td>once per week</td>
</tr>
<tr>
<td>NGO outreach</td>
<td>NGO</td>
<td>once in a fortnight</td>
<td></td>
</tr>
<tr>
<td>NGO education</td>
<td>Mix (specify)</td>
<td>once in 6 months</td>
<td></td>
</tr>
<tr>
<td>Needle Syringe</td>
<td>Distribution</td>
<td>NGO</td>
<td>Twice/day</td>
</tr>
<tr>
<td>Program</td>
<td>Exchange</td>
<td>CBO</td>
<td>once a day</td>
</tr>
<tr>
<td></td>
<td>thru Pharmacy</td>
<td>Government</td>
<td>bi-weekly</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mix (Specify)</td>
<td>weekly</td>
</tr>
<tr>
<td>Drug Substitution</td>
<td>Buprenorphine</td>
<td>NGO</td>
<td>20% - 100% of population (Dosage: )</td>
</tr>
<tr>
<td></td>
<td>Methadone</td>
<td>Government</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mix (Specify)</td>
<td></td>
</tr>
<tr>
<td>Enabling Environment</td>
<td>Self-organization</td>
<td></td>
<td>Guided by the community</td>
</tr>
<tr>
<td></td>
<td>Provider/ beneficiary immunity</td>
<td>CBO</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Local advocacy</td>
<td>NGO</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Legal provision</td>
<td>Government</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Involvement of police</td>
<td>Mix (Specify)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Strong political commitment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project-level</td>
<td>Training of staff</td>
<td>CBO</td>
<td>Guided by the community</td>
</tr>
<tr>
<td>Management</td>
<td>Supervision of implementation</td>
<td>NGO</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Government</td>
<td></td>
</tr>
<tr>
<td>Project-level</td>
<td>Output monitoring (condoms/needles distributed, STI or drug substitution treatment provided)</td>
<td>Peer educators</td>
<td>Weekly</td>
</tr>
<tr>
<td>Monitoring</td>
<td></td>
<td>Implementing NGO</td>
<td>Quarterly</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Managing NGO</td>
<td>Annually</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Govt staff</td>
<td>Every three years</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Data used for mid course correction by the community</td>
</tr>
</tbody>
</table>
### Men who have Sex with Men: Peer-education based

<table>
<thead>
<tr>
<th>Specific type</th>
<th>Provider</th>
<th>Periodicity</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Education</strong></td>
<td>Peer education</td>
<td>CBO</td>
<td>once per week</td>
</tr>
<tr>
<td>NGO outreach</td>
<td>NGO</td>
<td>once in a fortnight</td>
<td></td>
</tr>
<tr>
<td>NGO education</td>
<td>Mix (specify)</td>
<td>once per month</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>once in 3 months</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>once in 6 months</td>
<td></td>
</tr>
<tr>
<td><strong>Condoms</strong></td>
<td>Distribution</td>
<td>NGO</td>
<td>Twice/day</td>
</tr>
<tr>
<td>Vendors</td>
<td>CBO</td>
<td>once a day</td>
<td></td>
</tr>
<tr>
<td>Social Marketing</td>
<td>NGO</td>
<td>bi-weekly</td>
<td>bi-weekly</td>
</tr>
<tr>
<td></td>
<td>Government</td>
<td>weekly</td>
<td>weekly</td>
</tr>
<tr>
<td><strong>Lubricants</strong></td>
<td>Distribution</td>
<td>NGO</td>
<td>Twice/day</td>
</tr>
<tr>
<td>Exchange</td>
<td>CBO</td>
<td>once a day</td>
<td></td>
</tr>
<tr>
<td>Social Marketing</td>
<td>NGO</td>
<td>bi-weekly</td>
<td>bi-weekly</td>
</tr>
<tr>
<td></td>
<td>Government</td>
<td>weekly</td>
<td>weekly</td>
</tr>
<tr>
<td><strong>STI Treatment</strong></td>
<td>Gonorrhea</td>
<td>NGO</td>
<td>1-2 visit / year</td>
</tr>
<tr>
<td></td>
<td>Government</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Enabling Environment

- Self-organization
- Provider/ beneficiary immunity
- Local advocacy
- Legal provision
- Involvement of police
- Strong political commitment

### Project-level Management

- Training of staff: CBO
- Supervision of implementation: NGO

### Project-level Monitoring

- Output monitoring (condoms distributed, STI treatment provided) outcome monitoring (STI reduction, condom use): Peer educators, Implementing NGO, Managing NGO, Govt staff

- Guided by the community
- Data used for mid course correction by the community
### Sex Worker: Peer-education based

<table>
<thead>
<tr>
<th>Specific type</th>
<th>Provider</th>
<th>Periodicity</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td>Peer education</td>
<td>CBO</td>
<td>once per week</td>
</tr>
<tr>
<td></td>
<td>NGO outreach</td>
<td>NGO</td>
<td>once in a fortnight</td>
</tr>
<tr>
<td></td>
<td>NGO education</td>
<td>Mix (specify)</td>
<td>once per month</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>once in 3 months</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>once in 6 months</td>
</tr>
<tr>
<td>Condoms</td>
<td>Distribution</td>
<td>NGO</td>
<td>Twice/day</td>
</tr>
<tr>
<td></td>
<td>Exchange</td>
<td>CBO</td>
<td>once a day</td>
</tr>
<tr>
<td></td>
<td>Vendors</td>
<td>Government</td>
<td>bi-weekly</td>
</tr>
<tr>
<td></td>
<td>Social Marketing</td>
<td>Mix (Specify)</td>
<td>weekly</td>
</tr>
<tr>
<td>STI Treatment</td>
<td>Syphilis</td>
<td>NGO</td>
<td>1-2 visit / year</td>
</tr>
<tr>
<td></td>
<td>Chlamydia</td>
<td>Government</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gonorrhea</td>
<td>Mix (Specify)</td>
<td></td>
</tr>
<tr>
<td>Enabling Environment</td>
<td>Self-organization</td>
<td>NGO</td>
<td>(mostly ongoing),</td>
</tr>
<tr>
<td>Provider/ beneficiary immunity</td>
<td>Government</td>
<td></td>
<td>Reaching once in three months</td>
</tr>
<tr>
<td>Local advocacy</td>
<td>Opinion leaders</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Legal provision</td>
<td>Police</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Involvement of police</td>
<td>Non-health ministry</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strong political commitment</td>
<td></td>
<td></td>
<td>Guided by the</td>
</tr>
<tr>
<td>Project-level Management</td>
<td>Training of staff</td>
<td>CBO</td>
<td></td>
</tr>
<tr>
<td>Supervision of implementation</td>
<td>NGO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Government</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project-level Monitoring</td>
<td>Output monitoring (condoms distributed, STI treatment provided)</td>
<td>Peer educators</td>
<td>Weekly</td>
</tr>
<tr>
<td></td>
<td>Outcome monitoring (STI reduction, condom use)</td>
<td>Implementing NGO mother NGO</td>
<td>Quarterly</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Govt staff</td>
<td>Annually</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Every three years</td>
</tr>
</tbody>
</table>
### Sex worker: Structural Intervention

<table>
<thead>
<tr>
<th>Specific type</th>
<th>Provider</th>
<th>Periodicity</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brothel owners’ involvement</td>
<td>Medical department and politicians</td>
<td>once every 3 months</td>
<td>100% brothel coverage</td>
</tr>
<tr>
<td></td>
<td></td>
<td>once every 6 months</td>
<td>Disincentive for violation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>No bribing</td>
</tr>
<tr>
<td>Police Involvement</td>
<td>Medical department and politicians</td>
<td>once every 3 months</td>
<td>Senior police involvement</td>
</tr>
<tr>
<td>Health department involvement</td>
<td>AIDS program</td>
<td>once every 3 months</td>
<td>Quality criteria for STI, HIV established</td>
</tr>
<tr>
<td>Screening for STI/HIV</td>
<td>Sex-work friendly STI clinics</td>
<td>once every 3 months</td>
<td>Quality of STI treatment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>once every 6 months</td>
<td>Pre- and Post-test counseling</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>w/confidentiality</td>
</tr>
<tr>
<td>Sex worker education</td>
<td>Medical department and NGOs</td>
<td>once every 3 months</td>
<td>No harassment</td>
</tr>
<tr>
<td>Politician’s support</td>
<td>Senior ministry official’s involvement</td>
<td>once every 3 months</td>
<td>NGO involvement</td>
</tr>
<tr>
<td></td>
<td></td>
<td>once every 6 months</td>
<td>Enabling environment</td>
</tr>
</tbody>
</table>

### Male clients of female sex worker: Mass media intervention

<table>
<thead>
<tr>
<th>Client</th>
<th>Specific type</th>
<th>Provider</th>
<th>Periodicity</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td>Explicit message on condom use with sex workers</td>
<td>Government Marketing company</td>
<td>Daily</td>
<td>Prime-time</td>
</tr>
<tr>
<td>Mass media</td>
<td></td>
<td></td>
<td></td>
<td>Nonjudgmental message</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Explicit message</td>
</tr>
<tr>
<td>Workplace interventions</td>
<td>Awareness only programs</td>
<td>NGO</td>
<td>once every 3 months</td>
<td>Non-judgmental</td>
</tr>
<tr>
<td></td>
<td>Explicit message on condom use with sex workers</td>
<td>Industry</td>
<td></td>
<td>Linked with services</td>
</tr>
<tr>
<td></td>
<td>Condom demonstration</td>
<td>Government</td>
<td>once every 6 months</td>
<td>incentive for remaining un-infected</td>
</tr>
</tbody>
</table>
Elements of Intervention and their Standards  
Antiretroviral Therapy (ART) Treatment  
25 minutes (lecture) + 10 minutes (Q/A)

This presentation should go through some of the basic elements of treatment programs, which should also include clinical guidelines for when to start treatment, drug regimens for first- and second-line treatment therapy and laboratory and clinical assessment requirements. In addition, it also provides examples of supportive environment, which include: provision of transportation to the clinics to ensure attendance and organization of positive people’s network for social support.

(all clinical information provided below is adapted from: WHO, 2006 revision of Antiretroviral therapy for HIV infection in adults and adolescents in resource-limited settings: Towards Universal Access, Recommendations of a public health approach)

Clinical guidelines would include:

In deciding **when to begin treatment**, the following recommendations are given for settings where laboratory testing may or may not be available.

<table>
<thead>
<tr>
<th>WHO Clinical Stage</th>
<th>CD4 Testing not available</th>
<th>CD4 Testing available</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (Asymptomatic)</td>
<td>Do not treat</td>
<td>Treat if CD4 count is below 200 cells/mm³ (a)</td>
</tr>
<tr>
<td>2 (Mild)</td>
<td>Do not treat</td>
<td>Consider treatment if CD4 count is below 350 cells/mm³ (a), (c), (d) and initiate ART before CD4 count drops below 200 cells/mm³ (e)</td>
</tr>
<tr>
<td>3 (Advanced)</td>
<td>Treat</td>
<td>Treat irrespective of CD4 cell count</td>
</tr>
<tr>
<td>4 (Severe)</td>
<td>Treat</td>
<td></td>
</tr>
</tbody>
</table>

To ensure that **clinical and laboratory monitoring** should include the elements described below, and should every 6 months, while some specific laboratory tests can be conducted on a case-by-case basis, depending on the patient’s health (see Table 3).

<table>
<thead>
<tr>
<th>Clinical assessment at baseline</th>
<th>Laboratory assessment at baseline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical staging of HIV disease</td>
<td>Pregnancy test in women if initiation of EFV is being considered</td>
</tr>
<tr>
<td>Determination of concomitant medical conditions (e.g., HBV, HCV, TB, pregnancy, injecting drug user, major psychiatric illness)</td>
<td>Screening for TB and malaria (and diagnostic testing for other co infections and opportunistic diseases were clinically indicated)</td>
</tr>
<tr>
<td>Diagnosis and monitoring laboratory tests</td>
<td>Frequency/Quality Pre-ART (at entry into care)</td>
</tr>
<tr>
<td>-----------------------------------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>HIV diagnostic test</td>
<td>Once for test + once for confirmation</td>
</tr>
<tr>
<td>Haemoglobin</td>
<td></td>
</tr>
<tr>
<td>WBC and differential</td>
<td></td>
</tr>
<tr>
<td>CD4 cell count</td>
<td>Patients who are not yet eligible for ART should be monitored with measurement of CD4 every 6 months. For patients who develop WHO stage 2 events, or whose CD4 measurements approach threshold values, the frequency of CD4 measurement can be increased.</td>
</tr>
<tr>
<td>Pregnancy testing</td>
<td></td>
</tr>
<tr>
<td>Full chemistry (including, but not restricted to, ALT, other liver enzymes, renal function, glucose, lipids, amylase, lipase, lactate and serum electrolytes)</td>
<td></td>
</tr>
<tr>
<td>Viral load measurement</td>
<td></td>
</tr>
</tbody>
</table>
Regimens for first- and second-line treatment

According to WHO and GDG, the recommended **first-line regimen** for adults and adolescents contains two NRTIs (nucleoside reverse transcriptase inhibitors) + one NNRTI (non-nucleoside reverse transcriptase inhibitors), with suggestion for the following regimen:

(1) Preferential two NRTI/NNRTI approach is based on the combination of three drugs: 2 NRTIs with either NVP or ERV as the NNRTI
(2) Preferred NRTI to be combined with 3TC or FTC in standard first-line regimens
(3) Triple NRTI approach can be considered as an alternative for first-line regimens in situations where NNRTI options provide additional complications

WHO offers the following suggestions for programmes wishing to start or maintain an ARV rollout with an NNRTI-based regimen:

Choose NVP or EFV as the primary NNRTI; both should be available for mutual substitution for toxicity and for issues related to drug choice in pregnancy and TB.
Choose either 3TC or FTC. It is not necessary to stock both.
Choose one companion NRTI to combine with 3TC or FTC in order to construct the two NRTIs component of the regimen, and an alternative for substitution.

For **second-line regimens**, a ritonavir-boosted PI (e.g. ATV/r, FPV/r, IDV/r, LPV/r or SQV/r) is recommended as the core of the second-line regimen.

(1) Ritonavir-boosted PIs are the key components in second-line regimens and their use should be reserved for such situations.
Where cold chain storage is not available, NFV can be used as the PI component, though it is considered less potent than an RTV-boosted PI.
(2) 3TC (±AZT) is included for strategic use as resistance to both drugs is predicted to be present following failure on the respective first-line regimen listed.

Enabling Environment and Social Support

Even when ARV drugs, and laboratory and monitoring tests are provided free of charge through Government facilities, many people who need to begin treatment are less likely to initiate treatment when the clinics that dispense antiretroviral drugs and conduct laboratory tests are located far from their residence or workplace, and clinic visits could result in missing a half-day of work or more. To ensure that these needs are sufficiently met, it is necessary to also include support systems and an enabling environment that facilitates greater utilization of testing and treatment services available. Activities would include: provision of transportation to the clinics to ensure attendance and organization of positive people’s network for social support. (A few examples exist from Nepal, Thailand.)
Elements of Intervention and their Standards

Impact Mitigation

This section will present the rationale behind the need for impact mitigation programs (i.e., socio-economic impact, with particular emphasis on impacts on women and children, who should be the focus of impact mitigation programs). The presentation will also present evidence of existing successful programs before suggestion the four key elements necessary for any effective program that will mitigate the impact of AIDS on affected households.

Rationale and Need for Impact Mitigation: the Impacts of AIDS in the region

Because HIV is a long-term disease, its impacts are also delayed and may not be observed until several years later. When a person becomes infected with HIV, he or she may be asymptomatic for several years, and will only die a few years after that (depending on whether treatment is also provided).

The epidemic in Asia has been present for long enough to observe its impacts today. Projections of the future impacts of the epidemic show that it is the largest disease-related cause of death among the most productive proportion of the population (15-44 year-old age group).

But the primary focus and burden of AIDS is at the household level. If the person living with HIV is also the primary income earner in the household or family, when his or her health declines, then income of the family will be lost and other members may have to leave school or other responsibilities in order to find a job and earn income from alternative sources – to replace the lost income as well as to cover additional costs of treatment and care.

Who bears the impact of AIDS in Asia?

The previous sessions have demonstrated how focusing on most-at-risk populations can avert large-scale epidemics. But on closer examination, it is the men who visit sex workers who make up the bulk of people living with HIV. It is, in fact, the women and children – the families of these men – who are most affected by AIDS deaths. This burden becomes quite early in the epidemic; as can be seen as the blue bar in the figure below.
As women are also the main caregivers in their households, it is important to ensure their livelihood sustainability and support their families. Protection of women who lose their husbands to AIDS is important, as they are often stigmatized by the community. One study in South Asia showed that some 80% of women living with HIV were forced to leave their homes after losing their husbands to AIDS.

Similarly, children who are orphaned by AIDS are often stigmatized should also be given support. The families who support AIDS orphans should receive subsidies for education as well as other essentials, such as food and clothing.

**Essential components of an Impact Mitigation Program**

Thus, any impact mitigation program should include four essential components:

- **Income support for affected households:** Support should show particular focus on women, who often face the burden of caring for the home and sustaining their income after her husband’s death. One example of a micro-credit project – the Positive Partnership Project – was implemented specifically for people living with HIV, and provided good evidence of success, with most recipients paying off their $1000 loan within the first 5-10 years of receiving it.

- **Support for households caring for HIV orphans:** Families who care for orphans may face additional stigma and should be provided subsidy to pay for the added costs. Such support systems are very common in broad social welfare programs for orphans, and it makes sense for AIDS-related programs to be incorporated into these, to save costs and reduce discrimination against affected families.

- **AIDS care incorporated into social security schemes or existing providers:** Since macro-level impact of AIDS is still very low in Asia, it is not cost-effective to initiate targeted programs to mitigate the impact of AIDS. The stigmatized nature of HIV also suggests that vertical programming for HIV would only bring greater attention to people accessing such support. The most cost-saving and effective method for providing such social support, then, would be to integrate the service with existing support for households or families with catastrophic health expenditures.

- **Laws to guarantee inheritance rights:** Many women, especially those from South Asia, are ostracized from society and community – often evicted by her husband’s family, and not even accepted by her own family. Policies or laws that protect women’s rights – especially in regards to the inheritance issue – coupled with social and legal support as needed, can protect these women from bearing too significant impact from AIDS.
(1) Does your national plan specify activities or operational guidelines with indicators for quality standards, necessary for effective implementation?

(2) Based on the principles and guidelines introduced in the last session, and the exercise identifying interventions and standards, cite any evidence of specified intervention packages under different strategic priorities of your national plan, and the main indicators for quality standards. Also provide any evidence of the success of such intervention packages or specific intervention activities.

(3) If standard packages are not identified in your plan, what is used as a basis or standard for designing and implementing various interventions in prevention, treatment and impact mitigation? What kind of evidence is available to support the effectiveness of such interventions?

For example, in many countries, interventions are often designed in an ad-hoc fashion, depending upon the implementing and donor institutions. Most successful countries have defined their intervention package, based on a successful pilot program.

(4) Would you change any of the intervention packages in your plan, based on what you have learned? What kind of adjustments or changes would you make, to ensure more What additional data or information might you want to obtain, in order to make a better-informed decision?
5. SCALING-UP THE RESPONSE

Contents:
Managing the program to scale: Principles, coordination, management, supervision and human resources – Sujatha Rao

Learning Objectives:
- To distinguish between incremental scaling-up and delivering at scale
- To identify principles of designing, organizing and managing at scale
- To understand the role of the standard package as the core for a scaled-up program and the government’s role in using the standard as a unifying element for harmonization across providers
- To appreciate the importance of on-the-spot supervision in ensuring an effective response

By the end of this session, you should be able to:
- Define the rate of expanding human resource needs in the region
- Identify a timeline and mechanism for building capacity and delivering at scale
- Outline the mechanism for ensuring quality control of implementation
Scaling-up the Response

Overview: What is this session about?
In the previous sessions, we have demonstrated the importance of identifying, prioritizing and organizing specific program needs according to geographic or administrative unit. The previous session also discussed some of the basic elements necessary for an effective intervention that is likely to have an impact on the epidemic.

This session will introduce some basic principles of scaling-up, which can be applied to implementation of the plan in a way that will increase coverage of interventions and maximize the impact of the response.

Warm-up Questions:

1) What is the best method for scaling-up the response in a country with 30% coverage?
(a) Increase coverage by 10 percentage points per year, to reach 80% within 5 years
(b) Quickly employ adequate service providers to cover 80% within 2-3 years
(c) Continue to scale-up at the current pace, because capital and human resource are insufficient

2) There is a clear trade-off between quality and cost

   True   False

What you will learn:

By the end of this session, you should be able to:
- Define the rate of expanding human resource needs in the region
- Identify a timeline and mechanism for building capacity and delivering at scale
- Outline the mechanism for ensuring quality control of implementation
Managing a Scaled-up Response

45 minutes (lecture) + 15 minutes (Q/A)

With the exceptions of Thailand and Cambodia, there are very few operationally feasible and successful models for delivering HIV programs at-scale in Asia. Even these countries faced some barriers and constraints to successful and long-term sustainable implementation of their programs at-scale. This presentation provides an introduction and overview to some of the principles of scaling-up: how to plan and manage the process. It presents ideas about the importance of having generalized standards that everyone has learned and agreed to deliver, and finally it discusses the important role of government in building consensus and ensuring quality control.

Why do we need a Scaled-up Response?
The previous session also highlighted the need for high coverage of quality services in order to have an impact on the epidemic trend. In the last session, we showed that implementing ineffective services on a nationwide scale will have little impact. Similarly, the best HIV projects will have no impact on the national trends in HIV, if they remain only small projects – covering 2,000 people or less.

In Asia, we have a number of examples of effective prevention interventions that change behaviors and are shown to have an impact on HIV in the community. Evidence from the experiences of Thailand and Cambodia have shown that, without inducing at least a 50% change in behaviors, the epidemic will continue to expand. This session discusses how to implement a rapid and scaled-up response, while ensuring that resources and quality standards are still intact.

A Strategy for Scale-up
Before all else, we need to define a clear strategy for scaling-up. There are two main paradigms to scaling-up. The first is to expand gradually: to identify the best practice and then slowly replicate this best practice until you have reached the desired scale. The second approach is to quickly scale-up in all priority regions at the same time, follow by close field supervision, adjustment for improvement, and quality control.

The danger faced in the first paradigm is that we can ‘get stuck’ investing significant time and resources into making only marginal improvements to the project before moving onto the next new project, and this can cause serious delays in the rate of scaling-up.

On the other hand, if we immediately scale-up the response, there must be a significant commitment and ‘front-loading’ of financial and human resources. Either option has serious implications for planning, but the second approach has the best potential and evidence for success.
Mobilizing Resources

Financial: To provide the right HIV services at-scale, we have to first remember to allocate resources in a strategic way that is sure to have an impact on the epidemic. This means identifying the top priority programs and geographic regions for implementation. Maps generated in the previous section on geographic prioritization may be a useful tool for planning resource needs and allocation in a way that will yield an immediate and measurable response.

Human: Financial resources are not the only constraint in implementing a scaled-up response. Technical skill and capacity are vital to the effective implementation, supervision and management of the program. If the general paradigm for scaling-up is to first quickly deploy resources, and then gradually build their quality and capacity, then the initial need is to ensure that human resources are sufficient in number and have the required expertise to carry out their role in the response.

This means rapid recruitment of qualified individuals, which requires clear definition skills and competencies necessary for each position. After recruitment, there will also be need for significant up-front capacity-building through training in skills and in changing attitudes and understanding the environs of the program.

Standardizing Interventions

A well-defined standardized product that is understood and accepted by all service providers, as well as potential beneficiaries, is the key and foundation to scaling-up. Defining the product requires a clear understanding and consensus on the product, the expected standards for delivery, annual targets and the plan for recruitment and training of additional human resources. It should clearly be aligned with and reinforce the priorities set out in the national strategy, outlining all the process elements of an intervention, providing the technical details of the physical and human resources and the budget allocation for each.

In India, the National AIDS Control Organization (NACO) convened a meeting of technical experts to develop operational guidelines for all prevention interventions for most-at-risk populations, mobile populations, integrated counseling, testing and care, and ART treatment. Each guideline details the product and standard, as described above, and has served as the basis for planning and ensuring effective implementation and management of the program.

If this product is truly well-defined and accepted by all parties, then it should be consistently used as the standard throughout the process – from planning to design, planning of human resource and infrastructure, resource needs estimation and performance evaluation.

Managing the Scale-up

At the program level, effective management means:

- The weeding out of ineffective programs, which includes utilizing the accepted, well-defined product as the standard to measure whether or not existing projects meet the minimum requirement of effectiveness. Projects or providers who do not meet the minimum standard, or cannot do so in a very short period of time, should no longer be funded, and those that still have the potential should be provided the finances, training, and technical capacity to meet these needs within the next few years.

- Assessing the best instruments means that projects are of a manageable size and the implementing agencies or service providers are trained in the program must agree upon the product expected, its quality standard, and its effectiveness. For example, NACO determined that a peer education model for a risk reduction (prevention) intervention for any most-at-risk-population should target to reach an audience of 800 - 1500 people. Without an estimate of needs and an understanding of service providers' location and capacity, we cannot hope to strategically plan the response and allocate resources
accordingly. More than this, it will require the ability to design new institutional and management structures, in accordance with program needs and demands.

- Institutionalize the whole process — from strategy, to development of the product and definition of standards, to monitoring and supervision — to reduce bias and stay focused on objective, evidence-based criteria that will be used to measure the implementation and success of the program over the span of the national plan. These are then used to identify, map, select and prioritize agencies to implement and provide services under the national plan and strategy. Someone tasked with a clear responsibility to maintain a specific set of effective standards that are measurable, objective and accepted by all involved in the process is the key to a well-managed scaled-up plan.

**An effective program manager**

To truly be effective in planning, implementing and managing the response, a manager should:

- Promote and encourage the importance of mobilizing local nongovernmental organizations with grassroots presence, community-based organizations of affected or most-at-risk populations and networks of people living with HIV, to strengthen and build their capacity for long-term sustainability.

- Instill values and inspire innovation and team building in order to build an encouraging and motivating work environment

- Manage donors strategically – utilize their strengths but ensure they do not damage or distort priorities or local capacity

Despite pressures stay on course to implementing interventions based on evidence

**Government in the stewardship role**

The government has a central role in the response, as the agency used to define the product, ensure deliver meets their standards, core competencies and results expected from each implementing agency.

There is no substitute for government taking a leading role in establishing and endorsing in the national plan and operational guidelines and to ensure that the delivery of the service package will meet the necessary quality standard as established and expected by the government. This includes not only the process but the quality indicators. For example, measuring peer education should not only include how many times a sex worker met with the peer educator, while a closer mapping of the type of meetings with their peers.

Those actual elements of quality and monitoring are then discussed below.
Monitoring, evaluation and quality control

This session is to provide an overview of the response and suggests who should be responsible for monitoring quality, effectiveness and impact of interventions. It will suggest greater emphasis is given to the implementing agency, in all of these areas, to ensure greater involvement and engagement, but also to assess and better define the elements necessary for successful intervention and how they are adapted for different regions.

Why monitor program delivery?
As discussed above, monitoring and close supervision of implementation of interventions must include the collection of indicators as well as evaluation of the project and program, to ensure a more effective response.

Data needs and sources for monitoring
Making the most use of data requires collection and use of all data available to us. Some of those important data sources and their expected results are shown in the slide below. It should be the government’s responsibility to ensure that these data are collected and utilized in evaluation, revision and planning, and that such system is institutionalized in the existing governing structures.

DATA SOURCES TO GUIDE PROGRAMME IMPLEMENTATION AND EVALUATION

IBBA - Integrated Biologic and Behavioral Assessment
GPS - General Population Survey
SBS - Special Behavioral Survey
Monitoring and Evaluation: Framework

The broad structure and framework for monitoring and evaluation is provided in the structure below, along with some examples of the types of indicators that could be collected at each step. It is important to consider the purpose of monitoring and evaluation. It can be for advocacy, such as reporting in UNGASS. It can also be used to evaluate the effectiveness of programs, to identify those projects that are doing well and others that should be phased-out of the program. Knowing the purpose of monitoring and evaluation are essential to identifying the right implementers of monitoring.

<table>
<thead>
<tr>
<th>Input</th>
<th>Process</th>
<th>Output</th>
<th>Outcome</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Programme Monitoring</td>
<td>Household Surveys, e.g. BSS, Facility Surveys Coverage Surveys</td>
<td>HIV/STI Surveillance</td>
<td>Second Generation HIV Surveillance</td>
<td>Patients’ tracking/ ARV resistance surveillance</td>
</tr>
<tr>
<td>HMIS in PEPFAR, CDC, MAP, GFATM</td>
<td>Reproductive Health Survey/ CDC, MICS/ UNICEF, MACRO/ DHS and AIDS Indicators Surveys, Service Availability Mapping (SAM), Health Facility Surveys (HSPA), Coverage Surveys</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

What do we monitor?

Monitoring of the program serves several objectives, depending upon which step is being considered.

Supervision of the project - which should be conducted on a frequent basis to ensure operational efficiency - can be monitored by studying the relationship or ratio between inputs consumed, rate of the process, and outputs produced. For example, supervision monitoring of an MSM project may mean looking at the number of peer educators receiving salary, their hours conducting peer outreach, and the number of condoms and lubricants distributed. The institution responsible for management and quality control (usually the government) should set standards for these indicators before implementation, and should conduct frequent spot-checks to ensure that these standards are met, and to make immediate correction if necessary. On the other hand, assessing or evaluating the effectiveness of a project or program requires collection of outcome and impact data – which data on risk behaviors and burden of disease (such as HIV or other STIs).

Who should be responsible for monitoring?

Traditionally, the suggestion is that monitoring of inputs, process and outputs should be the responsibilities of the implementing agency while the outcomes (behavior change) and impacts of the response (HIV, STI) should be covered through national-level surveys such as an integrated biological and behavioral survey, or one that adds coverage as well. Effectiveness of projects is difficult to measure, if they do not collect their own data on behavior change and biological indicators, such as HIV. Including and empowering the affected community will also make collection of data more representative of the actual situation. In the past, the main constraint identified in such area is the need for greater capacity-building for effective and scientific data collection; if managing NGOs or larger implementing and technical assistance agencies are able to support and collaborate on these efforts, there is certainly a scope for ensuring the projects – as well as administrative units – are able to collect the data necessary for monitoring, without disrupting the community or the project.
Revisit the intervention that you designed in the previous section. Now consider how you could monitor each element or combination of elements, utilizing existing or new infrastructure. Decide what would be the minimum standard and which person or institution should be responsible for monitoring and ensuring the quality of this data. Then fill these details into the Table below. (the filled out version here is an example for a sex worker intervention)

<table>
<thead>
<tr>
<th>Element</th>
<th>Activity</th>
<th>Indicator</th>
<th>Standard</th>
<th>Responsible Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behavior</td>
<td>change</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>communication</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prevention</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commodities</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prevention</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enabling</td>
<td>Environment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project</td>
<td>management</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Element</td>
<td>Activity</td>
<td>Indicator</td>
<td>Standard</td>
<td>Responsible Agency</td>
</tr>
<tr>
<td>---------------------</td>
<td>---------------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td>Behavior change</td>
<td>Peer Education</td>
<td>Money paid to PEs in the last week</td>
<td>Payment at standard rate of $XX/hour</td>
<td>Implementing NGO/CBO</td>
</tr>
<tr>
<td>communication</td>
<td></td>
<td>Hours/week of PE visit reported</td>
<td>PE should visit her peers at least 1hr/day</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Number of SW visited by PE</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Knowledge of HIV</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prevention</td>
<td>Condom distribution</td>
<td>Number of condoms purchased</td>
<td>Condoms distributed should cover all risky sex acts</td>
<td>Implementing NGO/CBO</td>
</tr>
<tr>
<td>Commodities</td>
<td></td>
<td>Number of condoms distributed last week</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Number of condoms purchased</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>% sex workers reporting condom use</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>% male clients reporting condom use</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prevention Treatment</td>
<td>STI Treatment</td>
<td>Number of STI clinics</td>
<td>One clinic for 1000 sex workers</td>
<td>Implementing NGO/CBO</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Number of physician/nurse hours worked</td>
<td>At least 1 visit every 6 months for each SW</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Number of sex workers visiting the clinics</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Number of condoms purchased</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>% sex workers reporting condom use</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>% male clients reporting condom use</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enabling Environment</td>
<td>Cooperation of Police</td>
<td>Number of policemen trained or signed</td>
<td>Zero reported harassment of sex workers, either through rape, arrest or other means</td>
<td>Implementing NGO/CBO</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Number of SW-arrests reported</td>
<td></td>
<td>Managing NGO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Government</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Independent body</td>
</tr>
<tr>
<td>Project management</td>
<td>Supervision and mid-course correction</td>
<td>Number of field visits conducted</td>
<td>Each project should be performing at a high (60-70%) level of efficiency, regardless of effectiveness (evaluated separately)</td>
<td>Managing NGO</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Efficiency of the project (% waste)</td>
<td></td>
<td>Government</td>
</tr>
</tbody>
</table>
NSP Template
Management and Supervision of Scaling-up

(1) Does your national plan set feasible targets for the scale-up for prevention, treatment and impact mitigation interventions?

   a. Has your plan identified each of the agencies to be responsible for implementation and management of the response?

   b. Has the government or other independent body established operational guidelines that are widely accepted by all implementing agencies?

   c. Has the scale-up plan identified specific indicators and annual targets that will serve as a measure of quality control [e.g., number of operational projects each year]?

   Provide references or sources for any evidence cited in response to these questions.

(2) If there is no explicit scaling-up plan, can you estimate how many intervention or project sites do you hope to have by the end of each year of the plan? Provide any evidence that can serve as a basis for this estimate.

(3) Would you revise or re-write the scaling-up section of your plan, based on what you have learned? What kind of adjustments or changes would you make, to ensure that realistic targets are set and achieved? What additional data or information might you want to obtain, in order to make a better-informed decision?
6. ESTIMATING RESOURCE NEED AND GAP

Contents:
Estimating unit cost (INPUT) and cost of a service delivery package
Using the Resource Needs Model (MDG-Costing Model)
Current availability of resources and resource gap

Learning Objectives:
To describe the distinction between population-based and service-based costing
To understand how and why costs vary across and within countries
To differentiate priority from non-priority interventions and the difference in cost

By the end of this session, you should be able to:
Estimate unit costs of a standard intervention, using the INPUT tool
Map available resources according to available
Estimating Resource Need and Gap

Overview: What is this session about?
Up to this point, we have laid out what program and intervention elements are required for an effective response, as well as specifications of their quality standards. Using geographic regions as the basis for planning, you have been able to clearly estimate the programmatic needs for each geographic zone or administrative unit.

This session emphasizes the need to estimate the total resource requirement needed to fund the recommended response, already planned out above. Based on currently available ‘best practice’ standards, the unit costs of programs can then be estimated in order to generate total resource needs for the region. Another important element of resource needs and mobilization is a survey and mapping of available resource, to better understand the size and specific programmatic areas of the shortfall. It should be done well in advance of budget allocation, so that there is time to mobilize additional resources as needed.

Warm-up Questions:

1) Resource needs estimates should be based on historically recorded figures of unit cost.
   - True  False

2) Estimates of available resources is best estimated based on available records of expenditure items in previous years.
   - True  False

3) The unit cost estimate for a sex worker intervention, for example, should be calculated according to:
   (a) Cost per sex act covered
   (b) Cost per peer educator
   (c) Cost per sex worker
   (d) Cost per STI screening

4) The unit cost should include:
   (a) Costs of condoms
   (b) Costs of human resource (training for nurses or physicians, peer educators, etc)
   (c) Costs of HIV test kits
   (d) Costs of STI drugs

What you will learn:

By the end of this session, you should be able to:
- Estimate unit costs of a standard intervention, using the INPUT tool
- Map available resources according to available

115
Cost of the Response: Estimation and Evaluation

45 minutes (lecture) + 15 minutes (Q/A)

This section serves as an overall introduction to the economic analysis in HIV, which includes primarily estimation of resource needs, mapping of available resources, and tracking expenditures. The next sections then address other aspects of economic evaluation, including cost-effectiveness analysis and prioritization and allocation of budgets based on available resources and feasibility on-the-ground.

In this session, discussions of why economic analysis is important should link these activities to the previous exercises in assessing epidemiological data and laying out the effective elements or standard package for the response. This session, which focuses on estimating and evaluating costs, is another measure that can be used to plan and prioritize in a way that will maximize the effectiveness of the response.

What is economic analysis and why is it important?
In the previous sessions, we have learned about all the necessary epidemiological and programmatic elements for an effective national response. But knowledge of these pieces is incomplete unless it is backed by sufficient estimates of resource needs, calculations of cost-effectiveness and projections of the potential impact of the response – all of which can go to mobilizing the response.

Mapping available resources by donor or source and program areas are essential to effective operational planning.

Estimation of resource needs is essential for resource mobilization and financing of the response. Without information or estimates of current resource need, and a mapping of available resources, it becomes difficult to effectively allocate budgets and mobilize additional resource. Knowledge of the shortfall in resources is key to mobilizing enough for an effective response.

What will you cost?
The first step in estimating the cost of the response is to identify the objective. Estimating unit costs in order to see the scale-up in resource need and the shortfall over several years is very different from estimating the same unit costs to allocate budgets to different implementing agencies. There are most commonly four costing objectives:

- To estimate resource need and to use as a tool for resource mobilization, costing of the National HIV Plan is usually estimated over 3-5 years, based on the scope and rate of scale-up identified in the plan itself
- To plan for long-term investments in expanding human capacity (doctors and nurses) and physical infrastructure (clinics and drop-in centers), which are needed for the effective implementation of the response
- To prioritize, apportion and allocate resources so that they will have the maximum impact on reversing the epidemic is the job of the operational plan, and estimates of unit costs (which show great variation according to individual implementing agencies or target geographic zones) are a key part of this decision-making process
- To complete an application to the Global Fund, a very specific format for budget request and allocation must be completed, which in some cases may require restructuring or reorganizing costs that were estimated or calculated in one of the activities described above
**Principles of Resource Needs Estimation: Need for National Costs**

Estimates of total resource needs can be based on one simple formula:

\[
\text{population size} \times \text{unit cost (per population)} \times \text{coverage of services} = \text{total cost}
\]

It is possible to estimate resource needs based on available data and regional norms, but still nationally-driven data and should be incorporated into estimates for effective mobilization of funds and future planning and budget allocation.

Conducting national resource needs estimates are important, because it is the stakeholders, implementers and managers within the country who know best which approaches are best and who can estimate their cost. Although estimation processes also occur at the international level, the country figures here are often not transparent, which makes it difficult to disaggregate the elements of the resource need estimate – unit cost, population size and coverage targets.

In addition, unlike regional or global estimates, which look at regional trends, national costs carefully consider the rate of scale-up, which is unique to each country, based on their current status or capacity, in terms of infrastructure, expertise and financing.

Finally, since it is the national government and its stakeholders who are responsible for design and implementation of the national plan, it seems only reasonable that this same group is closely involved in reaching a consensus and approving the final estimate of total resource need in the country.

**Principles of Resource Needs Estimation: Setting Coverage Targets**

Setting coverage targets that are appropriate and achievable is important to producing estimates that are both realistic and that can produce results. In some countries, Universal Access 2010 targets might be achievable targets, but for most countries, these targets are more likely to be achieved by 2015 or 2020 - again, depending on the country or local setting and environment.

Resource needs should take into account the likelihood that not all countries will be able to scale-up their resources, their workforce and their capital in time to increase coverage and ensure a response that will reverse the epidemic.

Notice that without a good estimate of the relevant populations, who are the focus of specific targeted prevention and treatment programs, it is not possible to set realistic targets nor will we be able to monitor them, since without an estimate of the total population, it becomes difficult to monitor the impact of the response.

**Principles of Resource Needs Estimation: Calculating unit cost**

Unit cost is the final element in calculating total resource needs. This element is likely to show the greatest variation of the three elements of total resource need, as local situations often demonstrate different costs for items such as condoms or clean needles, and services, such as peer educators or clinicians to conduct STI-screening.

Cost estimates for different line items - from targeted interventions for most-at-risk populations to antiretroviral treatment – are difficult to assess because even the unit costs that are calculated offer no basis for the estimated result. If there is no explanation or clear definition of what is used in calculating unit cost, then there is no guarantee that the estimated need will sufficiently cover the intervention, and that the intervention, in turn, will have a significant impact on the trend of the epidemic in the region.

It is important to note that unit cost calculations should always be based on best practice intervention packages. In some countries, these best practices are observed in the field and their
costs assume that such practices can be replicated throughout the country. In the absence of such success, a ‘standard ingredients’ approach can offer a suitable package of activities and services that constitute a ‘best practice’ or the basic necessary elements for such a package.

Another important element to consider when calculating and comparing unit costs, is the ‘unit’ of measurement. Unit cost, in its most basic meaning, refers to the cost of a single individual item, such as a condom, needle or a drug dosage. The Resource Needs Model identifies a range of different types of units, according to the listed line-item. For example, a harm reduction program for IDU is based on a unit cost per IDU, whereas an STI management intervention is based on the number of STI cases that should be treated; a condom social marketing program might be costed according to the number of condoms distributed or purchased.

This mix between measuring the costs of services provided (such as in STI management) and target populations reached (as in harm reduction interventions for example) can create some confusion. For example, if STI management is part of a sex worker intervention package, there seems no reason to repeat this item in the resource needs estimate. As discussed in the previous section, however, it is clearly important STI clinics for sex workers should be providing community-friendly services in a space and time that is convenient to the target audience, and most likely outside of public health facilities that are available for the general public. If planners assume that STI includes care for sex workers and remove the same STI treatment from the sex worker intervention, for example, then the estimated need will fall short of actual need. Without a clear definition of what is included in each resource need category, there is clearly scope for some intervention items to be missed, while others may be duplicated.

In many countries, it is common for unit costs to be estimated based on historical data or patterns, by estimating the unit cost based on previous year’s expenditures, whether it is for total interventions or even individual intervention activities and elements. The INPUT tool is provides a guideline for unit cost estimation, using a “standard ingredients” approach that is based on evidence of best practices from Asia. This tool identifies the elements and establishes some of the main standards needed in an intervention, which includes peer educators, behavior change communications media, tools and services needed to improve the environment.

These unit costs are then used for estimating total resource needs based on the earlier formula. Since the INPUT tool identifies unit costs for prevention interventions for most-at-risk populations and treatment intervention, the costs should account for a full intervention package for each of these items.

The Resource Needs or MDG-Costing Model both offer some flexibility where these unit costs can be used to calculate total resource needs for a specific country.

**Mapping available resource**

Before mobilizing additional resource, it is important to take stock of how much is available and where major shortfalls lie. Listing out available resources from different donors, UN, government, or nongovernmental organizations is important in order to properly plan and budget the response, but also to use to mobilize additional resources in those areas where they are needed most. Based on the categories used in estimating resource needs, it is important that different donors are mapped according to their contribution to each area, and the resource gap is clearly calculated. Such data allows planners to clearly identify the gaps, which can help to direct their resource mobilization efforts toward the appropriate donor or funding agency. For example, if a country discovers that money in harm reduction is insufficient, it makes sense to approach donor agencies in this region (e.g., AusAID) who are particularly interested in funding such kinds of programs, when possible.
Estimating Resource Need
facilitated by
30 minutes (group work) + 15 minutes (plenary discussion)

As you learned in the previous presentation, total resource needs are calculated using a simple formula:

\[
\text{total cost} = \text{population size} \times \text{unit cost} \times \text{coverage target}
\]

The table below (provided by UNAIDS Geneva) lists the line items used as a basis for estimating the global resource needs. Please look at this table and, based on the best data and evidence available in your country, the estimated relevant target units (whether it is people, condoms, blood or others), unit cost and coverage target for each item and estimate the total cost.

**Inputs for Resource Needs Estimates (also provided in Excel format)**

<table>
<thead>
<tr>
<th>Intervention (units of measure)</th>
<th>Definition/description</th>
<th>Unit Cost</th>
<th>No. of Units</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PREVENTION</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mass media</td>
<td>(millions of adults, 15+)</td>
<td>70% of total</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community mobilization</td>
<td>(millions of adults, 15+)</td>
<td>70% of total</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Vulnerable populations</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary school teacher training</td>
<td>(no. of primary teachers)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secondary school teacher training</td>
<td>(no. of secondary teachers)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Youth reached by peer education for out of school youth (no. of youth not in school)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sex worker outreach</td>
<td>('000s of sex workers)</td>
<td>0.4 – 0.8% of adult women</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men who have sex with men</td>
<td>('000s of MSM)</td>
<td>0.5 – 2.0% of adult men</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Harm reduction for injecting drug users ('000s of IDU)</td>
<td></td>
<td>0.2 – 0.5% of adult men</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Workplace prevention (millions of employees in the formal sector)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Service delivery</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Condom distribution (millions of condoms to cover all risky sex acts)</td>
<td></td>
<td>$0.15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STI treatment</td>
<td>(no. of treatable STI cases)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voluntary counseling and testing</td>
<td>(millions of adults, 15+)</td>
<td>70% of total population</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PMTCT screening (millions of births per year)</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>PMTCT treatment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male circumcision</td>
<td></td>
<td>$62</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Health care</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blood safety</td>
<td>(no. of units of blood required)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post-exposure prophylaxis</td>
<td>(no. of kts required)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safe medical injection</td>
<td>(millions of unsafe injections)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Universal precautions</td>
<td>(no. of hospital beds)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

120
<table>
<thead>
<tr>
<th>Intervention (units of measure)</th>
<th>Definition/description</th>
<th>Unit Cost</th>
<th>No. of Units</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CARE AND TREATMENT</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>ART</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adult first line drugs (no. of people on ART)</td>
<td></td>
<td>$222</td>
<td>22% of those in need of ART</td>
<td></td>
</tr>
<tr>
<td>Child drugs</td>
<td></td>
<td>$222</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adult second line drugs</td>
<td></td>
<td></td>
<td>$1,635</td>
<td></td>
</tr>
<tr>
<td>Special ART for patients being treated for TB (% of those newly on ART)</td>
<td></td>
<td>$223</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Laboratory monitoring (no. of people on ART)</td>
<td></td>
<td>$190</td>
<td>22% of those in need of ART</td>
<td></td>
</tr>
<tr>
<td>Nutrition supplementation (no. malnourished when starting ART)</td>
<td></td>
<td>$74</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Service delivery (no. of people on ART)</td>
<td></td>
<td>$103</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Non-ART care</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OI treatment (no. in need)</td>
<td></td>
<td>$119</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cotrimoxazole (no. in need)</td>
<td></td>
<td>$7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OI prophylaxis other than cotrimoxazole (no. in need)</td>
<td></td>
<td>$316</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provider initiated counseling and testing (no. in need)</td>
<td></td>
<td>$21</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Disease prevention among PLHIV</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STI screening (no. in need)</td>
<td></td>
<td>$5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Counseling (family planning, safe sex, life management) (no. in need)</td>
<td></td>
<td>$13</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>IMPACT MITIGATION (OVC)</strong></td>
<td>Support for education, health care, food, clothes, bedding, and psychosocial counseling (no. of children orphaned by AIDS)</td>
<td>$440</td>
<td></td>
<td>Est. based on number of AIDS deaths</td>
</tr>
<tr>
<td><strong>PROGRAM SUPPORT</strong></td>
<td>Health facility development</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Management of prevention programs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Management of treatment programs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IEC and advocacy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monitoring and evaluation</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Operations research</td>
<td></td>
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<tr>
<td>Training</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Logistics and supply</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Laboratories and infrastructure improvements</td>
<td></td>
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<tr>
<td>Supervision and tracking</td>
<td></td>
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<tr>
<td>Drug resistance monitoring</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Some regional averages for unit cost and the relative proportion of population groups are provided and can be used, if no data are available for your country.
Now, discuss the following questions:

How much resource is needed for an effective response? What are the chances that the government can fulfill this resource need?

Based on the number of categories and areas provided above, the estimated cost of a response is likely to be far beyond what is available – for HIV, or even for a country's total health budget in general. This question is posed to stimulate thoughts and discussion about the categories included in resource needs estimation and whether all these items are necessary pre-requisites for a comprehensive response. It is highly unlikely that any government will have resources sufficient to cover all the costs estimated in the resource needs estimates.

Suppose you are able to finance 50% of the resource needs that you have estimated. How will you allocate these funds? What criteria do you use to make this decision?

There are many ways to answer this question. Some planners may suggest that, in order to be fair, every category is allotted an equal percentage of their estimated need. This will leave many of the high-impact programs seriously under-funded, while other programs have funding but are under-utilized—such as VCT (in many Asian countries).

In the previous sessions, we have already learned the importance of addressing most-at-risk populations with prevention. This epidemiological consideration may be one important criterion for prioritization. This would mean that most of the money should be dedicated to prevention among most-at-risk populations, with some amount apportioned off for treatment, impact mitigation and program management.

Other criteria, which are discussed in the cost-effectiveness session, include: based on equal rights (blood safety, universal precautions and PMTCT, for example), based on cost-effectiveness (prevention focused on most-at-risk populations), or operational feasibility (depending on how conducive the local environment is).

Do you foresee any additional constraints, beyond the financing gap? If so, what might those constraints be, and how can you plan the rate of scale-up and prioritize resource allocation to maximize the impact of the response (until sufficient resources are available)?

This question provides a lead-in to the next session, which discusses how to plan and prepare human resource needs to scale-up at the same rate as the response.

Even when sufficient human skill and expertise are available, legal and policy barriers, or stigma and discrimination of the community at risk is often a significant barrier to effective implementation and response. If the target populations feel that they may be arrested or harassed for accessing HIV-related services, they are much less likely to seek out services or learn the techniques to protect themselves. This need for enabling environment is already discussed in the previous session; however, it is important to note that such cooperation is not possible through funding alone; it must be backed by strong political support and/or advocacy efforts.
Identifying Unit Costs

30 minutes (group work) + 15 minutes (plenary discussion)

Since the work done in this exercise should be very specific to the localized setting, it is recommended that this section is part of the NSP TEMPLATE.

In the previous section, you have identified the key elements of interventions. Choose the same prevention or treatment intervention that you worked on previously, and estimate their costs by filling out the following:

I. Target population

How many [SW/IDU/MSM] would you target within one project?
According to NACO's research, it is best that prevention for sex worker and MSM projects target somewhere between 850 and 1500 people per project; while IDU programs can fall in the range of 500 to 2000. The lower this figure, the higher the unit cost, because infrastructure and other fixed costs are spread over a very small number of people. Notice that a project that targets to reach only 100 people may no longer be cost-effective.

II. Behavior change communication

A. Peer education
Calculating the number of peer educators needed and their salary is a function of several factors: the size of the target population (discussed above), the number of target population who are ‘assigned’ to each peer educator, and the number of days per week a peer educator is expected to work. Each of these factors accounts must be considered within the country context and will likely account for a large portion of the variation in unit cost accords countries. Thus, each is discussed separately below.

How many [SW/IDU/MSM] should a peer educator be responsible for?
Again, practices throughout the region are very different. The number of people looked after by a single peer educator will depend very much on the local environment and general existing knowledge of HIV, as well as the approach in providing services. In India's Avahan program, for example, where many sex workers are already aware and understand the need for a condom, the ratio of peer educators to sex workers is about 1:60. On the other hand, evidence from other studies have called for a ratio closer to 1:10 or 1:20, to ensure that every sex worker will meet with a peer educator 2-3 times per week.

How much should payment be to a peer educator for one day of work?
Peer educators should be paid to compensate for time that may have been spent in other work. Payment will likely be based on the number of hours expected to work per day, though as a guideline, it is unlikely that this work would be considered and paid as a full-time job.

How many days does the peer educator work per week?
This figure will likely depend on the number of times a peer educator is expected to meet with the population - on a group or individual basis.
B. Training of Peer Educators

Training should be required on an annual basis, but the intensity and cost of the training may change, based on peer educators’ general knowledge about the epidemic and on-the-job experience in providing counseling and information to their peers.

What is the maximum number of peer educators allowed in a single training session?
The ‘Costing Guidelines’ suggest that training programs should not exceed 15-20 participants per course, to ensure effective communication. In updates or follow-up training, with proper planning, these groups could exceed this number once the basic foundation and necessary knowledge are provided.

How many trainers are required for one course?
These are very basic questions; again the default provided by the ‘Costing Guidelines’ is 2, but this will be largely dependent upon the proposed size of each training session. If only 20 peer educators are taught at a time, then it may be sufficient to have 2 trainers; whereas if the program suggests running training for all peer educators at once, a much larger training staff will be necessary.

How much is the trainer paid per day?
This will depend on local market prices in the country, so there is very little guidance to provide in this area.

C. Outreach workers - Supervisors

How many outreach workers are needed?
Outreach workers are usually NGO workers or other people hired under the management or implementing agency. Their work encompasses supervision of the work of peer educators, providing additional guidance as necessary. The Costing Guidelines suggests that each outreach worker should be responsible for about 10-20 peer educators, while the Avahan program tends to employ one outreach worker for every 5 peer educators.

D. Conducting Outreach/Drop-in Centers

Are there additional costs for holding peer education sessions or for conducting outreach?
These costs may include operational running costs for a drop-in center or meeting room for holding group information sessions or discussions, or it may be the cost of transportation for peer educators and outreach workers to conduct outreach and distribute condoms or needles in specific areas. In addition, the production of IEC materials can also be discussed or considered here, though totals for IEC and for outreach should be kept separate, as they are separate line items in the INPUT tool.

III. Tools and Services

A. Tools

How many condoms/lubricants/needles are needed for an effective project?
If national plans propose to cover 100% of risky acts, then these cost estimates should account for all risky acts. This means that, for example, a town with 1,000 sex workers, who on average see 1-2 clients per night, some 5 days per week, a minimum of 250,000 – 500,000 condoms are needed per year to cover all risky sex acts.

B. STI and Drug substitution services

What is the salary of health care personnel who administer testing and drug treatment?
Services that must be administered by health professionals will require costs to cover their salary, the cost of drugs (whether for STI treatment or as opioid substitution therapy). All these costs must be considered against the potential for finding STIs, which is measured as the level of STIs among sex workers.
IV. Other elements

A. Enabling Environment
How much is needed for local advocacy, community empowerment and any other activities needed to create a more conducive environment for providing and accessing services?
Enabling environment, as described in the SHARP section, should include two types of activities: advocacy with local power structures, community leaders, and law enforcement officials; and provision of social support for the community (e.g., providing free child care for sex workers during at night). The related cost is difficult to estimate, but it is suggested that at least 10% of the total service cost is estimated for Enabling Environment, which is in line with similar earmarks in India and Nepal. Further adjustments can be made as the implementing agency discovers what needs to be done and how much it will cost.

B. Program management
How much is needed for management of this particular project?
Project management will likely refer to at least one full-time manager who is responsible for supervising the overall implementation of the project, in addition to a small administrative staff. There is no consensus on a method for calculating this cost; however, most studies tend to use a normative figure of 10-20% above and beyond the total cost should be dedicated to management of this project and reporting to the program level.

C. Investments
What kinds of long-term purchases will be necessary for effective implementation of this project?
This question refers to investments in infrastructure and durable goods -- for example, office buildings or clinics, drop-in centers, training of physicians and nurses, vehicles or mobile units, or any other expenditure that is not likely to occur on an annual basis. The total cost of these investments is considered, and a default number of years of depreciation is set for 5 years. This figure can be changed by the user, depending on the types of investment and their expected longevity.

D. Monitoring and Evaluation
How much is needed to ensure that management is effectively monitoring the implementation of this project and that evaluation is being conducted and sent to necessary stakeholders and governing agencies?
The default for monitoring and evaluation of the project is set to 5% -- in part, because the practice of collecting monitoring data at the project level is not very common. In addition, when project-level monitoring is conducted, it is usually more successful when it is done by peer educators or others already involved in project and have gained the trust of those in the population. Monitoring and evaluation at the state- or national-level should be included as a separate line-item in the estimation of resource needs.
(1) Do you have estimates of resource needs, according to and aligned with the strategic priorities set out in your national plan?

   a. Do you have data about resources currently available for the AIDS program and the specific area where these resources are committed?

   b. Are your calculations of resource needs based on locally- or nationally-generated figures or population size and unit cost?

   c. Are your unit cost calculations based on examples of local best practice pilot programs or best practices from other regions?

   d. Does your resource needs estimate differentiate between high- and low-priority items?

Provide references or sources for any evidence cited in response to these questions.

(2) If locally-generated unit costs or resource needs are not available, what is the basis of the current resource needs estimate? What is the reliability or accuracy of this estimate? Provide any evidence that can support or speak to the strength of this estimate.

(3) Would you change or revise the current estimates of resource need and availability? What kind of adjustments or changes would you make, to ensure that the estimated figures are truly representative of the current situation in your country? What additional data or information might you want to obtain, in order to make a more accurate estimate?
7. PLANNING HUMAN RESOURCE

Contents:
Identifying and planning human resource requirements for a scaled-up response
Human resource and capacity-building requirements for management and supervision
Creating a data policy unit to ensure an evidence-based response

Learning Objectives:
To understand why human resource planning is a key constraint to planning
To explain how the human resources and management structure required to deliver at scale
To know the most effective organization structure of managing

By the end of this session, you should be able to:
- Estimate the human resource required according to service delivery unit
- Explain why human resource planning is an important element
Planning Human Resource

Overview: What is this session about?
The previous session discussed the need for a scaled-up response and the main principles for implementing such a program. It also highlighted human resource as an important constraint to effective implementation and scaling-up of the response.

This session will provide guidance on how to structure, organize and plan human resource, major issues of concern and underlying principles, and the main steps in carrying out this process.

Warm-up Questions:

It is possible to estimate capacity-building needs for peer educators, based on the size of the target population.

True    False

Training should not be provided prior to implementation, because capacity-building needs can only be assessed after proper on-the-job evaluation.

True    False

What you will learn:

By the end of this session, you should be able to:
• Estimate the human resource required according to service delivery unit
• Explain why human resource planning is an important element
Human Resources
Planning for a scaled-up response
45 minutes (lecture) + 15 minutes (Q/A)

Funds and financing are not the only constraints to implementing a scaled-up and effective response. Limited human resources are often overlooked and not closely examined, and it is important that planning takes into account all issues related to human resource and planning as well.

Why is human resource planning important?
Human capital is a critical input into a scaled program. HIV programs require a multi-faceted set of skills and competencies; and the scaling-up of these programs doubling the amount of human resources, or increasing by even more. A recipe for success in this area involves allocating the right levels of human resources with the right mix of skills at the right levels of implementation, armed with the appropriate training. If plans and financial resources are implemented while human resource is still insufficient, the response will face serious barriers in that projects will be under-staffed and services cannot be provided at capacity.

Principles of Scaling-up (revisited): Human Resource
Scaling-up national plans requires huge increases in human resources. In India, we observed a tripling of the management structure, while the number of peer educators employed more than doubled as a result of the increase in sex worker-related projects there.

Hiring such a large number of people faces several serious issues including their background, expertise and qualifications. Without clearly defined standards in competency, increasing recruitment alone can lead to risky hires of people with insufficient quality or expertise.

Training and capacity-building of the relevant populations must also be front-loaded in the plan. In other words, financial resources and time must be invested up-front, in order to cover the costs training of these managers. Then, these officials may be deployed where the epidemic is most severe.

Challenges in Building up Human Resource
Before committing significant funds and resources to the recruitment and training of human capital, it is important that the requirements and gaps are appropriately defined. Program managers should clearly define where, what kind and how many personnel are required, and of what kind of background and skill. The roles and responsibilities of stakeholder and implementing agencies, as well as each individual hire, within the strategic framework and goals for the national plan, must be clearly defined.

Like the clarity in defining the ‘product’ when establishing operational guidelines for service delivery, there must be clearly defined competencies and responsibility for each position, from the peer educators to state-level manager, to the national program manager. And since HIV programs differ dramatically between prevention and treatment, there is also a significant variation in human resource needs.
Getting the right players involved in management and coordination

A clear division should be drawn between two types of structures influencing organizational performance – management and coordination. Management structure (outlined above in the table) encompasses having the right people in the right place to get the job done. Coordination or partnership coordination encompasses having the right people in the right place to ensure the job gets done. The details of management structures at the district level are outlined above. Coordination of this management structure would include a few players – representatives of the management, but a few outsiders as well. One such person whom a district manager should coordinate with is a representative from the government’s district machinery – either the police function or the social welfare or health functions – as well as having representatives from local community organizations (e.g., the secretary of a sex worker CBO or a positive women’s group). This will ensure that the management has enough ‘teeth’ to execute in a complex district setting where multiple power structures exert variable influence on a project and its ability to execute. These people would not work directly under the line-ministry dealing with HIV services and are not involved in direct delivery of services (e.g., an NGO working for women paid by the livelihood security for positive women would be involved in the management structure, whereas the affected women NGO-representative could be represented in the coordination body).

Principles for training and capacity building: don’t fall into the classroom lecture trap

We are all done with our schooling. And yet, we depend on classroom settings to teach. Active program managers throughout the implementation pyramid should recognize the following traits of an effective pedagogy of learning:

- **Hands on training and support** -- equipping local staff through training of trainers models with the skills to provide constant and unwavering in situ support is almost always better than calling all the high level staff to an offsite to train them. Ultimately, the support provided locally is what helps problem-solving and de-bottlenecking so equip your grassroots district level manager with the skills to develop local capacity, rather than expecting the technical support to parachute in once every six months from headquarters.

- **When in doubt, rely on the community** -- involving active community members from high risk groups works best. For example, a police sensitization workshop on the issue of MSM being led by MSMs, or an STI training workshop where a sex worker helps illustrate the internal examination idea to her peers will be highly effective training methods.

- **Go to the field, don’t wait for the field to come to you** - in many cases, the state level or regional level manager has never visited the NGOs. It is a target that any state level manager should have visited all of his/her 30-50 NGOs within the first six months. This entails spending on average 4 days of a week in the field. And by field, it does not mean the capital city – venture out to the most remote areas where programs exist.

Differentiating human resource by programmatic need

For example, prevention interventions should be targeted for most-at-risk populations, which calls for greater community involvement in outreach and provision of services, as well as greater importance and work in ensuring a safe and conducive environment that will promote protective behaviors. Management information systems will focus on data triangulation and presence of certain behaviors, in an effort to maximize effectiveness of the programs. Programs for integrated counseling, testing and care require some passive data collection, but also more advanced analysis, best carried out by public health specialists or epidemiologists who understand the issues at-hand. In treatment, analysis and implementation require clinicians, who also have a demonstrated understanding of the behavioral, social and cultural implications of the environment (usually with a post-graduate degree in such areas of study).
<table>
<thead>
<tr>
<th>Presence of risk?</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unknown</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Disease burden</td>
<td>Unknown</td>
<td>low-none</td>
<td>low-medium</td>
<td>Medium-high</td>
</tr>
<tr>
<td>Strategic information</td>
<td>Immediate field assessment, to classify the zone into one of the 3 remaining areas</td>
<td>Regular field assessments conducted to confirm that risk is low</td>
<td>Start regular collection of data</td>
<td>(1) Baseline data collection, including size estimation, and some survey of biological/behavioral indicators; (2) setup of MIS indicators; (3) monitoring of referral for HIV-positive or AIDS cases; (4) monitoring of referral for HIV-positive and/or AIDS cases/deaths; and (5) Community monitoring of AIDS death and focus for impact mitigation</td>
</tr>
<tr>
<td>Risk reduction package</td>
<td>Immediately saturate prevention program for most-at-risk populations by standardized prevention programmes (SHARP)</td>
<td>(1) Immediately saturate prevention program for all high-risk populations by standardized prevention programmes (SHARP); (2) Scale-up voluntary counseling and testing (esp. in ANC) by standardized programmes (SHARP)</td>
<td></td>
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<tr>
<td>HIV treatment package</td>
<td>Saturate the antiretroviral treatment programme by standardized packages (SHARP)</td>
<td></td>
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<tr>
<td>Impact mitigation package</td>
<td>Provide impact mitigation programmes through standardized packages (SHARP)</td>
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<tr>
<td>Human Resource needs</td>
<td>Assign an HIV analysis function to an existing public health manager at the district level, who will be responsible for immediate assessment, initiation of data collection, and classification according to risk and disease</td>
<td>Assign an HIV analysis function to an existing public health manager at the district level, who will be responsible for continuous monitoring for indications of an emerging epidemic at the local level.</td>
<td>(1) Part-time epidemiologist or HIV specialist to alert when treatment needs to be scaled-up; and (2) State/province/district-level managers to cover each zone, NGO manager, field supervisor, outreach worker and peer educators for prevention.</td>
<td>(1) Part-time epidemiologist or HIV specialist to initiate scale-up of treatment; (2) State/province/district-level managers, NGO manager, field supervisor, outreach worker and peer educators for prevention; (3) Manager and/or clinician to monitor and ensure quality of treatment and impact mitigation programs</td>
</tr>
</tbody>
</table>
1. **Step 1 - Start from the bottom upwards.** If there are 1,000 high risk group members at each site, and there are 10 such sites per district and there are 3 NGOs implementing to serve these 10,000 high risk group members within the district, the district requires at least one dedicated program manager to manage day to day operations at the district level. If there are 10 such districts in the state, the state needs to employ 10 managers to be placed in the 10 districts. In addition to day-to-day program management, these staff would be the key conduits of MIS and performance measurement up the implementation pyramid.

2. **Step 2 - Arm the grassroots NGOs with the most capacity building support.** Like with any pharmaceutical or consumer products company, HIV prevention has a frontline ‘sales force.’ Peer educators and outreach workers are the day to day sales force of the prevention program. Investing heavily in their capacity building, including literacy, leadership skills, micro-planning, advocacy/negotiations, and other areas is critical. Running many ‘trainings’ or ‘orientation workshops’ in hotels in big cities for high level managers is unlikely to have field level impact. Local trainings, at grassroots levels, with translated materials customized for the local setting, using local language speaking trainers is critical. Thus, programs which do not ‘push’ the capacity down the pyramid are unlikely to see scaled effectiveness of their projects. Mentoring and hand-holding for community based organizations, networks and self-help groups will generate an army of frontline workers equipped with the communications and MIS tools to focus their behavior change communications and advocacy efforts in the areas which yield the maximum epidemic impact (e.g., a peer educator who knows which of her portfolio of community members is a new entrant into sex work, requiring immediate communications, access to commodities and services).

3. **Step 3 - NGO capacity: Transition from NGO to CBO.** A key milestone for the handover of projects to the CBOs from the beginning of the project. How these community organizations would take shape in countries with legal restrictions and limited civil society needs to be explored.

4. **Step 4 - Simultaneity in capacity rollout.** Cascading the rollout of capacity and knowledge building among the implementation teams is critical. Many choose to roll out capacity in a phased manner, choosing some areas first and then adding on other areas or geographies. In settings with a real paucity of capacity, it is better to rollout one level or round of training across the board and then build capacity selectively based on customized requirements. For example, NACO has chosen to rollout peer educator training across all its 38 state and district societies simultaneously. Recognizing that the quality of this initial training was varied but by and large sub-optimal, NACO chose to standardize this rollout so that a lowest common denominator is established in terms of quality. Upon this, NACO plans to layer on additional elements of the training cascade - e.g., state specific training centers linked to but independent of the lead management agency in the state (SACS), a smattering of geographically dispersed learning sites to demonstrate community mobilization, state technical support units whose role it is to supervise the speed and quality of training implementation.
Scaling-up: from strategy to response
facilitated by
45 minutes (group work) + 20 minutes (plenary discussion)

Asialand is a country with a population of 20 million, divided across about 20 provinces. Outside of the capital city (located in province H), which has a population of 2.9 million, the population is relatively evenly distributed across the remaining 19 provinces. Surveillance and monitoring of the HIV situation there is reasonable and shows that 7 provinces have no signs of risk behaviors, such as a visible IDU or MSM presence or brothels or other signs of sex work. In another 11 provinces, signs of risk behaviors are recorded, including brothels near infrastructure projects, IDU networks in certain communities, and zones with MSM cruising areas or party streets. In addition, 3 of these 11 provinces are also recording HIV prevalence over 1% in many VCT and antenatal clinics and one of these three also shows an alarming pattern of communities with many young widows in their early 30s. In the remaining two provinces, data is unavailable or outdated.

Mapping studies are not yet available, but preliminary size estimates indicate that sex workers are 0.4% of the adult female population; injecting drug users make up 0.5% of adult men (no visible networks or communities of injecting female sex workers were found); and high-risk MSM make up about 0.6% of adult men.

Is there enough data for you to classify these provinces into different groups, based on the required response and suggest a mid-range of the total human resource requirements? List out any assumptions you had to make in order to fill-in the table below.

Please fill-in the table below:

The answers here are divided into sections, to follow the logical flow of thinking. Assumptions made are given in green here.

Part I: According to the data given, the country can be separated into 4 areas, as shown:

<table>
<thead>
<tr>
<th></th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of provinces</td>
<td>2 (B &amp; O)</td>
<td>7 (F,G,J,M,Q,R,S)</td>
<td>8 (A,C,D,E,I,N,P)</td>
<td>3 (H,L,T)</td>
<td>20</td>
</tr>
</tbody>
</table>

Note that, although “L” has a significant recorded number of deaths due to AIDS; it is still in the IV category, since the programmatic response should be similar. (The main difference will be in the intensity of impact mitigation programs.)

Part II: With this knowledge of the existing risk and potential for a large-scale epidemic, it is easy to see the need for managers - 7 managers of public health programs, to monitor surveillance or any other data as available in the low-risk regions; and 11 full-time program managers to supervise and maintain quality control in the provinces that have high-risk areas. The three remaining zones that have high-burden areas would likely need additional staff to work on integration of treatment into the health care system, but it is feasible that one person with appropriate experience and of the right profile and caliber, could oversee prevention, treatment and impact mitigation.

Assumption: Areas with unknown levels of risk and disease are discovered to be zones with low risk and low (or no) HIV areas.
The two provinces that with unknown levels of risk and disease burden are assigned a manager with a part-time function; however, it is noted that, if high levels of risk are discovered in this region, there must be immediate recruitment of a full-time person to implement, manage and oversee the response.

Part III: This section will make several assumptions based on given data, as laid out here:

- Except the capital city, which has 2.9 million people, all the remaining provinces have a population of 0.9 million each
- Provinces with noted levels of high-risk are assumed to observe the presence of all three risk behaviors at the levels described above
- Adult men, aged XX-XX, make up 36% of the population, and adult women of the same age group make up 37% of the population.
- The need for human resource will follow guidelines provided by Avahan/NACO.

Based on these assumptions, we are able to assume that there are 1,332 sex workers, 1,620 IDU and 1,944 MSM in 10 of the provinces exhibiting risk, and over 4 times that number in the capital city (proportionate to the population). Human resource was calculated based on these assumptions (see figures in the following table):
1) What kind of partnership or coordination bodies would also be required to ensure that the context and environment are suited to implementation at this level?

The HIV strategy at the national level will provide a general direction and strategy, but it is important that coordination and advocacy bodies exist at the local levels as well, to ensure the cooperation of police, to lobby for support and get buy-in from different stakeholders involved in the response. Including representatives from the affected community will also be an essential component of such a body as well.

2) What would be your timeline for implementation?

The absolute timeline for implementation will depend on the current capacity of local personnel already employed in the AIDS program, as well as budget and other resources available for expanding the AIDS program and building capacity.

- If grass roots NGOs are already implementing programs, then it may be a matter of only a few months to train technical staff in and agree upon the operational guidelines, or standards of service delivery.
- In some countries, however, human resource is declining or moving out of the country, and health may not attract as much young, new talent as other development or entrepreneurial areas; in such cases, scale-up could happen over a matter of 1-2 years.

In either case, the rate of scaling-up should move as quickly as possible. While program implementation continues to meet barriers, the epidemic continues to expand, so there is no excuse for not scaling-up as quickly as possible, regardless of quality in the initial stages.

a) When do you hire the provincial-level managers?

Managers at the provincial (or other relevant local) level are central to the response. Since the response is focused locally, provincial-level managers should be responsible for the day-to-day supervision of programs, as well as the main advocate for resources to initiate new projects and programs.

b) Which and when do you contract NGOs?

Ideally, most of the work will be carried out by community-led NGOs or community-based organizations, because they are the most likely to prioritize the interest of the broader community - and not necessarily the bottom line or the disbursement of funds.

c) When and how do you implement capacity-building for each arm of implementers (NGOs, field supervisors, outreach workers, peer educators)? A few options are provided here: (Each option has its advantages and disadvantages, which are discussed as guidance.)

- **Option 1:** Use a phasing-in approach: add 4 more provinces every 6 months until you have covered the whole country: in every phase, recruit a district-level manager, issue contracts to relevant NGOs and start training

  The phasing-in approach may be difficult to justify since almost half the country has recorded some risk behavior that merits initiation of a prevention program. If we start with only four provinces, it may be difficult to choose the right 4, and it will mean that training of all personnel must be held every 6 months, or as the sites are completed.

- **Option 2:** Recruit everywhere and start contracts in all 20 provinces

  Recruiting and starting contracts without any kind of training or providing any introduction to the context, expectations and standards of implementation for the service providers could give rise to a greater need for close supervision, revision and
correction if providers do not have a good and common understanding of interventions and their setting.

- **Option 3:** Start recruiting Government officials in all 20 provinces, followed by contracting with NGO, and then initiate training.

  This method appears to be the most suitable and acceptable of the three. Since it is the government officials who must oversee, supervise and maintain quality control for their whole province, it makes sense to recruit this group first. After the province-level program managers are hired and the service providers chosen or appointed, it makes sense that both the Government officials, responsible for management, and the local providers, responsible for implementation, meet together and agree upon the product and standards expected in order to make an impact.

3) **What would you do in a situation where NGOs are prohibited or do not exist?**

In communities where there is no formal civil society, building the capacity of the affected community can serve as a useful and relevant means to be trained and commissioned to provide services for their peers. In some settings, the administrative duties are run by government officials, but community members or other field workers are recruited to provide support, peer education and access to condoms, needles, drug substitution therapy and early STI treatment for sex workers, IDU or MSM.

4) **How do you deal with competing interests or areas of expertise for different NGOs?**

There is no single solution to answer this question, which was primarily posed to raise discussion on the issue. In India, for example, standards for wage and other items were set and implementing agencies who were not able to provide within the given budget were either not interested or found subsidy from other sources.
There is clear need for a dedicated unit within the HIV program, which is responsible for proper collection and management of HIV-related data, and is responsible for ensuring that planning, prioritization and decision-making are made based on solid and reliable data and evidence that come from the epidemic. This session provides a brief introduction to the different types of strategic information that are necessary for part of an effective response, and the sub-units who should be responsible for each piece of the data and their expertise. It then asks the participants to engage in discussion as to whether such a unit is needed and how one might be created in their home countries.

Up to this point, we have discussed most of the data needed for planning and implementing an effective HIV response. In this section, we will quickly review and consider how this data are organized in your country and how to set up a centralized data synthesis and analysis unit that will ensure that these data are regularly collected, their quality maintained, and utilized in planning a more strategic response.

The data required can be divided into four main areas, to be used for monitoring and reporting on the responses: (1) Estimations and projections; (2) Alert and Response for Geographic Prioritization; (3) HIV Economics Analysis Unit; and (4) Legal-Policy Analysis Unit, each of which is described in further detail below, and a full diagram of the organization of different data elements is given in Figure ##.

Read each description below and consider the following questions.

1) Do you agree that this unit is necessary in your country? Why or why not?

2) If you think that this is useful for your country, how would such a unit be administered? How would it obtain the necessary authority and mandate to influence policy and decision-making?

3) Does your country have a team who is already responsible for conducting this work? If you do, give the name of this team, describe its composition, main responsibilities, and provide a brief example of the work this unit has done and how it has been used for planning in your country. If you do not have such a team in your country, please identify what existing or new personnel you would utilize for such a team and how you can ensure that the results of their work would be of good quality and would be utilized in planning and decision-making in the national AIDS program.

**Estimations and Projections Unit**

1) In the first section, we introduced major patterns in Asian epidemics and discussed some of the tools available to review and synthesize all available local and national data in order to estimate and project the epidemic trends and quantify current and future needs for prevention, treatment and impact mitigation through epidemiological and demographic models.

Generating these estimates and projections is important to the effective planning of and advocacy for the national HIV program. It requires a team of scientists, including epidemiologists and statisticians, to properly interpret and understand the data and their quality, and to generate country-owned evidence/business tour.
Models can also be a useful tool for advocacy, as they can be used to test and compare the impacts of different policy scenarios. Responsibility for this arm of data analysis and utilization should be dedicated to data collection for generating estimations and projections of HIV epidemic trends.

**Early Alert and Response Systems (EARS) Unit**

2) Recognizing the geographic heterogeneity of the epidemic, the next section discussed the need for data that depicts the local demographic, socio-behavioral and biological environment. To successfully identify or categorize each administrative unit (whether it is a province, state, district or township or community) requires collecting and analyzing a wide range of data, including: HIV prevalence in general populations and subpopulations, the presence of SW, IDU, and MSM communities, as well as coverage of services and levels of risk or protected risk behaviors in the region, monitoring data from antenatal and treatment clinics, as well as any other MIS data from ongoing prevention and treatment projects or centers.

These data must be analyzed as a whole in order to interpret and identify the specific needs and their number for each unit in the country. Furthermore, MIS data from existing and ongoing projects should be collected and analyzed to assess the effectiveness of the current response, to identify best practices that should be scaled-up, and to reform or remove ineffective services or interventions. A group that includes people with both practical and scientific understanding of how to analyze the success of an intervention and clearly identify the elements is needed.

**HIV Economics Analysis Unit**

3) Calculating unit cost and estimating total resource needs were identified as key elements to the response, continuous monitoring and evaluation of this data are essential to improve the response in terms of mobilization and allocation of data. Estimates of unit cost will often require collecting field data about local costs for commodities such as condoms, as well as services, such as testing or training of peer educators. These estimates are then used for estimating resource needs, as well as calculating relative cost-effectiveness ratios for more efficient and effective prioritization and allocation of resources. Finally, tracking expenditures and comparing them against estimated resource needs, budget allocations and any measure of effectiveness or impact of the response, are necessary tools for future improvement or adjustment of the response and for estimated resource needs.

**Legal-Policy Analysis Unit**

4) Finally, one piece of data still missing from the response is a unit to monitor the protection or violation of HIV-related human rights. Because HIV itself and risk behaviors associated with it are often victim to social stigma and, in some cases, discrimination. Regular collection and high-level reporting on the progress or barriers in this area, then, will bring due importance to this area, and bring greater attention to the need for enabling environments throughout the response.
(1) Does your national plan also identify standards for job postings or positions within the national program? Has the plan also identified the shortfall in terms of human resource and proposed a plan, with annual targets, to fulfill this need? If so, please site the reference or source for these maps and data.

   a. How many people are currently employed by the government to work on the national HIV program in your country?
   
   b. How many institutions or agencies (NGO or otherwise) are currently being funded by the national AIDS program?

(2) If your plan does not also set up a human resource plan, what is the basis or standard for hiring new people within the national AIDS program?

(3) What would the human resource plan look like, if you could design on your own? Would you change or revise the current human resource and their scale-up? What kind of adjustments or changes would you make, in light of what you have learned? What additional data or information might you want to obtain, in order to make a more accurate estimate?

(4) Is there need for a ‘Data Policy Unit’ in your country?

   a. Does a similar structure or institution already exist within your country?
   
   b. What kind of existing infrastructure can be utilized or capitalized upon in order to effectively collect, synthesize and analyze data, so that it can be properly utilized to guide policy-making in your country?
8. COST-EFFECTIVENESS

Contents:
Using existing data to project impact of interventions on reversing the epidemic

Learning Objectives:
To know the different methods of prioritization
To explain how cost-effectiveness is calculated
To understand the importance of cost-effectiveness in prioritizing the response
To explain why prevention for most-at-risk populations is prioritized over other prevention

By the end of this session, you should be able to:
Use available tools to estimate the cost and impact of different interventions
Optimize funding across types of interventions for maximum impact
Cost-effectiveness

Overview: What is this session about?
The previous sessions have demonstrated how to quantify and prioritize the number of people in need, their geographic distribution, the type of intervention or service they would require, and the cost of interventions, including scaling-up of human resource and capacity.

In previous sessions, you have learned how to identify: populations groups for targeted interventions, their geographic location; the necessary elements and standards for implementing an effective targeted intervention; the estimated cost of the intervention inputs, and the number of resources - human and financial – needed to implement, monitor and improve the program effectively.

This session will show how a combination of information and criteria that can be used to set priorities in program, population groups and geographic distribution of the response. Many different criteria or measurements exist for setting priorities, and there is no single success formula to choosing the right ones for your country. Instead, planners and decision-makers must choose the balance most appropriate for the local situation.

Warm-up Questions:
True or False:

1) Cost-effectiveness is the only objective and unbiased basis available for prioritization.

2) Setting priorities according to cost-effectiveness will usually give the same ordinal result as setting priorities based on epidemiological criteria.

3) Which intervention is the most cost-effective?
Harm reduction program for injecting drug users, at a cost of …
Targeted intervention for sex workers, costing …
Antiretroviral therapy treatment program that costs ….

What you will learn:
By the end of this session, you should be able to:
• Use available tools to estimate the cost and impact of different interventions
• Optimize funding across types of interventions for maximum impact
Cost-effectiveness
Assessing feasibility and optimizing the response
45 minutes (lecture) + 15 minutes (Q/A)

Why set priorities?
Priority setting is about choosing between alternatives, because resources are scarce.

What objective criteria are available to establish priorities?
There are many criteria that can be used for setting priorities. These may include:

- **Epidemiological approaches**: which interventions will the largest number of infections based on assumptions of the general patterns of the natural progression of the epidemic?
- **Rights-based (or absence-of-rights-based) approaches**: which interventions best protect the individual’s right to life and also protect his/her anonymity?
- **Operational-decision approaches**: how feasible is it to implement and scale-up this intervention throughout the country?
- **Cost-effectiveness approaches**: which interventions will avert the largest number of new infections or save the most life years (or DALYs) for every dollar spent?

Epidemiological approaches
This method was demonstrated earlier, in discussing how to prioritize populations within the most-at-risk populations using models to discover those interventions that will have the largest impact on halting and reversing the epidemic. That session, for example, compared the potential infections averted through a youth intervention and a sex worker intervention. It clearly showed that when effective programs can increase condom use in sex work settings is certain to have a more significant impact than programs that prompt a comparable increase in condom use in casual sex among young people. There difference between the two is significant enough, in and of itself, but priority-setting should consider other issues and criteria beyond this as well.

Rights-based (or absence-of-rights-based) approaches
The rights of certain populations can, in some cases, be an important basis for prioritization. Most of the time, these programs have less substantial impact in the short-term, but over the long-term, they will probably result in large reductions in new HIV infections as well (though not nearly as many as some other prevention interventions). For example, programs that provide education and reduce stigma may facilitate better access to and utilization of prevention services. They should also change attitudes and society in such a way that people will practice safer behaviors. Similarly, a blood safety program will raise awareness and prevent some number of unsafe blood transfusions, although the number will probably be much lower than the sex worker intervention described above. Rights-based approaches are often politically popular and difficult to refute without any kind of objective standards.

Operational-decision approaches
Even though epidemiological evidence suggests that targeted interventions for most-at-risk populations will have the most significant impact on the epidemic, a good intervention design with appropriate monitoring of quality standards do not guarantee the feasibility of implementation.

The operational feasibility of implementing programs should also be considered before allocating budgets. Different settings face a variety of implementation barriers or other environmental factors that can affect the effective implementation of interventions.
For example, some districts of provinces have particularly hostile police, which inhibits effective access to services, such as sex workers attending drop-in centers or accessing condoms. When leaders declare a ‘war on drugs’ or similar nation-wide campaigns to crack-down on illegal activities (such as drug use or sex work), prevention services may put these populations vulnerable to arrest when they try to access such services.

Operational issues, then, must always be considered in order to effectively deliver tools and services in order to prevent further spread of HIV.

It is important that such operational feasibility issues are considered before budgets are allocated to major intervention lines or geographic regions. If these issues are not considered, resources can be committed to an area that cannot effectively provide programs, even with the sufficient capacity and resource.

**Cost-effectiveness approaches**

Cost-effectiveness analysis provides a standard against which to measure all relevant policy options. The results of cost-effectiveness analysis can also provide solid evidence that can be used to persuade and influence political processes with many viewpoints.

Cost-effectiveness analysis compares the costs and health benefits of an intervention to assess its attractiveness from an economic perspective. Benefits are expressed in non-monetary terms related to health effects, such as life-years gained, avoided cases, or averted disability adjusted life years. Cost-effectiveness is one technique that could be employed in making decisions. Issues of equity, needs and priorities, for example, should also be part of the decision-making process.

A three step approach is suggested here and should be supported with transparent assumptions, a statement about perspective and include sensitivity analysis.

1) Identification of the objective of the intervention: When comparing the effects of different interventions, it must be ensured that these measures of objective or impact must be comparable. For example, studying the impact of a sex worker intervention may attempt to measure behavioral outcomes, such as condom use, with the ultimate goal to measure the reduction in the number of new HIV infections after implementation of the program. A successful ARV treatment program, however, cannot be measured in terms of condom use and infections averted. In fact, prolonging the life of someone living with HIV would (ever so slightly) increase the number of new infections, as a result of the intervention.
2) Collection and preparation of cost data: Which resources were necessary to achieve the selected aim? If in the first section, we have identified the objective of the intervention, the next step is then to estimate the associated costs to achieve it.

3) The final step is to calculate the total costs and total impacts of interventions, in order to estimate the dollar-cost per measure of objective. This is a simple ratio of the costs of the intervention to its expected returns – in terms of life years saved or infections averted.

It is important to realize that, when calculating cost-effectiveness, a difference in denominators can make a very big difference, as illustrated in the example above. Preventive interventions are more cost-effective than the sex worker intervention, i.e., each additional life-year gained costs less than $5. If we tried to compare those numbers, it would appear that the IDU intervention is over 10 times more cost-effective than the sex worker intervention. If both interventions are compared against the same denominator – for example, if both interventions are evaluated in terms of life years saved or infections averted, then, it becomes much clearer that the sex worker intervention is only slightly more cost-effective, averting a single infection at the cost of $60 compared to the $120 under the injecting drug user intervention.

Similarly, we cannot compare a sex worker intervention that will avert one new infection at a cost of $60 with a harm reduction program that costs less than $5 per additional healthy year of life gained. If we tried to compare those numbers, it would appear that the IDU intervention is over 10 times more cost-effective than the sex worker intervention. If both interventions are evaluated against the same denominator – for example, if both interventions are evaluated in terms of life years saved or infections averted, then, it becomes much clearer that the sex worker intervention is only slightly more cost-effective, averting a single infection at the cost of $60 compared to the $120 under the injecting drug user intervention.

[Note of caution: the harm reduction intervention was costed in a latent epidemic; the sex worker epidemic has not yet taken off and prevention among injecting drug users will have the largest impact at this point.]

3) Collection and preparation of cost data: Which resources were necessary to achieve the selected aim? If in the first section, we have identified the objective of the intervention, the next step is then to estimate the associated costs to achieve it.
Discuss the following statement. Do you think it is true?
In Asia, sex worker programs are more costly than HIV education for young people. The cost per person is also more for sex worker programs than for youth. But most sex workers are between the ages of 15-24 years old. Therefore, we do not need a separate program for sex workers if we invest in youth programs.

The logic presented in this argument sounds reasonable; however, upon closer consideration, it becomes clear that it may not produce the intended benefits. This argument accurately states that the unit cost of covering one young person is less expensive than the cost of covering one sex worker; but it neglects the fact that the number of sex workers in the population is much lower than the number of young people. As a total, then, programs for youth are likely to be much more expensive, since the target population is significant.

In addition, there is little or no convincing evidence that, since youth interventions cover a larger audience, they are also more effective - in terms of averted infections. Although most sex workers are young, most young people are not sex workers, and this important distinction is the reason why prevention programs targeted at youth cannot be considered a proxy or an umbrella program that will somehow also cover sex workers by default. For example, a program for young people through a reproductive health and HIV program in schools might reach some sex workers but is also likely to miss others. And even sex workers who understand the need to use condoms may not be able to negotiate with their clients - a technique not likely to be taught and practiced in HIV education programs in schools. A prevention intervention targeted for young people, then, will not necessarily facilitate behavior change in these groups.

Previous presentations have already shown that targeted interventions that increase condom use among sex workers and their clients are the key to reversing the epidemic in Asia;

Now look at the graph below.
If most sex workers are young, why are interventions for young people so much less cost-effective than interventions targeted for sex worker and their clients?

This question is discussed in greater detail above, but one interesting way to think of it may be to consider your own home country. How many adult women in your country (aged 15-49)? Of this group of women, how many are aged 15-24?

Then think of how many of those adult women are sex workers (usually between 0.3% - 0.8%)? If you take this number as a percentage of the number of women who are 15-24, what is that percentage?

In a standard 100 million population (which is calculated based on regional averages), around 9.5 million women are aged 15-24, while less than 110,000 women (aged 15-49) are sex workers. Even if all (100%) of these sex workers are young women, aged 15-24 years old, sex workers the account for only 1% (110,000 / 9,500,000) of all young women. (we may be able to provide a table with a few representative countries, as well, e.g., Indonesia, Thailand, Myanmar, and Bangladesh are several possibilities)

The difficulties in reaching and identifying sex workers in settings where most youth programs are found further complicates the difficulties.

Would you change your answer? Why do you think youth intervention is more costly than sex worker interventions?

Hopefully, this question reiterates and reinforces he need to move away from youth programs and to target prevention programs for most-at-risk populations. However, such programs are politically difficult, and people may raise this point. In such case, it would be good for participants to share their own experiences, and maybe representatives from successful programs could share how they were able to overcome political or social barriers or difficulties, in order to ensure that, no matter what, some targeted prevention programs are allowed to happen.

Which is/are the most cost-effective interventions? Based on the data provided above, what programs or interventions would you prioritize as the best use of your money?

In the graph above, all programs, excepting youth programs, demonstrate very high levels of cost-effectiveness. At the same time, it is important to note that there is a significant (ten-fold) difference between the cost-effectiveness of interventions for sex workers, compared to those for injecting drug users. Interventions that reduce transmission in men who have sex with men are half as cost-effective as harm reduction. Thus, even though the clear distinction is between youth interventions and all others; there is still a distinct variation across interventions (even within targeted interventions for high-risk populations).
NSP Template
Cost-effectiveness and Priority-setting

(1) Has your national plan identified clear priorities that are based on available evidence? If so, please list the priorities, in order and evidence or rationale presented to explain why each particular intervention was listed as a priority.

a. Has any individual project or academic institution calculated or undertaken a survey of unit costs and cost-effectiveness of different interventions in your country?

b. Are any epidemic models available to project the impact of different interventions in prevention, treatment and care on the level of HIV, as well as the longevity and quality of life of people living with HIV in the region?

(2) When your own national-level data are not available to conduct cost-effectiveness or generate models to project impact, what would you use as a proxy or substitute to prioritize intervention items? [For example, is regional evidence available?]

(3) How would you change the current list and order of priorities? What additional data or information might you want to obtain, to better strengthen and support your decisions?
9. OPTIMIZING THE OPERATIONAL PLAN

Contents:
Process for laying out an operational plan – Sujatha Rao
Operational plan: rationale and design – Brian Williams
Review of the steps in planning and criteria for prioritization – new piece

Learning Objectives:
To review all the principles learned and how they are necessary for operational planning
To translate the strategic plan into specific operational activities and input items
To understand the need to make decisions that will exclude some activities while including others

By the end of this session, you should be able to:
Allocate all available resources according to the intervention focus and geographic region with specific identification of potential implementing partners and management components
Optimizing the Operational Plan

Overview: What is this session about?
The previous session have introduced and discussed some of the principles of designing a well-prioritized and costed national strategic plan that sets national targets for standardized interventions, with a clear objective and plan to deliver at a level of coverage and scale that will reverse the epidemic. They provided a basis for setting some general priorities, estimating resource requirements and some mapping of available resource.

In this session, all the principles, data and analysis taught in the preceding sessions are synthesized to be considered as a whole, in order to make specific budget allocations to certain interventions or activities.

What you will learn:
By the end of this session, you should be able to allocate all available resources according to the intervention focus and geographic region with specific identification of potential implementing partners and management components.
This session reviews all the steps in prioritizing, designing, costing and financing the national HIV plan and identifies specific priorities in order to allocate resources in a way that will maximize the expected impact on the epidemic.

**Why is operational planning important?**

The final step of planning is the formulation of an operational plan. The operational plan should reflect a thoughtful and rational aggregation and allocation of all available resources - financial, human and infrastructural - in such a way that is certain to have the maximum impact on controlling the epidemic. Without the business plan resources are likely to be used without direction, in an ad-hoc fashion that leads to more inefficiency and slightly less than the best possible result.

The operational and implementation plan is the key intermediary step to clearly delineating responsibilities and activities over the coming years. It should, first and foremost, specify clear and measurable targets and expectations for the response by the end of year 1. In addition, the plan should also identify gaps in resources (both human and financial) and also plan strategies to fill these gaps, for eventual realization of those goals set out in the national strategic plan.

For example, the goal of universal access and scaling up of prevention and treatment require significant investment of financing, developing an architecture for scaled up response as well as ensuring supply chain management etc.

All of these can not be accomplished in one day and require careful planning and staggered approach.

**Operational planning: a country example**

For example, Myanmar - a country of with a population of 55 million - may require US$60 million every year, but have only US$35 million currently available. Where this money should be spent on the first year, in which population group, which geographic areas, how much population will be reached at the end of first year by what services, what will be the detailed break down of the budget, how many staff of what category will be in place how many condoms will be procured need to be planned. All of these should be estimated without losing the vision of a larger goal of the strategic plan of halting and reversing the epidemic.

**How is operational planning done?**

This will involve synthesis of our knowledge of all the areas of planning - from population and geographic prioritization, to target setting, defining standard service and delivery structure according to the intensity of the HIV risk and AIDS case burden.

The basic operational plan should include at least five key elements:

- A monitoring and evaluation framework, which shows the major indicators and annual targets (over the period of the national strategic plan)
- A business plan, which clearly maps out not only the source of funding but how it should be utilized and by whom
• An estimate of total resource needs over the period of the national plan, which gives the basic population sizes, the coverage target, and the unit costs for different interventions [calculation of unit costs should also be included]
• A mapping of resources available annually, by donor and programmatic area
• A summary table that demonstrates the resource need, resources available and shortfall, according to programmatic area and/or geographic zone

Each piece of this framework has been completed in a previous section, except the business plan. This final section will pull together all the information you have learned thus far into a 3-year plan for outlay of all available resources to the lowest unit possible.

A successful business plan should align closely with the priorities as laid out with the national strategic plan. To be effective, then, the national plan should be very focused and evidence-based, to provide a clear path to reverse the epidemic. It is also important that the plan is widely-accepted by all stakeholders in the national response, to ensure support from all areas in implementation.

The business plan is broken into several columns, and each is described briefly below:

• Column 1 (Reference Number): This is a simple numerical code or marker, which is used to easily mark and track the different strategic areas of the response

• Columns 2 (Strategy/Activity Set) and 3 (Outputs): Following the priorities as they are laid out in the national plan, consider the first strategic area of focus. Within this priority, SHARP can be used to identify the specific activities that must be conducted and the expected outputs, which can be used as indicators for supervision and quality control.

• Column 4 (Priority areas): Since the epidemic is often at different stages in different parts of the country, it is important that specific locales or geographic zones are prioritized, based on both the urgency and the feasibility to implement in that region.

• Column 5 (Potential partners): This column should clearly identify the implementing agencies within each of those zones or administrative units, who would be responsible for implementing or managing the program. These could be CBOs, NGOs, or even local governments.

• Column 6 (Unit cost): This unit cost could be based on the administrative unit; for example, if a district or township within Myanmar has been singled out as requiring 2 sex worker projects, then the unit cost should be per project, while the cost per individual sex worker may also be provided as a reference.

• Columns 7/9/11 (Targets, year 1/2/3): This information should be pulled from the monitoring and evaluation framework. It should identify the target number of sex workers as well as their spread over different geographic zones.

• Column 8/10/12 (Cost, year 1/2/3): Since the unit cost is provided by project, then the allocation of resource and the business plan should also calculate based on the number of projects, as identified in column 5.

After completing this table, one can create graphs and charts that can be used to depict the current situation in terms of current allocation of resources to see if it still aligns with the national plan. In addition, the operational plan should be revisited, evaluated and revised at the end of each year, so that it is up-to-date and constantly incorporates the latest information or knowledge in the field.
(1) Does your national plan include a business plan that disaggregates interventions and activities according to geographic as well as programmatic priority, identifies the implementing partners and stakeholders, and which will allocates all available budget into areas with highest priority and which clearly define the expected and measurable outcome after each successive year of the program.

(2) Which areas show the largest data gaps and why is this information unavailable? Is it because of a lack of financing, poor infrastructure, insufficient human resource and technical capacity, or some other reason?

   a. Which estimates are the most likely unreliable or show the greatest potential to be inaccurate?

   b. Which of these areas identified above are the most urgent and why?

   c. How will you prioritize collection what proxy or norm can you use until more robust or accurate data are available?

(3) Which areas show the largest data gaps and why is this information unavailable? Is it because of a lack of financing, poor infrastructure, insufficient human resource and technical capacity, or some other reason?

(4) How would you change the current list and order of priorities? What additional data or information might you want to obtain, to better strengthen and support your decisions?