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These reports describe activities, challenges and lessons learned during the Global AIDS Monitoring and Evaluation Team (GAMET)'s work with countries and other partners.

How GAMET helps countries to improve their HIV response through Epidemic, Response and Policy Syntheses

The Global AIDS Monitoring and Evaluation Team (GAMET)

A prerequisite for an effective HIV response is to “know your epidemic”, and ensure that the response addresses the specifics of each country’s epidemic. Recognizing this, an increasing number of countries are requesting Epidemic, Response and Policy Syntheses – one of the products/services offered by GAMET. These Syntheses analyze all existing epidemiological and behavioral data to gain new insights into the epidemic in a country or region, and looking also at data on the response, draw out policy and program implications. This provides a strong basis for tailoring national responses carefully to the country’s epidemic – the starting point for effective HIV prevention, treatment, care and mitigation.

This note explains what Epidemic, Response and Policy Syntheses are, their goals and approach and how they differ from other types of HIV analyses. It suggests criteria for deciding when a synthesis is worth doing – when it is likely to yield insights that will enable decision-makers to improve the country’s HIV response. It describes the data needed, questions that syntheses investigate, the methodological steps, and a checklist for a good synthesis report. Illustrative examples are cited of syntheses recently completed by the Global AIDS Monitoring and Evaluation Team (GAMET).

What is an Epidemic, Response and Policy Synthesis?

An Epidemic, Response and Policy Synthesis begins with an analysis of HIV prevalence, incidence, trends, geographic and population distribution, epidemic phase and potential trajectory, and the major risk factors and transmission dynamics in a country or region. It then assesses the relevance, focus, coverage, quality and cost of major HIV responses in relation to the epidemiological analysis and policy environment, to identify opportunities to improve intervention relevance, focus, coverage, quality and cost-effectiveness. The findings and implications of this empirical, objective

analysis can help governments make more effective HIV/AIDS program and policy decisions.

A synthesis may be rapid, or more extensive (“full”).

Both rapid and full syntheses can address the same questions and focus either on one country or on a geographically and culturally coherent group of countries. A rapid synthesis looks at all main existing data sources, reviews the findings with a small core group of key stakeholders, and reaches well-founded conclusions within a few weeks. A “full” synthesis may take up to a year, includes all available data as well as new modeling and analysis and perhaps additional data collection, and builds a broad, inclusive consensus through extensive review and discussion before publishing its definitive findings. The ways in which rapid and full syntheses vary are shown in Table 1, which describes the ends of a continuum.

Table 1: Rapid / Full Synthesis -Typical characteristics

	Rapid synthesis	Full synthesis
Time to complete	1 – 2 months	4 to 8 months
Populations of focus	General population, or specific sub-populations	General population and all relevant sub-populations
Typical purpose	To provide an overview of the HIV epidemic and response in a country/ region, for example, as part of the preparation of a World Bank project, or as part of a midterm review of a national HIV strategic plan, or to answer specific questions about the epidemic and response.	To analyze and understand the implications of newly available data on the epidemic; to provide information to fundamentally re-think or change the HIV response in a country or region, usually before the development of new National HIV Strategic Plans.

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	Rapid synthesis	Full synthesis
Data sources consulted	All major primary data sources (i.e. sentinel data, behavioral data, published research, and existing reviews of HIV responses)	All primary data sources, plus new analysis of existing data (e.g. new review of routine monitoring data, meta-analysis of existing data, mathematical modeling of transmission modes, etc.)
Review and discussion	Discussion with a small core group of government and other key partners	Build consensus amongst all partners, extensive peer review before publication
Nature of findings	Conclusions are well-founded (i.e. fully substantiated by the data), but not definitive (i.e. not the full and final reference on the drivers in the country or region)	Is a definitive study – i.e. a reference for other studies in the future
GAMET examples	- Great Lakes area (6 countries) - Vietnam - Kenya	- Ethiopia - China - South Asia (4 main countries) - West Africa (16 countries)

much; when the HIV epidemic is changing (i.e. rapid changes in prevalence; or when sub-national HIV prevalence studies reveal trends or prevalence levels or patterns of infection that are very different to national trends, patterns and prevalence.

Regional syntheses are most applicable for a group of countries that constitute a geographically and culturally coherent entity, such as Central Asia, South Asia, West Africa, Central America or the Middle East - what we can call a “logical geographic area of affinity”. Many regional groupings used by organizations are not meaningful for HIV. For example, the World Bank East Asia and Pacific region includes China and Papua New Guinea, which do not make for meaningful comparisons or aggregation. Similarly, the Latin America and Caribbean region (LAC) combines two major and (several minor) sub-regions. There is nothing one can say that is equally meaningful to both poles of the EAP or LAC regions. In contrast, South Asia and Central Asia are geographically, linguistically, historically and economically, logical geographic areas of affinity.

In short, unless a region is coherent and meaningful from an HIV perspective, individual country syntheses are preferable to a regional one. But special circumstances may apply; for example, the six countries of the Great Lakes Initiative on AIDS commissioned a joint synthesis that focused specifically on sub-population groups in common or that move across their borders, whose mobility or experience of violence makes them vulnerable to HIV, or whose behaviors put them at particular risk.

Deciding on the appropriate scope of a synthesis

The decision on how extensive a synthesis should be rests primarily on its purpose and the questions it seeks to answer, and on the availability of data, time and budget. A variant of the 80/20 rule might well apply: a rapid synthesis may provide 80% of the benefit for 20% of the cost of a full synthesis, but there are some circumstances when a full synthesis is valuable.

- **Rapid syntheses** are most applicable when there are not enough data for a full synthesis but some good quality data are available and existing data have not been well triangulated; when there is not time or funding for a full synthesis; when a full synthesis (to determine the drivers of the epidemic) has been undertaken within the last few years, and recent data do not suggest significant changes in the epidemic.
- **Full syntheses** are more applicable when epidemics are not well characterized; when a lot of new data is available that has not been analyzed

Great Lakes Initiative on AIDS Synthesis

Six countries in Africa – Burundi, Democratic Republic of Congo, Kenya, Rwanda, Tanzania, and Uganda – formed “The Great Lakes Initiative on AIDS” (GLIA) to complement their national AIDS program efforts to reduce HIV infections and mitigate the socio-economic impact of HIV in the Great Lakes Region. In order to identify sub-populations and interventions for GLIA to focus on, so as to add value to the efforts of each individual country, and use the comparative advantages of a regional program, the GLIA council of ministers asked for an analytic study that would provide an evidence base for deciding on GLIA’s focus. So a rapid synthesis was undertaken, that proceeded as follows:

- (1) First, data were extracted from all existing documents and other data sources, on the size and HIV prevalence and risk factors of all populations identified as being at risk or vulnerable to HIV infection or transmission. Eight sub-populations were identified for detailed analysis – fishermen and fisherwomen,

military, prisoners, long-distance truck drivers, female sex workers, refugees and displaced people, and women affected by sexual violence. The lives of these populations are marked by mobility, conflict and/or violence, vulnerability to HIV and risk factors that the epidemiological evidence indicates result in significant contributions to HIV transmission.

(2) The number of people living with HIV (PLHIV) was estimated for each sub-population, by multiplying the number of people in the group by the median HIV prevalence estimate based on the best data available. (No estimation of size or prevalence was possible for female sex workers because of difficulties in defining and identifying them as a distinct group.)

(3) The national HIV strategic plans of the GLIA countries were all carefully reviewed to assess the extent of gaps in coverage of interventions serving these populations.

(4) Then, comparing the data on HIV prevalence, risk factors and size of the identified populations and contributions to HIV transmission, with the national HIV strategic plans, the study defined which vulnerable populations the GLIA should focus on, and the type of interventions that existing evidence suggests as most likely to prevent HIV infections and mitigate impact for each population.

The small study team was led by an analytical epidemiologist, working with a research assistant, and an M&E specialist, who conceptualized the study, coordinated the work, provided technical oversight, and helped draw out the policy implications of the findings, synthesizing information from 285 different studies. The work was funded jointly by the Global AIDS Monitoring and Evaluation Team (GAMET) and the GLIA Secretariat. Reviews, data, and other support for the work was provided by a number of partners: the National AIDS Commission staff who represent the countries in GLIA, the UNAIDS M&E advisors in each country, World Bank AIDS Team Leaders and ACTAfrica, the World Health Organisation, the German Technical AID agency GTZ, the International Organization for Migration (IOM), United Nations High Commissioner for Refugees (UNHCR) and the United National UNECA Economic Commission for Africa (UNECA).

The work was completed quickly – the idea was first discussed in April 2007, terms of reference were written in July, and work began in September. An initial draft report was reviewed in November, then presented and discussed in a technical workshop in December with approximately 70 delegates from GLIA countries and technical agencies. The findings and recommendations feed into GLIA's strategic planning in January 2008.



Fishermen at Kaloka, Lake Victoria, Kenya

Comparison with other types of analysis

Other types of analysis may serve as inputs into an Epidemic, Response and Policy Synthesis:

- HIV **modeling** studies that apply epidemic models that draw on data from other countries to extrapolate or “fill in gaps” in incomplete country data may be an important source for a synthesis, but a synthesis will also include numerous other data sources, including surveillance, research and evaluation evidence.
- **Program reviews and evaluations** use a range of methods to answer a specific research question, narrower in scope than a synthesis. Provided they are based on rigorous, objective evidence, program reviews and evaluations may also be an input into a synthesis. However, subjective, impressionistic evaluations are unlikely to be useful input for a synthesis.
- **Reviews of proven HIV prevention approaches** – “what works, where” – for example, reviews of effective HIV prevention approaches for sex workers, can help understand the factor and circumstances associated with program effectiveness.
- “**Think pieces**” explore potentially new approaches, especially in contexts where existing efforts appear to be faltering, such as Southern Africa.

What data sources are needed for a synthesis?

Six core data sources are needed for all Epidemic, Response and Policy Syntheses:

- National population-based household surveys, which provide the best estimate of overall epidemic size.

- Antenatal surveillance data, which provide the best insight into trends and the most comprehensive site-specific data.
- Bio-behavioral surveillance of most-at-risk-populations (MARPS), i.e. data on behaviors as well as on individual HIV status of the study sample population.
- Research studies examining HIV risk factors and intervention impact.
- Credible, preferably peer reviewed models of the sources of new infections in a country or region.
- Program monitoring and evaluation data.

The major data sources for a full synthesis are summarized in Appendix 1. A rapid synthesis would use some (but not all) of the primary data listed there.

When is a synthesis valuable?

There are five major preconditions for a synthesis to be worth doing:

1. **There is something important and distinctive to say** about a national or regional epidemic. This would be the case if the epidemic is largely uncharacterized (as in Papua, Indonesia); poorly characterized (as in West Africa, when it had been assumed that the epidemic was broadly similar to Southern Africa); the subject of debate (as in India); if there has been limited integrative analysis using multiple data sources (as in Central America and the Caribbean); or the epidemiological patterns and response priorities are poorly matched and need rethinking (such as Ghana, after new data became available). It is hard to have something important and distinctive to say about an obvious or well delineated HIV epidemic (such as Estonia's, where HIV among ethnically Russian IDU is the obvious driver).

To put this another way, the business case for a synthesis must be unmistakable. There must be an initial anticipation of the major unanswered policy question/s the synthesis will address, what the storyline might be and the major insights it is likely to afford. For example, in South Asia and West Africa, syntheses aimed to characterize the epidemics across large, culturally coherent regions and in particular to highlight the role, and policy and programming challenges of sex work (and to a lesser extent MSM). The key issue in Indonesia was to characterize the heterogeneity of the epidemic and differentiate the epidemic in Papua from the rest of the country.

In short, the work must anticipate in advance a clear, important storyline, with key policy messages. "So what?" syntheses where the probable storyline is tediously obvious and unoriginal are not worth doing –

the synthesis must add discernable value, either through new information or new integration of existing knowledge.

2. **There are adequate national data to synthesize.** Without sufficient data of reasonable quality, a good synthesis cannot be done – instead, further original data collection is the priority. Liberia and the Maldives are two examples of countries which require improved primary data collection, because existing data are inadequate to support a synthesis.
3. **A synthesis is the right product to offer.** In Southern Africa's unparalleled epidemics, where HIV is exceptionally high in most geographic and population groups and where existing approaches are not working, a synthesis may not be useful. For example, Swaziland and Botswana have very small populations and highly homogeneous epidemics, in which HIV prevention is failing. The real challenge is to understand the socio-cultural context of entrenched risk behaviors and to identify effective HIV prevention approaches. A think piece that seeks to build a new understanding of the unique HIV epidemic in each country and new ways to respond may be more relevant than a synthesis.
4. **There is broad national support.** A synthesis must not be imposed by external parties. Narrow support from a single national actor -- even the Ministry of Health or the National AIDS Council -- will not suffice if other key national partners resist the idea or do not think that a synthesis is worth doing.
5. The synthesis is done by **world class national or international individuals or institutions** that are experienced in epidemic syntheses. A synthesis should never be attempted unless there is expertise to do it that is unquestionably world class. Adequacy will not suffice – world class expertise is necessary. This poses particular challenges where HIV is a peripheral issue and HIV expertise is consequently limited – even including major countries such as China or Egypt.

Synthesis methodology/approach

There is no simple road map or recipe for doing a synthesis, any more than there are clear guidelines for writing a research paper. There are, however, some principles and key questions to ask, which define a logical approach in undertaking a synthesis:

1. **First frame a possible storyline – an hypothesis about the epidemic.** Before embarking on a synthesis, it is important to frame an initial storyline, which is then constantly tested against the evidence, refined and abandoned if the evidence refutes it.

For example, the Vietnam and China syntheses began with the storyline that HIV was highly concentrated, with injecting drug use as the major driver of HIV transmission, igniting sexual transmission and amplifying epidemic potential - by implication, effective injecting drug use programs could radically curb epidemic potential. This initially controversial storyline was decisively supported by the evidence synthesized. Sadly, in the absence of effective injecting drug use programs, the predicted ignition of HIV in sex work has occurred and the epidemic character is slowly shifting.



Sharing drug injecting equipment is a major driver of HIV

The Indonesia synthesis began with the hypothesis that HIV outside the Papua provinces was fueled by injecting drug use and linked sex work transmission, and that HIV in Papua was circulating as a result of casual transmission in the general population. However, the recent population-based survey suggests that sex work remains a major driver even in Papua, evidence that compelled a revision of the storyline.

The West Africa synthesis was prompted by the conviction that sex work plays a larger role than acknowledged in West African epidemics and that programs for sex workers receive insufficient emphasis.

In Kenya and Ethiopia, syntheses were spurred by the availability of new data that had not been assimilated adequately. The initial storyline or hypothesis was that there was greater diversity than recognized in each national epidemic, with male circumcision playing a major role in the diversity. It must be emphasized that an initial storyline is not a preconception, prejudice or opinion, but a sophisticated initial reading of the evidence by practitioners familiar with the evidence and context.

2. Determine the size of the epidemic. Once a broad, refutable storyline (hypothesis about the epidemic) is sketched based on an overarching understanding of the epidemic and context, the next step is to determine the estimated number of people living with HIV in the country. This will be based on national estimates, antenatal, population-based and most-at-risk-population

data. This information then helps to answer questions about the character of the epidemic.

3. Investigate the epidemic's trends and phase.

What are the trends (i.e. changes in HIV prevalence in the general population and in sub-populations over time) and phase (i.e. where, on the likely epidemic trend line, is the country)? What major behavioral factors appear to be associated with a rising, stable or falling epidemic?

Epidemic trends are critically important. A soaring epidemic implies that effective responses have not been identified and that significant transmission is occurring in the general population. A falling epidemic implies that HIV is in decline and is coming under control. This implies a transition in the pattern of infections from transmission among the general population to transmission from already infected people to their stable partners. This distinction has significant implications for interventions and priorities – whether to focus more on uninfected people (what used to be called primary prevention) or focus more on people living with HIV (secondary prevention).

4. What is the character and potential of the epidemic?

Based on the evidence on the epidemic's size, trends and phase, the character and potential of the epidemic may be delineated. Epidemics may be characterized in many ways. "Hyperendemic epidemics" refer to the unparalleled generalized epidemics of Southern Africa, in which prevalence is much higher than in any other region or sub-region. "Generalized epidemics" refer to epidemics elsewhere that are sustained by sexual transmission in the general population. "Concentrated and low-prevalence epidemics" are sustained primarily by transmission among specific most-at-risk populations.

It is important to emphasize two points in characterizing epidemics. **First, epidemic definitions should be based primarily on transmission dynamics, not arbitrary thresholds.** We used to say that HIV epidemics were generalized if HIV was over 1% in the general population, and concentrated if HIV was below 1% in the general population, and over 5% in sub-populations. A transmission-based definition asserts that HIV is concentrated if HIV transmission is mainly among most-at-risk populations and if protecting vulnerable groups would protect HIV spreading into the wider community; and generalized if protecting most-at-risk-populations would not protect the wider community (because there is already significant transmission occurring outside most-at-risk populations). This definition is consistent with and encourages closer analysis of transmission patterns, and has clear programmatic implications.

The Kenya rapid synthesis

In developing the “Total War on AIDS” Project (TOWA) funded by the World Bank to support the Kenya National HIV and AIDS Strategic Plan 2005/6-2009/10 (KNASP), it became clear that better information on the epidemic could help make programs more strategic, prioritized, evidence-based and results-orientated. So the National AIDS Control Council (NACC) of Kenya agreed that GAMET should: (a) examine all existing studies of HIV transmission and drivers of the epidemic in Kenya, and identify opportunities to use this analysis to improve intervention priorities, design and implementation, and (b) review the first Call for Proposals for TOWA grants and recommend ways to strengthen the results-orientation of future grant rounds.

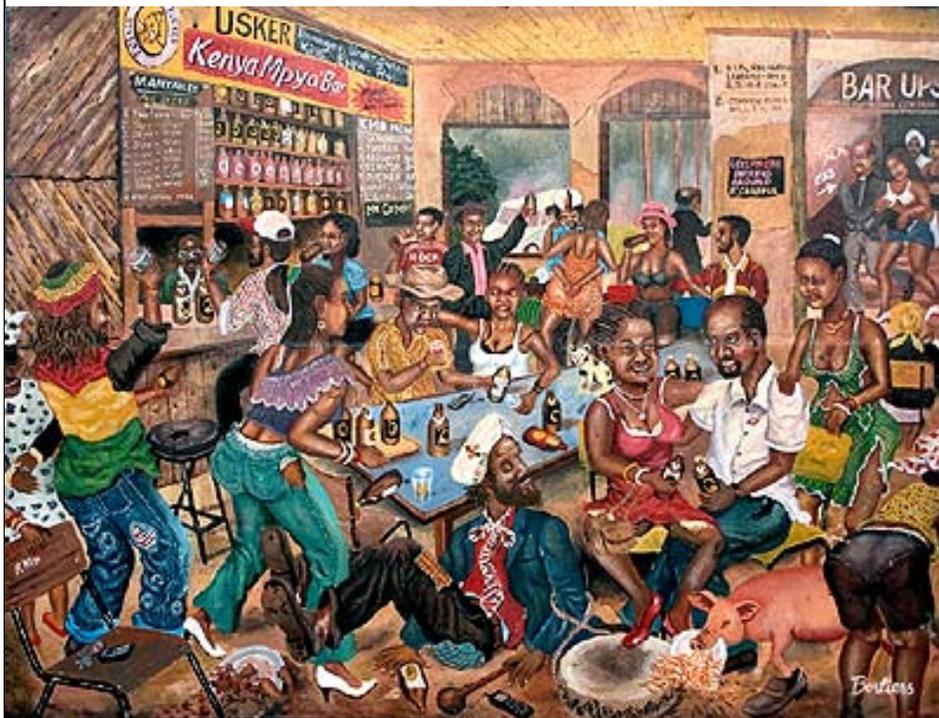
It took the team of two – an epidemiologist and an HIV Prevention specialist – about two weeks to synthesize and summarize the existing information on the epidemic in Kenya. They were able to complete the work this quickly because the NACC and National AIDS Program of the Ministry of Health had compiled an excellent data base of all existing studies and data which was immediately accessible. Supported over several years by the Canadian International Development Agency (CIDA) and the US Centers for Disease Control, Kenya has been a leader in Africa in surveillance, program evaluation, and research on most-at-risk-groups. But despite the considerable collection of data on the trends, current patterns and drivers of the epidemic in Kenya, the NACC did not have a clear updated and integrated picture of the HIV epidemic.

The GAMET team began with an epidemic “story line” or hypothesis that was tested rigorously against the data, refined, discussed with experts and specialists, and refined more. Overall, HIV prevalence has fallen decisively in Kenya – among pregnant women attending antenatal clinics HIV fell from a peak of 13.4% in 2000 to 4.6% in 2006. There is clear evidence of behavior change -- more condom use, fewer sexual partners and later age of initiating sex. However, HIV in Kenya remains tenacious and entrenched, with still an estimated 55,000 new infections each year. This places an insupportable burden upon AIDS treatment programmes, and makes it essential to revitalize and strengthen HIV prevention programs to intensify declines in new infections, with particular focus on areas of highest HIV. Much higher prevalence in Nyanza and parts of Nairobi provinces is driven largely by low levels of male circumcision, as well as high transmission among lakeshore fishing communities.

Epidemiological modeling by UNAIDS (Gouws et al 2006) indicates that 58% of new infections are from casual and low-risk heterosexual sex and another 28% are transmission within discordant couples; sex workers and their clients account for 12%, and sex between men and injecting drug use each account for close to 5% of new infections. The team outlined an agenda for intensified prevention driven by the synthesis analysis of Kenya’s surveillance, research and modeled

sources of new infections that prioritizes interventions to tackle transmission clusters in the general population, between couples and among most-at-risk-populations and their sexual partners.

A working draft report on these conclusions on the epidemic and their implications for HIV policies and programs was shared with core experts, and fed into strategic discussions, planning and programming by the National AIDS program in Kenya. A polished draft was circulated more widely for review and discussion, and then a final draft provided input for the UNAIDS Kenya Country synthesis. This work on the drivers of the disease is continuing, and will be used in reviewing and revising the national HIV/AIDS strategy, as well as in the second Call for Proposals under the TOWA in mid-2008.



“Kenya today” by Joseph Bertiers/AfricanColours.net

There is also the important and under-recognized category of mixed epidemics, in which new infections are driven by most-at-risk populations and the general population. Many epidemics in Africa, the Caribbean and Papua New Guinea/Papua today are probably mixed. Mixed epidemics require a careful balance between targeted and general population interventions. Mixed epidemics take different forms. Some mixed epidemics reflect a (very) roughly equal balance among different transmission sources and require roughly equal emphasis on targeted and general population interventions. This may be the case in parts of East Africa. For example, Kenya's *fêted* decline in HIV infection may be due to two things: effective targeted interventions for vulnerable groups in large cities and along major highways, and large-scale behavior change and partner reduction in the wider population.

Countries may exhibit different epidemic characteristics in different areas of the country. For example, Indonesia appears to have a concentrated epidemic outside Papua and a more generalized epidemic in the Papua provinces. Similarly, Kenya may have relatively concentrated transmission in the Eastern and Western Provinces and more generalized patterns in Nyanza. Tanzania may have more concentrated epidemic patterns in Zanzibar and more generalized patterns in inland Kagera. Mozambique's epidemic may be more concentrated in most-at-risk populations in its Northern Region Provinces of Cabo Delgado, Nampula and Niassa and driven by more generalized transmission in the central provinces of Sofala, Manica and Zambezia.

Second, epidemic patterns may evolve over time, sometimes rapidly, and the gender ratio of HIV prevalence is a key indicator of the extent to which an epidemic is concentrated or generalized. A higher male HIV prevalence ratio implies a concentrated epidemic, driven by men having sex with each other or sex workers or sharing injecting equipment. An even sex ratio or higher female ratio implies a generalized epidemic, in which significant numbers of women are infected through sexual transmission.

5. Consider major contrasts and patterns in the epidemic. There can be important variances in HIV across communities, sub-populations, and parts of a country. How heterogeneous is the HIV epidemic, with respect to geography and sub-communities? The answer helps to understand diverse transmission patterns and then assess how adequately HIV prevention resources are directed towards priority geographic areas and communities. It also helps to characterize HIV epidemics and to understand risk factors and transmission patterns. For example, the highest prevalence district in Kenya, Suba in Nyanza province, is inhabited by the Luo who do not practice male circumcision, and also has over 120 lakeshore

fishing communities. Numerous ethnographic studies in Kenya and elsewhere in Africa have found steeply elevated HIV prevalence in fishing communities, associated with cash income, separation from family and community, sparse living conditions, hazardous lifestyles, juxtaposed with a dynamic trading milieu and considerable mobility and unique sexual micro-cultures (which, in Suba, include *jaboya* where female fish buyers exchange sex with boat owners for primary purchasing rights and *abila* where women servicing boat houses provide sex and housekeeping services).

6. What are the major transmission dynamics; i.e. the modes and sources of transmission? In addition to analyzing geographic and community patterns in HIV epidemics, a vital aim of a synthesis is to understand the main transmission modes and sources of new infections and to ensure that programs are based on this analysis so they can effectively prevent new infections. This can be posed as a simple question: How did the last 1,000 new infections in a given country occur? There are four main approaches for trying to better understand transmission patterns and sources of infection:

- a) **Simple comparisons of HIV prevalence:** Simplest is to compare HIV prevalence across different communities. A steep gradient (large differences in HIV prevalence) implies that high prevalence communities are contributing significantly to transmission. For example, HIV prevalence among sex workers in Ghana was 78% in Accra, the capital and 81% in Kumasi, the second city, compared to 2% prevalence in the general population. Intuitively, these data suggest that sex workers are contributing significantly to HIV transmission – a hypothesis supported by subsequent studies.
- b) A more systematic approach is to **ask HIV-infected people how they became infected** and to use their answers to infer transmission modes.
- c) **Risk factor studies** are a more sophisticated approach, and examine the concomitants of HIV infection in a research sample.

However, there is a crucial limitation in these types of analyses – they tend to reflect HIV prevalence (which includes all infections, recent and historical), and not HIV incidence (new infections in the previous year). HIV prevention programs must effectively target the largest sources of *incident* HIV infection, that is, new infections. Many countries have HIV prevalence data, but very few have good HIV incidence data. Some countries have limited HIV incidence data from longitudinal studies, such as vaccine trials or HIV prevention trials, but these samples are usually small and not representative of the wider population – for example, prevention trials among sex workers in Nairobi, Kenya. Test techniques (such as

Ethiopia – full synthesis

The Government of Ethiopia requested a synthesis to take account of new data from the first population-based survey of HIV prevalence and related behaviors. A GAMET team of three epidemiologists worked a total of about 200 days, well over three full months of work each.

A study Steering Committee, chaired by HAPCO (the National AIDS Council), included all the key partners, and helped ensure wide and intensive consultation with the government and other stakeholders. Initially, an inception report outlining the study scope and methodology, and a tentative table of contents and study outline were circulated for comment, and guided the work. A rough initial draft of the findings and recommendations underwent intensive internal review, and then a revised draft was circulated widely for review. At a four-day retreat of key stakeholders, the draft was read and discussed very carefully, which led to an extensively revised and more policy- and action-oriented third draft with a much clearer storyline and clearer, more explicit policy and program implications.

The study synthesized findings from an exhaustive literature review, extensive additional analysis of the primary data, and several commissioned background papers. The final draft report was edited to improve the presentation and refine the analysis. The year-long process culminates in a dissemination process planned for January 2008.

The synthesis concluded that Ethiopia's epidemic is much more concentrated than previously thought, with much higher prevalence along highways, in market towns and development nodes, among sex workers, and in Gambella district near the border with Sudan, where much lower rates of male circumcision are an important contributing factor to higher HIV rates than the rest of Ethiopia. Transmission within discordant couples also contributes significantly to new infections, needing new prevention approaches.

It is too early to gauge the impact of the synthesis study – that will be seen in the extent to which the programmatic implications change the direction and emphasis of the national response.



Kedija learns about family planning and HIV/AIDS

the detuned elisa test, the BED assay or the avidity/affinity test) to identify recent infections using cross-sectional survey blood samples are being developed, but remain experimental.

d) **Mathematical modeling:** In the absence of measured HIV incidence data, countries may be able to model their sources of incident infection, using various available computer models or epidemiological analytic methods. These include estimating the “population attributable fraction” as was done in Accra, Ghana; the Asian Epidemic Model developed by the East-West Center with support from USAID and others; and the recently developed UNAIDS incidence model being used in Africa. Studies and models can improve our understanding of the major sources of new infection and transmission dynamics. However, they are only some of the inputs that go into a synthesis, and must be carefully substantiated and triangulated using data from other sources.

7. Assess the extent to which the major responses, including national strategic priorities, investments and interventions, match the major drivers of HIV transmission. With the epidemic size, trends, character and heterogeneity delineated, as well as sources of recent infection and transmission patterns/modes, there is sufficient understanding of the character of an epidemic to assess the extent to which major national HIV prevention responses match and tackle the major sources of transmission. For example, in Ghana, where a careful study found that 76% of new infections among sexually active adults were attributable to sex work, the World Bank estimated that only 0.8% of the World Bank-funded project (GARFUND) resources were devoted to programs to make sex work safer. Across West Africa, important and relevant programs for sex workers have been discontinued as funding sources changed. Conversely, a regional highways project focusing on commercial sex along Southern Africa's highways and borders enumerated few sex workers and subsequently found that most adult men reported casual, rather than commercial sex. In both Papua New Guinea and Papua Indonesia, the majority of HIV resources are spent in the capital city, yet evidence suggests that HIV and risk behavior are higher in the largely unreached rural areas. Over time, in mature, declining HIV epidemics, transmission occurs increasingly from people with HIV to their spouses, yet there is limited emphasis on couple-based HIV prevention. In Uganda and elsewhere in East Africa, there is a strong emphasis on HIV prevention among young people, yet the data indicate that the peak age of HIV prevalence and incidence is among older men. Globally, there is immense opportunity to better align HIV prevention priorities and investments with the major sources of HIV transmission – this is perhaps the single most important role a synthesis can play.

8. To what extent do the major interventions reflect proven approaches and global best practice evidence?

It is not sufficient to ensure that HIV prevention investments address the major sources of HIV transmission – it is also important to ensure they use proven, evidence-based approaches. For example, in China, harm reduction approaches emphasize methadone maintenance therapy. However, recent World Bank cost-effectiveness studies and syntheses suggest that needle-syringe programs may be far more cost-effective. In Vietnam, and elsewhere in Asia, drug addicts are placed in detention centres, despite clear evidence that the majority relapse into continued drug use upon release. Worse still, HIV infection increases steeply during detention, suggesting that the detention centres are incubators of HIV transmission and may significantly accelerate national epidemics. Identifying and describing effective approaches is particularly relevant for countries that acknowledge the character of their HIV epidemic and want more differentiated assistance – as one Asian program manager said in frustration: “Don’t just tell us to do harm reduction, we know that, tell us how to do it really well.” The key point here is to ensure that syntheses do not simply go over well-trodden ground, but tackle current challenges – which may increasingly focus on the question: “Given our improved understanding of our specific situation, what is most likely to work?”

9. Synthesis reflection – in what respects and to what extent, does the synthesis challenge conventional wisdom and thinking about the HIV response? How sure is the evidence base for such challenges? What are the major caveats? It is important for a synthesis to summarize how it challenges conventional wisdom – for example, the South Asia synthesis argued that South Asia’s epidemics were smaller and more concentrated than generally perceived, and that HIV responses should be narrowly focused on most-at-risk-populations. This was somewhat controversial at the time – it is important to evaluate how sound the evidence base is for any challenge to the generally accepted wisdom. It is also important to state the major caveats clearly. In South Asia, for example, there were limited HIV prevalence data for North India until the National Family Health Survey (NFHS) was completed – when it was, it subsequently validated the existing sparse data, but the caveat was essential.

10. Conclude the synthesis by setting out the major policy implications for decision makers. A synthesis is a policy document (not just an analytical piece), and must have important policy and program implications for decision makers. These implications must be (i) spelled out unmistakably in the report, (ii) clearly summarized in a separate conclusion, and (iii) form a major part of the Executive Summary. They must be written clearly, simply and in ways that “speak to” decision makers,

making their significance and implications clear. For example, a recent Kenya rapid synthesis arguing that male circumcision in Nyanza is critically important includes an analysis of how many HIV infections could be prevented each year by male circumcision and how much smaller Nyanza’s epidemic would be in 10 years if specified levels of male circumcision were to be achieved. It is important for the conclusions to be relevant, important and contain new insights. The danger that syntheses will yield “blinding glimpses of the obvious” can be anticipated and avoided at the start, when the storyline is sketched, ensuring that the synthesis is likely to have something important to say.

Hallmarks of an excellent synthesis

- a) At the start, there is a **clear initial hypothesis or storyline** that is then tested against the data, and refuted, confirmed or refined.
- b) A compelling, clear, short Executive Summary sets out the **key findings and policy and program implications**, clearly explaining the importance and potential impact of the recommendations.
- c) The synthesis **answers the following questions**:
 - What is the magnitude of the epidemic?
 - What are the trends and phase of the epidemic, its character and potential?
 - What are the major contrasts/patterns in the epidemic?
 - What transmission dynamics and sources give rise to most new infections?
 - To what extent do the major responses, including national strategic priorities, investments and interventions, match the major drivers of HIV transmission?
 - Do major interventions reflect proven approaches and global best practice?
 - In what respects and to what extent does the synthesis challenge established wisdom and thinking about the HIV response? How sure is the evidence base for such challenges? What are the major caveats?
 - How can the conclusions be aligned with the realities of the current policy environment?
- d) The **conclusions** are clearly stated and flow logically from the data analysis, offering **relevant, important, new insights** on the epidemic and how the response might be more effective in preventing HIV infections.

- e) The report **clearly describes the methodology** used, including review mechanisms and approvals. It cites all data sources in full, documents all methods of data collection, and notes all sample sizes so that readers can appropriately interpret the findings.

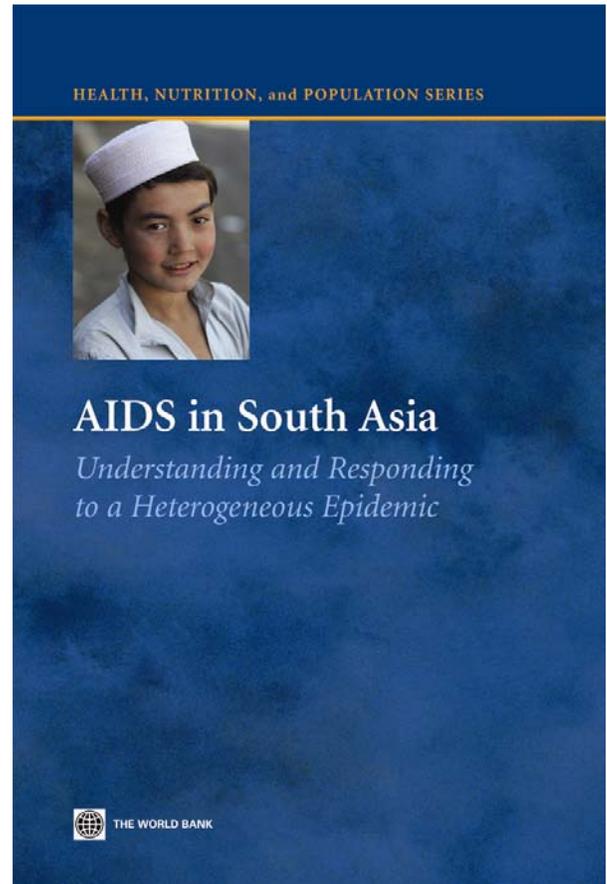
The reasons more countries want syntheses ...

Syntheses can be the foundation for a new or revised national strategic plan, guiding government and development partner investments in HIV in a country. They can be used to review the validity of areas being funded. They can identify “hot spot” areas and key sub-populations where HIV prevention activities need to focus. And they can help assess the existing and needed coverage and scale of the highest priority and most cost-effective prevention interventions. The synthesis study in China, for example, found that fewer than 1% of IDUs were being reached with needle/syringe programs, which are about one third of the cost of methadone maintenance programs per infection averted.

Syntheses support a renewed focus on effective HIV prevention, and reflect the strong realization that expanding and sustaining access to treatment depends on effective prevention. They can enable policy makers and planners to rethink the country’s HIV response, to choose HIV prevention interventions that are targeted, realistic, appropriate and more likely to be effective.

References, further information

- World Bank. *AIDS in South Asia: Understanding and Responding to a Heterogenous Epidemic*. World Bank, Washington DC, 2006.
www.worldbank.org/AIDS > publications > scroll down or click here for this report
- More details on the work in Papua Indonesia are provided in the Getting Results note, November 2007 and the full report **Risk Behavior and HIV Prevalence in Tanah Papua 2006 – Results of the IBBS 2006 in Tanah Papua, Statistics Indonesia and Ministry of Health**, is available on line at: http://siteresources.worldbank.org/INTINDONESIA/Resources/Publication/PapuaHIV_en.pdf
- Gouws E et al. 2006. Short term estimates of adult HIV incidence by mode of transmission: Kenya and Thailand as examples. *Sex Transm Infect*, 82(suppl III):iii51-55.
- Links to synthesis reports will be added at www.worldbank.org/GAMET as they become available



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Injecting drug use photo (p5) accessed on line at: <http://satudunia.oneworld.net/ezimagecatalogue/catalogue/variations/30881-300x300.jpg>

Picture “Kenya today” (p7) accessed on line at kenya.africancolours.net/content/9679 and reproduced by kind permission of the artist, Joseph Bertiers

“Kedija learns about family planning and HIV/AIDS” near her village in Siraro Woreda, Ethiopia. (p8) She has three children, not counting the ones that have passed away. She is the second wife of her husband, who has recently turned his attention to his new third wife. Photograph by kind permission of Photoshare, © 2005 Netsanet Assaye, photo I.D. 2006-371, www.photoshare.org

Appendix 1: Illustrative Data Guide for Syntheses

A: Epidemic Review Data sources

AIDS Case Reporting

1. Obtain all AIDS case reporting at national level
2. Critically review the quality and limitations of the AIDS case reporting
3. Analyze AIDS case reporting by gender, age, economic status, transmission mode, geographic origin and risk factors, carefully noting all major trends

HIV Prevalence

4. Obtain all HIV prevalence surveys from blood donor, hospital patient, VCT, PMTCT, ANC and high risk group surveys
5. Critically review the quality of the data, with particular reference to sampling and testing issues
6. Analyze HIV prevalence data by age, gender, economic status transmission mode, geographic origin and risk factors, carefully noting all major trends. Use statistical tests wherever there are adequate sample sizes

HIV Research Studies

7. Obtain all major HIV research studies, particularly incidence and risk factor studies.
8. Critically review the quality of the studies and identify their methodological strengths and weaknesses
9. Analyze HIV incidence data and trends, as well as correlates of HIV infection

Bio-behavioral Surveys

10. Obtain all major bio-behavioral surveys
11. Critically review the quality of the studies, including their internal consistency and concordance with other data sources
12. Analyze HIV incidence data and behavioral trends, with particular emphasis on correlates of HIV infection
13. Identify, quantify and rank the major correlates of HIV status

Behavioral Surveys

14. Obtain all major behavioral surveys (that do not include bio-markers)
15. Critically review the quality of the studies, including interviewer recruitment and training, tool translation and back-translation, sampling, the interview process, including rapport building. Also examine their internal consistency and concordance with other data sources
16. Analyze behavioral trends by risk group, age gender, economic level and other relevant factors

17. Identify, quantify and rank the major correlates of HIV status

Ethnographic and Qualitative Studies

18. Obtain all relevant ethnographic and qualitative studies, particularly those dealing with HIV, drug use, sex work, sexuality (including homosexuality and bi-sexuality) and gender
19. Critically review studies and use the data to situate the biological and behavioral data described above in an integrated, contextualized format

Models

20. Obtain all major HIV models and projections
21. Critically review the models and summarize their characterization of HIV prevalence, incidence, trends and changes in infection patterns
22. Identify the major gaps and limitations in the models and estimate their effect upon the accuracy of the models
23. Make recommendations to strengthen further modeling

STI Data

24. Obtain all major STI data
25. Critically examine the quality and patterns of the data
26. Examine the relationship between STI data and HIV trends
27. Do STI data predict HIV infection levels?
28. Summarize STI patterns and trends and their implications

Other studies

29. Rapid or full epidemiological synthesis done in the past 10 years
30. Qualitative study reports and anecdotal information (can include supervision reports, case studies, field reports, interviews, narratives, testimonies, etc.)
31. UNAIDS country-specific epidemiological data and estimates provide latest UNAIDS/WHO epidemic update. As of Jan 2008, latest was published in Dec 2006: www.unaids.org/en/HIV_data/epi2006/. The UNAIDS/WHO Global HIV/AIDS Online Database collates the most recent country-specific data on HIV spread and impact, with information on risk behaviors (e.g. casual sex and condom use), as well as health sector response information (e.g. data on people receiving treatment, coverage of HIV counseling and testing) Available on line at: www.unaids.org/en/HIV_data/Epidemiology/epidat abases.asp. Epidemiological fact sheets by country can be downloaded at www.who.int/globalatlas/default.asp.

B: HIV response review data

32. Obtain all major program reports describing national AIDS responses, particularly reports from the national HIV M&E system and from major development partners. Most countries have at least started to develop national HIV monitoring and evaluation systems. These systems typically generate periodic information products (reports), including a report to UNAIDS on the 25 UNGASS indicators. The UNAIDS website contains good information (www.unaids.org, search for 'Global AIDS Epidemic Update'), as do websites of development partners (www.theglobalfund.org, www.pepfar.gov, and the World Bank Africa Results Management System).
33. Review National HIV/AIDS policy and National HIV/AIDS strategic plans
34. Analyze the quality and coverage of the services, in relation to projected need
35. Evaluate the distribution of the services, in relation to urban-rural divisions and socio-economic status of participants. Pay particular attention to SW, clients, MSM and prisoners
36. Summarize the major providers of services, by size and quality, including the following categories: public providers, the private sector and NGOs. Assess the resources and capacity in each sector and recommend capacity improvements where required
37. Critically evaluate national responses, relative to the need and in comparison to other countries
38. Rapid epidemiological and/or HIV response analyses or detailed Epidemic, Response and Policy Synthesis reviews done in the past 10 years

39. Qualitative study reports and anecdotal information: These can include supervision reports, case studies, field reports, interviews, narratives, testimonies, etc.

C: Financing the HIV response

40. National AIDS Spending Assessments and Public HIV Expenditure Reports provide information about spending on the HIV response in the country, and help the Bank team and client to determine together, the most strategic use of the Bank's investment in HIV in the country. Ministries of Finance, the NAC or the in-country M&E person are the most likely sources for these data.

Sources used to compile this list:

Gorgens-Albino and Victor-Ahuchogu, J., 2007. Planning for, Measuring and Achieving HIV Results: A Handbook for Task Team Leaders of World Bank lending operations with HIV components, Version 2.2, The World Bank: Washington DC.

GAMET. 2007. How GAMET helps countries to improve their HIV response through Epidemic, Response and Policy Syntheses (ERPS). The World Bank: Washington DC.

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