

1. Introduction

The HIV/AIDS epidemic in Zambia became visible with the identification of the first AIDS case in 1984. Since then, it has spread rapidly throughout the country and has become endemic. It is generally believed that this was preceded by a phase of silent spread commencing in the mid to late 70s, becoming obvious in the mid 80s, and leading to socioeconomic consequences in the early 90s. The government began to respond more meaningfully to the epidemic around 1986 with the establishment of the National AIDS Surveillance Committee and the setting up of the management structure for responding to the HIV/AIDS challenge, under the leadership and guidance of the WHO's Global Program on AIDS (GPA).

2. The HIV/AIDS Situation

The HIV/AIDS epidemic was initially an urban phenomenon, but it soon became obvious that all parts of the country were affected, as evidenced consistently through the sentinel surveillance findings in women attending antenatal clinics (1). Zambia has a high HIV seroprevalence with the average adult levels being estimated at about 19.9% and with a clear urban-rural difference; urban areas have almost twice (25%) the level of HIV infection compared to rural areas (13%) (figure 1). These national figures have been arrived at using data from sentinel surveillance (among pregnant women) and population-based survey data (using age specific rates from a representative sample of both sexes in selected urban rural communities).

In most urban settings, preliminary indications are that the seroprevalence is stabilizing albeit at extremely high levels (25%) while in many rural areas the prevalence is still rising. There is an intriguing finding in one particular area of Lusaka (Chelston) where HIV “incidence” has declined rapidly in the 15 - 19 year age group from about 28% in 1993 to 17% in 1996. Because of the small numbers and the limited time period for analysis, it is impossible at this stage to state in certain terms to what extent this decline represents a generalizable finding and whether or not it is a real decline.

Fig. 1. HIV Prevalence by Province and Residence - Childbearing Women 1994

Other Sexually Transmitted Diseases (STDs) are also important health problems in Zambia and these include gonorrhoea, syphilis, chancroid, trichomoniasis and candidiasis. They account for up to ten percent of hospital outpatient department (OPD) attendances in some major hospitals in urban Zambia. A review of STD trends from 1984 to 1991 shows a 72% decline in the number of new cases of STDs reported to the STD Program (2). The male to female ratio remained 2:1. The observed decline may be related to intensified HIV/STD interventions and the health seeking behavior patterns of STD patients (3). However, it can not be ruled out that this result might be somewhat biased due to changes in reporting with time.

3. The Response to the Epidemic

The National AIDS Prevention and Control Program, as it was initially called, was formally established in 1986 with assistance of GPA. Its main responsibility was to provide technical and managerial leadership in raising public awareness on HIV and AIDS, ensure blood safety in health facilities, develop clinical guidelines on HIV/AIDS, establish voluntary counseling and testing services etc.

Consistent with the evolving epidemic, Zambia went through the process of developing the Short Term Plan (STP) for blood safety in 1986/87 followed by the development and implementation of the first Medium Term Plan (MTP I) from 1988 to 1992 and currently the second Medium Term Plan (MTP II). Both MTPs were evaluated externally but of significance were the recommendations in 1992 relating to the need for broadening participation in the response to the epidemic to include all sectors of the Zambian society. This triggered a consensus-building process during 1993 among all stakeholders and actors and culminated in the production of a multisectoral strategic plan (MTP II) that had three major goals:

1. To reduce HIV/STD transmission
2. To reduce the socioeconomic impact of HIV/AIDS
3. To mobilize local and external resources for HIV/AIDS

A mix of interventions and strategies to achieve the above objectives are being implemented and include preventing sexual transmission of HIV (promoting safer sexual behavior, IEC, condom distribution), blood screening, early and effective treatment of STDs and a multiplicity of many others.

Consistent with the widening and cross-sectoral impact of HIV/AIDS, Zambia has been pursuing a multisectoral response to the prevention and mitigation of the HIV/AIDS epidemic through stimulating and catalyzing government, private sector and NGO/religious organization participation in the response. A number of innovative programs are now in existence throughout the country.

A number of local and external reviews have been conducted since the inception of the National AIDS Control Program to assess the extent to which the program has been successful in meeting these objectives (see details and analysis below).

4. The Role of the National AIDS Program

The National AIDS/STD/TB and Leprosy Program's (NASTLP) main function is to ensure that HIV/AIDS and other related STDs/tuberculosis cease to be major health problems in Zambia with a reduction of the impact of these diseases on the individual, family and community.

Consequently, NASTLP provides leadership in the national response to the HIV/AIDS epidemic through:

- i. Advocacy
- ii. Facilitation and support
- iii. Coordination
- iv. Resource mobilization
- v. Research, monitoring and evaluation.
- vi. Strategic planning

Increasingly, the Program has moved away from being an implementing body to one that coordinates the response to the epidemic.

In order to rationalize and harmonize the use of scarce resources available to HIV/AIDS/STD/TB prevention programs, and recognizing that these conditions were closely interwoven, a conscious decision was made to combine the hitherto separate and distinct HIV/AIDS Prevention and Control Program, the STD Program and the TB and Leprosy Program into one AIDS/STD/TB and Leprosy Program (NASTLP) under a unified management structure.

5. STD Services

The National STD Control Program of Zambia was launched in 1980 and it's main responsibilities were to (i) reduce the transmission of STDs (ii) provide efficient diagnostic and treatment services (iii) conduct research in STDs.

A network of 62 STD clinics located at the central, provincial and district hospitals was established. Since March 1990, diagnostic, clinical management and prevention capabilities at these health facilities were improved through training, diagnostic equipment and supplies.

6. The Health Sector Reform Program

An important dimension in the Zambian HIV/AIDS response has been the advent of the Health Sector Reform program that has emphasized the devolution of administrative, financial and technical responsibility to the district level. The center has retained policy making, resource mobilization, legislation and other facilitatory and coordination functions. A key element of the health reforms has been the integration of all vertical programs such as the National AIDS/STD/TB and Leprosy program into the Central Board of Health which has been mandated by the Ministry of Health with the executive responsibility for health service delivery. The responsibility of AIDS/STD/TB and Leprosy activities at national level lies with one specialist. This has had an adverse effect on the capacity and capability of the Central Board of Health to effectively implement, coordinate and monitor the response to HIV/AIDS.

7. Sources of HIV/AIDS Data

The NASTLP has over the years been able to develop a core epidemiological surveillance and research system that has been able to generate comprehensive data and information on the magnitude, patterns and trends of HIV infection and related behavioral and socioeconomic determinants. It comprises:

7.1 National Sentinel Surveillance System

Childbearing women (CBW) have been identified as the key sentinel population for monitoring the HIV epidemic in the sexually active population, especially in sub-Saharan Africa (3, 4). The surveillance system among CBW is primarily intended to obtain information on the prevalence of HIV infection and to monitor trends of HIV infection from sequential cross-sectional surveys of the same population. Other populations (such as STD attendees) have been included to a lesser extent.

The Zambian ANC-based National HIV/STD Sentinel Surveillance System (NSS) based on data from women attending ANC clinics has been gradually developed since 1990 with considerable expansion in 1994 to (i) increase geographic representation and (ii) to obtain detailed sociodemographic characteristics of the childbearing women. It is currently operational countrywide in a total of 22 sites, with at least two sites (urban and rural) in each of Zambia’s nine provinces.

All first attendees for antenatal care during a maximum period of 4 months are enrolled into the NSS. The required maximum sample size is 500, but the 4-month limit on data collection period results occasionally in sample sizes below the required level particularly from clinics with low population coverage. The actual collection of specimens is preceded by training of health staff (typically the District Director of Health, the ANC nurse and the laboratory technicians). The HIV testing is conducted in an unlinked anonymous way from blood samples collected for syphilis screening which is part of the routine standard of antenatal care. As indicated above, the main information collected beyond 1994 relates to major sociodemographic characteristics such as age, marital status, residence and educational attainment (measured by the number of years in school).

A venous sample of blood is collected from each ANC attendee and serum separated in the laboratory of the local hospital by the trained laboratory technician. The sera is then frozen and transported to one of the two national reference laboratories (Lusaka and Ndola). Quality control is ensured through re-testing using different principles (5).

Data are entered in the EpiInfo and later converted to SPSS-Windows with calculation of confidence intervals (CI), and multivariate analyses of HIV infection (logistic regression).

The table on the next page shows the prevalence of HIV infection among childbearing women derived from repeated sentinel surveys between 1990 and 1994.

Table 1: Prevalence of HIV among childbearing women by area, Zambia 1990 -1994 (areas with two or more measurements)

Province/site	Year	N	HIV Positive %	95% CI
Lusaka Province				
Chelstone	1994	462	24.7	20.7-28.6
	1993	299	26.8	21.7-31.8
	1992	208	22.6	16.9-39.7
Chilenje	1994	456	35.3	30.9-28.3
	1993	287	22.0	17.1-26.8
	1992	445	27.0	22.9-31.1
Matero	1994	394	28.4	24.0-32.9
	1993	288	27.1	21.9-32.2
	1992	232	29.7	24.7-34.7
Kalingalinga	1994	512	21.7	18.1-25.3
	1993	442	23.5	19.6-27.5
Southern Province				
Macha	1994	497	9.1	6.5-11.6
	1993	500	10.0	7.4-12.6
	1992	418	7.9	5.3-10.5
Eastern Province				
Minga	1994	489	9.6	7.0-12.2
	1993	497	17.7	14.3-21.1
	1992	497	12.9	10.0-15.8
Luapula				
Kashikishi	1994	508	14.6	11.5-17.6
	1993	490	15.1	11.9-18.3
	1992	202	11.4	9.2-13.6
Western Province				
Kalabo	1994	293	10.2	6.7-13.7
	1993	306	4.9	2.5-7.3
	1992	220	5.9	2.8-9.0
Northwestern				
Solwezi	1994	231	23.8	18.3-29.3
	1993	380	15.0	11.4-18.6
	1990	100	30.0	21.0-40.0
Mukinge	1994	380	9.5	6.5-12.4
	1993	568	9.7	7.2-12.1
	1992	149	7.5	3.2-11.8
	1990	100	13.0	7.0-21.0

Since its inception, the NSS has yielded useful data for assessing the scale, magnitude and trend of the HIV epidemic in the general population (as extrapolated from ANC data).

There have been doubts with regard to the representativeness of ANC data in relation to the general population (5) but nevertheless, the NSS provided and continues to provide information showing:

- i. A rising trend of HIV infection among CBW in the early days of the epidemic (1986 to 1990). The major constraint was the fewer number of sites that were involved in sentinel surveillance prior to 1992 hence placing severe limitations on the generalizability of the findings.
- ii. Indications of trends of HIV infection between 1990 and 1994 show a stabilization of the HIV infection levels in the urban areas but with unstable levels in the rural areas. The provincial estimates by urban versus rural areas showed the urban residents to be at generally uniform prevalence in all provinces (range 25 - 32%) but with distinct differences between provinces among the rural residents (8 - 16%).
- iii. A clear urban/rural differential in HIV seroprevalence (25% versus 13% respectively).
- iv. Age-specific HIV seroprevalence and trend analysis is seriously hampered by the lack of age data since only the 1993 and 1994 provided information in this respect. Changes in the prevalence within the age group 15 - 19 years might indicate more accurately the ‘incidence’ of HIV (which in Lusaka has declined from 27.6% to 17% over a five-year period). Parallel age-specific comparisons of four areas with age data shows that the prevalence is stable in two of them (Macha and Minga), a decline in one (Minga) and an increase in one (Kalabo).

Some Limitations

It is clear that limitations in the usefulness of NSS data have emerged with the evolving HIV epidemic. Because the epidemic is beginning to mature and stabilize in Zambia, it is impossible to deduce from the NSS survey why or how precisely this is happening. NSS data would not tell us about the dynamics and factors governing transmission (cultural, social, economic and other behavioral and biological determinants) beyond measuring the prevalence.

It is for which reason in Zambia the survey was expanded to include the collection of critical sociodemographic characteristics such as age, educational and marital status, employment, migration, condom use, knowledge etc. In this way, the information would be useful to planners, policy makers and AIDS Program Managers for developing informed strategies and interventions.

The strength of the NSS lies in its integration within the general health care system which guarantees sustainability as well as in the fact that the bulk of the work is done by local health staff. However, a major factor determining continuity and regularity of conducting NSS lies in the availability of external funding from bilateral or UN sources: all the sentinel surveys done so far in Zambia have been funded by WHO’s GPA and/or bilateral donors such as the Swedish International Development Agency (SIDA) and NORAD. The Government’s role in NSS has been the provision of infrastructure, staff salaries and recurrent departmental charges which in themselves are substantial expenses.

A major gap has emerged in the NSS data set between 1994 and 1998 chiefly as a result of procurement difficulties and bureaucracy in procuring HIV test kits and requisites. Despite adequate and timely preparations to conduct the 1996 sentinel survey by the National AIDS Program, and although funds were generally available to purchase the test kits, it was impossible to make progress simply, because the procurement of HIV test kits was governed by government procurement rules (which are often convoluted and bureaucratic) under the integrated logistics management system. In those times, when procurement was done by the ‘vertical’ AIDS program, no

such difficulties were experienced. A major lesson learnt from this unfortunate episode is that the administrators and decision-makers need to be conversant with and appreciative of the imperative to collect such data in a regular fashion in order to monitor the epidemic effectively.

7.2 The Population-Based HIV Survey (PBS)

In an effort to address the limitations of the NSS and to go beyond collecting HIV prevalence data, a population-based HIV survey using saliva was conducted in selected urban and rural areas in 1995/96 in order to:

- (a) Establish a cohort for follow up (individuals and populations)
- (b) Assess the representativeness of sentinel surveillance data
- (c) Examine patterns and determinants of infection, sexual behavior and health seeking behavior patterns

The PBS yielded useful epidemiological and behavioral information while at the same time providing a unique opportunity to study changes in prevalence and incidence defined by different exposure groups. It has also been possible to study mortality and determinants involved.

In comparing HIV surveillance results obtained from the NSS (childbearing women) and the PBS, it is clear that the NSS tended to under estimate the overall HIV prevalence in the general population, but this difference was not statistically significant. In the urban areas of Zambia, the adjusted overall HIV seroprevalence rate of ANC women (aged 15 to 39 years) was 24.6% compared to 26% in the PBS. In terms of the age-specific prevalence rates, it is clear that data from CBW tends to over estimate HIV seroprevalence in the younger age groups (15 -19 years) and under estimate in the older (30 and above) groups (figure 2).

Fig. 2 HIV Infection by Age (15 - 19 year age group) Comparing Urban Data from ANC Attendees

Another important finding was that of HIV infections among couples. A total of 457 couples were identified. The overall prevalence of couples being discordant was 26.9% while 58.9% of the couples were concordant HIV negative. The highest proportion of discordant couples appeared among urban Lusaka residents (31.7%) compared to 20% among rural residents. (6).

The use of saliva in this study was a major advantage, possibly accounting for the high consent rate to provide specimen - 93.5% - compared to invasive procedures. But it also meant that quality control needed to be rigorous in comparing saliva with serum for HIV testing.

For reasons of cost, the survey was done on a limited scale, covering 4,494 individuals in urban and rural areas. Because the rural sample was even smaller, the extent to which the findings are generalizable to the rural population is limited.

7.3 The Zambia Demographic and Health Survey (ZDHS)

The purpose of the DHS is to provide policy makers and planners with detailed information on fertility, infant and child mortality, family planning, maternal and child health, sexual activity and knowledge of HIV/AIDS. Two surveys have been done by the Central Statistic Office - 1992 and 1996 (7).

Some of the major findings in the 1996 DHS include:

- (a) Fertility - a decline from 6.5 in the late 1980s to 6.1 in 1996
- (b) Early marriage and early child bearing (one third of women become mothers by the time they reach 18 years)
- (c) Family Planning – 26% of women are using a contraceptive method with an increase in modern contraception from 9% in 1992 to 14% in 1996.
- (d) AIDS-related Knowledge and Behavior - the finding of near-universal knowledge of HIV/AIDS is encouraging; in relation to behavior change, 80% of women and 94% of men reported having changed their sexual behavior by reducing the number of partners.

The ZDHS is useful and of particular importance in assessing knowledge on HIV/AIDS and other STDs since it is representative at national and provincial levels. Compared to 1992, the ZDHS of 1996 has a more comprehensive set of questions on HIV/STDs, behavior change and condom use.

Consistent with the evolving HIV/AIDS epidemic, the questions in the ZDHS need to take account not only of the basic knowledge on HIV/AIDS but also delve into the impact and socioeconomic consequences of the epidemic. It is well known that in the late 1980s and early 1990s, the major preoccupation was to raise awareness on HIV/AIDS as a major strategy for dealing with and preventing the spread of HIV. In the 1990s, the socioeconomic consequences of the epidemic have manifested themselves starkly at individual, family, community and national levels and are increasingly determining the course of socioeconomic development in many developing countries. With this better understanding and evolution of the epidemic, questions that capture this perspective would be useful to planners and policy makers in developing interventions.

7.4 The Hospital AIDS Notification System

AIDS was made a notifiable disease since its advent; returns for all cases of AIDS diagnosed in health facilities are supposed to be sent to the MoH. However, due to diagnostic, logistic and personnel constraints, only a small proportion of AIDS patients are reported to the Ministry of Health. For all intents and purposes, this information is useless and misleading, and therefore its continued collection must either be discarded or radically revitalized to make the collection effort worthwhile.

7.5 Studies and Research

A plethora of studies on various aspects of the HIV/AIDS/STD epidemic covering a diverse range subjects (socioeconomic impact, biomedical and clinical research, behavioral and impact reduction) have been conducted in Zambia by a variety of institutions such the NASTLP, the University of Zambia, the Institute of Economic and Social Research, University Teaching Hospital (UTH) and

many individual researchers. The major studies have been collated into an *HIV/AIDS Bibliography - An Annotated Review of Research on HIV/AIDS in Zambia* (8).

The major areas covered include:

- Epidemiology**
 - Overview Reports
 - HIV/STD Surveillance Studies

- Biomedical and Clinical Research**
 - Blood Donation, HIV Detection and Screening
 - HIV and Interaction with STDs
 - Perinatal Transmission of HIV
 - HIV/STD/TB Infection in Children
 - AIDS Related Complexes
 - HIV/AIDS and Tuberculosis

- Socio-Behavioural Research**
 - KAPB studies
 - Sexual Behavior
 - Health-Seeking Behavior
 - IEC and Mass Media
 - Behavioral Intervention Research
 - Women and HIV/AIDS
 - Counseling and Living with HIV/AIDS

- The Impact of HIV/AIDS**
 - General Socioeconomic Impact
 - Sectoral Impact Assessment (Industry/ Public Sector)
 - Orphans
 - Household and Community Coping Strategies

- Alleviating the Impact of HIV/AIDS**
 - Home and Community-Based Care

The diverse range of issues relating to the HIV/AIDS pandemic and its socioeconomic consequences have been covered, with specific recommendations made to redress the issues identified. It is impossible to make comprehensive comments upon these studies since they address a myriad range of issues and topics and were conducted using differing methodologies. It is, however, obvious that over 85% of all the studies were conducted in towns along the line of rail where communication, access and conditions are favorable for research. This raises serious doubts and concerns in relation to the representativeness and generalizability of the findings, especially for the disadvantaged, poor rural areas where conditions are so different from the urban settings. This lack of equity in geographic coverage for research implies that the HIV/AIDS epidemic remains poorly understood in rural populations. There is now a need to update the Bibliography.

Another area of concern is the major gap that still exists between these research findings/recommendations and their incorporation into policy frameworks and strategies. The cornucopia of studies has not led to perceptible improvements in the level of implementation of recommendations, in which event all the expensive research is not influencing practice. Unless this gap between research and implementation is closed quickly, research risks being irrelevant and superfluous to the policy makers and those running AIDS Programs at national, district and community levels.

It can be argued that studies and research must generate information that should either (i) reveal new information (ii) correct misconceptions or myths or (iii) indicate alternative and better ways of doing

things. Ultimately, research should lead to decisions being made to do things or run programs in a more effective and efficient way (in the light of research finds). This still is a major challenge in our setting.

One of the ways this hiatus can be narrowed is to have more advocacy at high levels of government and the political leadership; this must happen in such a strategic way that planners and other key policy makers in these sectors fully understand the implications of failing to intervene now in regard to addressing the epidemic. Secondly, it is extremely important that the research findings are widely disseminated to general audiences and also to specific stakeholders who should be able to find that information useful and compelling. Quite often, due to lack of personnel, resources or technology, countries lack systems for collating and disseminating vital information throughout the country. Resource centers are urgently needed throughout the provinces and districts.

7.6 Discussion Fora and Dissemination Meetings

While workshops are not strictly monitoring tools for the HIV/AIDS epidemic, they serve to provide fora at which information, research findings and advances can be shared. The NASTLP has organized a number of dissemination workshops which include presentations and papers on various aspects of the HIV/AIDS epidemic. NASTLP has documented such experiences and meetings. The accession list provides a quick reference to the range of publications such as *The Current HIV/AIDS Situation and Future Demographic Impact, Zambia's Experience with the Multisectoral Approach, HIV/AIDS in Zambia - a Policy Maker's Perspective, HIV/AIDS in Zambia - projections, impact , an Annotated bibliography of HIV/AIDS Research in Zambia and many others.*

Repeated evaluations indicate the value of such workshops and meetings in updating various stakeholders on the major developments in the HIV epidemic and are extremely useful in obtaining feedback for program managers and planners.

Capacity to Monitor and Evaluate

With regard to monitoring and evaluating the HIV/AIDS epidemic, the National AIDS/STD/TB and Leprosy Program has been engaged in collecting and collating data and information from a range of sources as described above and encouraging its utilization. Obviously the extent to which this information is useful is dependent on the degree to which it can inform and influence policy, strategies and practice. However, it is clear that a big gap does still exist in translating useful research findings and recommendations into policy, strategies and action.

NASTLP's ability to monitor and evaluate HIV/STD prevention and care programs depends on a number of factors. Some of these constraints are managerial and administrative, such the capacity to plan in an efficient and timely manner and procuring HIV test kits on time; other constraints are systemic and structural. These include, but are not limited to:

- availability of appropriate human and financial resources to undertake monitoring and evaluation exercises and to collect relevant quality data
- optimum frequency of conducting surveys and/or routine data collection as well as the quality of the data (with cost and logistic considerations in mind)
- development of tools for evaluating the evolving approaches to HIV prevention and mitigation where the current methods may not be appropriate or are not yet developed (in the broader sense of the multisectoral and non-medical interventions)

- desire to combine and link HIV monitoring to other health-related or non-health related programs
- cost of monitoring and evaluation (staff time, HIV test kits, transport)

8. Assessment

8.1 Input/Process

STD Program

The actual expenditure for STD control in the health sector has varied, with the bulk of the resources being provided by cooperating partners. For the period 1994-1996, bilateral and multi-lateral donors provided approximately US\$588,000 to support activities for STD management and control (9). Expenditure has focused on the following areas: training of health workers, procurement of drugs, equipment, laboratory supplies and operational research. The high cost of STD drugs has deterred many donors from supporting this particular component of STD control. There is currently a paucity of data on actual expenditure for STD control in the non-health sector.

Condom Promotion

Through WHO/GPA and subsequently the British ODA (now the Department for International Development), the Zambian government provides free condoms mainly through the public health sector institutions. A condom social marketing project was launched in 1992. Monitoring of the distribution of these condoms is done through medical stores.

Approximately 18 million condoms have been distributed through the public health institutions and about 25 million (cumulative since 1996) through social marketing and through traditional and non-traditional outlets such as pharmacies, wholesalers, bars, clubs, traditional healers and NGOs.

The effectiveness of condom promotion in Zambia has been evaluated through selected studies (10, 11, 12). These studies suggest that attitudes towards condom use have improved and condoms are now used for both for family planning and as a prophylactic against disease (13).

Programs for High Risk Groups or High Transmission Areas

In an effort to ensure that available services have the maximum impact, high-risk groups or high transmission areas have been targeted for AIDS/HIV/STD projects in Zambia. Some specific strategies that have been implemented by government and NGOs are:

- providing sex workers with alternative income generating skills (TASINTA)
- implementing an HIV/AIDS prevention program for truck drivers
- integrating STD control and prevention strategies with maternal health services in 5 urban districts (Kitwe, Ndola, Livingstone, Chipata and Lusaka)
- providing youth friendly health services through public health institutions
- training sex workers as peer educators and providing them with educational materials and condoms for distribution (Kanyama peer education project)
- involving PLWHA as ambassadors and advocates attached to specific institutions in the community

- providing prevention programs for military personnel
- providing STD patients with health education information and condoms

The monitoring of the implementation of the above strategies is coordinated by the Central Board of Health and is often linked to the indicators developed in the project proposal of each of the projects.

Health Worker Training Programs

In an effort to improve health workers’ skills in diagnosis, treatment and management of HIV/AIDS and STDs, several training courses have been developed and conducted by government and NGOs through established institutions such as the University Teaching Hospital in Lusaka and also through training workshops.

National guidelines and curriculum have been developed for (i) syndromic and etiological management of STDs (ii) HIV/AIDS counseling (iii) blood transfusion (iv) HIV testing and (v) community health worker training in HIV/AIDS.

At district and community levels, several initiatives/pilots have resulted in the development of curriculum in the following areas (i) maternal syphilis screening and management (ii) home based care (iii) AIDS management (Chikankata).

8.2 Output

Availability and quality of health workers trained in HIV/AIDS and STD management

A significant number of health workers have undergone training in HIV/AIDS management through a number of training institutions and organizations. All the 72 districts have a trained HIV/AIDS Coordinator who in turn has been able to run local courses in HIV prevention and care. It must be mentioned that training in HIV/AIDS has not been the responsibility of the NASTLP alone, but a number of cooperating partners and agencies have been training health workers in districts of their interest.

More than 80% of health centers in Zambia use the syndromic approach for STD management (since they lack the equipment and trained laboratory staff). Guidelines have been distributed and training has commenced in syndromic management. In urban clinics in five districts, syndromic management has been integrated into the maternal and child health services package in order to improve pregnancy outcome.

Availability and quality of condom and other drug distribution services

Condom procurement and distribution has been done through the public and social marketing channels covering both urban and rural areas. At the community level, community based distributors have played a role in ensuring that condoms are part of the contraceptive choice. Repeated surveys have shown that condoms are generally accessible and available in most parts of the country. They are all imported. The information on condom use may be difficult to interpret owing to the fact that this is self-reported information. The recent ZDHS survey (1996) indicates more condom use in rural rather than urban areas.

Availability of school curriculum for HIV/AIDS/STD and S/RH awareness

The Government has accepted and began to include a number of HIV/STD and Sexual/Reproductive Health teaching materials in the mainstream school curricula at national level. This is within the context of life skills education for boys and girls and extends from primary up to tertiary level.

Availability and quality of blood testing facilities

All blood (100%) given in health institutions in Zambia is screened for HIV and syphilis but less so for Hepatitis B. By maintaining a steady complement of donors over a period of time, the element of risk is reduced. Potential or new donors are screened using a risk assessment tool developed for this purpose, and any indication of heightened risk from the history is sufficient to disqualify suspect donors.

All district, provincial and central referral (primary, secondary and tertiary) hospitals have blood transfusion facilities. National Guidelines for blood transfusion are provided by the National Blood Transfusion Board which is in charge of supplies, training, technical support and standards in blood transfusion.

Availability and quality of HIV testing facilities

Since 1989, the Counseling Services Unit of NASTLP has been training health workers (and those outside the health sector) in psychosocial counseling for HIV/AIDS. At present, more than 4,000 health workers have been trained in Zambia and provide this service in the health care setting. The training is offered at three levels, namely basic course, senior counselor and trainers course. In addition, a number of NGOs such as Kara Counseling, Project San Francisco, and Humana are involved in providing voluntary HIV counseling and testing. Additional services for voluntary counseling and testing are offered during special surveys like the population-based survey.

The Counseling Services Unit ensures that minimum standards are observed in the course of providing the counseling services.

Sentinel Surveillance

As indicated above, there are a total of 22 sentinel sites for conducting anonymous, unlinked HIV testing for epidemiological surveillance in Zambia. There are at least two sites in each of the nine provinces in Zambia at which repeated (biannual) surveys are done. In addition to the HIV test result, sociodemographic data is also obtained and compared to the test result. The details of sentinel surveillance have already been dealt with above.

Workplace Programs for HIV/AIDS

Since the early 1990s when the impact of HIV/AIDS became more evident, HIV/AIDS workplace programs have mushroomed either spontaneously or as part of NASTLP effort to stimulate strategic approaches to dealing with HIV/AIDS in the workplace. Consequently, a number of programs have evolved such as:

- Creation of HIV/AIDS programs, through government and cabinet offices, in all Ministries and Provincial administration offices and the appointment of HIV/AIDS Focal Point Persons

- Private sector initiative through the Zambia Federation of Employers (ZFE) to address issues of HIV in the corporate entities. A number of financial institutions such as Barclays Bank have elaborate HIV/AIDS prevention programs.

8.3 Effect

Marriage patterns

Marriage patterns have not significantly changed as a result of the HIV epidemic; neither has the age at first sexual intercourse. In fact the latter has been quoted at an even lower age. (further details in ZDHS and other surveys)

Knowledge and attitudes towards HIV/AIDS and STD

Consistently high levels of knowledge have been exhibited by the Zambian population on HIV/AIDS. In the 1992 and 1996 ZDHS, almost 90% of the people were aware of HIV/AIDS. However, an immediate concern is that this high level of knowledge does not automatically translate into concrete or sustained behavior change.

Self reported sexual behavior

A number of studies demonstrate changes in self reported sexual behavior. Repeated surveys confirm that sexual behavior change has occurred in Zambia (14).

8.4 Outcome

HIV/STD impact

HIV incidence and prevalence

Within the sexually active population, serosurveillance data from antenatal clinics in the nine provinces of Zambia from 1994 show great diversity in the spread of HIV across the country. The average adult HIV seroprevalence in Zambia is estimated to be about 19.9% with a clear urban-rural difference; urban areas have almost twice (25%) the level of HIV infection compared to rural areas (13%). Evidence suggests that in some rural areas the rates are still rising, while in urban areas they have stabilized. Encouraging recent evidence does suggest that the incidence rate is dropping in the age group 15-19 (15).

STD incidence and prevalence

In Zambia, STDs are still a major public health with an estimated 200,000-300,000 new cases occurring per year. The main source of epidemiological information from 1980 to 1996 was (i) a passive reporting system for syphilis, gonorrhoea and pelvic inflammatory disease from outpatient clinics to the Ministry of Health (ii) 64 specialized centers through the country which were capable of clinical diagnosis of symptomatic patients (iii) 24 sentinel sites which perform syphilis screening of antenatal clinic attendees and (iv) selected focused studies (16, 17, 18, 19). In 1997 the Central Board of Health through the Monitoring and Evaluation Directorate developed the Disease Registration form for health institutions in which STDs are recorded in the following categories: STD discharge, STD ulcerative and STD syphilis. This reporting format is being piloted in selected districts prior to the roll out phase which will be country wide in 1999.

The crude incidence rate remained stable from 1981-1992, with the high peak years being 1985 and 1992 when rates rose to 74.1 and 72.1 per thousand adults (above 15 years). At the specialized centers, gonorrhea represents the leading STD diagnosis with chancroid, syphilis, trichomoniasis, candidiasis and genital herpes occurring with decreasing frequency. Data on health seeking behavior is scant (20, 21). Both these studies indicated a high proportion of patients (59.3% and 60 %) who preferred to use alternative sources of health care before presenting at government clinics.

Clearly health seeking behavior studies are important in trying to identify whether declines in STD figures are apparent rather than real and could be attributed to changes in health seeking behavior rather than success of health intervention programs.

School girl pregnancy

The 1996 DHS data gives the latest national statistics of pregnancy and childbearing in adolescent girls. By the age of 19, 59.4% of females are either pregnant or have given birth (compared to 66% in 1992). As many of these pregnancies are unwanted, the rate of abortions is also very high. Between June 1993 and May 1994, incomplete abortion cases averaged 260 a month in Lusaka, 69 in Ndola, 22 in Livingstone and 20 in Mongu (22). The patients were mainly in their twenties.

Individual behavior change

At the individual level, anecdotal evidence suggests that men and women have changed their behavior. The comparison of findings from the two population based surveys in Lusaka (1990 vs. 1995) indicates significant changes in terms of more condom use and reduced number of different sexual partners (23). These findings were supported by self-reported change in behavior on five different indicators studied in the 1995/96 population based HIV survey.

Community response

Clearly HIV/AIDS is a disease which has impacted all sectors of society, but the community has had to bear the major impact in terms of caring for sick relatives and other community members such as orphans, widows and widowers. Communities have been able to take ‘ownership’ of the problem, and this has been evidenced by the emergence of prevention, care and impact mitigation activities which have been successfully initiated and coordinated by community members at most times without any external financial or material support.

With the collaboration of traditional leaders, communities are now rejecting certain traditional practices (such as sexual cleansing following bereavement) which increase the risk of HIV transmission.

Institutional behavior shifts

At the institutional level, several organizations now recognize the magnitude and extent of the impact of the epidemic and the need to act now. Strategies that have been employed include reorganization and strategic changes to policies such the training policies to take into account the high attrition rate. Organizations also recognized the importance of investing in HIV/AIDS prevention and mitigation programs.

9. Brief Review of Ten Prevention Indicators (PI)

Although no comprehensive PI survey has been done in Zambia, there is adequate information from a variety of studies and sources to be able to assess what preventive measures are being undertaken by individuals in response to the epidemic.

PI 1 Knowledge of Preventive Practices

There is near universal knowledge on HIV/AIDS (just under 100 per cent) in Zambia evidenced both from the numerous KABP studies and the 1992 and 1996 ZDHS surveys. The majority of respondents in the 1996 ZDHS could cite two or more methods of avoiding HIV infection. Both men and women identified faithfulness to one partner (49%), condom use (49%) and abstinence.

However, it is interesting to note that about 10% of the respondents indicated that HIV infection is unavoidable. This persists, despite extensive Information Education Communication (IEC) campaigns to give people correct and accurate information on HIV/AIDS. Clearly more needs to be done to identify why this trend of inaccurate knowledge continues to persist, and strategies must be found to deal with these misconceptions.

PI 2 and PI 3 Condom Availability (Central Level and Peripheral Levels respectively)

Condoms in Zambia are distributed through the public health system, private pharmacies and social marketing, chiefly the Society for Family Health (previously PSI). Because of a multiplicity of procurement and distribution channels coupled with a lack of a central database for capturing this information, it is difficult to precisely indicate the level of condom availability per capita. However, it is known that in 1996, nearly 20 million condoms were distributed through the public and social marketing channels in Zambia. Access to condoms in rural areas was slightly lower than in urban areas (PBS 1996), although it is acknowledged that those in urban areas have no such difficulty (figure 3).

Fig. 3 Showing “Condoms Easily Available when Needed “ -Population-based HIV Survey 1996

Of interest has been the rapid rise in the number of condoms distributed since the advent of the HIV epidemic (less than 2 million in 1990 to over 25 million in 1997).

This PI indicator does not indicate actual condom use; such information would be difficult to obtain.

PI 4 Reported Non-Regular Sexual Partners

Evidence of sexual behavior change is apparent in Zambia. Virtually all men and women --80% of women and 94% of men -- say they changed their behavior by restricting themselves to one sexual partner in order to avoid HIV infection. However, it would appear that men have a higher propensity for casual sex than women as evidenced from various studies.

PI 5 Reported Condom Use in Last Sexual Relationship with Non-Regular Partner

Various studies indicate condom use with non-regular partners in last sexual intercourse in range of 31 - 48%.

Fig. 4 Used Condom in Last Casual Sex: Males - PBS 1995/6

PI 6 and PI 7 STD Case Management

It would appear that no particular studies have been done to assess the extent to which individuals presenting with STDs at health facilities are assessed and treated according to national guidelines or are given basic advice on condoms and partner notification. Some of the potential difficulties with this indicator are that (i) standard guidelines may not be available (ii) the appropriate STD drugs may not be available, forcing health workers to prescribe alternative ones (iii) staff may not be trained in STD control.

PI 8 STD Prevalence in Women

Although this indicator is meant to measure the number of pregnant women aged 15-24 with positive serology for syphilis out of the total antenatal attendees aged 15 - 24, in practice the data collected in Zambia is for all pregnant women in the ANC clinics. In the UNICEF supported maternal syphilis screening program in five districts in Zambia (Lusaka, Ndola, Kitwe, Livingstone and Chipata), the RPR seropositivity is in the range of 10 to 15%. Once diagnosed, the women are given treatment together with their babies. Partners are encouraged to come for treatment and, within the first year of initiating the program, screening rates had gone up to 98% with a corresponding increase in partner treatment of 70%.

PI 9 Reported STD Incidence, Men

Self-reported urethritis in men in the preceding 12-month period was in the range of 4% of the men interviewed in the ZDHS of 1996. Most of this occurred in young men in their 20s and 30s.

PI 10 HIV Prevalence, Women

This is normally done as part of the National Sentinel Surveillance System described above. The average seroprevalence in women attending antenatal clinics in women aged 15 - 24 is years is 24.6%.

10. Discussion

Monitoring and evaluation are critical processes to the success of any program, because both activities permit the assessment of the extent to which pre-determined objectives are being attained. The HIV/AIDS epidemic is complex in its medical, social, cultural and economic manifestations, and tracking events and trends in this sphere can be an involving and convoluted process.

Since the early days of the epidemic in Zambia when the management structure for responding to HIV/AIDS was being set up in 1986, there were few tools with which the epidemic and its effects could be monitored. This was consistent with both the understanding of the epidemic at that time as well as with the level of technological advancement. The response to the epidemic took the shape of the Short Term Plan for blood safety (1986 - 87), the first Medium Term Plan (MTP I 1988 - 92) and the second Medium Term Plan (MTP II 1994 - 98) which provided the strategic framework for addressing HIV/AIDS in Zambia. In all these plans, monitoring and evaluation plans were part and parcel of the strategic plans to ensure that certain benchmarks, targets and indicators of achievement (or failure) would subsequently be used to periodically (mid-term or summative) measure progress and to point to areas of weakness requiring redress.

In recent years, more knowledge has been gained in relation to the evolving epidemic and some of the basic ingredients for a ‘successful response’. These include political commitment; persistent, targeted approaches; inclusion of people with HIV/AIDS in prevention programs; demystifying and de-stigmatizing the disease; inclusiveness and openness; effective treatment of STDs and many others. In order to ensure that we are truly monitoring and evaluating HIV/AIDS, care and STD control programs, all or most of these elements must be captured in the monitoring framework. This is what tends to make the evaluation exercise complex, because in this process of evaluating the performance of National HIV/AIDS/STD Strategic Plans, parameters and variables outside of, or supplementary to, the effectiveness indicators in the Plan are the ones used to assess performance. The tendency is to look for *process* indicators which might not have been originally in the plan, because these tend to be more *qualitative* and indicate developments during the life of the strategic plan. In addition, it is often difficult to find information readily available and usable during the time-limited review exercises in relation to the pre-determined measurement indicators. Short of a full-scale survey, it is almost impossible to extract the relevant indicators of performance.

Consequently, it is of crucial importance when determining the types of variables or indicators to be used for monitoring and evaluation to give thought to and carefully balance the need for complex, academic parameters against simple, useful, relevant information that can influence current or future practice in National AIDS Programs. After all, the main purpose of monitoring and evaluation is to constantly improve quality of service and performance on the basis of the experience gathered over the implementation period. Policy shifts can only come about if compelling data and information derived from good monitoring and evaluation systems is available. Unfortunately, the monitoring systems tend to be some of the weakest components of the National AIDS programs, and therefore require considerable strengthening.

In the last few years, the monitoring of the National HIV/AIDS Programs has become a lengthy and complicated process because of the evolving epidemic and the new dimensions that are emerging. We

are no longer dealing with a simple medical condition as we liked to believe in the early days of the HIV epidemic; instead we are dealing with such a broad constellation of social, cultural, economic, and demographic devastations and adversities that attempting to evaluate this cauldron is almost impossible. Yet dealing with and responding to these dimensions, among others, is what constitutes a ‘National Response to HIV/AIDS’. It becomes imperative to develop new conceptual frameworks for evaluating this expanded response to the epidemic, because the traditional indicators may not suffice.

On the epidemiological front, sentinel surveys, population-based HIV surveys and other research studies have yielded considerable information with regard to the status and progression of the epidemic. This effort has often been spearheaded by National AIDS Programs which mobilized resources locally and externally and therefore had discrete funds for this purpose. The collection and analysis of this information has enabled AIDS programs to modify their strategic approaches and to recommend program and policy shifts proportional with the new knowledge. It is unclear, with health sector reforms whose major thrust is integration at all levels, how this function will be sustained. The reason for not conducting the 1996 sentinel survey was due partly to uncertainties in the configuration (and apparent weakening) of the National AIDS Program after re-structuring of the Ministry of Health.

Accurate data (and information derived therefrom) is a powerful tool for advocacy at the highest level of political and government structures. In Zambia, it is clear that the wealth of available information is not being used optimally and maximally for programming, policy development and strategic planning. Although there is a wealth of monitoring data available, the following are some gaps that have been identified:

- the absence of “sector” indicators to monitor achievements/progress in the non-medical sectors
- the absence of indicators to monitor the impact of health reforms in response to HIV
- the absence of indicators to monitor innovative community responses
- the need to validate the stabilization of HIV prevalence to determine if this stabilization is real and to investigate the possible causes.

Of the data that is available, clearly the surveillance of AIDS cases has not been used to understand the dynamics of the epidemic, because surveillance has been hampered by difficulties in the case definition of AIDS and the weakness of the reporting system. A decision has to be made on whether to continue to collect this information.

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