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Zambia: Global HIV/AIDS Initiatives and Health System Capacity to Cope with the Scale-Up of HIV Services

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Abstract

Zambia has received substantial funding from three HIV/AIDS-focused GHIs over the last seven years to scale up HIV/AIDS prevention, treatment and care activities. This study assesses the effects of these GHIs on the health system in Zambia at national and sub-national levels. Two rounds of qualitative and quantitative data were collected (early 2007 and mid-2008) at national and district levels, including two urban districts (Lusaka and Kabwe) and one rural district (Mumbwa).

Significant scale-up of HIV services was reported in all three districts studied between 2004 and 2007. While all three GHIs, government and civil society participate in multi-sectoral national coordination processes, stakeholder roles and responsibilities are often unclear. At district level, coordination remains weak despite the best efforts of District AIDS Coordination Advisors (DACAs) and the District AIDS Task Forces (DATFs), which struggle due to inconsistent funding and a lack of recognition by some stakeholders. Increases in staffing levels have occurred between 2004 and 2007, but only in the two urban districts. Staff workload has increased as a result of scale-up in HIV services, particularly in Mumbwa rural district. More staff received training for HIV/AIDS services than for non-HIV services, which was often credited to GHIs. Incentives were more frequently reported for HIV than for non-HIV services.

Background

The Republic of Zambia is a landlocked country in southern Africa. It is surrounded by eight other countries: the United Republic of Tanzania and the Democratic Republic of Congo in the north; Botswana and Namibia in the south; Malawi and Mozambique in the east; and Zimbabwe and Angola in the west. In 2007, Zambia had an estimated population of 11.9 million people, with an average annual population growth of 1.7% [1]. In 2006, Zambia ranked 163rd out of 179 on the UN Human Development Index [2].

Official Development Assistance (ODA) to Zambia in 2006 was US$ 945 million. In 2005, the International Monetary Fund (IMF) and the World Bank's International Development Association provided the country with debt relief of approximately US$ 6 billion [3].

In 2008, Zambia's health sector budget was approximately US$ 295 million or US$ 30 per capita, and donor funds represented 50% of total national health expenditure. In 2007, 65% of Zambians lived in rural areas, but only 52% of all health workers worked in rural settings [4]. Thirteen districts did not have a single doctor, while more than half of all doctors practiced in the capital, Lusaka [5].

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HIV/AIDS is the leading cause of death for all ages in Zambia. In 2007, an estimated 1.1 million people in Zambia were living with HIV [6], Prevalence, however, has slightly decreased in recent years from 16% in 2002 to 14% in 2007 [7]. Prevalence is twice as high in urban settings as in rural areas, at 20% and 10% respectively [7].

Zambia has received large amounts of external HIV/AIDS funding over the last seven years to scale-up prevention, treatment and care activities [8]. Although Zambia receives funds from several donor agencies, the major contributors are three global HIV/AIDS initiatives: the Global Fund; PEPFAR; and World Bank MAP (table 3). The national multi-sectoral AIDS response in Zambia is coordinated by the National AIDS Council (NAC).

The Global Fund allocates funding to four Principal Recipients in Zambia. Two of these are government agencies: the Ministry of Finance and National Planning (MoFNP) and the Ministry of Health (MOH). Two are non-government: the Churches Health Association of Zambia (CHAZ) and Zambia National AIDS Network (ZNAN).

The World Bank MAP (from 2002-2008) has channelled its resources to support the Zambia National Response to HIV/AIDS Project (ZANARA), which is housed in the Ministry of Finance and National Planning. It allocates resources to: the Community Response to HIV/AIDS (CRAIDS); workplace programmes in the line ministries; and the NAC. The Community Response to HIV/AIDS is the only World Bank funds recipient in Zambia that sub-grants to implementing local organizations.

Zambia was chosen as one of PEPFAR's fifteen focus countries in 2003, and by 2006 PEPFAR contributed 62% of total HIV/AIDS funding in Zambia [9]. The major recipient of PEPFAR funds is the United States Agency for International Development (USAID), and implementing agencies mainly include international nongovernmental organizations (NGOs) and faith-based organizations (FBOs), which access funds directly from PEPFAR. The Country Operational Plan (COP) is prepared each year and is the framework through which PEPFAR-supported activities are undertaken.

Table 1 Basic Socioeconomic, Demographic and Health Indicators*

(*) Full data sources for all indicators are provided in Annex 1.

Indicator	Value	Year	Source
Population (thousands)	11,920	2007	World Bank
Geographic Size (sq. km)	743,390	2007	World Bank
GDP per capita, PPP (constant 2005 international $)	1,282.86	2007	World Bank
Gini index	50.8	2004	World Bank

Government expenditure on health (% general government expenditure)	10.8	2007	WHO NHA
Per capita government expenditure on health (current US$)	25	2007	WHO NHA
Physician density (per 10,000)	1	2004	WHO SIS
Nursing and midwifery density	20	2004	WHO SIS
Maternal mortality ratio (per 100,000 live births)	830	2005	WHO SIS
DTP3 coverage (%)	80	2007	WHO SIS
Estimated adult HIV (15-49) prevalence (%)	15.2 (14.3 – 16.4)	2007	UNAIDS
Estimated antiretroviral therapy coverage (%)	46 (40-56)	2007	WHO/UNAIDS/UNICEF
Tuberculosis prevalence (per 100,000)	387	2007	WHO GTD
Estimated malaria deaths	14,204	2006	WHO WMR

Table 2 Global Health Initiative Investments*

Global Fund

Round & Disease Priority	Approved (in US$)	Disbursed (in US$)
Round 1, HIV/AIDS	90,325,778	81,859,517
Round 1, Malaria	39,273,800	38,673,791
Round 1, TB	47,337,256	29,883,503
Round 4, HIV/AIDS	236,318,738	97,700,670
Round 4, Malaria	42,721,807	27,725,056
Round 7, Malaria	17,715,924	2,422,691
Round 7, TB	3,882,948	1,208,954
Round 8, HIV/AIDS	129,368,645	0
TOTAL:	606,944,896	279,474,182

PEPFAR

Year	Amount Allocated (in US$)
2004	81,662,410
2005	130,088,605
2006	149,022,153
2007	216,012,780
2008	269,246,552
TOTAL:	846,032,500

GAVI

Disease Priority	Amount Approved (in US$)
Pentavalent vaccine	46,540,000
Tetravalent vaccine	8,812,000
Vaccine introduction grant	100,000
Injection Safety	771,000
Immunization services support	3,864,060
Health systems strengthening	6,605,500
TOTAL:	62,692,116

World Bank MAP

Project Title	FY Approved/Closing Date	Commitment (in US$)
Zambia National Response to HIV/AIDS	2003/2008	42,000,000

Objectives and Methodology

In view of the injection of large amounts of GHI funding into a fragile health system, there is a need to understand GHIs' effects in Zambia at national and sub-national levels. Specifically, this study tracks the effects of GHIs on: scale-up of services; human resources for health; coordination of services; and harmonization of donor priorities and activities.

In late 2006, a national context mapping exercise was carried out to document HIV/AIDS services and structures at the national level. Two rounds of data collection followed, at both national and sub-national levels, in January/February 2007 and June/July 2008.

Three districts were purposively selected to represent urban (Lusaka and Kabwe districts) and rural areas (Mumbwa district). In each district, a list of health facilities and NGO-run facilities that were delivering HIV/AIDS services was compiled, and facilities were then purposively selected, including all government and NGO facilities providing antiretroviral treatment (ART) and a random sample of facilities not providing ART. Facility data (numbers of service episodes/clients, pharmacy records, laboratory records and human resources data) were collected from health facilities (n=39): 12 each from Lusaka and Mumbwa, and 15 from Kabwe. Inaccessibility during the rainy season led to two government facilities being excluded in Mumbwa.

Where records were incomplete or unavailable, they were supplemented with data from District Health Management Team (DHMT) reports. Health staff structured questionnaires (n=234) were administered to frontline health workers: doctors, clinical officers, nurses, laboratory and pharmacy staff and other staff delivering HIV/AIDS services that were available to participate at each facility.

In-depth qualitative interviews were conducted at national level (n=18) with key informants from government, bilaterals, multilaterals, NGOs and GHIs; and at district

level (n= 43) with members of the DHMT, health facility managers, NGOs, DATF representatives and community-based organizations (CBOs).

All quantitative data collected from interviews and facility records were entered in Epi-data and analysed using both SPSS (Version 16.0) and SAS (Version 9.1) statistical packages. Qualitative interviews were recorded, data transcripts were typed in Microsoft Word and coding and analysis were carried out using Atlas.ti software. This was followed by thematic analysis of the qualitative outputs. Analysis of both quantitative and qualitative data is ongoing throughout the first half of 2009. The study was approved by the University of Zambia Research Ethics Committee.

The study is funded by the Open Society Institute (OSI) with partners from the Royal College of Surgeons in Ireland (RCSI) and London School of Hygiene and Tropical Medicine (LSHTM). This study is also part of the Global HIV/AIDS Initiatives Network (GHIN).

Results

Leadership and Governance

The NAC, established in 2002 in advance of the arrival of substantial external funding for HIV/AIDS, is the main HIV/AIDS coordinating mechanism in Zambia. It operates in parallel to the Country Coordinating Mechanism (CCM) for the Global Fund. Qualitative interviews with key informants credited all three GHIs with participating in multisectoral national coordination structures and processes. The World Bank MAP has provided capacity support to the NAC secretariat, which in turn gives secretariat support to the Global Fund CCM. Roles and responsibilities have been ill-defined between NAC, the MOH, other ministries and CSOs, and between the various sub-national structures and actors, something that NAC itself has documented [8].

CSOs were recognized as playing a key role in district level coordination. ZANARA, funded by the World Bank, has supported the community response to AIDS by financing community-based organizations (CBOs) who also participate in DATFs and Community AIDS Task Forces (CATFs). Recipients of Global Fund resources were also credited with participation in coordination at district and sub-district level.

Some respondents credited each district with adapting and interpreting the National Strategic Plan for HIV/AIDS to suit the district, according to need on the ground, while others saw the process as being much more top-down. The importance of DATFs in ensuring that all the HIV/AIDS services are well coordinated was recognized by many informants. The United Nations Development Programme (UNDP) has funded District AIDS Coordination Advisors (DACAs) to facilitate more effective communication and coordination between HIV/AIDS programmes and activities on the ground. Informants reported widely that it has been difficult for DACAs to operate successfully due to erratic funding from NAC for the DATFs. DACAs face additional barriers in fulfilling their coordination roles, including an unclear mandate and – in some cases – lack of recognition by all the stakeholders supporting and/or implementing HIV/AIDS services.

While PEPFAR participates in coordination structures at the national level, its recipient organizations directly fund NGOs in the community and in many instances do not register with DATFs. Consequently, the DACAs often lack full knowledge of all players

providing HIV/AIDS services in their districts. According to informants, lack of coordination at the district level not only risks duplication of services but also creates difficulties in compiling accurate data on the numbers of clients accessing services from the various delivery points. DATFs have begun to provide registers of services in the districts, and Kabwe's referral network is a good example of a setting where district coordination is working. NGOs that participate in DATFs are credited with improving communication amongst stakeholders at the district and community level.

Health Workforce

Total numbers of health staff increased in the sampled facilities by 77% between 2004 and 2007. When broken down, this shows an increase of 63% for clinical staff (doctors, clinical officers and nurses) and a 126% increase in pharmacy and laboratory staff. However, this increase occurred in the urban districts only, and Mumbwa rural district actually experienced slight reductions in numbers of nurses (from 70 in 2004 to 67 in 2008) and clinical officers (from 26 in 2004 to 20 in 2008). Interviews with key informants reveal a growing concern about staffing levels, despite appreciation of the scale-up of HIV/AID services. Informants affirmed that, as a result of increased patient/client load, health staff were overburdened by work, especially in rural areas. Several respondents spoke of rural health centres with only one staff member who was rolling out ART in addition to other routine services. Health staff ratios to catchment populations increased in urban districts and fell in the rural district. Respondents reported that counsellors and volunteers have helped to relieve some of the workload of clinical staff, but for HIV counselling only. Quantitative findings show that HIV counsellors have increased by 173% across the three districts, with a higher increase in urban areas.

Interviews reported a high turnover of health staff from the public sector to NGOs that offered better conditions of service. Two national-level respondents attributed this pattern to PEPFAR. A number of respondents in Mumbwa spoke of rural health centres having problems attracting health staff due to a lack of accommodation, despite the introduction of the rural retention programme, which provides a hardship allowance, housing rehabilitation and vehicle loans in turn for three years of service at a rural health facility.

The study also explored issues of training and incentives for providing HIV versus non-HIV services. Forty percent of health staff received training in ART between June 2007 and June 2008, compared to 26% in child health, 13% in maternal health and 12% in malaria. There were no significant differences in training by staff category or urban-rural location. Over half of the 234 staff surveyed reported receiving incentives for delivering HIV services, compared to a quarter who reported receiving incentives for delivering non-HIV services. The important contribution of GHIs to training was noted by respondents, and all three GHIs were mentioned as contributing positively. However, some respondents reported that staff were spending too much time on training, resulting in an increase in workload for those who remained at post.

Service Delivery

Significant scale-up of HIV/AIDS services – ART, prevention of mother to children transmission (PMTCT) and voluntary HIV counselling and testing (VCT) – has occurred

in all three districts studied from 2004 to 2007. In 2008, 89% of surveyed facilities in Lusaka, 80% in Kabwe and 39% in Mumbwa were providing ART. All 39 facilities sampled across the three districts provided VCT, and 89% of sampled facilities in Lusaka provided PMTCT, as did 100% in Kabwe and Mumbwa.

Numbers of clients receiving ART increased consistently from 2004 to 2007 across all three districts. The numbers of clients receiving VCT also increased, with most of the VCT delivered at sub-district level across urban and rural districts. Numbers of women receiving PMTCT also rose, primarily in urban areas. Qualitative interviews with key informants from the national and district levels confirmed the scale-up of HIV/AIDS services and cited greater uptake as a result of the increased availability of services. All informants attributed scale-up to the GHIs. Although some respondents spoke of GHIs generally, each GHI was also specifically mentioned as contributing.

There were also marked improvements in availability and accessibility of community-level services and support services. These include home-based care (HBC), lay community counselling and treatment support groups for HIV/AIDS. There was an increase in the numbers of organizations providing support to community level HIV/AIDS services. It was reported that the GHIs had not only provided financial support, but also helped in raising the capacities of community-based groups. CRAIDS – with funding from World Bank MAP – in particular was credited with building the capacity of such groups.

Medical Products, Vaccines, and Technologies

Drug availability for HIV/AIDS was reported to have increased. In 2006, no sampled facilities experienced stock-outs of first line antiretroviral (ARV) drugs. 2007 findings show that two facilities in Lusaka and Mumbwa ran out of first line ARVs, and another two facilities in Lusaka ran out of second line ARVs. Six out of 12 facilities in Lusaka, nine out of 15 in Kabwe and 10 out of 12 in Mumbwa reported experiencing stock-outs of first line malaria drugs in 2007.

Discussion

Significant scale-up of HIV/AIDS services has occurred at national and district levels in Zambia in the last five years. This study documented the scale-up of services in two urban districts and one rural district. While it proved very difficult to obtain data on funding flows, and categorical attribution for this scale-up to the GHIs is difficult, the large level of funding from GHIs has undoubtedly been crucial.

Notwithstanding the positive effects of GHI funding and support, limitations have been observed. There is evidence of rural-urban inequities in staff recruitment and placements. The scale-up of services for HIV/AIDS has occurred without a corresponding increase in health staff. To date, however, none of the GHIs has invested money in hiring new staff. This has inevitably resulted in higher workloads and extra strain on health workers. These findings support national-level evidence that health

worker numbers are insufficient, particularly in rural areas. The Zambian Government, through the MOH, has developed a Human Resources for Health Strategic Plan 2006-2010 in consultation with donors, including the three GHIs. The strategies and activities outlined in the Plan attempt to provide a framework to guide and direct interventions, investments and decision-making in the planning, management and development of human resources for health [10].

The ratio of physicians to population stands at 1:10,000, lower than the WHO minimum requirement of one doctor per 5000 population and 25 clinical staff (doctors, nurses and midwives) per 10 000 population [11]. Our results show that health worker density for Lusaka, Kabwe and Mumbwa was less than the 7.9 per 10 000 reported nationally [12]. More than 50% of rural health centres have only one qualified health worker [11]. The urban-rural breakdown in our study shows that virtually all of the recent increases in clinical staff numbers were in urban health centres, with a slight reduction in rural health centres. The Human Resources for Health Strategic Plan is attempting to address these gaps by introducing a rural placement and retention package. Despite support from GHIs, this scheme has been slow to roll out due to shortage of accommodation and a short timeframe for retention allowances. In addition, until 2007, only doctors were eligible for the scheme, but it has now been extended to include nurses and nurse tutors. Our findings support other studies that reported that PEPFAR-funded NGOs have attracted staff away from the public sector [13,14]. Health staff in Mumbwa – where PEPFAR funded organizations do not operate – were less likely to receive financial incentives for delivering HIV services. Given their success in contributing to HIV/AIDS service scale-up, GHIs now need to support government to train and retain new staff. To date, such support has not been forthcoming. PEPFAR has committed to training new health workers in its focus countries, although this had not commenced in Zambia at the time of the study.

A multisectoral response, across ministries and including non-state actors, has been adopted throughout the implementation of Zambia's HIV/AIDS programme. The Zambian National HIV/AIDS Strategic Framework 2006–2010 demonstrates commitment to coordination through policies explicitly embracing multisectoral HIV/AIDS control, including NGO engagement in decision making. Despite this commitment, findings suggest weak coordination at the national and particularly at the district levels, which has been compounded by the increasing numbers of stakeholders. Although some informants hailed the NAC for its coordination role, they believed that some stakeholders undermine the mandate of the council. Some PEPFAR-funded organizations have sidelined the government coordination structures in their dealings with district- and community-based organizations. This is seen as a source of conflict, as it does not promote the collective spirit of "Three Ones" principles: one national AIDS framework, one coordination body, one monitoring and evaluation (M&E) plan.

It is evident that greater coordination is required at the district level, where implementation of activities takes place, if duplication of services and difficulties in accounting for numbers of clients are to be avoided. Limited resources allocated to DATFs, along with the limited devolution of decision-making powers, acutely affect district and community-level structures.

While direct attribution of system effects to specific GHIs is difficult, it is clear that the significant resources provided by the GHIs have had effects, both positive and negative, at the district level in Zambia. Given the amount of resources available from the GHIs for implementing HIV/AIDS services – the Global Fund and PEPFAR are still active, although the World Bank MAP grant ended in 2008 – the multiplicity of stakeholders makes coordination difficult *and* essential. Together, the GHIs, other donors and

government need to focus on training health workers and managers and building up weak human resource capacity at all levels. We pose two recommendations at this stage:

1. While the three GHIs have made positive contributions to human resources and in particular in-service training, the issue of health worker shortages has been exacerbated by the scale-up of HIV services. The GHIs should invest in new health worker hire in alignment with the government strategic plan for human resources.
2. The GHIs should support capacity development for DATFs as the main coordination body at the district level. All GHIs – but PEPFAR in particular - should encourage their recipient organizations to work with DATFs.

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