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## The Zambia HIV/AIDS Workforce Study: Preparing for Scale-up

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April 2004





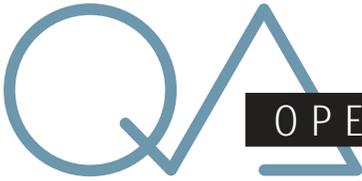
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The Quality Assurance Project (QAP) is funded by the U.S. Agency for International Development (USAID) under Contract Number GPH-C-00-02-00004-00. The project serves developing countries eligible for USAID assistance, USAID Missions and Bureaus, and other agencies and nongovernmental organizations that cooperate with USAID. QAP offers technical assistance in the management of quality assurance and workforce development in healthcare, helping develop feasible, affordable approaches to comprehensive change in health service delivery. The project team includes prime contractor University Research Co., LLC (URC), Initiatives Inc., and Joint Commission Resources, Inc.

This report was prepared by Initiatives Inc., subcontractor on U.S. Agency for International Development (USAID) Contract No. GPH-C-00-02-00004-00, the Quality Assurance Project, operated by University Research Co., LLC (URC). The opinions expressed herein are those of the authors and do not necessarily reflect the views of the U.S. Agency for International Development, URC, or Initiatives Inc.



## Abstract

This report presents the findings of a study conducted at 16 healthcare sites in Zambia offering voluntary counseling and testing (VCT), prevention of mother-to-child transmission of HIV (P-MTCT), and antiretroviral (ARV) therapy. The study period, including design, implementation, and data analysis, was April to June 2003. The purpose of the study was to assist the Government of Zambia in determining whether it will have sufficient staff to be able to scale up VCT, P-MTCT, and ARV treatment to reach its targeted numbers of clients. The report analyzes the time taken to carry out the prescribed tasks involved in each of the services, analyzes the extent to which the services are following the national service delivery standards, describes the present workforce involved in providing these services, and analyzes the human resource costs associated with the present workforce arrangements. It then uses these findings to project the staffing and related staffing costs of scaling up services.

Zambia has been piloting P-MTCT and ARV therapy at a number of sites. In 2004, the Government anticipates receiving around US\$ 20 million as the first tranche of its Global Fund award and plans to scale up P-MTCT services across the whole country and to treat 10,000 HIV-positive persons with ARV therapy. At the same time, however, Zambia is experiencing critical shortages in its human

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resources for health, and the Central Board of Health (CBoH) is concerned about the human resource implications of the intended and eagerly awaited scale-up of HIV/AIDS treatment. This study was commissioned by the CBoH to assist it in considering strategies for scale-up of HIV/AIDS services.

Data were collected at 16 government, nongovernmental organiza-

tion, and private, for-profit sites across the country currently providing VCT, P-MTCT, and ARV services. Data were collected through timed observations of service provider-client interactions for service delivery, through record reviews, and through interviews with site managers and staff.

The key findings of the study are as follows:

- The standards of service delivery (in terms of the proportion of tasks stipulated in the national standards that were followed by staff) are relatively low for both VCT and P-MTCT services.
- Stand-alone VCT sites whose staff focus entirely on providing VCT are attracting and providing pre-test counseling to 18 times more clients per day than sites that offer VCT as only one part of their portfolio of services.
- Fifty percent of the counselors working at stand-alone VCT sites are lay counselors (non-health professionals), whereas only 1% of the counselors working at sites offering integrated services are lay persons. Performance standards achieved by lay counselors are higher than those of all other health practitioners except nurses.
- Only 22% of the observed P-MTCT counseling sessions achieved an acceptable standard; 78% require improvement.
- The VCT uptake rate is currently estimated at 2% of the total adult population. If this were to increase to 6% (as one WHO report suggests), then an additional 81 full-time equivalent (FTE) counselors would be needed.<sup>1</sup>
- If the targets for P-MTCT services are to be achieved, the workload involved would require a total of 79 FTE professional health staff across the country.
- To accomplish the training that would be required for staff to be able to integrate P-MTCT services into routine antenatal and post-natal care across the country will require an investment of US\$ 3.9 million over the next four to five years.

- All five study sites offering ARVs demonstrated an acceptable (70% or higher) standard in relation to the tasks that were carried out during the service provider-client interactions, both for patients initiating ARVs and for clients already on ARVs returning for review.
- If ARVs are scaled up to the current national target of 10,000, then each of the nine hospitals in the provinces targeted to provide ARVs will require 1.4 FTE doctors, 1.7 pharmacists, and 2.8 laboratory technicians working entirely on ARV services. This would represent 4% of the total national physician workforce, 22% of the total national pharmacy workforce, and 8% of the total national laboratory workforce.
- If ARV therapy is scaled up to reach 24,420 individuals, as suggested by a recent *PHRplus* study, then each of the nine hospitals would require 3.4 doctors, 4 pharmacists, and 7 laboratory technicians working full time on ARV services. This represents more than 50% of the total present pharmacy workforce and 19% of the total laboratory workforce.
- Loss rates of HIV/AIDS service delivery staff from the individual study sites averaged 30% per annum. For ARV services, this represents a continuing need to train replacements and highlights the need to incorporate P-MTCT and ARV training into the basic (pre-service) training curricula for doctors, pharmacists, laboratory technologists, nurses, and midwives.

## Acknowledgements

This study was funded by the Office of HIV/AIDS within the Bureau for Global Health of the U.S. Agency for International Development (USAID) and was conducted by Initiatives Inc. through the Quality Assurance Project. Work was conducted in close collaboration with the Central Board of Health (CBoH) in Zambia.

The authors would like to acknowledge the support provided by Dr. Velepi Mtonga, CBoH Director of Clinical Care and Diagnostic Services; Dr. Victor Mukonka, CBoH Director of Technical Support Services; Dr. Christopher Simutowe, CBoH Director of Health Services Planning; Dr. Joseph Nikisi, CBoH Clinical Care Specialist; Dr. Miriam Chipimo, CBoH Reproductive Health Specialist; Dr. Rosemary Musonda, Director of the National AIDS Council, Dr. Peter Eerens and Dr. Cosmas Musumali of the Zambia Integrated Health Programme (ZIHP); and the important collaboration of Owen Smith and Dr. Gilbert Kombe of the Partnerships for Health Reform*plus* Project (PHR*plus*).

Appreciation is also due to USAID/ Zambia and to the agencies supporting the programs at the sites visited, namely, UNICEF, the Link-

ages Project, and Family Health International.

Above all, the authors would like to thank the managers and staff of all the sites that agreed to participate in the study for their patience and readiness to share information and have their interactions with their clients observed and timed.

## Recommended citation

Huddart J, Furth R, and Lyons JV. 2004. The Zambia HIV/AIDS Workforce Study: Preparing for Scale-up. *Operations Research Results*. Bethesda, MD: Published for the U.S. Agency for International Development (USAID) by the Quality Assurance Project, University Research Co., LLC.

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<sup>1</sup> The WHO report estimates that VCT uptake will be twice the current number of people living with HIV/AIDS in the adult population and that adults will seek VCT services on average every five years. World Health Organization. 2002. Coverage of Selected Health Services for HIV/AIDS Prevention and Care in Less Developed Countries in 2001.

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## I. Introduction

### A. Background to the Study

Until recently, HIV/AIDS services offered by most developing countries focused on interventions aimed at prevention and providing palliative and psycho-social support to those already infected and sick. Over the last few years, with antiretroviral (ARV) drug prices falling and donor interest in assessing the implications of offering prevention of mother-to-child transmission of HIV (P-MTCT) and for treatment of HIV-positive adults and children in low-resource settings, pilot studies have proliferated. Now, in anticipation of Global Fund awards, several countries are planning to use their awards to scale up P-MTCT and ARV therapy, making these services available to greater numbers.

However, in parallel with the devastating effects that AIDS is having on sub-Saharan African countries, many nations face growing problems in maintaining a health workforce capable of providing basic healthcare to all their citizens. Health professionals are migrating to countries that offer better conditions of service, are changing professions to ones that offer more attractive opportunities, or are themselves affected by the AIDS virus. Limited capacity to train replacements and falling numbers of applicants for those jobs exacerbate workforce declines.

Zambia's health reforms have been evolving since the early 1990s in an effort to achieve a sustained, purposeful change to improve the efficiency, equity, and effectiveness of the health sector. The vision is "to provide Zambians with equity of access to cost-effective, quality healthcare as close to the family as possible." Zambia's National Health Strategic Plan 2001-2005 reflects the country's commitment to achieving the health reform vision, and tackling HIV/AIDS is a key priority in this period. In recent years, Zambia has embarked on a far-reaching multi-sectoral response to the pandemic.

Zambia has been piloting P-MTCT and ARV therapy at a number of sites. The Government anticipates receiving around US\$ 20 million in 2004 as the first tranche of its Global Fund award and plans to scale up P-MTCT services across the whole country and treat 10,000 HIV-positive persons with ARV therapy. At the same time, however, Zambia is experiencing critical shortages in its human resources for health, and the Central Board of Health (CBoH) is concerned about the human resource implications of the intended and eagerly awaited scale-up of HIV/AIDS treatment. The CBoH commissioned this study to help it to consider strategies for scale-up of HIV/AIDS services.

The study research protocol was approved by the Research and Ethics Committee based at University Teaching Hospital (UTH) and by the CBoH National Research

### Abbreviations

AIDS	Acquired immunodeficiency syndrome
ANC	Antenatal care
ART	ARV therapy
ARV	Antiretroviral
AZT	Azidothymidine (generic name: Zidovudine)
CBoH	Central Board of Health
DHMT	District health management team
ESR	Erythrocyte sedimentation rate
FHI	Family Health International
FSU	Family Support Unit

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## Abbreviations *Continued*

FTE	Full-time equivalent
HIV	Human immunodeficiency virus
MSH/RPM	Management Sciences for Health/Rational Pharmaceutical Management
N.a.	Not applicable
NAC	National AIDS Council
NGO	Nongovernmental organization
OI	Opportunistic infection
OPD	Out Patient Department
PCP	Pneumocystis carinii pneumonia
PHR <i>plus</i>	Partnerships for Health Reform <i>plus</i> Project
PLWA	Person/people living with AIDS
P-MTCT	Prevention of mother-to-child transmission of HIV
RPR	Rapid plasma reagin
STI	Sexually transmitted infection
TB	Tuberculosis
TDRC	Tropical Diseases Research Center
TOT	Training of trainers
UTH	University Teaching Hospital
VCT	Voluntary counseling and testing
ZAMBAT	Zambia AIDS-Related TB project
ZIHP	Zambia Integrated Health Programme
ZVCTS	Zambia Voluntary Counseling and Testing Services

Committee prior to commencement of data collection. Research was undertaken during May and June 2003.

## *B. Purpose of the Study*

The purpose of the study was to assist the Government of Zambia in determining whether it will have the staff to be able to scale up P-MTCT and ARV treatment to reach the numbers of clients it has targeted. It was also anticipated that the results of this study will contribute to a better understanding of the human resource requirements for HIV/AIDS treatment multi-nationally.

By investigating and documenting current sites in Zambia offering AIDS-related services, the study aimed to:

- Describe models of care for VCT, ARV, and P-MTCT, detailing the specific services provided;
- Analyze the time it takes to carry out the tasks involved in each of the services and identify tasks that cannot be carried out due to lack of staff, time, or other resources;
- Describe the present workforce involved in providing these services, indicating the qualifications, additional training, and supervision/technical support;
- Analyze the human resource costs associated with the present workforce arrangements for provision of services; and
- Use the findings to project the staff and related staffing costs of scaling up VCT, P-MTCT, and ARV therapy.

## *C. Study Design*

### 1. Conceptual Framework

#### **Categories of HIV/AIDS services:**

The study focused on three categories of service: voluntary counseling and testing (VCT), P-MTCT, and ARV therapy. The last two categories involve the use of antiretroviral drugs, which have not been available on a wide scale in Zambia and are now specifically planned for scale-up. VCT is the "gateway" through which clients must pass to gain access to antiretroviral drugs, so access to VCT must be scaled up if the target numbers of people are to have access to these drugs. At the same time, the quality of VCT services must be such that individuals will be encouraged to come forward for testing.

#### **Models of service delivery:**

Different sites offer different models of service. VCT is provided either as a stand-alone service at a site or as part of a package of HIV/AIDS services including P-MTCT and/or ARVs. Counseling may be done in groups or through a combination of group information sharing and then one-on-one counseling. One site may offer several HIV/AIDS-related services, each physically separated, each run as an independent unit, and each having its own quota of staff. Counseling may be universal (clients have no choice) or optional. Staff at service delivery sites may spend their time entirely on HIV/AIDS services or as only part of their responsibilities. Each of these models has different implications for staff requirements.

#### **Service ownership/management:**

HIV/AIDS services in Zambia are currently provided by government clinics and hospitals, by private (for-profit) clinics and hospitals, and by nongovernmental organizations

(NGOs). The public assumes that the resources (both human and material) available for service delivery at private and NGO sites are superior to those available at government facilities. The study aimed to explore differences in the staff available and the standards of service delivery between the different categories of site ownership.

**Compliance with service delivery standards:** The Zambia National AIDS Council (NAC) has developed guidelines for HIV/AIDS patient management and care. The study observed service delivery in each category of service to collect information on the extent to which the NAC standards were being met and how performance to standards varied according to service model, service ownership, and the category of service provider (type of health professional or lay person) delivering the service.

## 2. Study Sample

The CBoH pre-specified a group of 16 sites to participate in the study:

- Mbala Hospital (Mbala)
- Tulemene Clinic (Mbala)
- Thandizani (Lundazi)
- UTH-Family Support Unit (FSU; Lusaka)
- UTH-Maternal and Child Health Unit (Lusaka)
- UTH-ARV Out Patient Department (OPD; Lusaka)
- Ndola Central Hospital (Ndola)
- Bwafwano Clinic (Ndola)
- Lubuto Clinic (Ndola)
- New Masala Clinic (Ndola)
- Mutti Medical Centre (Lusaka)

Table 1  
Service Type by Ownership Category

Service Ownership	Service Category		
	VCT (n = 11)	P-MTCT (n = 8)	ARV Therapy (n = 5)
Government hospital	Mbala Hospital Ndola Central Hospital UTH-FSU	Mbala Hospital UTH-MCH	Ndola Central Hospital UTH-ARV-OPD
Government clinic	Tulemane Lubuto Bwafwano Keemba Chipata New Masala	Tulemane Lubuto Bwafwano Keemba Chipata New Masala	
Private hospital/ clinic			Mutti Medical Centre Lusaka Trust Hospital
NGO	Thandizani New Start Kara Counseling		Kara Counseling

- New Start (Lusaka)
- Kara Counseling (Choma)
- Lusaka Trust Hospital (Lusaka)
- Keemba Clinic (Monze)
- Chipata Clinic (Lusaka)

Eleven sites yielded information on their VCT services, eight provided information on P-MTCT services, and five on ARV therapy. The distribution of these service types by ownership category is in Table 1.

The study team visited each site prior to study commencement to explain the purpose of the research and how it would be carried out and to obtain management's agreement to participate.

Except for Ndola Central Hospital, Mutti Medical Centre, and the Lusaka Trust Hospital, all participating sites were receiving technical and financial support for their HIV/

AIDS services from one or more "cooperating partners," donors that also provide technical assistance in Zambia.

## 3. Methodology

Data collection was carried out by two teams of two data collectors. Each team visited eight sites and spent from two to four days collecting data at that site. Information collected from the participating sites and the methods of collection are summarized in Table 2.

As shown in Table 2, data concerning the services offered by the site, the numbers and types of service providers, and the training provided to these providers were gathered through interviews with site managers, supplemented by reviews of historical records on the costs of training. Where the training had been funded by a cooperating partner, information on training costs

Table 2  
Data Collected and Methods of Data Collection

Category of Information	Specific Data Collected	Method of Collection
Service site information	HIV/AIDS services provided Date of initiating HIV/AIDS services Linkages to services at other locations Number/type of service providers and supervisors Hours of work devoted to HIV/AIDS services Staff/volunteer losses in last 12 months	Interviews with site managers
Service statistics	Mean number of clients per month/service Number of women attending antenatal clinic Number of clients given pre-test counseling Number of clients tested for HIV Number of clients given post-test counseling Number of HIV-positive pregnant women given Azidothymidine (AZT) or Nevirapine Number of clients initiating ARV therapy Number of ARV clients returning for regular review	Record reviews
Task analysis	Specific tasks carried out by service providers Cadre of the service provider Gender of the service provider Time taken to complete each task	Service provider-client observation <sup>11</sup>
HIV/AIDS training	Content of training provided to service providers Duration of training Who conducted the training Cost of the training	Interviews with site manager or funding agency
Staff motivation	Service provider salaries Other incentives provided to service providers Source of technical support Factors that motivate service providers Factors that dissatisfy service providers	Interviews with staff and volunteers

<sup>11</sup> Agreement was sought for the observation of each client's service provision. In each case, the purpose and conduct of the study were explained to the client and each was asked if he/she was willing to have the interaction observed, with assurances that the documented results would remain anonymous and no record of his/her name would be made public. Each client had the right to decline participation. Each client agreeing to participate signed or fingerprinted a consent form.

was supplemented through interviews with representatives of the agency.

Data on service statistics were collected through reviews of each site's records for the previous 12

months (or for the months that the site had been providing services if less than one year). Record reviews ensured that the data had been documented as part of the routine procedures at the site, and any

anomalies could be checked with staff who had completed the registers.

Data on the tasks carried out during service delivery and the time taken to complete each task were collected through observations of client-provider interactions in cases where the clients gave consent. Observations were conducted to ensure objective information about what was done and how long it took to do it. A total of 320 service provider-client sessions were observed.

Information concerning staff motivation was collected through interviews with individual service providers in order to gain an understanding of why they are or are not motivated to provide HIV/AIDS services and the key factors that satisfy or dissatisfy them about their work. A total of 102 service-provider interviews were conducted to explore the factors that motivate or dissatisfy them about their HIV/AIDS work.

Copies of the data collection instruments used during the study are in Annex 1, and details of the number of observations and interviews by site and service category are in Annex 2.

## II. VCT Services

The Zambian Voluntary Counseling and Testing Services began to be established in 1999, and by mid-2003 the country had at least 101 VCT centers. Between October 1999 and May 2003, almost 386,000 clients visited a VCT center, and more than 266,000 of these were tested. The overall HIV prevalence rate of those who were tested was 34%.

## A. Models of Service Delivery

The term “VCT” in this report refers to voluntary counseling and testing done for general clients. The counseling and testing done for pregnant women (P-MTCT; prevention of mother-to-child transmission) during their first antenatal visit also covers additional issues, such as infant feeding options and prophylactic treatment to prevent transmission of HIV to the infant.

Details of the models of service delivery at each of the sites offering VCT are in Table 3. Of the 12 study sites offering VCT, four are stand-alone services and have staff dedicated to counseling. One of these four sites (Thandizani) provides group counseling for general clients, followed by individual counseling. In fact, the “group counseling,” both for VCT and for P-MTCT, is group information-giving rather than counseling. At the time of the study, two thirds of the sites were providing same-day test results to their clients.

## B. Charges for VCT Services

One of the 12 VCT sites is charging clients. New Start charges a new client K1,000, which covers as many return visits as the client wants for further counseling and testing (as long as the New Start client card is presented). Two other sites that provide VCT as part of their diagnostic services for AIDS treatment and care also charged for services. Mutti Medical Centre charges K50,000 for counseling and testing, while the

Table 3  
Models of VCT Service Delivery at Each Site

Site	Stand-Alone Service <sup>11</sup>	Dedicated Staff <sup>12</sup>	Group Counseling	Individual Counseling	Same Day Results
Mbala Hospital				✓	
Ndola Central Hospital				✓	✓
Lubuto Clinic				✓	✓
Bwafwano Clinic				✓	✓
New Masala Clinic				✓	✓
New Start	✓	✓	<sup>13</sup>	✓	✓
Chipata Clinic				✓	✓
Keemba Clinic				✓	
Kara Counseling	✓	✓		✓	✓
Thandizani	✓	✓	✓	✓	✓ <sup>14</sup>
UTH-FSU	✓	✓		✓	
Tulemane Clinic				✓	
Total	4	4	1	12	8
Percentage of total	25%	25%	8%	100%	66%

<sup>11</sup> Stand-alone service means that no other HIV/AIDS services are offered at that site.

<sup>12</sup> Dedicated staff means that service delivery staff are not providing services other than VCT.

<sup>13</sup> New Start uses group counseling (actually group information-giving) when the number of clients at one time exceeds the staff’s capacity to provide one-on-one counseling.

<sup>14</sup> Same day results of the HIV test are dependent on the availability of rapid test kits, which has been erratic.

Lusaka Trust Hospital charges K50,000 (their normal consultation fee) for counseling and a further K35,000 for the test.<sup>2</sup>

Table 4 provides some insight into whether charging for VCT affects the numbers of clients using the service. Of the three study sites that charge

for VCT, data on total clients given pre-test counseling in the last year were only available from New Start, since neither Mutti Medical Centre nor the Lusaka Trust Hospital keep records of the number of clients counseled (only the number given an HIV test).

<sup>2</sup> Neither Mutti nor Lusaka Trust kept records on provision of VCT or had counselors specifically trained to provide VCT. Rather, clients at these sites usually received counseling and testing as part of consultations with physicians, usually for diagnostic and treatment purposes. For this reason, evaluation of VCT at these sites was extremely difficult, and they are not included in the more general list of VCT sites.

### C. Average Number of Clients Served

Table 4 provides details of the number of clients given pre-test counseling at each of the VCT sites.

The difference in the average number of clients served by the different models of service delivery is clear. The stand-alone sites, which focus entirely on HIV/AIDS services, are attracting and providing pre-test counseling to 18 times (14.6 versus 0.8) more clients than sites that are offering VCT as only part of their portfolio of responsibilities.

Service statistics data from three participating sites had been removed by the funding partner at the end of the period of support, and the data collectors had to track the data down from these partners in Lusaka. In one case the team was unable to locate the data.

### D. Workload of VCT Service Providers

Table 5 provides an analysis of the VCT workload per staff member at each VCT site. The number of service providers includes both staff and volunteers but excludes doctors who may be providing HIV/AIDS services at the sites: It is very uncommon for doctors to provide pre-test counseling to general clients. The numbers of service delivery staff are presented as full-time-equivalents (FTEs), which are derived by dividing the actual hours that staff devote to HIV/AIDS service delivery by the average number of working hours/week for clinical staff in public sector health facilities (44 hours).

Table 5 shows that not only do the stand-alone VCT sites serve more

Table 4  
VCT Clients Given Pre-Test Counseling by Site

Site	Number of Clients in Last Year	Average Number of Clients/Day <sup>11</sup>
New Start	9832	34
Thandizani	2984	10
UTH-FSU	2720	9.5
Kara Counseling	1127	4
<b>Average for stand-alone sites</b>		<b>14.4</b>
Ndola Central Hospital	423	1.5
Lubuto Clinic	312	1.1
New Masala Clinic	197	0.7
Keemba Clinic	182	0.6
Mbala Hospital	134	0.5
Bwafwano Clinic	98	0.4
Tulemane Clinic <sup>12</sup>	No data	No data
Chipata Clinic <sup>12</sup>	No data	No data
<b>Average for integrated sites</b>		<b>0.8</b>

<sup>11</sup> A day is defined as a working day: 286 per year based on 5.5 working days per week x 52.

<sup>12</sup> No service records were available.

clients, they do so with a higher average number of clients per FTE service provider, which indicates that the higher client load is not a function of more staff. The Government clinics are serving at most four general VCT clients per month per FTE, whereas each FTE service provider at New Start is serving an average of 53 clients per month. Higher client loads at stand-alone clinics that provide only VCT services are due largely to the fact that these sites promote and offer staff dedicated to providing VCT. At integrated sites that provide VCT as only one among many health services, on the other hand, little

VCT promotion occurs by the service site. Furthermore, the staff at integrated sites are often occupied with other tasks, do little to encourage clients to access VCT services, and are often unable to make counseling available without delay, all of which discourage clients from seeking services.

### E. Effectiveness of the VCT Services

The number of clients who are tested and receive their test results (i.e., are given post-test counseling) is a measure of the effectiveness of

Table 5  
Average Number of VCT Clients per Service Provider Each Month

Site	Average Number of VCT Clients per Month	Number of FTE Service Providers	Clients/FTE Service Provider/Month
New Start	819	15.5	53
Thandizani	249	6.7	37
UTH-FSU	227	8.8	26
Kara Counseling	94	8.9	11
Ndola Central Hospital	35	3.6	10
Keemba Clinic	15	2.3	7
Lubuto Clinic	26	6.2	4
New Masala Clinic	16	4.8	3
Mbala Hospital	11	5.5	2
Bwafwano Clinic	8	5.0	2
Chipata Clinic	No data	No data	No data
Tulemane Clinic	No data	No data	No data

the VCT services. Table 6 indicates that for all participating sites, with the exceptions of the Thandizani, an NGO that provides community-based services, and Bwafwano clinics, the proportion of those given pre-test counseling who actually accept testing and receive their test results is around 70% or higher. Two factors could explain the lower effectiveness of Thandizani and Bwafwano. First, until April 2003, Thandizani was not using a rapid test but was drawing blood and sending it to Lundazi Hospital for analysis. To obtain their test results, clients had to attend a subsequent Thandizani field visit, increasing the likelihood of drop-out. At the same time, there were no HIV test kits in Lundazi District at all in the period December 2002 to March 2003, so even the hospital ceased to be able to test. During this four-month

Table 6  
VCT Client Service Completion Rates by Site

Site	Number Tested as a Percentage of Those Counseled	Number Post-Test Counseled as a Percentage of Those Tested	Number Counseled Post-Test as a Percentage of Those Pre-Test Counseled
New Start	95%	99%	94%
Thandizani	97%	48%	45%
UTH-FSU	93%	84%	77%
Kara Counseling	100%	100%	100%
<b>Average for stand-alone sites</b>	<b>96%</b>	<b>83%</b>	<b>79%</b>
Ndola Central Hospital	No data	No data	No data
Lubuto Clinic	91%	87%	79%
New Masala Clinic	90%	73%	66%
Keemba Clinic	83%	100%	83%
Mbala Hospital	546%	No data	No data
Bwafwano Clinic	93%	67%	62%
Chipata Clinic	No data	No data	No data
Tulemane Clinic	No data	No data	No data
<b>Average for integrated sites</b>	<b>89%</b>	<b>82%</b>	<b>73%</b>

period, Thandizani continued to provide counseling.

In relation to the performance at Bwafwano, and to a lesser degree New Masala, in January 2003 these clinics started to do their own HIV testing. Previously, both were sending their blood to Lubuto for testing, which meant that clients had to return to the clinic at a later date to receive their results.

The Family Support Unit at UTH sends blood to the UTH laboratory for testing, so clients also have to return on a later date (usually within

a 24-hour period) to receive their result. However, since many of their VCT clients are referred by other UTH departments and most clients are resident in Lusaka, the need to return for results does not seem to have a large impact on return rates.

As shown in Table 6, stand-alone sites performed a little better than integrated sites in terms of the proportion of those given pre-test counseling who agree to be tested (96% versus 89%).

Of those who are tested, more than 80% receive their test results and,

looking at VCT services as a whole, more than 72% of those who receive pre-test counseling receive their test results.

## F. Categories of VCT Service Providers

Table 7 shows the number of FTE staff (excluding doctors) providing HIV/AIDS services at each of the study sites. It assumes that all the HIV/AIDS service providers are involved in providing VCT, an assumption supported by observations at all integrated sites.

Table 7  
Number of FTE Service Providers by Cadre and Site

Site	Midwife	Nurse	Clinical Officer	Lab Technician	Lay Counselor	Volunteer	Total
New Start				2.7	10.0	2.7	15.4
Thandizani		0.9	1.0		3.6	2.1	7.6
UTH-FSU	1		0.1		5.8	1.8	8.7
Kara Counseling		7.2	0.5		0.8	0.3	8.8
<b>Total stand-alone sites</b>	<b>1</b>	<b>8.1</b>	<b>1.6</b>	<b>2.7</b>	<b>20.2</b>	<b>6.9</b>	<b>40.5</b>
<b>Percentage distribution</b>	<b>2%</b>	<b>20%</b>	<b>4%</b>	<b>6%</b>	<b>50%</b>	<b>18%</b>	<b>100%</b>
Ndola Central Hospital	0.1	2.6	0.3	0.6			3.6
Lubuto Clinic	3.5	0.4	0.1	0.9		1.4	6.3
New Masala Clinic	2.3			0.5		2.0	4.8
Keemba Clinic	0.4	1.2	0.3		0.4		2.3
Mbala Hospital	1.1	1.5	0.5	1.5		0.9	5.5
Bwafwano Clinic	2.1			0.5		2.4	5.0
Chipata Clinic	2.8	2.7	0.5	0.8		2.7	9.5
Tulemane Clinic	0.8	0.8		0.7			2.3
<b>Total: Integrated sites</b>	<b>13.1</b>	<b>9.2</b>	<b>1.7</b>	<b>5.5</b>	<b>0.4</b>	<b>9.4</b>	<b>39.3</b>
<b>Percentage distribution</b>	<b>34%</b>	<b>23%</b>	<b>4%</b>	<b>14%</b>	<b>1%</b>	<b>24%</b>	<b>100%</b>
<b>Total: All sites</b>	<b>14.1</b>	<b>17.3</b>	<b>3.3</b>	<b>8.2</b>	<b>20.6</b>	<b>16.3</b>	<b>79.8</b>
<b>Percentage distribution</b>	<b>18%</b>	<b>22%</b>	<b>4%</b>	<b>10%</b>	<b>26%</b>	<b>20%</b>	<b>100%</b>

Table 7 demonstrates some marked differences in the categories of staff used for VCT between stand-alone and integrated models of service delivery. At stand-alone sites an average of 68% of service providers are lay counselors or volunteers. At integrated sites only 24% of the service providers are lay or volunteer. More than one third of the service providers at integrated sites are midwives or laboratory technicians, both categories in extremely short supply within the public health service.

### G. Standards of VCT Service Provision

Based on the observations conducted for pre-test counseling, post-test counseling for clients who test HIV-negative, and post-test counseling for clients who test HIV-positive, a calculation was made for each site of the proportion of the prescribed tasks for good quality counseling (NAC standards) that the counselor completed. The resulting service delivery standards are therefore measures of how many of the prescribed tasks were carried out, not of how well these tasks were done.

The study divided the standards achieved into three categories. Observations of counseling that scored 0–39% were classified as unacceptable, those that scored 40%–69% were classified as needing improvement, and those that scored 70% or higher were classified as acceptable. The standards achieved in counseling by each study site are shown in Table 8.

Table 8 shows that 14 of the site/type of counseling cells were classified as acceptable (a standard of 70% or higher), 13 as needing improvement, and 1 as unacceptable.

Table 8  
Achievement Rates of VCT Service Standards

Site	Percentage Achievement of NAC Standards <sup>11</sup>			Overall Counseling Standard <sup>12</sup>
	Pre-Test Counseling for General Clients	Post-Test Counseling for HIV-Negative Clients	Post-Test Counseling for HIV-Positive Clients	
Kara Counseling	75%	75%	83%	76%
New Start	80%	63%	61%	72%
Thandizani	69%	67%	92%	71%
UTH-FSU	76%	57%	46%	67%
<b>Average for stand-alone sites</b>	<b>75%</b>	<b>66%</b>	<b>71%</b>	<b>72%</b>
Ndola Central Hospital	82%	66%	80%	73%
Keemba Clinic	88%	73%	84%	80%
Chipata Clinic	63%	50%	50%	59%
Lubuto Clinic	65%	50%	63%	61%
New Masala Clinic	No data	No data	No data	No data
Mbala Hospital	76%	76%	83%	78%
Bwafwano Clinic	20%	No data	No data	20%
Tulemane Clinic	No data	No data	No data	No data
<b>Average for integrated sites</b>	<b>66%</b>	<b>63%</b>	<b>73%</b>	<b>62%</b>

<sup>11</sup> Score means the task was performed and does not suggest whether it was performed well.

<sup>12</sup> Weighted average.

Table 8 shows little difference between the standards of counseling in stand-alone and integrated sites, so in terms of the tasks actually carried out during counseling, both categories of site were doing what was expected of them.

Table 9 examines whether there were significant differences in the counseling performance of different cadres of counselors. Nurses and lay counselors achieved the highest scores on standards (again remembering that scores refer to the tasks carried out during counseling, not how well). According to the classification of standards used, the performance of all other cadres

Table 9  
Achievement Rates of VCT Standards by Cadre

Cadre	Pre-Test Counseling	Post-Test Counseling for HIV-Negative Clients	Post-Test Counseling for HIV-Positive Clients	Mean: All Stages of Counseling
Nurses	80%	72%	89%	80%
Lay counselors	76%	68%	69%	71%
Lab technicians	67%	68%	77%	69%
Clinical officers	72%	66%	59%	66%
Volunteers	73%	60%	54%	62%
Midwives	47%	No data	63%	55%
<b>Mean: All cadres</b>	<b>69%</b>	<b>67%</b>	<b>69%</b>	<b>67%</b>

Table 10  
Tasks Omitted from Pre-Test Counseling (All VCT Sites)

Question Number	Task	Observations		
		Total	Number of Times Task Was Omitted	Percentage of Times Task Was Omitted
11	Provides referral or referral information	65	53	82%
10	Identifies referral needs (for STIs, OIs, <sup>11</sup> other)	67	46	69%
6	Explains how HIV test is done	64	38	59%
8	Explains what the window period is	68	27	40%
7	Explains when the test results will be ready	65	21	32%
8	Discusses client-centered risk reduction strategies	69	12	17%
16	Completes client record	66	11	17%
3	Explains confidentiality	67	11	16%
2	Establishes why the client has come	67	10	15%
13	If clients wants test, makes appointment for getting results	51	5	10%
14	Summarizes and asks for any further questions	69	13	5%
15	Draws blood	37	4	4%
4	Establishes what client knows about HIV and AIDS	68	2	3%
12	Establishes whether client wants an HIV test	66	2	3%
5	Fills HIV/AIDS information gaps and corrects misconceptions	68	1	2%
1	Greets client and establishes pleasant environment	69	0	0%

<sup>11</sup> STI means sexually transmitted infection; OI means opportunistic infection.

needs to be improved. Midwives are in particularly short supply in Zambia and carry a heavy workload in most health facilities; this may be one reason why they scored so low in terms of standards of counseling.

The fact that 59% of the observations of VCT counseling for general clients resulted in scores that indicate a need for improvement can be further investigated by a review of the data in Tables 10–12. These tables present details of the specific NAC tasks (content areas) that were omitted during the observed counseling sessions.

Table 10 lists the standard pre-counseling tasks in order of most frequently omitted to least. It indicates that the most common omission during counseling at all VCT study sites was the provision of

information about other possible sources of support for the client and actual referral for services. Of particular concern should be the omissions relating to information about the window period; establishing why the client has come for counseling; and, related to this last point, discussion of client-centered risk reduction strategies.

The lack of discussion on client-centered risk reduction is reinforced by Annex 3, Table 1: Less than three minutes (10% of the total pre-test counseling time) was spent on client-centered risk reduction. That table also indicates that 36% of the total time spent on pre-test counseling is devoted to greeting the client, creating a conducive atmosphere for open discussion, and providing the client with general information about

HIV/AIDS. Observations indicated that clients were often given a standard set of information about HIV/AIDS, even if they had said that they already had this information. Similarly, pre-test counseling frequently included a focus on “positive living,” a topic of little interest to clients who are as yet unaware of their test results. Note that omission of the task “draws blood” is due to the fact that some clients decline to be tested, usually until they have consulted with their partner.

Table 11 gives information about the tasks that were omitted from post-test counseling of HIV-negative clients. Again, it is worrisome that 67% of the observed sessions did not cover what risks of infection the clients might face and that 55% did

Table 11  
Tasks Omitted from Post-Test Counseling for HIV-Negative Clients (All VCT Sites)

Question Number	Task	Observations		
		Total	Number of Times Task Was Omitted	Percentage of Times Task Was Omitted
10	Identifies referral needs and gives guidance	28	27	96%
8	Helps client identify risks and solutions	51	34	67%
9	Helps client formulate a plan of action	51	28	55%
4	Observes reaction to test results and provides support	49	24	49%
6	Re-explains the window period	51	17	33%
2	Checks that client wants to know the test results	52	15	29%
11	Summarizes and asks for any further questions	51	12	24%
7	Reiterates information about HIV prevention	51	10	20%
5	Checks understanding of results and gives information	51	8	16%
3	Reveals the test results	52	2	4%
12	Completes client record	45	2	4%
1	Greets client and establishes pleasant environment	52	1	2%

not include a discussion of steps that clients could take to reduce these risks.

One fifth of the post-test counseling sessions did not reinforce HIV prevention methods, and one third did not cover the window period and the implications of the window period on the test results that had just been given.

Table 12 gives information about the tasks that were omitted from post-test counseling of HIV-positive clients.

In 63% of the observed sessions, counselors made no mention of the fact that ARV treatment was available in Zambia and that although access to this treatment was largely restricted to those who could afford

to consult a private practitioner and pay for the ARVs, it was anticipated that ARV therapy would soon become more widely available to the general public.

In 44% of the observed sessions, counselors failed to ask the clients about the problems they anticipated now that they knew that they were HIV-positive, and 55% omitted to help them consider the steps they could take to tackle these problems.

In more than one third of the observed sessions, the counselor did not pause after giving the test results to the client to provide a chance for this information to be absorbed and did not offer some supportive words at this difficult time.

Another issue relating to VCT arising from the study observations was that in many of the government clinics there was little respect for privacy during a counseling session. Other clinic staff would frequently enter the room, searching for records or information.

Finally, in several instances the research team would observe incorrect information being given in response to clients' questions during counseling. Examples here include a counselor who told a client that tuberculosis (TB) is a clear indication of HIV and another who responded to a client's question of whether having an STI was proof of HIV with a firm "yes."

Questioning of the counselors on their experiences during their

Table 12  
Tasks Omitted from Post-Test Counseling for HIV-Positive Clients (All VCT Sites)

Question Number	Task	Observations		
		Total	Number of Times Task Was Omitted	Percentage of Times Task Was Omitted
9	Gives information about ARVs and where available	32	20	63%
7	Helps client formulate a plan of action	32	17	53%
6	Helps client identify problems and solutions	32	14	44%
4	Observes reaction to test results and provides support	32	12	38%
2	Checks that client wants to know the test results	32	11	34%
10	Identifies referral needs and gives guidance	32	9	28%
8	Reiterates information about protection of others	31	7	23%
5	Checks understanding of results and gives information	32	4	13%
11	Gives guidance on living positively/longer	32	4	13%
12	Summarizes and asks for any further questions	32	4	13%
1	Greets client and establishes pleasant environment	32	3	9%
13	Completes client record	32	3	9%
3	Reveals the test results	32	0	0%

training in counseling indicated that almost none had ever had their field practice counseling observed by one of their trainers. Similarly, only at the UTH-FSU does the senior counselor observe staff during counseling sessions to monitor the quality of the counseling being given.

## H. Time Taken for VCT Service Delivery

The mean times it took to complete pre-test and post-test counseling sessions for all VCT sites are in Table 13. The findings indicate that the average time for pre-test counseling was 28 minutes, post-test counseling for HIV-negative clients was 15 minutes, and post-test counseling for HIV-positive clients was 20 minutes.

No significant relationship appears to exist between the time taken to counsel and the standard achieved (Table 13).

## I. Summary of Major Findings for VCT Services

### 1. Numbers of VCT Clients Served by Stand-Alone and Integrated Sites

Stand-alone sites, whose staff focus entirely on HIV/AIDS services (VCT, P-MTCT, and ARVs), are attracting and providing pre-test counseling to 18 times more clients per day than sites that offer VCT as only part of their portfolio of services.

### 2. Service Effectiveness

Service effectiveness was high for general VCT clients: More than 70% of those who came in for pre-test counseling actually received their results and post-test counseling.

Table 13  
Mean Times to Complete Counseling Related to VCT Standards

Site	Pre-Test Counseling		Post-Test Counseling for HIV-Negative		Post-Test Counseling for HIV-Positive	
	Standard	Minutes	Standard	Minutes	Standard	Minutes
New Start	80%	39	63%	10	61%	7
Thandizani	69%	34	67%	17	92%	43
UTH-FSU	76%	24	57%	12	46%	12
Kara Counseling	88%	24	79%	16	73%	19
Ndola Central Hospital	82%	23	66%	17	80%	26
Keemba Clinic	88%	27	73%	17	84%	20
Chipata Clinic	63%	20	50%	4	50%	14
Lubuto Clinic	65%	40	50%	16	63%	11
Mbala Hospital	76%	18	76%	14	83%	20
Bwafwano Clinic	20%	26	No data	N.a.	No data	N.a.
Tulemane Clinic	No data	No data	91%	28	92%	32
<b>Average for all sites</b>	<b>70%</b>	<b>28</b>	<b>67%</b>	<b>15</b>	<b>72%</b>	<b>20</b>

"N.a." means not applicable.

However, the data indicate that to maintain high levels of VCT effectiveness two factors are important: (a) VCT sites need to offer rapid testing and same day results; (b) a consistent supply of test kits must be ensured.

### 3. Service Standards

Performance against VCT standards was not very high: 59% of observed counseling sessions did not meet an acceptable standard in terms of the tasks carried out. Nurses and lay counselors show the highest standards of counseling performance.

How the counselors conduct their counseling also requires improvement. It appears that the counselors

follow a "standard formula" for what they say and when they say it, rather than adjusting the content and sequence to client needs. The issue of client-centered risk reduction is not adequately addressed in counseling, so the opportunity to provide a potentially powerful way of encouraging behavior change is lost.

Like other professionals, counselors need to have their performance reviewed by skilled and experienced practitioners both during their training and periodically thereafter to ensure that their performance remains acceptable. At present, few trainee counselors have their field practice counseling sessions observed, and most trained counse-

lors never have their counseling performance reviewed.

#### 4. The Source of Counselors

Fifty percent of the counselors working in stand-alone VCT sites are lay counselors (non-health professionals). In sharp contrast only 1% of counselors working at integrated sites are lay counselors.

In government facilities 41% of the health staff doing counseling are midwives and laboratory technicians, categories that are in very short supply.

### III. P-MTCT Services

A P-MTCT pilot program covering six sites was launched in Zambia in 1999, and by early 2003 extended to 43 sites across the country. P-MTCT is offered as an integral part of maternal and child health services. Zambia is now preparing to scale up its integrated P-MTCT services using a four-pronged strategy: prevention of HIV in women; prevention of unintended pregnancy; prevention of mother-to-child transmission of HIV; and care and support (including screening and treatment of opportunistic infections, post-partum maternal TB prophylaxis, PCP [pneumocystis carinii pneumonia] cotrimoxazole prophylaxis for children from six weeks, referral linkages for palliative care, creation of peer support groups for infected mothers and their families, and ongoing counseling).

#### A. Models of Service Delivery

Most P-MTCT service provision is through government facilities, although the private hospitals do

counsel, test, and provide ARVs for their pregnant clients.

All of the government P-MTCT services use the same model of integrated service provision. P-MTCT service providers are the same individuals who provide VCT services at the integrated sites. Most pregnant women attending their first antenatal clinic receive group counseling on HIV/AIDS and P-MTCT; since more than 90% of pregnant women attend at least once for antenatal care (ANC), coverage with group counseling by those sites that offer P-MTCT services is assumed to be high.

All pregnant women who attend the group counseling during antenatal booking clinics are offered individual pre-test counseling, although the method for doing this varied by study site. For example, some of the clinics ask the women whether they want to have individual counseling; in others all women are given individual counseling.

The way antenatal clients are asked whether they wish to have individual counseling also varies: in Keemba Clinic the women are asked in public whether they want individual counseling; this contributes to a high rejection rate due to fear of stigma, with other reasons including the need to obtain their partner's consent to be tested.

Of the eight P-MTCT sites included in the study, five are offering either AZT or Nevirapine, and three are offering only Nevirapine (the Ndola clinics). For those taking AZT, medication starts at the 32nd week of pregnancy, and the women have to return to the clinic every month to collect a month's supply of AZT. No follow-up is possible of women who fail to return. For women using Nevirapine, the tablet is given to

them at their first antenatal attendance (if this is on or after the 32nd week of gestation), and the woman is told to take the tablet at the onset of labor. HIV-positive women are advised to deliver at a hospital, but the hospital has no information on women who have taken Nevirapine before arrival at the hospital for delivery. HIV-positive women are told to bring their child back to the clinic that gave them the Nevirapine for a dose of Nevirapine syrup in the first 72 hours post-delivery.

#### B. Average Number of Clients Served

Table 14 provides information on the number of clients served by each of the P-MTCT study sites. Individual pre-test counseling was used as the workload measure, since the content for the group counseling provided at antenatal clinics is not consistently related to HIV/AIDS and since not all women given counseling choose to have an HIV test.

The average weekly workload varied from an average of less than one client per week to more than 20. Although the workload figures appear quite low for all sites, it has to be remembered that P-MTCT is offered as an integral part of ANC, and it is reported that the numbers of women attending the antenatal booking clinics may reach up to 50 in one day (although this was not observed during the study). The same service providers are expected to provide routine antenatal check-ups, group and individual pre-test counseling, testing of the blood, and post-test counseling. This is reported to be a heavy workload on antenatal booking days for the limited numbers of nurses and midwives in the clinic.

Table 14  
P-MTCT Clients Given Individual Pre-Test Counseling by Site

Site	Number of Clients in Last Year	Average Number of Clients per Week
Chipata Clinic	1066	20.5
Tulemane Clinic	763	14.7
Bwafwano Clinic <sup>11</sup>	520	10.0
Mbala Hospital	472	9.1
New Masala Clinic	404	7.7
Keemba Clinic	99	1.9
UTH	40	0.8
Lubuto Clinic	No data <sup>12</sup>	-
All Sites		9.2

<sup>11</sup> Bwafwano initiated P-MTCT services in August 2002, so 10 months of data were used to project a full year's workload.

<sup>12</sup> Lubuto Clinic's records are incomplete and inconsistent.

### C. Workload of P-MTCT Service Providers

Given that HIV counseling and testing are carried out in addition to normal ANC work, Table 15 examines both the ANC and the P-MTCT workload per service provider.

None of the study sites demonstrated a heavy workload for service providers, even when routine ANC clients are considered in addition to those given individual pre-test counseling. However, on the antenatal booking days observed by the research team, the numbers of service providers indicated in the second column in Table 15 were not always present.

For example, the antenatal clinic at Tulemane Clinic was being handled by a single laboratory technician,

Table 15  
Average Weekly Number of ANC and P-MTCT Clients per Service Provider

Site	Number of FTE Service Providers	Average Number of First ANC Clients/Week	Number of First ANC Clients/Week/FTE Service Provider	Average Number of Women Pre-Test Counseled per Week	Average Number of Women Pre-Test Counseled per Week /FTE Service Provider
Chipata Clinic	9.2	No data	-	20.5	2.2
Tulemane Clinic	2.3	15	6.7	14.7	6.4
Bwafwano Clinic	5.0	21	4.1	10.0	2.0
Mbala Hospital	5.5	12	2.2	9.1	1.7
New Masala Clinic	4.8	No data	-	7.7	1.6
Keemba Clinic	2.3	5	2.2	1.9	0.8
UTH	1.0	0	-	0.8	0.8
Lubuto Clinic	6.2	31	4.9	No data	-
<b>Average: All sites</b>		<b>14</b>	<b>4.0</b>	<b>9.2</b>	<b>2.2</b>

who had been the district P-MTCT coordinator when the Horizons Project was providing support. This technician was handling all routine antenatal work plus individual pre- and post-test counseling, plus the actual HIV testing.

Note that the higher number of clients given pre-test counseling at Chipata Clinic could be in part due to the fact that there was a ZAMBAT study at this site and the counselors were given an incentive for every woman they counseled and tested. The effects of the withdrawal of such an incentive were seen on the number of clients counseled and tested at two other sites when an internationally funded project ceased its financial support.

#### D. Effectiveness of the P-MTCT Services

The proportion of ANC clients who are tested and receive their test results (i.e., are given post-test counseling) is a measure of the

effectiveness of the P-MTCT services.

Table 16 indicates that at the four study sites whose counseling records were complete, on average 63% of first antenatal clients were being given pre-test counseling. Furthermore, 91% of those given pre-test counseling were given an HIV test. However, an average of only 67% of those tested actually received post-test counseling.

Of particular concern for the monitoring of P-MTCT services were the gaps in the data held at the service sites. Already mentioned is the fact that Tulemane Clinic had none of its original P-MTCT registers; these had to be tracked down in a project office in Lusaka. At other sites, changes in the P-MTCT registers have been introduced to improve the record keeping, but data recorded before these new registers were introduced are incomplete and unreliable. The data for Keemba Clinic (the 116% of those pre-test counseled being

tested and the 100% of those tested being given post-test counseling) are probably based on data inaccuracies, especially since many of Keemba's clients must wait until the next outreach visit to get their HIV test results.

Table 17 continues the examination of the effectiveness of P-MTCT services by presenting available data on the proportion of pregnant women who have tested HIV-positive who are given or are accepting treatment. The table also examines the proportion of infants born to mothers who have been given Nevirapine who are treated with Nevirapine syrup.

Considerable data were lacking for the Table 17 indicators, but the data that exist indicate (a) an average of 62% of the mothers who tested HIV-positive received treatment, and (b) an average of 47% of the infants born to HIV-positive mothers who had been given Nevirapine were brought back to the service site for treatment. The research team

Table 16  
P-MTCT Client Service Completion Rates (Counseling and Testing)

Site	Number of Women Pre-Test Counseled as Percentage of All ANC Clients	Number of Women Tested as Percentage of Those Pre-Test Counseled	Number of Women Post-Test Counseled as Percentage of Those Tested	Number of Women Post-Test Counseled as Percentage of All ANC Clients
Tulemane Clinic	95%	83%	70%	55%
Keemba Clinic	41%	116%	100%	48%
Mbala Hospital	75%	95%	42%	30%
Bwafwano Clinic	40%	75%	82%	25%
Lubuto Clinic	No data	No data	72%	22%
Chipata Clinic	No data	88%	34%	No data
New Masala Clinic	No data	88%	71%	No data
<b>Average: All sites</b>	<b>63%</b>	<b>91%</b>	<b>67%</b>	<b>36%</b>

learned that the Ndola clinics experienced stockouts of Nevirapine, which may explain the low proportion of HIV-positive women treated at Lubuto Clinic.

Again, it needs to be stated that the clinic records on treatment during the 12-month study period are incomplete.

### E. Standards of P-MTCT Service Provision

Based on the observations conducted for pre-test counseling for pregnant women, post-test counseling for pregnant women who tested HIV-negative, and post-test counseling for pregnant women who tested HIV-positive, a calculation was made for each site of the proportion of the prescribed tasks for good quality counseling (the National Counseling Standards) that were completed by the counselor. The resulting service delivery standards are therefore measures of how many of the prescribed tasks were carried out, not of how well these tasks were done.

Table 18 shows that only four of the 18 completed cells representing site and type of counseling session were classified as being of acceptable standard (70% and higher), whereas 12 require improvement and 2 were unacceptable.

Table 19 examines the differences between the different cadres of service providers involved in the counseling and testing of pregnant women during their antenatal visits to the health facility. In this case, both clinical officers and laboratory technicians were observed to achieve the highest standards in relation to the counseling tasks, followed by nurses and lay counselors.

Table 17  
P-MTCT Client Service Completion Rates (Treatment)

Site	Percentage of Women Who Test Positive Receiving Treatment	Percentage of Infants of Mothers Given Nevirapine Who Are Treated within 72 Hours of Delivery
Tulemane Clinic	72%	No data
Keemba Clinic	No data	No data
Mbala Hospital	45%	No data
Bwafwano Clinic	No data	49%
Lubuto Clinic	36%	73%
Chipata Clinic	96%	No data
New Masala Clinic	No data	20%
<b>Average: All sites</b>	<b>62%</b>	<b>47%</b>

Table 18  
Achievement Rates of P-MTCT Service Standards

Site	Percentage of National AIDS Counseling Standards Achieved			
	Pre-Test Counseling for Pregnant Women	Post-Test Counseling for HIV-Negative Women	Post-Test Counseling for HIV-Positive Women	Overall Counseling Standard <sup>11</sup>
Keemba Clinic	78%	69%	47%	72%
Tulemane Clinic	77%	58%	78%	67%
Chipata Clinic	63%	No data	No data	63%
New Masala Clinic	55%	53%	75%	59%
Mbala Hospital	59%	46%	58%	57%
Bwafwano Clinic	64%	43%	37%	53%
Lubuto Clinic	38%	50%	No data	44%
<b>Average: All sites</b>	<b>62%</b>	<b>53%</b>	<b>59%</b>	<b>59%</b>

<sup>11</sup> Weighted average.

The issue of low standards achieved in counseling sessions for pregnant women is explored further in Tables 20–22. These tables present details of the specific tasks (content areas) that were omitted during the observed counseling sessions.

As for VCT, the tasks that were most frequently omitted from the P-MTCT counseling session were those concerned with identifying referral needs and either providing a necessary referral or providing the client with information that would

enable her to get a referral from another source. In 88% of observed sessions, these tasks were not carried out.

Perhaps more surprisingly, 74% of the P-MTCT pre-test counseling sessions did not reference infant feeding; it might be that counselors consider this topic more relevant to post-test counseling for HIV-positive women.

P-MTCT pre-test counseling sessions more frequently omitted client-centered risk reduction (26%) than was the case with VCT for general clients (17%).

Table 19  
Achievement Rates of P-MTCT Service Standards by Cadre

Cadre	Pre-Test Counseling for Pregnant Women	Post-Test Counseling for HIV-Negative Women	Post-Test Counseling for HIV-Positive Women	Mean: All Stages of Counseling
Lab technicians	75%	56%	79%	70%
Clinical officers	70%	No data	No data	70%
Nurses	59%	68%	No data	64%
Lay counselors	60%	No data	No data	60%
Midwives	58%	52%	64	58%
Volunteers	29%	No data	No data	29%
<b>Mean: All cadres</b>	<b>59%</b>	<b>59%</b>	<b>72%</b>	<b>59%</b>

Table 20  
Tasks Omitted from Pre-Test Counseling for Pregnant Women

Question Number	Task	Observations	
		Total	Percentage of Times Task Was Omitted
11	Identifies referral needs (for STIs, OIs, other)	57	88%
12	Provides referral or referral information	56	88%
9	Counsels on infant feeding options	58	74%
7	Explains when the test results will be ready	58	69%
14	If clients wants test, makes appointment for receiving results	48	63%
6	Explains how HIV test is done	58	53%
16	Completes client record	53	40%
2	Explains confidentiality	59	39%
8	Explains what the window period is	58	35%
10	Discusses client-centered, risk reduction strategies	58	26%
5	Provides information about P-MTCT treatment	58	17%
13	Establishes whether client wants an HIV test	56	16%
15	Summarizes and asks for any further questions	58	10%
3	Establishes what client knows about HIV and AIDS	58	7%
4	Fills HIV/AIDS information gaps and corrects misconceptions	58	5%
1	Greets client and establishes pleasant environment	58	2%

Table 21  
Tasks Omitted from Post-Test Counseling for HIV-Negative Pregnant Women

Question Number	Task	Observations		
		Total	Number of Times Task Was Omitted	Percentage of Times Task Was Omitted
9	Identifies referral needs and gives guidance	42	38	91%
7	Helps client identify HIV risks and solutions	44	37	84%
8	Helps client formulate a plan of action	44	32	73%
10	Gives guidance on living longer	44	27	61%
4	Observes reaction to test results and provides support	44	19	43%
5	Confirms understanding of results and gives information	44	19	43%
6	Discusses importance of remaining HIV-negative and how to do so	44	19	43%
11	Summarizes and asks for any further questions	44	13	30%
2	Confirms that client wants to know the test results	44	11	25%
12	Completes client record	41	5	12%
1	Greets client and establishes pleasant environment	44	5	11%
3	Reveals the test results	44	1	2%

Table 21 covers the tasks omitted from post-test counseling for pregnant women who test HIV-negative.

Identification of referral needs was the most frequently omitted task, although it could be argued that since the client tested HIV-negative, referral would not be high on the counselor's agenda

Tasks related to client-centered risk reduction were again often omitted, with 84% of counseling sessions failing to help the client to identify her risks of infection and 73% failing to help her formulate a plan of action for avoiding infection. It is also of concern that in 43% of the observed sessions the counselor failed to discuss how the client could remain HIV-negative.

Finally, in one quarter of the sessions observed, the counselor never established whether the client wanted to know her test result before providing it, indicating a lack of concern for clients' rights.

Table 22 examines the tasks that were omitted from post-test counseling for pregnant women who tested HIV-positive.

Table 22 indicates that none of the sites are following the standard that infants born to HIV-infected mothers should be given prophylactic doses of cotrimoxazole from six weeks of life until one year of age.

Of concern also is the fact that in 67% of cases the counselor did not investigate whether the woman was already taking ARVs so that she could be counseled that she should

suspend treatment during the first three months of pregnancy. On the other hand, most women in Zambia attend ANC for the first time in their third trimester, so this would, in most cases, be too late. This issue should be covered during post-test counseling for all HIV-positive women during VCT, especially when ARVs become more widely available.

Of the women who tested HIV-positive, 43% were not advised to bring their newborn back to the clinic for treatment with Nevirapine syrup within 72 hours of delivery, and 19% were not counseled on infant feeding options. In 29% of the sessions observed, the service provider did not complete the client record with the test result or indicate which women had accepted and been given treatment.

## F. Time Taken for P-MTCT Service Delivery

The mean times to complete pre- and post-test P-MTCT counseling at all sites are given in Table 23. In relation to pre-test counseling for pregnant women, four of the seven sites where observations were possible spent on average 10 minutes or less with the client and

yet managed to cover between 55% and 77% of the topics prescribed by the standards. The quality of the interchange between counselor and client during these sessions must be called into question.

Similarly, observations of post-test counseling for pregnant women who tested HIV-negative showed that counselors at five of the six sites

where observations were possible spent an average of less than 10 minutes with the client.

Post-test counseling for pregnant women who tested HIV-positive took an average of 16 minutes to complete at the six sites where observations were possible. In comparison, post-test counseling of general VCT clients who tested HIV-positive

Table 22  
Tasks Omitted from Post-Test Counseling for HIV-Positive Pregnant Women

Question Number	Task	Observations		
		Total	Number of Times Task Was Omitted	Percentage of Times Task Was Omitted
9	Explains about cotrimoxazole prophylaxis for infants from 6 weeks to 12 months of age	16	16	100%
13	Helps client identify problems and identify solutions	15	12	80%
7	Gives client Nevirapine or prescribes AZT	8	6	75%
14	Helps client formulate a plan of action	15	11	73%
11	If client is already on ARVs, informs her that drugs must be stopped during first 3 months of pregnancy	6	4	67%
8	Tells mother to bring newborn for Nevirapine syrup within 72 hours after delivery	14	6	43%
15	Asks if client wishes to receive P-MTCT treatment	15	6	40%
4	Observes reaction to test results and provides support	16	6	38%
2	Confirms that client wants to know the test results	16	5	31%
19	Completes client record	14	4	29%
5	Confirms understanding of results and gives information	17	5	29%
17	Provides guidance on living longer	15	4	27%
10	Checks gestation period	15	3	20%
12	Counsels client on infant feeding options	16	3	19%
16	Gives information about protection of self and others	15	2	13%
18	Summarizes and asks for any further questions	15	2	13%
6	Gives information about P-MTCT treatment	17	2	12%
3	Reveals the test results	16	1	6%
1	Greets client and establishes pleasant environment	17	0	0%

(Table 13) at those sites that achieved a standard of 80% or higher took an average of 28 minutes.

Since post-test counseling of pregnant women is the last task for staff at the end of an antenatal booking clinic day and since the pregnant women themselves, having spent the whole day at the clinic, are keen to get home, it is not surprising that the times devoted to this for both HIV-negative and HIV-positive women are short.

## G. Summary of Major Findings for P-MTCT

### 1. Numbers of P-MTCT Clients Served

None of the study sites offering P-MTCT demonstrate a heavy workload for service providers. On average, each service provider is dealing with four first-time antenatal clients and two clients for pre-test counseling and testing per week.

The number of clients counseled and tested has been influenced by incentive payments. Withdrawal of the incentive at the end of project support has a significant impact on the numbers of clients that service providers counsel.

### 2. Service Effectiveness

An average of 62% of the mothers who tested HIV-positive received treatment with either AZT or Nevirapine. (It was reported that the three Ndola clinics experienced shortages of Nevirapine in the 12 months preceding the study.)

An average of 47% of the infants born to HIV-positive mothers who had been given Nevirapine were brought back to the service site for treatment.

Table 23  
Mean Times for P-MTCT Counseling Related to Standard

Site	Pre-Test Counseling for Pregnant Women		Post-Test Counseling for HIV-Negative Women		Post-Test Counseling for HIV-Positive Women	
	Standard	Minutes	Standard	Minutes	Standard	Minutes
Tulemane Clinic	77%	7	58%	6	82%	16
Keemba Clinic	79%	18	69%	16	47%	19
New Masala Clinic	55%	5	53%	4	75%	19
Mbala Hospital	59%	4	46%	5	58%	11
UTH	No data	No data	No data	No data	71%	25
Bwafwano Clinic	64%	10	43%	7	37%	7
Chipata Clinic	63%	26	No data	No data	No data	No data
Lubuto Clinic	38%	27	50%	5	No data	No data
<b>Average: All sites</b>	<b>62%</b>	<b>14</b>	<b>53%</b>	<b>7</b>	<b>62%</b>	<b>16</b>

The records for treatment given to both mothers and infants were not systematically maintained during the 12 months studied.

### 3. Service Standards

Only 22% of the observed counseling sessions achieved an acceptable standard; 78% require improvement.

Pre- and post-test P-MTCT counseling frequently failed to assist the client in identifying her risk of infection and to formulate a plan of action that could help her maintain HIV-negative status. More than one quarter of the pre-test counseling sessions observed did not cover risk reduction, and 84% of the post-test counseling for HIV-negative women did not.

In 67% of the post-test counseling sessions observed for pregnant women who had tested HIV-positive, the counselor did not investigate whether the woman was already

taking ARVs so that she could be counseled to suspend treatment during the first trimester.

None of the study sites are telling HIV-positive women that their infants should be given prophylactic doses of cotrimoxazole from six weeks of life until one year of age.

In 43% of the observed post-test counseling sessions for pregnant women who had tested HIV-positive and were given Nevirapine, the women were not advised to bring their newborn back to the clinic for treatment with Nevirapine syrup within 72 hours of delivery.

In 19% of the observed post-test counseling sessions for pregnant women who had tested HIV-positive, the women were not counseled on infant feeding options.

### 4. Record Keeping

Record keeping at many of the P-MTCT sites is very poor. The

Ndola clinics under support from the Linkages Project recognized this and have taken steps to provide each clinic with new registers which, if completed, should improve the ability to monitor P-MTCT program activities and results.

Project-supported programs have removed clinic records for the preparation of study reports or for program evaluation reasons. The clinics often have no data at all on their P-MTCT activities during the period of project support.

In 29% of the observed P-MTCT post-test counseling sessions, the provider did not complete the client record with the test result or indicate which women had accepted and been given ARV treatment.

## IV. ARV Services

### A. Models of Service Delivery

Only two government sites are currently offering ARV services: UTH and Ndola Central Hospital. Both were included in the study. UTH initiated ARV services in June 2002 and Ndola Central Hospital the following November. These are the pilot sites for the introduction of ARVs into the public healthcare system prior to the planned rollout to seven second-level referral hospitals in the provinces not yet having an ARV center. In addition, the study included two private, for-profit facilities in Lusaka: Mutti Medical Centre and the Lusaka Trust Hospital. Both these sites started providing ARVs to patients in 1993. One NGO, Kara Counseling, receives its drugs from donations and started providing ARVs in 1998 for a small number of pediatric cases.

All the sites providing ARVs are following the same model of service in the sense that specific doctors at the site are authorized to prescribe ARVs and have the responsibility of monitoring the ARV patients' responses to treatment. All patients put on ARVs have to return monthly for review and a re-supply of drugs.

### B. Drug Supply

Both government ARV sites have experienced problems with the supply of ARVs that are provided through the central medical stores. UTH, which, during the study, was serving 80 patients during the pilot phase, cannot supply the full drug cocktail prescribed by its physicians and tells its patients to buy the missing drugs themselves.

Ndola Central Hospital, which was serving 58 patients, was supplied when it started ARV treatment with some drugs of the "salvage" category that it is not using (and that were about to expire) but ran out of first-line treatment drugs. To reduce the risk of drug resistance, Ndola has been buying the missing drugs on the private market.

Ndola Central Hospital also runs a P-MTCT program under which the Linkages Project supplies the hospital with Nevirapine. Unfortunately, the P-MTCT Nevirapine was given to the maternity department, and some of the supply expired while the hospital was purchasing Nevirapine for its ARV patients.

### C. Laboratory Monitoring of ARV Patients

Ndola Central Hospital lacks the equipment for conducting tests for CD4 and viral load. The Tropical

Diseases Research Center (TDRC) on the hospital's top floor can perform these tests, but the amount it charges (K200,000) exceeds the hospital's financial capacity for regular use. Ndola physicians therefore rely on clinical monitoring.

UTH can conduct both CD4 and viral load blood analyses and does so both for their own patients and for the private ARV sites in Lusaka. However, since the computerized results component of this equipment is not functioning, laboratory staff are spending a lot of time doing manual calculations. At the time of the study, UTH was unable to monitor renal function due to a lack of reagents.

None of the sites were carrying out regular renal or liver function tests, differential ESR (erythrocyte sedimentation rate), or total lymphocyte counts for their ARV patients.

### D. Number of Clients Served

Table 24 provides details of the number of clients on ARVs being monitored at each of the study sites.

Table 24  
Current Number of ARV Clients

Site	Current Number of Patients on ARVs
Mutti Medical Centre	110
Lusaka Trust	52
UTH	80
Ndola Central Hospital	56
Kara Counseling	12

Table 25 looks at the number of patients on ARVs served by each of the FTE doctors and nurses at each of the study sites.

### E. Effectiveness of ARV Service Provision

The NAC standards for ARV service provision specify how frequently patients on ARVs should be monitored by their prescribing doctor. Although not specifically mentioned in the NAC guidelines, it is also very important that records are kept of patients on ARVs who fail to return for review, since significant numbers of patients not adhering to the treatment regimen could contribute to drug resistance.

However, no records are kept by any of the sites of the number of ARV clients who are returning at the intervals prescribed by the standards. At one site, individual patient records were reviewed to see if the number of returning clients could be derived. At other sites, such an in-depth review was not possible. Table 26 provides some tentative data on what seems to have been happening during the year under study.

Kara Counseling, with only 12 pediatric ARV clients, seems to be meeting the NAC standard for monitoring patient response to treatment. Ndola Central Hospital is seeing its ARV patients every three months once their response to treatment appears to have stabilized; patients are reviewed monthly before stabilization.

Mutti Medical Centre reports that many of its patients may initiate ARV treatment at the facility but will subsequently find cheaper sources for the drugs and not return to the facility unless they face a problem.

Table 25  
Number of Patients Served by Service Provider

Site	Number of FTE Doctors	Number of FTE Nurses	Patients per FTE Doctor	Patients per FTE Nurse
Mutti Medical Centre	1.2	1.0	92	110
Lusaka Trust	2.1	1.5	25	35
UTH	0.8	1.5	100	53
Ndola Central Hospital	2.2	0.1	25	560
Kara Counseling	0.1	7.2	120	2

Table 26  
Effectiveness of ARV Services (Year Ending April 31, 2003)

Site	Number of Patients on ARVs	Number of Patients Coming for 2-Week Review after Initiation	Number of Patients Coming for 3-Month Reviews	Number of Patients Coming for 6-Month Reviews	Times Patients Failed to Return
Mutti Medical Centre	110	52	43	30	147
Lusaka Trust	52	No data	No data	No data	No data
UTH	80	80	No data	No data	No data
Ndola Central Hospital	56	Monthly only	56	56	5
Kara Counseling	12	12	12	12	0

### F. Standards of Service Provision by Site

The number of observations of service provider-client interactions was limited for several reasons. First, only five sites were offering ARVs. Second, since so few clients are currently taking ARVs, the appearance of an ARV patient at the facility on the days when the study team was collecting data was a matter of chance. Third, some of the clients who did come to the facility on those days declined to have their session observed. Eleven interac-

tions for patients initiating ARV therapy and 36 sessions for patients being monitored were observed. Based on these observations, the standards achieved for each category of patient are given in Table 27.

All five sites achieved an acceptable (70% or higher) standard in relation to the tasks that were carried out during the service provider-client interactions, both for patients initiating ARVs and for clients already on ARVs who returned for review.

Table 27  
Achievement Rates of ARV  
Service Standards

Site	Percentage of NAC Standards Achieved	
	For Initiation of ARVs	For Monitoring of ARV Patients
Mutti Medical Centre	100%	81%
Lusaka Trust	No data	75%
UTH	93%	87%
Ndola Central Hospital	77%	82%
Kara Counseling	No data	100%

These high standards were further investigated by reviewing the tasks that were omitted during the service provider-patient interactions, as shown in Tables 28 and 29.

Table 28 shows that very few key tasks were omitted. Special mention should be made of the efforts that service providers made to promote patient compliance with the drug regimen. Observations at Ndola Central Hospital, in particular, revealed that the pharmacist responsible for dispensing the ARVs was reinforcing these efforts and spending considerable time on checking that each patient knew when he/she should take which drug and on making suggestions to patients on ways that they could get reminders that it was time to take the drugs. The same pharmacist also made suggestions on what patients could do to try to reduce some of the side effects of the ARV therapy (ART).

Table 29 examines the tasks that were omitted during reviews of patients on ARVs. The issues of seeking ways to promote compli-

ance with the ARV regimen and stressing the importance of not missing a dose (omitted 46% and 34% of the time, respectively) could be explained by the fact that if the regimen has not changed, the patient would have already received this information when he/she initiated treatment. The other task frequently omitted was asking if the patient has any questions.

### G. Time Taken for ARV Service Delivery

The mean durations of sessions for initiating patients on ARV therapy and for reviewing patient responses to ARV therapy are in Table 30.

The times taken are very similar, except at Mutti Medical Centre for patients starting ARV therapy, when the doctors took exceptional care to explain the requirements in detail

Table 28  
Tasks Omitted from Initiating Patient on ARVs

Question Number	Task	Observations		
		Total	Number of Times Task Was Omitted	Percentage of Times Task Was Omitted
9	Asks if patient has any questions and provides answers	12	4	33%
2	Checks for current infection	11	2	18%
3	Explains any problems found and prescribes treatment	7	1	14%
10	Schedules next test/review visit in 2 weeks	10	1	10%
7	Seeks ways to ensure patient compliance with ARVs	11	1	9%
4	Explains how and when to take ARVs and their side effects	11	0	0%
5	Provides written dosing instructions to client	11	0	0%
6	Stresses importance of not missing a dosage	11	0	0%
8	For anemic patient, arranges blood transfusion before initiating ARVs	1	0	0%
1	Greets client and puts him/her at ease	11	0	0%
11	Completes client record	11	0	0%

Table 29  
Tasks Omitted from Monitoring Patients on ARVs

Question Number	Task	Observations		
		Total	Number of Times Task Was Omitted	Percentage of Times Task Was Omitted
8	Seeks ways to ensure patient compliance with ARVs	28	13	46%
9	Asks if patient has any questions and provides answers	35	16	46%
7	Stresses importance of not missing a dosage	32	11	34%
5	Explains any change in ARVs required based on lab results or side effects	17	2	12%
6	Provides written dosage instructions for new regime	17	2	12%
4	Asks about side effects of the ARVs	35	2	6%
10	Schedules next test/review visit at appropriate time	36	1	3%
1	Greets client and puts him/her at ease	36	0	0%
2	Checks for current infection	35	0	0%
3	Explains any problems found and prescribes treatment	29	0	0%
11	Completes client record	36	0	0%

Table 30  
Mean Times for Doctors to Provide ARV Services (in Minutes)

Site	Mean Time for Initiation of ARVs	Mean Time for Monitoring Patients on ARVs
Mutti Medical Centre	42	14
Lusaka Trust	No data	14
UTH	15	15
Ndola Central Hospital	10	21
Kara Counseling	No data	9
Average: All sites	22	15

and answer questions—questions related both to the treatment and to other topics that were of concern to the patient.

The average times taken by pharmacists to dispense the prescribed ARV cocktail to patients are in Table 31. As stated earlier, the pharmacist at Ndola Central Hospital spent more time with each patient ensuring that he/she remembered what was to be taken and when and that he/she was not experiencing any serious problems with the regimen.

The National Guidelines for HIV/AIDS Treatment and Care specify which laboratory investigations should be carried out to monitor people on ARVs and how frequently they should be carried out. It was clear from the observations that the public sector sites and Kara Coun-

Table 31  
Mean Times for Dispensing ARVs (in Minutes)

Facility	Pharmacist Time
UTH	5.7
Ndola Central Hospital	10.5
Average	8.1

seling were not following the national guidelines in relation to laboratory testing for the monitoring of patients on ARVs. Observations were made in the laboratories at UTH and Ndola Central Hospital to determine how long it took a laboratory technician to complete each of the prescribed tests. The results are in Table 32.

Table 32  
**Mean Times for Laboratory Investigations (in Minutes)**

Test	UTH	Ndola Central Hospital	Average: Both Sites
HIV screening test (determine)	13.9		13.9
HIV confirmatory test (Cappillus)		15.0	15.0
CD4 count	10.0		10.0
Viral load	268.0		268.0
Liver function	13.7	12.5	13.1
Renal function	No data	22.1	22.1
Full blood count		7.0	7.0
Blood sugar	10.0	12.6	11.3
Rapid plasma reagin (RPR)	10.4	12.0	11.2

## H. Summary of Major Findings for ARV Services

### 1. Service Effectiveness

The lack of complete record keeping by the sites offering ARV makes it difficult to determine how many patients were regularly monitored according to the national standards. Nevertheless, the limited data suggest that UTH and Kara Counseling (the latter was treating only 12 pediatric patients) are following the monitoring guidelines.

### 2. Drug Supplies

Both government ARV sites have had problems with the supply of ARVs. UTH, which cannot supply the full drug cocktail prescribed, is requiring its patients to buy the missing drugs on the open market, which raises concerns about compliance and possible resistance. Ndola Central Hospital is using the money it collects from its ARV clients through cost sharing to buy those drugs not provided in sufficient quantity by the government.

The ARVs procured by the government for the two pilot ARV sites were neither of the right type nor in sufficient quantity.

Different departments at Ndola Central Hospital managed their own ARV supplies, forcing one department to buy Nevirapine on the open market when another had excess supplies that went unused and eventually expired. Agreements with donors need to be reached so that the implementing institutions are not prevented from making sensible decisions about the use of donated drugs.

### 3. Service Standards

All five sites demonstrated an acceptable (70% or higher) standard in relation to the tasks that were carried out during the service provider-client interactions, both for patients initiating ARVs and for clients already on ARVs who have returned for review.

None of the ARV sites that participated in the study are carrying out regular renal or liver function tests,

differential ESR, or total lymphocyte counts for their ARV patients.

Ndola Central Hospital is unable to meet the national standards relating to laboratory monitoring; it relies on clinical monitoring of its ARV patients since, even though TDRC has the equipment to conduct CD4 and viral load tests, the hospital cannot afford the charges. Kara Counseling also relies on clinical monitoring for its pediatric ARV patients.

Aside from TDRC, UTH is the only other site in Zambia that has the equipment to carry out CD4 and viral load analyses and is doing these tests, for a fee, for the private sector ARV sites. However, the UTH equipment's computerized results functions are not in working order, and laboratory staff are spending a lot of time on manual calculations. At the time of the study, UTH was unable to monitor renal function due to the lack of reagents.

### 4. Record Keeping

The records maintained by the ARV sites make it very difficult to monitor the services provided to patients.

## V. Staffing of HIV/AIDS Services

### A. Supervision of HIV/AIDS Services

With the exception of the Linkages-supported P-MTCT sites in Ndola, none of the study sites were receiving any supervision relating to the HIV/AIDS services that they were providing. In other words, while the site managers have the responsibility to ensure that service provision is proceeding without any undue problems, the HIV/AIDS services are not a focus of attention by supervi-

sion (performance assessment) or technical support by the responsible district health board or provincial health office. Only in Ndola was a district health management team (DHMT) officer assigned to oversee the P-MTCT services provided through the district's clinics.

The lack of monitoring of the quality of counseling was raised in Section II above in relation to VCT services. The same can be said of the counseling provided under the P-MTCT programs. However, although the DHMT officer is expected to monitor the quality of counseling through observing counseling sessions, she is unable to do so due to other demands on her time. The issue of the poor quality of records that should be providing information on VCT, P-MTCT, and ARV service delivery was also discussed earlier. Of equal concern, however, is that no individual or group is using the information that is available to monitor the effectiveness of the HIV/AIDS services.

Service providers at the study sites were asked to identify to whom they turn for guidance and advice about their HIV/AIDS work: 44% of all categories of service provider stated that they turned to their supervisor for advice, whereas 31% turned to a colleague.

## B. Factors That Motivate Service Providers

Interviews were held with different categories of service providers at each of the sites that participated in the study. Service providers were asked why they first applied for or agreed to be transferred to the HIV/AIDS job that they currently held and what factors had kept them in that work. They were also asked to rank

how satisfied they were with their current work.

The responses given, sorted according to whether the work site

provided stand-alone or integrated services and ownership category, are in Table 33.

Table 33  
Factors That Motivate Service Providers

Answer	Service Delivery Model		Site Ownership			
	Stand Alone	Integrated	Government	NGO	Private	All Staff
<b>Why did you apply for this job?</b>						
Personal interest	67%	76%	78%	43%	79%	69%
Wish to help PLWA	74%	73%	80%	29%	79%	67%
Salary	48%	28%	22%	86%	50%	47%
Work environment	41%	28%	22%	71%	36%	40%
Benefits	37%	16%	14%	57%	29%	31%
Staff relations	37%	15%	17%	14%	50%	27%
Other	22%	22%	20%	43%	0%	15%
Work hours	4%	9%	6%	29%	0%	10%
Don't know	0%	1%	2%	0%	0%	0.6%
<b>What keeps you going?</b>						
Personal interest	74%	76%	78%	57%	79%	73%
Wish to help PLWA	67%	70%	78%	14%	71%	60%
Staff relations	37%	31%	31%	43%	43%	37%
Work environment	30%	30%	23%	71%	21%	35%
Salary	37%	22%	23%	43%	36%	32%
Benefits	33%	18%	17%	29%	36%	27%
Other	26%	16%	15%	29%	14%	19%
Work hours	0%	6%	5%	14%	0%	5%
Don't know	0%	1%	2%	0%	0%	0.6%
<b>How satisfied are you in your job?</b>						
Extremely satisfied	15%	6%	8%	0%	21%	10%
Very satisfied	48%	24%	25%	57%	50%	41%
Satisfied	26%	46%	45%	43%	23%	37%
Somewhat satisfied	22%	18%	17%	14%	7%	16%
Unsatisfied	0%	6%	6%	0%	0%	12%

### C. Factors That Dissatisfy Service Providers

Service providers were also asked about the factors that dissatisfied them in their work. Their answers are summarized in Table 34.

Workload was quoted most frequently as the main cause of dissatisfaction for service providers at government facilities. Salary was the next most frequently cited issue for dissatisfaction overall. The large volume of clients seen at stand-alone VCT sites has created space constraints at these facilities. Counselors and clients often outnumber available counseling rooms, and space for storing test kits and other materials is frequently combined with space used for counseling. Frustration with space constraints was reflected in service provider responses to questions about job satisfaction.

### D. Salaries of Service Providers by Service Ownership

Salary data were collected for all categories of service providers and are shown separated by ownership in Table 35.

Table 35 shows, as expected, that the private, for-profit health facilities are paying significantly higher salaries than the government or NGOs. Private doctors' salaries are more than double those of government doctors, midwives' salaries are almost one third higher, and laboratory technicians' salaries are more than three times the amount paid by government. NGOs are paying between 23% and 46% more than the government.

### E. Incentives Given to Service Providers

At each site, the manager was asked about the incentives for service providers, including special allowances (such as those paid by the Horizons Project), salary top-ups, transport allowances, etc. This information would show whether any relationship existed between

allowances paid, service provider satisfaction, and workload. The data on incentives are shown in Table 36.

Incentives have a dual purpose. First, they can be used to encourage a high level of performance in terms of both quantity and quality. In Zambia, incentive payments are also used to minimize the amount of the required gratuity payable when a

Table 34  
Factors That Dissatisfy Service Providers

Answer	Service Delivery Model		Site Ownership			
	Stand Alone	Integrated	Government	NGO	Private	All Staff
Workload	44%	58%	58%	29%	36%	45%
Salary	33%	48%	48%	43%	29%	34%
Other	33%	34%	32%	57%	14%	34%
Work environment	44%	19%	25%	29%	29%	29%
Benefits	22%	28%	31%	29%	0%	22%
Work hours	11%	21%	18%	29%	14%	17%
Treatment by management	7%	15%	14%	14%	7%	11%
Staff relations	11%	6%	8%	0%	14%	8%

Table 35  
Average Annual Salaries by Provider Type and Ownership Category (US Dollars)

Service Provider Type	Ownership Category		
	Government	NGO	Private Sector
Doctor	7,525	9,240	17,050
Clinical officer	1,915	3,400	No data
Midwife	1,900	No data	2,500
Nurse	1,865	2,295	No data
Lab technician	1,915	2,800	6,350
Lay counselor	None	2,200	8,760

staff member leaves employment (since the gratuity is calculated on the basis of salary and not incentive payments).

The data in Table 36 demonstrate the significant value of the incentives paid to private sector staff. For doctors, the annual incentive payment represents a one-time payment equivalent to 52% of the annual salary. Similarly, the annual incentive payment made to lay counselors by New Start represents 89% of their annual salary.

The only government staff receiving incentive payments (over and above the 10% of the monthly total fee income, which is distributed equally among all clinic staff as a bonus) are those at Chipata Clinic, where ZAMBAT is paying staff \$5.00 for each full day of counseling.

### F. Losses of Service Providers in the Last Year

Information was gathered on the number of staff who had left the site in the last year, since this gives some insight into the scale of need for training new staff to carry out the HIV/AIDS service tasks. Table 37 provides details of staff losses from each study site. Losses were greatest for midwives, the cadre in highest demand and shortest supply. In the Lusaka hospitals and clinics, losses of midwives and nurses was particularly great, with Lusaka Trust Hospital experiencing a 60% loss rate of midwives and Chipata Clinic a 67% loss rate of midwives and a 33% loss rate of nurses.

The principal reason for staff losses is salary, with a large number of nurses and midwives leaving Zambia for jobs in the United

Kingdom and United States. Other common reasons for losses were transfers, particularly at government sites, and death. The Zambian government recently increased the salaries of nurses and midwives, but complaints that the salaries remain insufficient are widespread, so this

recent salary increase may not influence staff loss rates.

The data also indicate that the loss rate among volunteers, at 26%, is relatively low compared to paid staff. Many volunteers noted learning opportunities, such as training, as a

Table 36  
Sum of Incentive Payments Made Annually to Service Providers (US Dollars)

Site	Doctors	Nurses/ Midwives	Clinical Officers	Lab Technicians	Lay Service Providers	Volunteers
Government						
Chipata Clinic <sup>11</sup>		240	240	240		
NGO						
Thandizani						290
New Start				1,360	1,965	770
Private						
Mutti Medical Centre	1,420	208		529		
Lusaka Trust	8,905	1,245		1,795		

<sup>11</sup> All clinic staff are also given an allowance of \$5 for every day of counseling for ZAMBAT.

Table 37  
HIV/AIDS Staff Loss Rates by Cadre

Cadre	Number Currently at Work	Number Who Left in Last 12 Months	Loss Rate
Doctors	23	7	30%
Midwives	50	18	36%
Nurses	42	14	33%
Clinical officers	10	2	20%
Lab technicians	19	4	21%
Other	30	9	30%
Volunteers	31	8	26%
<b>Total: All staff</b>	<b>205</b>	<b>62</b>	<b>30%</b>

motivating factor for their involvement in HIV/AIDS services. Some volunteers funded their own training and hoped to use their volunteer experience to gain the background necessary to advance to paid work as lay counselors.

## VI. Training of HIV/AIDS Service Providers

### A. Numbers Trained for VCT, P-MTCT, and ARV Services

The Chainama College Counseling Program and UTH are the only two national training centers currently providing training in HIV/AIDS counseling. The Government has also organized a short course for doctors and other selected staff on ARVs. Other training programs have been organized and sponsored by internationally funded programs, most notably the Linkages Project, UNICEF, and Family Health International (FHI). The study team interviewed site managers about numbers of staff trained, training content, who funded the training, who conducted the training, and training costs. Information about training costs was also obtained from the funding partners, notably the Linkages Project and UNICEF. Tables 38–40 provide information on numbers of service providers trained, by cadre, in VCT, P-MTCT, and ARVs.

Table 38 shows that 125 service providers have been trained in VCT at the service sites included in the study. Of these, 35% are midwives, most of whom were trained in VCT as part of their instruction in P-MTCT. The fact that midwives are in short supply in Zambia and already carry

Table 38  
Cadres Trained for VCT Service by Site

Site	Medical Officer	Midwife	Nurse	Clinical Officer	Lab Technician	Other	Volunteer	Total
Mbala Hospital	2	4	8	2	1		3	20
Tulemane Clinic		1	3		1			5
Ndola Central Hospital	1	2	3					6
Lubuto Clinic		8	4		2		4	18
New Masala Clinic		5						5
Bwafwano Clinic		8					4	12
Mutti Medical Centre		1						1
New Start					3	11	3	17
Lusaka Trust Hospital		4						4
Chipata Clinic		2	5	1	1			9
Keemba Clinic		5	1	1		1		8
Kara Counseling		3					1	4
Thandizani			2				3	5
UTH		1	1			5	4	11
<b>Total</b>	<b>3</b>	<b>44</b>	<b>27</b>	<b>4</b>	<b>8</b>	<b>17</b>	<b>22</b>	<b>125</b>

a heavy work burden may explain the very small number of VCT clients being seen at government clinics. Also, the involvement of volunteers and lay counselors, who make up the “Other” category, is substantial; combined, they comprise 31% of staff providing services.

Table 39 shows the staff who have been trained in P-MTCT.

Note that Table 39 demonstrates again that midwives provide the vast majority of P-MTCT services (55%).

Table 40 shows the numbers of staff in each cadre that have been trained for ARV service delivery by site.

ARV service provision is the only area of HIV care where doctors play

a substantial role. Currently, doctors make up 71% of staff trained to do ARV initiation and monitoring.

### B. Clients Served per Trained Service Provider

Tables 39 and 40 show that the greatest numbers of staff have been trained in VCT. This is understandable since VCT is the entry to all other HIV services. Given differences in the number of clients being counseled in P-MTCT (Table 15) and ARV (Table 24), however, it is surprising that the disparity in the numbers of people trained is small. As Table 41 shows, VCT had 125

trained staff, P-MTCT had 101, and ARV had 73.

Table 41 compares the number of people trained and the number of clients seen in the last year. On

average, each trained VCT staff person saw 144 clients throughout the course of the year, while staff trained in P-MTCT and ARV have attended to 33 clients and 4 clients

in the last year, respectively. This raises questions about whether the investment in training has been properly targeted.

Table 39  
Cadres Trained for P-MTCT Service by Site

Site	Medical Officer	Midwife	Nurse	Clinical Officer	Lab Technician	Other	Volunteer	Total
Mbala Hospital	2	4	8	2	1		3	20
Tulemane Clinic		1	3		1			5
Ndola Central Hospital	1	2	3					6
Lubuto Clinic		8	1		2		4	15
New Masala Clinic		5						5
Bwafwano Clinic		8					2	10
Mutti Medical Centre		1						1
Lusaka Trust Hospital	1							1
Chipata Clinic		17	4	1	1	2		25
Keemba Clinic		5	1	1		1		8
UTH		5						5
<b>Total</b>	<b>4</b>	<b>56</b>	<b>20</b>	<b>4</b>	<b>5</b>	<b>3</b>	<b>9</b>	<b>101</b>

Table 40  
Cadres Trained for ARV Service by Site

Site	Doctor	Midwife	Nurse	Clinical Officer	Lab Technician	Other	Volunteer	Total
Ndola Central Hospital	2	1	1	1	1	2		8
Mutti Medical Centre	2	2						4
Lusaka Trust Hospital	8	1						9
Kara Counseling		1					1	2
UTH	40		10					50
<b>Total</b>	<b>52</b>	<b>5</b>	<b>11</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>73</b>

Table 41  
Clients Seen in Last Year per Staff Member Trained

	Number of Persons Trained	Total Number of Clients in Last Year	Number of Clients Seen per Trained Staff Member in Last Year
VCT	125	18,009	144
P-MTCT	101	3,364	33
ARV	73	310	4

Table 42 compares the number of people trained to the FTEs actually providing HIV services.

Although 222 people have been trained, only 89.3 FTEs are actually providing HIV/AIDS services. This suggests that a large proportion of staff being trained are dedicating less than half their work time to HIV/AIDS counseling and care. The disparity is most pronounced among midwives (Table 43), especially at Ndola Central Hospital and Tulemane and Keemba clinics. Table 43 shows that while many midwives have been trained in P-MTCT, none provides P-MTCT counseling full time, and some provide as little as four hours of P-MTCT service per week.

The data show that in many cases, staff who are trained never provide services. For example, at UTH 50 staff were trained to provide ARV services to patients, but only 11 are actually providing any HIV/AIDS services.

### C. Costs of Training

Table 44 provides information on the costs of HIV/AIDS training provided for the staff of the study sites.

As is evident from Table 44, the costs of training per participant varied widely from \$10 for a 2-day short course on ARV therapy to \$1,096 for an 8-week training course on P-MTCT. Even training for the

same service varied substantially, both in the number of days dedicated to the training and in cost. For example, Linkages' 12-day VCT training cost was \$532/participant where as UTH's 14-day training was only \$60. Training design and context partially explain these differences. Linkages' training, for example, covered lodging, food, and transport for all participants plus lodging and per diem for trainers. UTH's training, on the other hand, did not provide food, lodging, or transportation.

Table 43

### Midwives Trained in HIV Who Are Currently Active and Their FTE Equivalent for the Service They Provide

Table 42  
Number Trained (All HIV Services) versus Active in Service Delivery

Site	Number Trained for HIV Service	Number Currently Active in HIV Service	FTE in HIV Service
Mbala Hospital	20	12	6.0
Tulemane Clinic	5	5	2.3
Ndola Central Hospital	11	12	5.8
Lubuto Clinic	18	25	6.2
New Masala Clinic	7	11	4.8
Bwafwano Clinic	10	16	5.0
Mutti Medical Centre	4	6	3.0
New Start Center	17	17	15.5
Lusaka Trust Hospital	13	20	4.0
Chipate Clinic	34	22	9.5
Keemba Clinic	8	6	2.3
Kara Counseling	4	19	8.9
Thandizani	5	9	6.7
UTH	66	32	9.6
<b>Total</b>	<b>222</b>	<b>212</b>	<b>89.6</b>

Site	Midwives		
	Trained	Active	FTEs
New Start	0	0	0
Kara Counseling (Choma)	3	0	0
Thandizani	0	0	0
Ndola Central Hospital	2	1	0.1
Keemba Clinic	5	1	0.4
Tulemane Clinic	1	2	0.8
UTH	1	5	0.9
Mbala Hospital	4	3	1.1
Mutti Medical Centre	1	3	1.1
Lusaka Trust Hospital	4	10	1.2
Bwafwano Clinic	16	8	2.1
New Masala Clinic	7	6	2.3
Chipata Clinic	2	6	2.8
Lubuto Clinic	16	8	3.5
<b>Total</b>	<b>62</b>	<b>53</b>	<b>16.3</b>

Table 44  
Training Duration and Cost by Site (US Dollars)

Service Site	Topic	Number Trained	Days of Training	Total Cost of Training	Per Participant Cost
Mbala Hospital	VCT/P-MTCT	16	11	\$9,440	\$590
Tulemane Clinic	VCT/P-MTCT	4	11	2,360	590
Ndola Central Hospital	VCT/P-MTCT	6	11	3,540	590
	ARV	7	5	No data	No data
Lubuto Clinic	P-MTCT	15	56	16,443	1096
	VCT	12	12	6,328	527
New Masala Clinic	P-MTCT	5	56	5481	1096
	VCT	2	12	1,054	532
Bwafwano Clinic	P-MTCT	9	56	9,866	1096
	VCT	12	12	6382	527
Mutti Medical Centre	ARV	4	2	40	10
New Start	VCT	17	5	5,599	329
	Advanced VCT	5	7	640	128
Lusaka Trust Hospital	VCT	4	14	240	60
	ARV	8	2	80	10
Chipata Clinic	P-MTCT	25	11	14,750	590
Keemba Clinic	VCT/P-MTCT	8	11	4,720	590
Kara Counseling (Choma)	VCT/P-MTCT	4	56	160	40
Thandizani	VCT	3	10	300	100
		2	14	640	320
UTH	VCT	10	56	1,100	110
	ARV	50	3	50,000	1,000

### *D. Duration of Training in Relation to Service Standard*

Table 45 compares the duration of training to the service standard demonstrated at each site.

Interestingly, Table 45 seems to suggest that length of training may not influence the performance standard. For example, government staff at UNICEF-sponsored clinics, who underwent 11 days of training in

P-MTCT, met between 57% and 72% of P-MTCT counseling standards, whereas government staff who participated in Linkages' 8-week training course only met between 44% and 59%.

Similarly, Kara Counseling's 8-week training for its staff yielded a standard of 76% for VCT, whereas the New Start training, which took 12 days (5 for preliminary training and 7 for advanced training), resulted in a standard of 72%.

Although the disparity in performance at the P-MTCT sites might be attributed to a smaller sample size of UNICEF counseling sessions, making a comparison between the data questionable, corresponding results from the VCT sites imply that the content of the longer training may not improve performance, but clearly increases costs.

## VII. Human Resource Implications of Scale-up

With Global Fund support imminent, Zambia has developed strategies for the scale-up of its VCT, P-MTCT, and ARV services. In this section of the report, projections are made to

examine the staffing implications of different scale-up scenarios. The human resource projections are based on the average time taken to provide services at those sites that were observed to achieve an acceptable standard of service.

Table 45  
VCT, P-MTCT, and ARV Training Duration and Service Standard by Site

Site	Topic	Days of Training	Standard Achieved
Mbala Hospital	VCT/P-MTCT <sup>11</sup>	11	VCT 78% P-MTCT 57%
Tulemane Clinic	VCT/P-MTCT	11	P-MTCT 67%
Ndola Central Hospital	VCT/P-MTCT	11	VCT 73%
	ARV	5	ARV 82%
Lubuto Clinic	VCT	12	61%
	P-MTCT/VCT	56	P-MTCT 44%
New Masala Clinic	VCT	12	No data
	P-MTCT/VCT	56	P-MTCT 59%
Bwafwano Clinic	VCT	12	20%
	P-MTCT/VCT	56	P-MTCT 53%
Mutti Medical Centre	ARV	2	ARV 81%
New Start Center	VCT	5	VCT 72%
	Advanced VCT	7	
Lusaka Trust Hospital	VCT	14	No data
	ARV	2; 14	75%
Chipata Clinic	No data	No data	VCT 59%
	P-MTCT	11	63%
Keemba Clinic	VCT/P-MTCT	11	VCT 80% P-MTCT 72%
Kara Counseling (Choma)	VCT	56	76%
	ARV	72	100%
Thandizani	VCT	10; 14	71%
UTH	VCT	56	67%
	P-MTCT	11	No data
	ARV	2	87%

<sup>11</sup> Denotes that the training covered both topics listed.

## A. VCT Services

The Government of Zambia reports a total of 101 VCT sites in the country,<sup>3</sup> following a rapid increase in the number of sites over the last few years. The same report indicates that between October 1999 and May 2003, a total of 266,170 clients were tested, an annual average of 72,500 clients. Given that the number of sites has been increasing and that the present list of VCT sites excludes the P-MTCT sites that also offer VCT to general clients, it can be assumed that Zambia is now providing VCT to approximately 100,000 clients per year.

The present strategy for further scale-up of VCT services is to establish three new VCT centers in the remaining three districts that currently do not offer this service. There are no targets for increasing the number of people seeking VCT, although the Government anticipates that the introduction of treatment through public sector P-MTCT and ARV programs will result in an increased demand for VCT.

Table 46 provides projections of service provider time required for three different assumptions for VCT uptake rates. The lower assumption is that 100,000 clients per year will seek VCT, which is the estimated present number. The second assumption is based on a WHO report that states that demand for VCT may be estimated at about twice the HIV prevalence rate, which in Zambia is equivalent to an uptake rate of about 6%.<sup>4</sup> The third scenario

<sup>3</sup> Zambia VCT Service. Annual Activity Report June 2003 to May 2003.

<sup>4</sup> WHO. 2002. Coverage of Selected Health Services for HIV/AIDS Prevention Care in Less Developed Countries in 2001.

is the mid-point between the higher and the lower assumptions that equates to a VCT uptake rate of 4% of the total adult population. Each of the three projections assumes that 25% of those tested will test HIV-positive.

If we assume that Zambia is providing counseling to around 100,000 adults per year, then Table 46 indicates that around 63 FTE counselors are now providing this service. However, if VCT uptake increases to 4% of the adult population each year, then there would be a need for an *additional* 63 FTE counselors. If VCT uptake increases to 6% of the adult population, then an *additional* 127 FTE counselors would be required.

Turning to HIV testing under the same uptake scenarios, Table 47 provides projections of service provider time required for conducting the tests.

Table 47 shows that increasing VCT uptake to 4% of the total adult population would require 54 FTE staff to conduct the HIV tests. A VCT uptake rate of 6% would require 81 FTE staff.

Assuming that additional counselors will be required if VCT uptake increases beyond the estimated 100,000 clients per year currently being served and that testing the additional clients will also require additional service providers (whether laboratory technologists, midwives, nurses, or clinical officers), Table 48 indicates the additional salary and training costs associated with the two scale-up scenarios.

Table 46  
Counselors Required for Different VCT Uptake Scenarios

Counseling Service	VCT Annual Uptake Rate		
	2%	4%	6%
<b>Pre-test counseling</b>			
Number of clients	100,000	200,000	300,000
Minutes per client	24	24	24
<b>Post-test counseling for HIV-negative clients</b>			
Number of clients	75,000	150,000	225,000
Minutes per client	16	16	16
<b>Post-test counseling for HIV-positive clients</b>			
Number of clients	25,000	50,000	75,000
Minutes per client	20	20	20
<b>Total counselor hours required</b>	<b>68,335</b>	<b>136,667</b>	<b>205,000</b>
<b>Total FTE counselors required <sup>11</sup></b>	<b>63</b>	<b>127</b>	<b>190</b>

<sup>11</sup> Public sector health workers have on average the following days of leave each year: 36 days vacation; 20 days sickness; 12 public holidays; and 12 days for mother's leave (females only). Based on 260 weekdays/year, the average number of days worked each year by one worker is 180. It is assumed that in each 8-hour day, a worker is actively providing client service for six hours and that two hours are for other work, such as staff meetings and logistics management, or with waiting time.

Table 47  
Service Provider Time Required for HIV Testing for Different Uptake Scenarios

HIV Test	VCT Annual Uptake Rate		
	2%	4%	6%
<b>Screening Test (Abbott Determine)</b>			
Number of clients tested	100,000	200,000	300,000
Minutes per test	13.8	13.8	13.8
<b>Confirmatory Test (Capillus)</b>			
Number of clients testing HIV-positive	25,000	50,000	75,000
Minutes per test	15	15	15
<b>Total provider hours required</b>	<b>29,250</b>	<b>58,500</b>	<b>87,750</b>
<b>Total FTE providers required</b>	<b>27</b>	<b>54</b>	<b>81</b>

## B. P-MTCT Services

### 1. Workforce Projections

The Government of Zambia's strategy for the scale-up of P-MTCT services over the next three to four years<sup>5</sup> aims to expand P-MTCT/Safe Motherhood services to all public and private health facilities in the country by the end of 2005. This goal implies the targets in Table 49.

The average times across all the sites that had a standard of 70% or higher (Table 23) were used to project the service provider time that will be required to achieve the target coverage of P-MTCT services. The results are shown in Table 50.

At present, there are 43 P-MTCT sites. Based on average workloads found at these sites (9.2 pregnant

women per week being counseled and tested), these sites are providing treatment to 5,200 pregnant women each year. The target of reaching 73,238 HIV-positive pregnant women would require reaching an additional 68,000 pregnant women. The FTEs required to achieve this coverage would be 127 counselors and 73 individuals conducting the blood testing, or 200 additional FTEs. Given that most of the sites targeted to integrate P-MTCT into antenatal care do not have laboratory staff, the HIV testing work will have to be absorbed by the existing midwives, nurses, and clinical officers who are currently providing ANC.

Of course, the scale-up in P-MTCT services is expected to progressively cover all hospitals and clinics throughout the country so that the number of sites offering P-MTCT services would increase from the present 43 to more of the approximately 1,170 remaining hospitals and health centers.<sup>7</sup> This will mean that scale up to achieve the stated targets will spread the additional workload over all of the additional sites.

This will present a problem to managers trying to determine whether and where to add additional staff time to their P-MTCT sites. The

Table 48  
Training and Salary Costs for VCT Scale-up

	4% VCT Annual Uptake Rate			6% VCT Annual Uptake Rate		
	Additional FTEs	Training Cost (\$) <sup>11</sup>	Per Annum Salary Cost <sup>12</sup>	Additional FTEs	Training Cost (\$) <sup>11</sup>	Per Annum Salary Cost <sup>12</sup>
Counselors	63	33,264	126,000	127	67,056	254,000
HIV Testers	27	2,376	54,000	54	4,752	108,000
<b>Total</b>	<b>90</b>	<b>35,640</b>	<b>180,000</b>	<b>181</b>	<b>71,808</b>	<b>362,000</b>

<sup>11</sup> Assumes a 12-day training for counselors and a two-day training for HIV testing with an average participant cost per day of training (US \$44) for a non-residential course.

<sup>12</sup> Assumes lay counselors at an annual salary of \$2,000 for counseling and a clinical officer, nurse, midwife, or lab technician for HIV testing at an annual salary of \$2,000.

Table 49  
Calculation of Target for P-MTCT Services

	Proportion (Target)	Number (Target)
Total national population	-	10,200,000
Pregnant women each year	-	450,000 <sup>11</sup>
Pregnant women getting ANC	93%	418,500
ANC attendees getting tested	70%	292,950
Number of pregnant women testing HIV-positive	25%	73,238
Number of HIV-positive women accepting treatment	75%	54,928
Rounded target		55,000

<sup>11</sup> Derived from the fertility rate/1000 women from the Zambia Demographic and Health Survey 2001–2002.<sup>6</sup>

<sup>5</sup> CBoH. Strategic Framework and Workplan for the Expansion of Integrated PMTCT Services in Zambia 2003–2006, Second Draft. 2003.

<sup>6</sup> Central Statistical Office. 2002. Zambia Demographic and Health Survey 2001–2002. Lusaka: CBoH, Zambia and Measure DHS+ ORC Macro.

<sup>7</sup> A Listing of Health Facilities According to Level and Location for 2002, CBoH, August 2003.

Table 50  
Total Service Provider Time Required  
to Achieve Target P-MTCT Coverage

Service	Time for One Client (Minutes)	Target Number of Clients	Total Service Provider Hours Required	Total FTEs Required
Pre-test counseling for ANC women	13	292,950	63,473	59
Post-test counseling for HIV-negative women	16	219,712	58,590	55
Post-test counseling for HIV-positive women	20	73,238	24,413	23
<b>Total time for counseling services</b>				<b>137</b>
HIV testing: Initial screening	13.8	292,950	67,379	62
HIV testing: Confirmatory test	15	73,238	18,310	17
<b>Total time for testing</b>				<b>79</b>

study did not assess the level of workload on services other than HIV/AIDS, so we cannot say whether the additional time required to provide P-MTCT services could be added to the existing staff workload without compromising overall service quality. As scale-up commences, it will be important for managers to monitor how well staff handle the additional workload.

## 2. Costs

The major costs associated with scaling up of P-MTCT services will be for training. The CBoH Strategic Framework for expansion of integrated P-MTCT services specifies the following training targets:

- A one-day orientation for doctors, programme managers, and other health workers so that all key workers understand the basics of the P-MTCT program;
- A 16-day training for P-MTCT trainers in each province;

- An 11-day training on the P-MTCT minimum package of care for nurses and midwives, targeted to cover 70% of those providing maternal and child services;
- A 9-day training on infant feeding (breastfeeding and HIV) for the same nurses and midwives; and

- Laboratory training on HIV rapid testing, and serology for syphilis and hepatitis for nurses, midwives, and laboratory technicians.

To estimate the numbers of individuals who would need to be trained in each category of training, the following assumptions were made:

Orientation would be required for three individuals from each provincial health office, three from each district office, and three from each hospital. Twenty P-MTCT trainers would be trained from each province (a target from the Strategic Framework). The number of individuals to be trained in the P-MTCT minimum package of care, infant feeding, and laboratory skills is estimated by assuming that five people would be trained from each government and mission hospital, five from each urban health center, and two from each rural center.

## 3. Training

Table 51 indicates that the cost of achieving the training targets would amount to approximately US\$ 3.8 million. This equates to around US\$

Table 51  
Training Costs for P-MTCT Scale-up

Training	Estimated Number to Be Trained	Number of Days of Training	US\$ Cost per Participant Day <sup>11</sup>	Total Cost (US\$)
Orientation	485	1	10	4,850
P-MTCT TOT <sup>12</sup>	180	16	54	155,520
P-MTCT	3,115	11	54	1,850,310
Infant Feeding	3,115	9	54	1,513,890
Laboratory Skills	3,115	2	54	336,420
<b>Total</b>	<b>10,010</b>			<b>3,860,990</b>

<sup>11</sup> Based on the data from Table 44, assuming that any training of more than one day would be residential. For one-day training the cost is assumed to cover lunch and refreshments.

<sup>12</sup> TOT means training of trainers.

965,000 per year over the next four years if steady progress towards the target is to be achieved. Given the loss rates of professional health staff, the need to incorporate P-MTCT training into the pre-service training curricula for nurses and midwives is urgent.

### C. ARV Services

The Global Fund proposal for the first year of implementation targets reaching 10,000 individuals with ARV services through the public health services.

A recent report by PHR*plus*<sup>8</sup> tested out the implications of three different scenarios: (i) the current budget for ARVs of about \$6 million stays constant in future years; (ii) the budget increases by an extra \$5 million every year; and (iii) the budget rises by 25% each year. Their analysis indicates that while scenario (ii) would allow for a steady expansion of coverage, the required budget would probably be unrealistic.

The average time to provide services at present ARV sites was used to project the human resource implications of ARV scale-up across each of the two scenarios believed to be financially feasible. The results are in Table 52.

Table 52 indicates that to scale up ARV services to reach the currently targeted number of clients (10,000) will require a total of 12.7 FTE doctors across the country and, assuming that one nurse will continue to sit in on the doctor-client consultations, 12.7 FTE nurses. Assuming that each of the designated hospitals in each of the nine

Table 52  
Projection of Service Provider Time for ARV Services

Service	Constant Budget for ARVs		Additional 25% per Year	
	National	Each Hospital	National	Each Hospital
<b>Initiation of ART</b>				
Number of patients by 2007	10,000	1,110	24,420	2,715
Minutes per session with patient	22	22	22	22
Number of sessions per year	1	1	1	1
<b>Monitoring of patients on ART</b>				
Number of patients by 2007	10,000	1,110	24,420	2,715
Minutes per session with patient	15	15	15	15
Number of sessions per year	4	4	4	4
Total doctor hours required/year	13,667	777	33,374	3,710
<b>Total FTE doctors required</b>	<b>12.7</b>	<b>1.4</b>	<b>30.9</b>	<b>3.4</b>
Total nurse hours required/year	13,667	777	33,374	3,710
<b>Total FTE nurses required</b>	<b>12.7</b>	<b>1.4</b>	<b>30.9</b>	<b>3.4</b>

Table 53  
Additional Pharmacist Time Required to Scale up ARV Services

Service	Constant Budget for ARVs		Additional 25% per Year	
	National	Each Hospital	National	Each Hospital
<b>Dispensing ARVs to patients</b>				
Number of clients by 2007	10,000	1,110	24,420	2,715
Minutes per session with patient	8.1	8.1	8.1	8.1
Number of sessions per year	12	12	12	12
Total pharmacist hours required	16,200	1,798	39,560	4,398
<b>Total FTE pharmacists required</b>	<b>15.0</b>	<b>1.7</b>	<b>36.6</b>	<b>4.1</b>

provinces takes on an equal share of 10,000 clients to be selected for ARVs, then each hospital would be treating approximately 1,110 clients.

Using the same calculations as in Table 51, but this time for each individual hospital, the results show that 1.5 FTE doctors will be required to care for the ARV patients at each

hospital and the same number of nurses. In other words, the time of 1.5 doctors and 1.5 nurses would need to be devoted to nothing but caring for ARV patients.

If the ARV budget increased by 25% each year, the total number of clients that could be reached with ARVs would be around 24,420 by 2007. To

<sup>8</sup> Gilbert Kombe and Owen Smith. 2003. The Costs of Antiretroviral Treatment in Zambia: Draft. Bethesda, MD: Partners in Health Reform*plus*.

treat this number of clients, 31 FTE doctors and 31 FTE nurses would be required to spend their time exclusively on initiating and monitoring ARV patients across the country. Using the same calculation for each of nine hospitals sharing the ARV client workload equally shows that each hospital would need to have 3.5 doctors and 3.5 nurses devoting all of their time to caring for ARV patients.

In addition to the additional workload implications for doctors and nurses, we should consider the additional workload for pharmacists. Based on the average times derived from study observations for dispensing ARVs, Table 53 presents the additional pharmacist time per year that would be required to dispense to ARV patients under the two scale-up scenarios. Both projections assume that each patient is coming in for a re-supply of drugs once a month.

Table 53 shows that the total additional workload for pharmacists to dispense drugs once a month to a total of 10,000 patients represents 2,700 days of work or 15.0 FTEs. If the ARV patients are distributed equally across the country, then each of the nine provincial hospitals would need to devote 1.7 FTE pharmacists to dispensing ARVs.

If expenditure on ARVs is increased by 25% each year to reach a total of 24,420 individuals by 2007, then across the country more than 36 pharmacists would need to devote their time exclusively to dispensing ARVs. Each provincial hospital would therefore need just over four pharmacists to devote all their time to ARV clients.

In 1999 (the last year for which accurate data are available), 68

pharmacists and pharmacy technicians worked in the public health sector, so the 15 FTE pharmacy staff required to provide ARV therapy for 10,000 persons would represent 22% of the total pharmacy workforce. Increasing the number of individuals to receive ARVs to 24,420 would require the equivalent of 37 FTEs, representing more than 50% of the current total pharmacy workforce.

Turning to the issue of laboratory monitoring of ARV patients, the CBoH has prescribed the following tests each year: three full blood counts, three urea/creatinine tests; three liver function tests; three blood sugar tests; two CD4 counts, and one viral load. To achieve this regimen, the time requirements for laboratory staff would be as shown in Table 54.

Table 54  
Additional Laboratory Technician Time Required to Scale up ARV Services

Service	Constant Budget for ARVs		+25% per Year	
	National	Each Hospital	National	Each Hospital
Number of ARV Patients	10,000	1,110	24,420	2,715
<b>Full blood counts per year</b>	30,000	3,330	73,260	8,145
Minutes per test	7	7	7	7
Total lab technician hours/year required	3,500	389	8,547	950
<b>Urea/creatinine tests per year</b>	30,000	3,330	73,260	8,145
Minutes per test	22	22	22	22
Total lab technician hours/year required	11,000	1,221	26,862	2,987
<b>Liver function tests per year</b>	30,000	3,330	73,260	8,145
Minutes per test	13.1	13.1	13.1	13.1
Total lab technician hours/year required	6,550	727	15,995	1,778
<b>Blood sugar test per year</b>	30,000	3,330	73,260	8,145
Minutes per test	11.3	11.3	11.3	11.3
Total lab technician hours/year required	5,650	628	13,797	1,533
<b>CD4 counts per year</b>	20,000	2,220	48,640	5,430
Minutes per test	10	10	10	10
Total lab technician hours/year required	3,333	370	8,107	905
<b>Viral load tests per year</b>	10,000	1,110	24,420	2,715
Minutes per test <sup>11</sup>	25	25	25	25
Total lab technician hours/year required	4,167	463	10,175	1,131
Total lab technician hours required	34,200	3,798	83,483	9,284
<b>Total FTE lab technicians required</b>	<b>31.7</b>	<b>3.5</b>	<b>77.3</b>	<b>8.6</b>

<sup>11</sup> Of the total elapsed time for a viral load test (see Table 32), only the time taken to mount the blood, set the equipment, and read and record the results was used. It is also assumed that the equipment will be fully functional and that laboratory technicians will not need to do manual calculations as they do now at UTH.

Table 54 indicates that to meet the requirements for laboratory monitoring of 10,000 patients on ARVs would require each of the nine provincial hospitals to have 2.8 laboratory technicians spending all their time on tests to monitor patient response to the treatment. If the number of individuals able to access ARVs is increased to 24,420 then each hospital would need to have seven laboratory technicians spending all their time monitoring the ARV patients. In 1999, there were 325 laboratory technicians and technologists working in the public health sector. Thus the 26 FTE staff required to provide ARVs to a total of 10,000 patients would represent 8% of the total laboratory workforce. The 31 FTEs required to dispense ARVs to 24,420 patients would represent almost 20% of the current total workforce.

#### D. Summary of Staff Required to Scale up HIV/AIDS Services

A summary of the total staff required to scale up VCT, P-MTCT, and ARV services is given in Table 55.

In Table 55, it is assumed that the additional workload will require additional staff, so the salary costs of the extra FTEs required are included. Training costs have also been included, except for scale-up of ARV therapy, where some training has already taken place and the CBoH needs to decide what further training, if any, is still required before ARV services are rolled out to seven additional hospitals.

Table 55 shows that the lower scale-up targets for VCT and ARVs, together with the national target for scale-up of P-MTCT services, result

in a total need for 379 additional FTEs at an annual salary cost of US\$ 829,800. The higher scale-up targets result in a need for 573 additional FTEs at an annual salary cost of US\$ 1.3 million. Since annual salaries for public health staff currently represent US\$ 50 million per year, the additional costs of employing the staff required for scale up of HIV/AIDS services represent an increase of 2.6% on current salary expenditure.

## VIII. Recommendations

### A. VCT Services

Stand-alone sites, whose staff focus entirely on HIV/AIDS services, are attracting and providing pre-test counseling to 18 times more clients per day than sites that offer VCT as only part of their portfolio of responsibilities.

Table 55  
Summary of Staff Required to Scale up HIV/AIDS Services, with Training Costs

Staff Category/ Service	Additional FTEs Required		Salary Costs		Training Costs (US Dollars)	
	At 4% Uptake	At 6% Uptake	At 4% Uptake	At 6% Uptake	At 4% Uptake	At 6% Uptake
<b>VCT</b>						
Counselors	63	127	126,000	254,000	33,264	67,056
HIV testers	27	54	54,000	108,000	2,376	4,752
<b>Subtotal VCT</b>	<b>90</b>	<b>181</b>	<b>180,000</b>	<b>362,000</b>	<b>35,640</b>	<b>71,808</b>
<b>P-MTCT</b>						
Counselors		137		274,000		3,524,570
HIV testers		79		158,000		336,420
<b>Subtotal P-MTCT<sup>1</sup></b>		<b>216</b>		<b>432,000</b>		<b>3,860,990</b>
<b>ARV Therapy</b>	10,000 Patients	24,420 Patients	10,000 Patients	24,420 Patients	10,000 Patients	24,420 Patients
Doctors	13	31	97,800	233,300		
Nurses	13	31	26,000	62,000		
Pharmacy technicians	15	37	30,000	74,000		
Lab technicians	32	77	64,000	154,000		
<b>Subtotal ARV</b>	<b>73</b>	<b>176</b>	<b>217,800</b>	<b>523,300</b>		
<b>TOTAL</b>	<b>379</b>	<b>573</b>	<b>829,800</b>	<b>1,317,300</b>	<b>3,896,630</b>	<b>3,932,798</b>

<sup>1</sup> The total training costs for P-MTCT include the orientation for managers/supervisors and the training of trainers (both were assumed in the calculations for Table 51)

**Recommendation 1: Efforts should be made to encourage NGOs to open new VCT sites that offer VCT as stand-alone services.**

The study data collected indicate that to maintain high levels of VCT effectiveness two factors are important: (a) VCT sites need to offer rapid testing and same day results, and (b) a consistent supply of test kits must be ensured.

**Recommendation 2: All VCT sites should be required to provide rapid, same-day testing.**

As decisions are made on the number of individuals that the Government can afford to accept into ARV treatment, the impact this scale-up will have on the need for VCT is unclear, since it is not known how many of the possible candidates for treatment have already had their HIV status confirmed. However, it is likely that demand for VCT will increase once the possibility for treatment increases and that the need for additional counselors will therefore increase. The question then arises of who should be trained to meet the increase in demand.

The results from the study sites indicate that lay counselors perform at least as well as the health professionals in counseling.

**Recommendation 3: The CBoH should consider whether scale-up of VCT services should be achieved through the use of lay counselors rather than health professionals. For this strategy to be followed, careful consideration will need to be given to educational requirements, terms of employment, payments and benefits, length and content of the training, and working arrange-**

**ments between counselors and health staff at health facilities.**

Some study sites demonstrated that VCT service standards are not very high: 45% of observed counseling sessions did not meet an acceptable standard in terms of the tasks carried out. How the counselors conduct their counseling also requires improvement. It appears that the counselors follow a “standard formula” for what they say and when they say it, rather than adjusting the content and sequence to client needs. The issue of client-centered risk reduction is not a focus of counseling but may be the most powerful way of encouraging behavior change.

Like other professionals, counselors need to have their counseling performance reviewed by skilled and experienced practitioners both during their training and periodically thereafter to ensure acceptable performance. At present, few trainee counselors have their field practice counseling sessions observed and most practicing counselors never have their counseling performance reviewed.

**Recommendation 4: Consideration needs to be given to how counselor performance can be monitored, during both training and active service, to ensure that counseling standards are maintained at an acceptable rate.**

At present, the Zambia Voluntary Counseling and Testing Services (ZVCTS) based at UTH in Lusaka oversees VCT services. With the number of VCT centers now exceeding 100, this responsibility appears impossible to fulfill. The new information system being established with the help of Management

Sciences for Health Rational Pharmaceutical Management (MSH/RPM) Project will assist, but not solve, the problem of how to follow up on problems indicated by the new reports.

**Recommendation 5: Consideration needs to be given to how the supervision of VCT can be strengthened. The roles of districts and hospitals in this supervision need to be defined and the possibility of setting up a network of experienced counselors and laboratory technicians, under the leadership of ZVCTS, with responsibility for on-site supervision and technical support, should be investigated. Counseling standards must be clearly defined and a process for monitoring performance designed. The sorts of simple analyses provided in this report, such as the VCT service completion rates in Table 6, should be used for regular monitoring.**

The data collection instruments used in the study for the counseling observations created considerable interest among the counselors observed, since the list of tasks that should be carried out for pre- and post-test counseling was seen as a potentially useful checklist to help to remind counselors what they should do.

**Recommendation 6: Simple job aids for counselors should be developed and distributed. They should list the tasks that need to be covered during each stage of counseling to help ensure that key issues are not overlooked.**

As ARV therapy becomes more widely available, ensuring that all counselors are aware of sites where they can refer HIV-positive clients for

possible treatment will become more urgent. In addition, all counselors need to be updated with the information that pregnant women should not take ARVs during the first three months of pregnancy. Both these issues need to be incorporated into the training curriculum for counselors.

**Recommendation 7: With the scale-up of ARV therapy through the public sector, existing counselors need to be updated on treatment availability and on the need to cease ARVs during the first three months of pregnancy.**

## *B. P-MTCT Services*

The quality of observed pre- and post-test counseling at P-MTCT sites showed that only 22% achieved an acceptable standard. Pre- and post-test P-MTCT counseling frequently failed to assist the client in identifying her risks of infection and to formulate a plan of action to help her maintain HIV-negative status. More than one quarter of the observed pre-test counseling sessions did not cover risk reduction, nor did 84% of the post-test counseling for HIV-negative women.

In 19% of the observed post-test counseling sessions for pregnant women who had tested HIV-positive, the women were not counseled on infant feeding options. In 43% of the observed post-test counseling sessions for pregnant women who had tested HIV-positive and were given Nevirapine, the women were not advised to bring their newborn back to the clinic for treatment with Nevirapine syrup within 72 hours of delivery. None of the study sites told HIV-positive women that their infants

should be given prophylactic doses of cotrimoxazole from six weeks of life until one year of age. Less than 50% of the infants born to HIV-positive mothers who had been given Nevirapine were brought back to the service site for treatment with Nevirapine syrup.

**Recommendation 1: As scale-up of P-MTCT services rolls out, the need is urgent to establish procedures for the regular monitoring of service quality. The national P-MTCT protocol guidelines must be widely disseminated and responsibility for local supervision, including periodic observation of service delivery, clearly delineated.**

There appears to be some confusion among service delivery staff on the advice that should be given to HIV-positive mothers on infant feeding. Three options appear to be advised at present: (a) no breastfeeding; (b) exclusive breastfeeding for three months; and (c) exclusive breastfeeding for six months.

**Recommendation 2: The training and supervision of P-MTCT service providers needs to be clear on what advice on infant feeding should be given.**

The target for P-MTCT scale-up is that 100% of women attending antenatal care should receive “group counseling” and 70% of these should receive individual counseling and testing. Currently, different P-MTCT sites are using different approaches to offering individual VCT, and not all approaches encourage acceptance (such as the clinic where the women are asked, in public, “Who wants to be tested?”).

**Recommendation 3: Clear guidance on how P-MTCT services should be organized within a service delivery site needs to be prepared prior to scale-up and disseminated during orientation training for managers and supervisors.**

Record keeping at many of the current P-MTCT sites has been very poor. Individual projects have been able to design their own formats, which can lead to difficulties in consistent monitoring of activities and service completion achievements. In addition, project-supported programs have removed clinic records for the preparation of study reports or for program evaluation reasons. The clinics often have no data at all on their P-MTCT activities during the period of project support.

**Recommendation 4: There needs to be national standardization of registers, which should probably be printed to prevent individual sites from preparing their own, often not-to-standard books.**

**Recommendation 5: No project should be allowed to remove clinic registers. This issue should form part of the guidance prepared by CBoH for guiding partner-supported P-MTCT programs (see next recommendation).**

The number of ANC clients counseled and tested has been influenced by incentive payments made by projects. Withdrawal of the incentive at the end of project support has a significant impact on the numbers of clients that service providers counsel and can lower staff morale.

**Recommendation 6: The CBoH needs to prepare clear guidelines for projects relating to incentive payments allowed (or not allowed) to be given to service providers for limited periods of time. These guidelines should be discussed with all prospective partners and agreements reached before financial or technical support commences.**

A variety of different P-MTCT training programs has been used in Zambia, ranging from a duration of 11 days (the national curriculum) to 56 days. Findings from the study indicate that the length of training did not seem to be related to the performance standard achieved.

**Recommendation 7: All partner-supported P-MTCT programs should be required to use the national curriculum for the in-service training of P-MTCT service providers. However, it will also be important to carry out an evaluation of this training to ensure that it leads to acceptable service delivery standards.**

P-MTCT scale-up entails a large investment in training of managers and service providers (see Table 53).

**Recommendation 8: The feasibility of achieving this level of training investment needs to be reviewed with potential partners before scale-up commences.**

Given the high loss rates from government service and to avoid a continual need for in-service training in P-MTCT for new graduates, there is a need to incorporate P-MTCT into the pre-service curriculum for nurses and into the post-basic midwifery curriculum.

**Recommendation 9: P-MTCT needs to be incorporated into the pre-service nursing and post-basic midwifery curricula as soon as possible.**

Appointments for VCT for pregnant women are currently restricted to antenatal booking days, which are usually held once or twice a week. This results in heavy workload during those days, long waits for the clients, and perhaps a deterioration in the quality of services offered.

**Recommendation 10: Consideration should be given to whether alternative approaches for offering P-MTCT services could lead to a more manageable spread of workload for the clinic staff.**

Scale-up of P-MTCT services across the country will add workload to all sites offering maternal and child health services. The study did not assess the level of workload on services other than HIV/AIDS, so it was not possible to determine whether the additional time required to provide P-MTCT services could be added to the existing staff workload without compromising overall service quality. As scale-up commences, it will be important for managers to monitor how staff are coping with the additional workload.

**Recommendation 11: Assessment of the impact of integrating P-MTCT services into routine ante- and post-natal care will need to be carried out to ensure that overall service quality is not being compromised. This will be particularly important at health centers with few staff. This assessment could be carried out now at P-MTCT sites and should certainly be done after the first phase of scale-up.**

## *C. ARV Services*

Ndola Central Hospital and UTH have gained considerable experience during the time that they have been offering ARVs to a limited number of clients.

**Recommendation 1: Prior to further scale-up of the public sector ARV program, these two sites should be given the opportunity to share their experiences with the set of hospitals that will offer ARVs next.**

As shown in Section VII.C, the scale-up of ARV services will have a significant impact on doctor, pharmacist, and laboratory technician workload if the national protocols are to be followed.

**Recommendation 2: The human resource implications of ARV scale-up need to be reviewed with the provincial health directors and provincial hospital executive directors before scale-up commences so that appropriate arrangements can be put in place to ensure that national protocols can be followed.**

Both UTH and Ndola Central Hospital have experienced problems with their laboratory equipment and reagents since starting their ARV services.

**Recommendation 3: Adequate budgets need to be prepared for the purchase and subsequent maintenance of the laboratory equipment required for monitoring ARV patients. Similarly, funds need to be set aside to ensure that the ARV sites have consistent supplies of the necessary reagents.**

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The “push” system used for ARV supply, whereby the center procures the drugs and sends them out to the service delivery sites, has led to unfortunate results in terms both of expiry of unused drugs and procurement of insufficient supplies of the first-line drugs.

**Recommendation 4: Those responsible for procurement should discuss requirements with the responsible pharmacists at the ARV sites.**

Donors providing ARVs under specific projects should be prevented from restricting the implementing hospital from making sensible decisions about how those drugs may be used.

**Recommendation 5: Donor agreements should be reached to ensure that ARVs provided for P-MTCT can be used for ARV patients if ARV stocks run out.**

**Recommendation 6: Scale-up will require a national monitoring of ARV stocks at each participating hospital to ensure that over- or under-supply of ARVs can be dealt with through institutional collaboration.**

Given the cost of providing in-service training in ART to doctors and other health professionals, it is important that both ARV theory and rotational practice in ARV clinics be included in the pre-service training

curricula for doctors, pharmacists, and laboratory technologists.

**Recommendation 7: ARV therapy and rotational practice should be incorporated into the pre-service training curricula for doctors, pharmacists, and laboratory technologists as soon as possible.**

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## Annex 1: Data Collection Instruments

Site # \_\_\_\_\_

Observation # \_\_\_\_\_

### Instrument 3A: VCT

#### *Observation of Pre-Test Counseling for General Clients*

Client consent to observation given: \_\_\_\_\_ Task carried out by (cadre) \_\_\_\_\_

If group counseling observed, the number of women in the group: \_\_\_\_\_

Time Service initiated: \_\_\_\_\_ Time Service completed: \_\_\_\_\_

Gender of Service Provider:    M    F    Circle the appropriate response: Y/ N/ NA

No.	Task	Counseling by				Minutes Taken
		Group		Individual		
1	Greets client and establishes pleasant environment for discussion	Y	N	Y	N	NA
2	Establishes why the client has come (referred, voluntarily, worried, partner sick, etc.)	Y	N	Y	N	NA
3	Explains confidentiality	Y	N	Y	N	NA
4	Establishes what client knows about HIV & AIDS	Y	N	Y	N	NA
5	Provides information that is lacking and clarifies any misconceptions about HIV/AIDS	Y	N	Y	N	NA
6	Explains how HIV test is done	Y	N	Y	N	NA
7	Explains when the test results will be ready	Y	N	Y	N	NA
8	Explains what the "window period" is	Y	N	Y	N	NA
9	Discusses client-centred risk reduction strategies	Y	N	Y	N	NA
10	Identifies referral needs (for STDs, OIs, other)	Y	N	Y	N	NA
11	Provides referral/information on what client should do for referral	Y	N	Y	N	NA
12	Establishes whether client wants HIV test	Y	N	Y	N	NA
13	If clients wants HIV test, arranges appointment for receipt of test results	Y	N	Y	N	NA
14	Summarizes and asks for any further questions	Y	N	Y	N	NA
15	Draws blood	Y	N	Y	N	NA
16	Completes client record	Y	N	Y	N	NA

Total time taken (minutes) from service initiation to service completion \_\_\_\_\_

Any comments:

Site # \_\_\_\_\_

Observation # \_\_\_\_\_

## Instrument 3B: VCT

### *Observation of Pre-Test Counseling for Pregnant Women*

Client consent to observation given: \_\_\_\_\_ Task carried out by (cadre) \_\_\_\_\_

If group counseling observed, the number of women in the group: \_\_\_\_\_

Time Service initiated: \_\_\_\_\_ Time Service completed: \_\_\_\_\_

Gender of Service Provider: M F Circle the appropriate response: Y/ N/ NA

No.	Task	Counseling by				Minutes Taken
		Group		Individual		
1	Greets client & establishes good environment for discussion	Y	N	Y	N	NA
2	Explains confidentiality	Y	N	Y	N	NA
3	Establishes what client knows about HIV/AIDS	Y	N	Y	N	NA
4	Provides information that is lacking and clarifies misconceptions about HIV/AIDS	Y	N	Y	N	NA
5	Provides information about P-MTCT treatment (what it is, it can protect child, how long is treatment, side effects, etc.)	Y	N	Y	N	NA
6	Explains how HIV test is done	Y	N	Y	N	NA
7	Explains when the test results will be ready	Y	N	Y	N	NA
8	Explains what the "window period" is	Y	N	Y	N	NA
9	Counsels on infant feeding options	Y	N	Y	N	NA
10	Discusses client-centred risk reduction strategies	Y	N	Y	N	NA
11	Identifies referral needs (for STDs, OIs...)	Y	N	Y	N	NA
12	Provides referral or information on what client should do for referral	Y	N	Y	N	NA
13	Establishes whether client wants HIV test	Y	N	Y	N	NA
14	If clients wants HIV test, arranges appointment for receipt of test results	Y	N	Y	N	NA
15	Summarizes & asks if any more questions	Y	N	Y	N	NA
16	Completes client record	Y	N	Y	N	NA

Total time taken (minutes) from service initiation to service completion \_\_\_\_\_

Any comments:

Site # \_\_\_\_\_

Observation # \_\_\_\_\_

## Instrument 3C: VCT

### *Observation of Post-Test Counseling for General Clients Who Test Negative*

Client consent to observation given: \_\_\_\_\_ Task carried out by (cadre) \_\_\_\_\_

Time Service initiated: \_\_\_\_\_ Time Service completed: \_\_\_\_\_

Gender of Service Provider: M F Circle the appropriate response: Y/ N/ NA

No.	Task	Task Done			Minutes Taken
1	Greets client & establishes pleasant environment for discussion	Y	N	NA	
2	Checks that the clients wants to know the results	Y	N	NA	
3	Reveals the test results	Y	N	NA	
4	Observes the reaction and provides support (allows time for expression of feelings)	Y	N	NA	
5	Assesses level of understanding & upgrades knowledge if necessary	Y	N	NA	
6	Re-explains the "window period"	Y	N	NA	
7	Reiterates information on HIV prevention	Y	N	NA	
8	Helps client to identify problems & identify solutions/ resources	Y	N	NA	
9	Helps client to formulate a plan of action	Y	N	NA	
10	Identifies referral needs and gives guidance on what to do	Y	N	NA	
11	Summarizes and ask for any further questions	Y	N	NA	
12	Completes client record	Y	N	NA	

Total time taken (minutes) from service initiation to service completion \_\_\_\_\_

Any comments:

Site # \_\_\_\_\_

Observation # \_\_\_\_\_

## Instrument 3D: VCT

### *Observation of Post-Test Counseling for General Clients Who Test Positive*

Client consent to observation given: \_\_\_\_\_ Task carried out by (cadre) \_\_\_\_\_

Time Service initiated: \_\_\_\_\_ Time Service completed: \_\_\_\_\_

Gender of Service Provider: M F Circle the appropriate response: Y/ N/ NA

No.	Task	Task Done			Minutes Taken
1	Greets client and establishes pleasant environment for discussion	Y	N	NA	
2	Checks that the clients wants to know the results	Y	N	NA	
3	Reveals the test results	Y	N	NA	
4	Observes the reaction and provides support (allows time for expression of feelings)	Y	N	NA	
5	Assesses level of understanding and upgrade knowledge if necessary	Y	N	NA	
6	Helps client to identify problems and identify solutions/resources	Y	N	NA	
7	Helps client to formulate a plan of action	Y	N	NA	
8	Reiterates information on protection of others	Y	N	NA	
9	Gives information about ARV treatment and where available	Y	N	NA	
10	Identifies referral needs and gives guidance on what to do	Y	N	NA	
11	Gives guidance on living longer	Y	N	NA	
12	Summarizes and ask for any further questions	Y	N	NA	
13	Completes client record	Y	N	NA	

Total time taken (minutes) from service initiation to service completion \_\_\_\_\_

Any comments:

Site # \_\_\_\_\_

Observation # \_\_\_\_\_

## Instrument 3E: VCT

### *Observation of Post-Test Counseling for Pregnant Women Who Test Negative*

Client consent to observation given: \_\_\_\_\_ Task carried out by (cadre) \_\_\_\_\_

Does this site provide Nevirapine? \_\_\_\_\_

Time Service initiated: \_\_\_\_\_ Time Service completed: \_\_\_\_\_

Gender of Service Provider: M F Circle the appropriate response: Y/ N/ NA

No.	Task	Task Done			Minutes Taken
1	Greets client and establishes pleasant environment for discussion	Y	N	NA	
2	Checks that the clients wants to know the results	Y	N	NA	
3	Reveals the test results	Y	N	NA	
4	Observes the reaction and provides support (allows time for expression of feelings)	Y	N	NA	
5	Assesses level of understanding and upgrade knowledge if necessary	Y	N	NA	
6	Discusses importance & how to remain HIV-	Y	N	NA	
7	Helps client to identify problems and identify solutions/resources	Y	N	NA	
8	Helps client to formulate a plan of action for remaining HIV-negative	Y	N	NA	
9	Identifies referral needs and gives guidance on what to do	Y	N	NA	
10	Gives guidance on living longer	Y	N	NA	
11	Summarizes and ask for any further questions	Y	N	NA	
12	Completes client record	Y	N	NA	

Total time taken (minutes) from service initiation to service completion \_\_\_\_\_

Any comments: \_\_\_\_\_

Site # \_\_\_\_\_

Observation # \_\_\_\_\_

## Instrument 3F: VCT

### *Observation of Post-Test Counseling for Pregnant Women Who Test Positive*

Client consent to observation given: \_\_\_\_\_ Task carried out by (cadre) \_\_\_\_\_

Time Service initiated: \_\_\_\_\_ Time Service completed: \_\_\_\_\_

Gender of Service Provider: M F Circle the appropriate response: Y/ N/ NA

No.	Task	Task Done			Minutes Taken
1	Greets client & creates good environment for talk	Y	N	NA	
2	Checks that the client wants to know the results	Y	N	NA	
3	Reveals the test results	Y	N	NA	
4	Observes the reaction and provides support	Y	N	NA	
5	Assesses level of understanding and upgrades knowledge if necessary	Y	N	NA	
6	Gives information about P-MTCT treatment	Y	N	NA	
7	Gives client Nevirapine tablet or prescribes AZT & tells her when to take	Y	N	NA	
8	Tells mother she must bring her newborn child in for Nevirapine syrup within 72 hours after delivery	Y	N	NA	
9	Explains to mother about cotrimoxazole prophylaxis for infants from 6 weeks to 12 months of age	Y	N	NA	
10	Checks gestation period	Y	N	NA	
11	If client is already on ARVs, informs her that drugs should be stopped during the 1 <sup>st</sup> 3 months of pregnancy	Y	N	NA	
12	Counsels client on infant feeding options	Y	N	NA	
13	Helps client to identify problems and identify solutions/resources	Y	N	NA	
14	Helps client to formulate a plan of action	Y	N	NA	
15	Asks if client wishes to receive treatment	Y	N	NA	
16	Reiterates information on protection of self and others	Y	N	NA	
17	Gives guidance on living longer	Y	N	NA	
18	Summarizes and asks for any further questions	Y	N	NA	
19	Completes client record	Y	N	NA	

Total time taken (minutes) from service initiation to service completion \_\_\_\_\_

Any comments:

Site # \_\_\_\_\_

Observation # \_\_\_\_\_

## Instrument 3G: Observation of ARV Therapy

### (a) Patient initiating ARVs

Client consent to observation given: \_\_\_\_\_ Task carried out by (cadre) \_\_\_\_\_

Time Service initiated: \_\_\_\_\_ Time Service completed: \_\_\_\_\_

Gender of Service Provider: M F Circle the appropriate response: Y/ N/ NA

No.	Task	Task Done			Minutes Taken
1	Greets client & creates good environment for talk	Y	N	NA	
2	Checks for current infection (diarrhea, oral thrush, chest conditions, TB, headache, fever, skin diseases, swollen joints, weight loss, STIs)	Y	N	NA	
3	Explains any problems found & prescribes treatment	Y	N	NA	
4	Explains how & when to take prescribed drugs and their side effects.	Y	N	NA	
5	Provides written dosing instructions to patients	Y	N	NA	
6	Stresses importance of not missing a drug dosage since this can lead to drug resistance	Y	N	NA	
7	Seeks a way of ensuring patient compliance with the ARV regimen (relative, support group, etc.)	Y	N	NA	
8	For anaemic patient, arranges for blood transfusion prior to initiation of treatment	Y	N	NA	
9	Asks if patient has any questions & answers them	Y	N	NA	
10	Schedules next test/review visit 2 weeks after initiation	Y	N	NA	
11	Completes client record	Y	N	NA	

Total time taken (minutes) from service initiation to service completion \_\_\_\_\_

Any comments:

Site # \_\_\_\_\_

Observation # \_\_\_\_\_

## Instrument 3G: Observation of ARV Therapy

### *(b) Monitoring of Patient Response to ARVs*

A patient taking ARVs should be monitored 2 weeks after initiation of ARVs, 3 months after initiation of ARVs, and then every 6 months.<sup>9</sup>

Client consent to observation given: \_\_\_\_\_ Task carried out by (cadre) \_\_\_\_\_

Time Service initiated: \_\_\_\_\_ Time Service completed: \_\_\_\_\_

Gender of Service Provider: M F Circle the appropriate response: Y/ N/ NA

No.	Task	Task Done			Minutes Taken
1	Greets client & creates good environment for talk	Y	N	NA	
2	Checks for current infection or other problem (diarrhea, oral thrush, chest conditions, TB, headache, fever, skin diseases, swollen joints, weight loss, STIs)	Y	N	NA	
3	Explains any problems found & prescribes treatment	Y	N	NA	
4	Asks about any side effects of current ARV drug regimen	Y	N	NA	
5	Explains any change in drug regimen required in response to blood analysis/patient response	Y	N	NA	
6	Provides written dosing instructions for the new drug regimen	Y	N	NA	
7	Stresses importance of not missing a drug dosage since this can lead to drug resistance	Y	N	NA	
8	Seeks a way of ensuring patient compliance with the ARV regimen (relative, support group, etc.)	Y	N	NA	
9	Asks if patient has any questions & answers them	Y	N	NA	
10	Schedules next test/review visit at appropriate interval	Y	N	NA	
11	Completes client record	Y	N	NA	

Total time taken (minutes) from service initiation to service completion

Comments

<sup>9</sup> Guidelines on Management and Care for HIV/AIDS, HIV/AIDS Vaccine and Treatment Working Group, National HIV/AIDS Council, 2002

Site # \_\_\_\_\_

Observation # \_\_\_\_\_

## Instrument 3H: Physician Interview on Treatment of Opportunistic Infections in HIV-Positive Patients

Note: This instrument only to be used if no observations of treatment of OIs at this site are possible.

Site: \_\_\_\_\_

Name of Doctor: \_\_\_\_\_

Circle the appropriate response:

Question	Answer																												
1. Are you responsible for treating patients who present with opportunistic infections?	Yes    No																												
2. If you are not, who do you refer patients to for treatment?	Other doctor Nurse Clinical Officer Other																												
3. What opportunistic infections in HIV-positive patients have you treated in the last 12 months and could you estimate how long it takes to diagnose and prescribe?	<table border="1"><thead><tr><th>Infections Treated</th><th>Time taken to diagnose and prescribe</th></tr></thead><tbody><tr><td>TB</td><td></td></tr><tr><td>Diarrhea</td><td></td></tr><tr><td>Oral thrush</td><td></td></tr><tr><td>Pneumonia (bacterial)</td><td></td></tr><tr><td>Pneumonia (fungal)</td><td></td></tr><tr><td>Respiratory conditions</td><td></td></tr><tr><td>Pulmonary condition</td><td></td></tr><tr><td>Cryptococcal meningitis</td><td></td></tr><tr><td>Headache management</td><td></td></tr><tr><td>Lymphodenopathy</td><td></td></tr><tr><td>Taxoplasmosis</td><td></td></tr><tr><td>HIV-associated skin and muco-cutaneous diseases</td><td></td></tr><tr><td>Other STIs</td><td></td></tr></tbody></table>	Infections Treated	Time taken to diagnose and prescribe	TB		Diarrhea		Oral thrush		Pneumonia (bacterial)		Pneumonia (fungal)		Respiratory conditions		Pulmonary condition		Cryptococcal meningitis		Headache management		Lymphodenopathy		Taxoplasmosis		HIV-associated skin and muco-cutaneous diseases		Other STIs	
Infections Treated	Time taken to diagnose and prescribe																												
TB																													
Diarrhea																													
Oral thrush																													
Pneumonia (bacterial)																													
Pneumonia (fungal)																													
Respiratory conditions																													
Pulmonary condition																													
Cryptococcal meningitis																													
Headache management																													
Lymphodenopathy																													
Taxoplasmosis																													
HIV-associated skin and muco-cutaneous diseases																													
Other STIs																													

Site # \_\_\_\_\_

Observation # \_\_\_\_\_

## Instrument 3J: Observations of Laboratory Investigations

Site: \_\_\_\_\_ Laboratory: \_\_\_\_\_

Data Collector: \_\_\_\_\_ Date: \_\_\_\_\_

### *(a) HIV Test*

Time Testing initiated: \_\_\_\_\_ Time Testing completed: \_\_\_\_\_

No.	Task	Task Done		Task Carried out by (Cadre):	Minutes Taken
1	Tests blood	Y	N		
2	Writes laboratory report on test results	Y	N		
Total time taken (minutes) from test initiation to test completion					
3	Type of test carried out:			Primary? Confirmatory?	
4	Name of test				

Comments:

### *(b) CD4 Analysis*

Time Testing initiated: \_\_\_\_\_ Time Testing completed: \_\_\_\_\_

No.	Task	Task Done		Task Carried out by (Cadre):	Minutes Taken
1	Tests blood	Y	N		
2	Writes laboratory report on test results	Y	N		
Total time taken (minutes) from test initiation to test completion					

Comments:

Site # \_\_\_\_\_

Observation # \_\_\_\_\_

***(c) Viral Load***

Time Testing initiated: \_\_\_\_\_ Time Testing completed: \_\_\_\_\_

No.	Task	Task Done		Task Carried out by (Cadre):	Minutes Taken
1	Tests blood	Y	N		
2	Writes laboratory report on test results	Y	N		

Total time taken (minutes) from test initiation to test completion

Comments:

***(d) Liver Function Test***

Time Testing initiated: \_\_\_\_\_ Time Testing completed: \_\_\_\_\_

No.	Task	Task Done		Task Carried out by (Cadre):	Minutes Taken
1	Tests blood	Y	N		
2	Writes laboratory report on test results	Y	N		

Total time taken (minutes) from test initiation to test completion

Comments:

***(e) Full Blood Count & Differential ESR (including total lymphocyte)***

Time Testing initiated: \_\_\_\_\_ Time Testing completed: \_\_\_\_\_

No.	Task	Task Done		Task Carried out by (Cadre):	Minutes Taken
1	Tests blood	Y	N		
2	Writes laboratory report on test results	Y	N		

Total time taken (minutes) from test initiation to test completion

Comments:

Site # \_\_\_\_\_

Observation # \_\_\_\_\_

***(f) Blood Sugar***

Time Testing initiated: \_\_\_\_\_ Time Testing completed: \_\_\_\_\_

No.	Task	Task Done		Task Carried out by (Cadre):	Minutes Taken
1	Tests blood	Y	N		
2	Writes laboratory report on test results	Y	N		

Total time taken (minutes) from test initiation to test completion

Comments:

***(g) RPR***

Time Testing initiated: \_\_\_\_\_ Time Testing completed: \_\_\_\_\_

No.	Task	Task Done		Task Carried out by (Cadre):	Minutes Taken
1	Tests blood	Y	N		
2	Writes laboratory report on test results	Y	N		

Total time taken (minutes) from test initiation to test completion

Comments:

***(h) Renal Function***

Time Testing initiated: \_\_\_\_\_ Time Testing completed: \_\_\_\_\_

No.	Task	Task Done		Task Carried out by (Cadre):	Minutes Taken
1	Tests blood	Y	N		
2	Writes laboratory report on test results	Y	N		

Total time taken (minutes) from test initiation to test completion

Comments:



Site # \_\_\_\_\_

Observation # \_\_\_\_\_

## Instrument 3K: Observations of Pharmacy Dispensing

### *a) ARV Prescription Filling*

No.	Task	Task Done		Task Carried out by (Cadre):	Minutes Taken
1	Fill prescription	Y	N		
2	Complete entry to drug log book for drugs dispensed	Y	N		
3	Complete client instructions on packet	Y	N		
4	Inform client how and when to take the drugs	Y	N		

Total time taken (minutes)

Comments:

### *b) P-MTCT Prescription Filling*

No.	Task	Task Done		Task Carried out by (Cadre):	Minutes Taken
1	Fill prescription	Y	N		
2	Complete entry to drug log book for drugs dispensed	Y	N		
3	Complete client instructions on packet	Y	N		
4	Inform client how and when to take the drugs	Y	N		

Total time taken (minutes)

Comments:

Site # \_\_\_\_\_

Observation # \_\_\_\_\_

Instrument 4: HIV/AIDS Training

ZT = Zambian Government Training Center, IFT = Internationally Funded Program, PO = Private Organization, NGO = Non-Govt. Organization

Type of Staff	a. Training	b. Numbers of Individuals Trained	c. Duration of Training (in Days)	d. Who Funded the HIV/AIDS Training		e. Who Did the Training				f. Cost of the Training	g. Other Approaches Used for Learning
				Circle One		Circle One					
1. Doctors	VCT			Govt.	Other	ZT	IFT	PO	NGO		Internet  Prof. Networks  Other
	ARV			Govt.	Other	ZT	IFT	PO	NGO		
	P-MTCT			Govt.	Other	ZT	IFT	PO	NGO		
	Pediatric AIDS			Govt.	Other	ZT	IFT	PO	NGO		
	OI Managt/Care			Govt.	Other	ZT	IFT	PO	NGO		
	Social Support			Govt.	Other	ZT	IFT	PO	NGO		
	Other			Govt.	Other	ZT	IFT	PO	NGO		
2. Midwives	VCT			Govt.	Other	ZT	IFT	PO	NGO		Internet  Prof. Networks  Other
	ARV			Govt.	Other	ZT	IFT	PO	NGO		
	P-MTCT			Govt.	Other	ZT	IFT	PO	NGO		
	Pediatric AIDS			Govt.	Other	ZT	IFT	PO	NGO		
	OI Managt/Care			Govt.	Other	ZT	IFT	PO	NGO		
	Social Support			Govt.	Other	ZT	IFT	PO	NGO		
	Other			Govt.	Other	ZT	IFT	PO	NGO		
3. Nurses	VCT			Govt.	Other	ZT	IFT	PO	NGO		Internet  Prof. Networks  Other
	ARV			Govt.	Other	ZT	IFT	PO	NGO		
	P-MTCT			Govt.	Other	ZT	IFT	PO	NGO		
	Pediatric AIDS			Govt.	Other	ZT	IFT	PO	NGO		
	OI Managt/Care			Govt.	Other	ZT	IFT	PO	NGO		
	Social Support			Govt.	Other	ZT	IFT	PO	NGO		
	Other			Govt.	Other	ZT	IFT	PO	NGO		

ZT = Zambian Government Training Center , IFT = Internationally Funded Program, PO = Private Organization, NGO = Non-Govt. Organization

Type of Staff	a. Training	b. Numbers of Individuals Trained	c. Duration of Training (in Days)	d. Who Funded the HIV/AIDS Training		e. Who Did the Training				f. Cost of the Training	g. Other Approaches Used for Learning
				Circle One	Circle One	Circle One	Circle One	Circle One	Circle One		
4. Clinical Officers	VCT			Govt.	Other	ZT	IFT	PO	NGO		Internet  Prof. Networks  Other
	ARV			Govt.	Other	ZT	IFT	PO	NGO		
	P-MTCT			Govt.	Other	ZT	IFT	PO	NGO		
	Pediatric AIDS			Govt.	Other	ZT	IFT	PO	NGO		
	OI Managt/Care			Govt.	Other	ZT	IFT	PO	NGO		
	Social Support			Govt.	Other	ZT	IFT	PO	NGO		
	Other			Govt.	Other	ZT	IFT	PO	NGO		
5. Lab Technicians	VCT			Govt.	Other	ZT	IFT	PO	NGO		Internet  Prof. Networks  Other
	ARV			Govt.	Other	ZT	IFT	PO	NGO		
	P-MTCT			Govt.	Other	ZT	IFT	PO	NGO		
	Pediatric AIDS			Govt.	Other	ZT	IFT	PO	NGO		
	OI Managt/Care			Govt.	Other	ZT	IFT	PO	NGO		
	Social Support			Govt.	Other	ZT	IFT	PO	NGO		
	Other			Govt.	Other	ZT	IFT	PO	NGO		
6. Volunteers	VCT			Govt.	Other	ZT	IFT	PO	NGO		Internet  Prof. Networks  Other
	ARV			Govt.	Other	ZT	IFT	PO	NGO		
	P-MTCT			Govt.	Other	ZT	IFT	PO	NGO		
	Pediatric AIDS			Govt.	Other	ZT	IFT	PO	NGO		
	OI Managt/Care			Govt.	Other	ZT	IFT	PO	NGO		
	Social Support			Govt.	Other	ZT	IFT	PO	NGO		
	Other			Govt.	Other	ZT	IFT	PO	NGO		
7. Other	VCT			Govt.	Other	ZT	IFT	PO	NGO		Internet  Prof. Networks  Other
	ARV			Govt.	Other	ZT	IFT	PO	NGO		
	P-MTCT			Govt.	Other	ZT	IFT	PO	NGO		
	Pediatric AIDS			Govt.	Other	ZT	IFT	PO	NGO		
	OI Managt/Care			Govt.	Other	ZT	IFT	PO	NGO		
	Social Support			Govt.	Other	ZT	IFT	PO	NGO		
	Other			Govt.	Other	ZT	IFT	PO	NGO		

Site # \_\_\_\_\_

Observation # \_\_\_\_\_

## Instrument 5: Staff Motivation

### 5A: Manager Interview

Site: \_\_\_\_\_

Name of Individual being interviewed: \_\_\_\_\_

Title/Cadre: \_\_\_\_\_

Years (or months if < 1 year) service at this site: \_\_\_\_\_

Question	Answer
1. What salaries are paid to the staff providing HIV/AIDS services?  <i>(If these are government salaries, do not ask for this information since we will get it from the government salary records.)</i>	a. Doctors KW / year
	b. Nurses/Midwives KW / year
	c. Clinical Officers KW / year
	d. Lab Technologists KW / year
	e. Other KW / year

2. What other incentives are provided to staff and to volunteers?  <i>Circle ALL that apply and enter the amount/month alongside</i>	<b>Doctors</b>		c. Transportation / month
	a. Allowances / month	d. Extra-vacation/ holiday days	
	b. Salary top ups / month	e. Other	
	<b>Nurses/Midwives</b>		c. Transportation / month
	a. Allowances / month	d. Extra-vacation/ holiday days	
	b. Salary top ups / month	e. Other	
	<b>Clinical Officers</b>		c. Transportation / month
	a. Allowances / month	d. Extra-vacation/ holiday days	
	b. Salary top ups / month	e. Other	
	<b>Lab Technologists</b>		c. Transportation / month
	a. Allowances / month	d. Extra-vacation/ holiday days	
	b. Salary top ups / month	e. Other	
	<b>Other Staff</b>		c. Transportation / month
	a. Allowances / month	d. Extra-vacation/ holiday days	
	b. Salary top ups / month	e. Other	
	<b>Volunteers</b>		c. Transportation / month
	a. Allowances / month	d. Extra-vacation/ holiday days	
	b. Salary top ups / month	e. Other	

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## Instrument 5: Staff Motivation

### 5B: Staff Interview

Site: \_\_\_\_\_

Name of Individual being interviewed: \_\_\_\_\_

Title/Cadre: \_\_\_\_\_

Years (or months if < 1 year) service at this site: \_\_\_\_\_

#### Question

#### Answer

1. Why did you apply for or agree to do this work?

*Circle ALL that apply*

- a. Salary (pay)
- b. Benefits/perks/incentives (health coverage, time off, bonuses)
- c. Working environment (physical)
- d. Work hours
- e. Staff relationships
- f. Personal interest
- g. Desire to help HIV/AIDS patients
- h. Don't know
- i. Other \_\_\_\_\_

2. What has kept you doing this work?

*Circle ALL that apply*

- a. Salary (pay)
- b. Benefits/perks/incentives (health coverage, time off, bonuses)
- c. Working environment (physical)
- d. Work hours
- e. Staff relationships
- f. Personal interest
- g. Desire to help HIV/AIDS patients
- h. Don't know
- i. Other \_\_\_\_\_

3. On a scale of 1-5, how satisfying do you find your work?

*Circle One*

- |              |                     |            |                 |                          |
|--------------|---------------------|------------|-----------------|--------------------------|
| 1            | 2                   | 3          | 4               | 5                        |
| Unsatisfying | Somewhat Satisfying | Satisfying | Very Satisfying | Exceptionally Satisfying |

---

**Question**

**Answer**

4. What dissatisfies you about this job?

*Circle All that Apply*

- a. Salary (pay)
- b. Benefits/perks/incentives (health coverage, time off, bonuses)
- c. Working environment (physical)
- d. Work hours
- e. Staff relationships
- f. Personal interest
- g. Desire to help HIV/AIDS patients
- h. Don't know
- i. Other \_\_\_\_\_

---

5. Who (title of individual/s) do you go to for guidance or advice about your work?

*Circle One*

- a. Supervisor
- b. Manager
- c. Colleague
- d. Don't know
- e. Other \_\_\_\_\_

---

## Instrument 5: Staff Motivation

### 5C: Volunteer Interview

Site: \_\_\_\_\_

Name of Individual being interviewed: \_\_\_\_\_

Title/Cadre: \_\_\_\_\_

Years (or months if < 1 year) service at this site: \_\_\_\_\_

Name of interviewer: \_\_\_\_\_

Date: \_\_\_\_\_

#### Question

#### Answer

---

1. Why did you apply for or agree to do this work?

*Circle ALL that apply*

- a. Salary (pay)
- b. Benefits/perks/incentives (health coverage, time off, bonuses)
- c. Working environment (physical)
- d. Work hours
- e. Staff relationships
- f. Personal interest
- g. Desire to help HIV/AIDS patients
- h. Don't know
- i. Other \_\_\_\_\_

---

2. What has kept you doing this work?

*Circle ALL that apply*

- a. Salary (pay)
- b. Benefits/perks/incentives (health coverage, time off, bonuses)
- c. Working environment (physical)
- d. Work hours
- e. Staff relationships
- f. Personal interest
- g. Desire to help HIV/AIDS patients
- h. Don't know
- i. Other \_\_\_\_\_

---

3. On a scale of 1-5, how satisfying do you find your work?

*Circle One*

- |              |                     |            |                 |                          |
|--------------|---------------------|------------|-----------------|--------------------------|
| 1            | 2                   | 3          | 4               | 5                        |
| Unsatisfying | Somewhat Satisfying | Satisfying | Very Satisfying | Exceptionally Satisfying |

---

**Question**

**Answer**

4. What dissatisfies you about this job?

*Circle All that Apply*

- a. Salary (pay)
- b. Benefits/perks/incentives (health coverage, time off, bonuses)
- c. Working environment (physical)
- d. Work hours
- e. Staff relationships
- f. Personal interest
- g. Desire to help HIV/AIDS patients
- h. Don't know
- i. Other \_\_\_\_\_

---

5. Who (title of individual/s) do you go to for guidance or advice about your work?

*Circle One*

- a. Supervisor
- b. Manager
- c. Colleague
- d. Don't know
- e. Other \_\_\_\_\_

## Sample Sizes

### A. Service Provider-Client Observations Completed at Each Site

Site	3A	3B	3C	3D	3E	3F	3GA	3GB	Total
Mbala Hospital	9	9	8	9	2	1			38
Tulemane Clinic		17	1	1	20	5			44
Ndola Hospital	3		7	3			3	8	24
Lubuto Clinic	2	2	1	2	1				8
New Masala Clinic		10			8	5			23
Bwafwano Clinic	1	10			6	2			19
Mutti Medical Centre							1	4	5
New Start	14		8	4					26
Lusaka Trust Hospital								1	1
Chipata Clinic	8	3	1	5					17
Keemba Clinic	5	8	6	2	9	1			31
Kara Counseling	16		11	4				7	38
Thandizani	4		5	1					10
UTH - Medical							6	16	22
UTH – Maternity						1			1
UTH – F.S.U.	7		4	1					12
Total	69	59	52	32	46	15	11	36	320
% of Total	22%	18%	16%	10%	14%	5%	3%	12%	100%

#### Instrument Key

Instrument 3A	Observations of Pre-Test Counseling for General Clients
Instrument 3B	Observations of Pre-Test Counseling for Pregnant Women
Instrument 3C	Observations of Post-Test Counseling for General Clients Who Test Negative
Instrument 3D	Observations of Post-Test Counseling for General Clients Who Test Positive
Instrument 3E	Observations of Post-Test Counseling for Pregnant Women Who Test Negative
Instrument 3F	Observations of Post-Test Counseling for Pregnant Women Who Test Positive
Instrument 3GA	Observations of ARV Therapy for Patient Initiating ARVs
Instrument 3GB	Observations of ARV Therapy for Monitoring Patient Response to ARVs

## B. Laboratory and Pharmacy Observations Completed at Each Site

Category of Task	UTH	Ndola C. Hospital	Total
Laboratory investigations	20	22	42
ARV dispensing	15	10	25

## C. Service Provider Interviews Completed at Each Site

Site	Doctor	Midwife	Nurse	CO	Lab Tec	Lay Service <sup>1</sup>	Volunteer <sup>2</sup>	Total
Mbala Hospital	1		2	3	3	1		10
Tulemane Clinic					1			1
Ndola Central Hospital	3	3	5		2	3		16
Lubuto Clinic			3		2		1	5
New Masala Clinic		3					2	5
Bwafwano Clinic		2			1		2	5
Mutti Medical Centre		2						3
New Start						5	3	8
Lus.Trust Hospital	2	2						4
Chipata Clinic		1	1	1		1	1	5
Keemba Clinic		1	1	1		1	3	7
Kara Counseling			2	1		1		4
Thandizani		1		1		3	4	9
UTH – Medical	3		1		5			9
UTH – Maternity		2						2
UTH – F.S.U.						8	1	9
Total	9	17	14	7	14	23	17	102
% of Total	9%	17%	14%	7%	14%	22%	17%	100%

<sup>1</sup> Lay service providers: Service providers who have not been trained in a health profession.

<sup>2</sup> Volunteers: Service providers who are not paid a salary for their work.

## Annex 3: Times Taken to Provide Service by Task

### 1. Mean Times for Individual Tasks for Pre-Test Counseling (All Sites)

Task No.	Description of Task	Mean Time Taken to Complete Task (Minutes)
1	Greets client & establishes pleasant environment	4.9
5	Fills HIV/AIDS information gaps & corrects misconceptions	4.8
16	Completes client record	3.1
9	Discusses client-centered risk reduction strategies	2.9
14	Summarizes and asks for any further questions	2.9
15	Draws blood	2.5
4	Establishes what client knows about HIV & AIDS	2.4
8	Explains what the window period is	1.8
2	Establishes why the client has come	1.6
3	Explains confidentiality	1.4
10	Identifies referral needs (for STIs, OIs, other)	1.1
12	Establishes whether client wants an HIV test	1.1
11	Provides referral or referral information	1.0
6	Explains how HIV test is done	0.6
13	If clients wants test, makes appt. for getting results	0.6
7	Explains when the test results will be ready	0.5
Mean Total Time for Pre-Test Counseling		33.2

## 2. Mean Times for Individual Tasks for Post-Test Counseling for HIV-Negative Clients (All Sites)

Task No.	Description of Task	Mean Time Taken to Complete Task(Minutes)
5	Checks understanding of results & gives information	4.0
6	Re-explains about the window period	2.6
7	Reiterates information about HIV prevention	2.6
9	Helps client to formulate a plan of action	2.5
1	Greets client & establishes pleasant environment	2.3
11	Summarizes and asks for any further questions	2.3
8	Helps client to identify risks & identify solutions	1.8
12	Completes client record	1.1
2	Checks that client wants to know the test results	1.0
4	Observes reaction to test results and provides support	1.0
3	Reveals the test results	0.5
10	Identifies referral needs & gives guidance	0.2
Mean Total Time for Post-Test Counseling for HIV-Negative Clients		21.9

## 3. Mean Times for Individual Tasks for Post-Test Counseling for HIV-Positive Clients (All Sites)

Task No.	Description of Task	Mean Time Taken to Complete Task(Minutes)
1	Greets client & establishes pleasant environment	3.4
5	Checks understanding of results & gives information	3.4
6	Helps client to identify problems & identify solutions	2.6
8	Reiterates information about protection of others	2.3
12	Summarizes and asks for any further questions	2.3
11	Gives guidance on living positively/longer	2.2
10	Identifies referral needs & gives guidance	2.1
9	Gives information about ARVs & where available	2.0
13	Completes client record	1.7
7	Helps client to formulate a plan of action	1.1
2	Checks that client wants to know the test results	0.6
3	Reveals the test results	0.6
Mean Total Time for Post-Test Counseling for HIV-Positive Clients		24.3

