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# Feasibility of an Insurance Program for HIV/AIDS Financing in Uganda

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*January 2006*

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*Partners for Health Reformplus is USAID's flagship project for health policy and health system strengthening in developing and transitional countries. The five-year project (2000-2005) builds on the predecessor Partnerships for Health Reform Project, continuing PHR's focus on health policy, financing, and organization, with new emphasis on community participation, infectious disease surveillance, and information systems that support the management and delivery of appropriate health services. PHRplus will focus on the following results:*

- ▲ *Implementation of appropriate health system reform.*
- ▲ *Generation of new financing for health care, as well as more effective use of existing funds.*
- ▲ *Design and implementation of health information systems for disease surveillance.*
- ▲ *Delivery of quality services by health workers.*
- ▲ *Availability and appropriate use of health commodities.*

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# Abstract

This paper presents the results of a U.S. Agency for International Development-funded project in Uganda to develop a new financing mechanism for HIV/AIDS services for government workers. Presently, the service delivery and financing systems for HIV/AIDS care are a mix of specialized vertical programs and health care providers from public and private sectors. The integrated financing program (being designed as a pilot) is to develop a new approach for financing all HIV/AIDS services in a more coordinated way, allowing financing from multiple sources (donors, employer, and worker contributions) to support service delivery by a network of full-service providers (both public and private) that can be chosen by enrollees. The concept is to establish an independent entity to collect premiums and make payments to qualified providers of covered services on behalf of workers and their dependants. Premiums are established on the basis of a formal costing study of a comprehensive HIV/AIDS benefit package completed in 2004. The paper describes the financing concept and related governance, the model developed for premium calculation, the provider payment design, a survey of government workers done in 2005, and the issues relating to the feasibility of developing an integrated insurance model for HIV/AIDS care in Uganda including issues related to governance, co-payments, and relationship to ongoing social health insurance activities.

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# Table of Contents

Acronyms .....	ix
Acknowledgments .....	xi
Executive Summary .....	xiii
1. Background.....	1
2. Designing the Pilot Program.....	3
3. An SHI Pilot Project .....	5
3.1 Overview of the Pilot Concept .....	5
3.2 Expected Benefits from SHI.....	5
3.3 Features of Pilot Design .....	6
3.3.1 Covered Services .....	8
3.3.2 Fund Organization .....	9
3.3.3 Premiums and Financing of the Pilot.....	10
3.3.4 Provider Certification and Payment.....	12
3.3.5 Program Administration .....	14
3.3.6 Program Implementation Start-up and Support Requirements .....	15
4. Feasibility of the SHI Pilot .....	17
4.1 Technical Feasibility .....	17
4.2 Leadership and Support from Government Stakeholders.....	17
4.3 Donor and Other Sources of Financial Support.....	18
4.4 Provider and Worker Support.....	19
Annex A: Instrument for Survey of Government Workers .....	21
Annex B: Costing Model to Support Premium Calculations .....	27
Annex C: References .....	35

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## List of Tables

Table 1. Unresolved Pilot Issues.....	8
Table 2. Estimated Total Annual Costs for HIV/AIDS Care in Uganda .....	10
Table 3. Premium Calculation for Pilot .....	11
Table 4. Proposed Allocation of Contributions to Premiums .....	12
Table 5. Tentative Fee Schedule .....	13



# Acronyms

<b>ACP</b>	AIDS Control Programme
<b>AIDS</b>	Acquired Immuno Deficiency Syndrome
<b>ART</b>	Antiretroviral Therapy (or Treatment)
<b>ARV</b>	Antiretroviral
<b>CM</b>	Cryptococcal Meningitis
<b>HBC</b>	Home-based Care
<b>HIV</b>	Human Immunodeficiency Virus
<b>IEC</b>	Information, Education, and Communication
<b>MOH</b>	Ministry of Health
<b>NGO</b>	Nongovernmental Organization
<b>OI</b>	Opportunistic Infection
<b>PCP</b>	Pneumocystic Carinii Pneumonia
<b>PTMTC</b>	Prevention of Mother-to-Child Infection
<b>SCE</b>	Self-Coordinating Entity (of Line Ministry)
<b>SHI</b>	Social Health Insurance
<b>STI</b>	Sexually Transmitted Infection
<b>TB</b>	Tuberculosis
<b>VCT</b>	Voluntary Counseling and Testing



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# Executive Summary

This report examines the feasibility of pilot-testing a new approach to HIV/AIDS financing in Uganda, the objectives of which are to improve access to services, streamline service delivery administrative costs, and ensure sustainability, all in contrast to current relief efforts that rely on large numbers of vertical programs run by donors and nongovernmental organizations. This new approach would pool financing from many sources (workers, employers, donors) in order to provide a defined comprehensive package of HIV/AIDS services to a defined population of persons (in the case of the pilot, government workers and their dependents) who have the option of choosing among a broad set of prequalified providers. Feasibility of the pilot program is assessed using criteria of administrative capacity, stakeholder interest including leadership support, and availability of financing for the pilot.

The pilot program will in turn assess the feasibility of the insurance approach. A central fund will be established and financed through premium contributions of ministries, workers, and donors. This fund will be managed by an independent administrative contractor experienced in eligibility verification and fee schedule administration for health services programs. Workers will be free to elect a provider(s) from a list of prequalified providers, and point-of-service financial benefits of insurance will follow their choice, with providers paid for services by the fund on the basis of a single fee schedule. Patients will be able to choose government providers, or private nonprofit and for-profit providers. Nongovernment providers would be permitted to supplement the fee schedule paid by the fund in certain circumstances.

The pilot would likely be a three-year program that starts in July 2006 and initially covers about 15,000 government workers as well as their dependents (75,000 in total); later, it will be scaled up to cover more government workers. Pilot participants will be identified through some combination of geographic area and ministry. Workers defined by this selection will be required to participate. There would need to be a one-year start-up period to select an independent administrative contractor, set up systems infrastructure, establish policies, do training, and the like.

Feasibility of the pilot program is not assured at this time. It is technically feasible, but many issues of contributory financing and fund administration and governance remain unresolved, and a strong governmental champion will be required to traverse these issues successfully. There is not yet an identifiable ministry or official who will champion this activity.

Contributory financing of the premium by ministries, workers, and donors is also still in doubt. Ministries (employers) need to include such funds in their budgets and have them approved; modifying worker payroll deductions requires work; and donor contributions (including those of the U.S. Agency for International Development, which commissioned pilot design through its Partners for Health Reform*plus* project) are not assured.



# 1. Background

Today, about 6 percent of Uganda's population of more than 26 million is infected with HIV/AIDS (Ministry of Health [MOH], Uganda). The resultant overwhelming need for services, coupled with a shortage of resources and absence of management infrastructure has led to a fragmented, emergency-relief type of response, dominated by development partners. Service delivery and financing to deal with the epidemic is a massive and multifaceted effort. Uganda has encouraged private and public sectors to operate fairly unhindered; some providers are public, some are private, and many are donor or nongovernmental organizations (NGOs). Some services are free; others require payment. A limited number of full-service organizations offer a broad package of HIV/AIDS-related medical and other services, but most services and products are supplied by hundreds (possibly thousands) of smaller programs, many of them focused on only one or two of the myriad needed services: counseling pregnant women; training counselors; testing for HIV; educating schoolchildren about sexually transmitted diseases (STIs); advising about nutrition; and providing tuberculosis (TB), STI, and child health programs, services for the elderly, and regular medical clinics. Families with multiple infected persons thus often must register with and utilize a confusing array of providers in order to (1) obtain all the services they need, (2) deal with stock-outs of drugs and other supplies, and (3) avoid long waiting times for service at provider facilities.

The large number of providers is financed by a much smaller number of vertically structured organizations, including many donors and NGOs that establish their own service delivery programs. Some donor assistance supports the government budget, and some donor-funded programs focus on expanding delivery of antiretroviral therapy (ART) through government facilities. However, much support from large donors goes to single-service provider organizations, some of which are dedicated to the program of an individual donor. Most of the NGO-financed organizations offer a narrow scope of services. Services offered by most of these programs are free to patients, but some charge out-of-pocket payments by persons who are able to afford private providers. (NGO providers often charge a co-payment too, but usually a small one.)

This delivery and financing situation is sustainable only so long as support comes from outside Uganda. There have been discussions in Uganda about sustaining the ART program, including by integrating health financing, but they have not been followed by actions to ensure financial sustainability beyond the period of donor funding.

The idea of integrating health services financing is not a new one. In 2001, a group of researchers from the Harvard School of Public Health did a feasibility study of social health insurance (SHI) for formal sector employees (Berman et al. 2001). While data were weak or nonexistent, the study concluded that many capacities needed for mounting and sustaining a SHI program were not yet present in country. Since then, MOH officials have attempted to kindle interest in SHI as a health system strengthening activity, at least for financing care for formal sector workers. The concepts being discussed by MOH officials involve a comprehensive health benefit package for all formal sector workers, employer and employee financing, and fund governance by appointees of the MOH.

### **Testing the Feasibility of SHI for HIV/AIDS in Uganda**

Uganda is considering ways to ensure sustainability of providing HIV/AIDS-related care to its population. The proposed pilot program intends to demonstrate the viability of a “mixed” financing model for HIV/AIDS services in Uganda, that is, to show that it is viable to pool financing from many sources in order to provide a defined benefit of HIV/AIDS services to a defined population of persons who have the option of choosing among a broad set of pre-qualified providers.

The USAID-funded Partners for Health Reform*plus* (PHR*plus*) project is complementing the MOH effort to establish SHI by assessing the feasibility of a pilot program that would provide HIV/AIDS services to a defined number of government workers and their families. A pilot program was found feasible, and a design for it was submitted, though details regarding implementation as well as the allocation of dedicated resources to the pilot are still needed. This report describes the current design, how it was arrived at, and next steps toward its implementation.

## 2. Designing the Pilot Program

Pilot program design was coordinated by a *PHRplus* consultant and *PHRplus* Uganda staff. The process consisted of three steps: The first step, in June 2005, was to outline a basic design of the SHI fund based upon international standards for SHI models, on Uganda's own thinking about SHI, on local HIV/AIDS policy documents, and on two prior costing studies (Chandler and Musau 2004, Murra et al. 2003). The second step was to revise this outline based upon extensive interviews with HIV/AIDS officials, providers, private employee-benefit managers, insurance and fund experts, and representatives of the government, parliament, and many donors. The third step was to form a subcommittee of the Line Ministry's Self-Coordinating Entity for HIV/AIDS (SCE) that represents all ministries; the entire committee or members thereof met several times over the period to consider the draft design as well as outstanding issues pertaining to the design. Among other recommendations, the subcommittee requested that worker input be solicited through a survey and focus group discussions. (The survey instrument is in Annex A.) The consultant completed the draft design with a visit in September 2005.



## 3. An SHI Pilot Project

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### 3.1 Overview of the Pilot Concept

The proposed pilot project would assess the feasibility of social health insurance for HIV/AIDS services in Uganda. This pilot would require mandatory enrollment of a group of government workers in a pooled insurance fund to pay for a comprehensive package of HIV/AIDS-related services for those workers and their families. The fund would be created and financed through the premium contributions of all ministries, workers, and donors. It would be managed by an independent administrative agent experienced in eligibility verification and fee schedule administration for health services programs. Workers would be free to choose a provider from a list of certified government, nonprofit, and private providers, and their insurance benefits would follow their choice, with providers paid for services by the fund on the basis of a single fee schedule. Nongovernment providers would be permitted to supplement this fee schedule. The pilot would likely be a three-year program (following a start-up period), covering around 15,000 government workers and their dependents in the first year, and expanding in the following two years to cover more workers or even other formal sector employees.

The key features of this SHI program are:

- ▲ Pooling funds from HIV-positive and other workers
- ▲ Consolidating donor and government financing of many vertical service delivery activities into a single fund
- ▲ Providing workers free choice of a prequalified provider, each of whom is able to provide all covered services
- ▲ Hiring an independent private contractor to administer the entire program
- ▲ Supervising the contractor by means of an independent board of directors

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### 3.2 Expected Benefits from SHI

Several benefits would likely accrue with the SHI approach to financing. First, it should improve accessibility to HIV/AIDS services for scheme beneficiaries. Currently, HIV/AIDS services are free of charge in government facilities, but waits are long and the risk of being identified as having AIDS – and suffering the social stigma that results from being identified as such – is perceived as high. Many government workers who are infected pay the fees at private providers to avoid waits and risk of identification; anecdotal evidence suggests that some infected workers even fail to seek care or continuously comply with care. Because SHI's pooling of funds from infected and noninfected insured persons will reduce point-of-service fees at private and NGO providers, utilization and patient compliance is expected to increase.

A second benefit is reduced administrative costs of providing HIV/AIDS services. Existing vertical service delivery programs each have their own administrative structure for delivering care and compensating providers. While their administrative costs are not known, the idea of creating a single fund and a single administrative agent to pay providers is expected to create administrative cost savings.

In addition, prequalifying providers will likely improve the quality and continuity of care. To be accredited by the MOH, providers will be required to offer all covered services (to do so, they might have to contract with other organizations) and meet other criteria established and applied by the MOH. Reliable access to comprehensive care will promote coordination of care. Providers that do not meet these minimum standards would not receive payment from the fund. Allowing patients to choose their provider also encourages quality; if a provider does not offer satisfactory care, patients will “vote with their feet,” i.e., move to another provider – and take their funding with them.

Other expected benefits of the SHI pilot would be secondary but equally important. The pilot would help Uganda develop a health system infrastructure that would replace the externally funded emergency “relief” structures that now exist. The current operation of myriad vertical programs is not manageable in terms of regulating and coordinating services, and it makes Uganda vulnerable to decisions by donors and NGOs, which will not fund their activities forever.

From a health system perspective, it may not be ideal to single out HIV/AIDS services for a SHI program of financing and delivery, but promoting better HIV/AIDS patient care requires coordination of care and probably a primary care provider for everyone. Thus, the proposed pilot will serve as a step toward better system design.

The pilot also will build skills needed to operate an SHI scheme. The aforementioned Harvard report (Berman 2001) noted inexperience with many of the administrative and policy functions associated with designing and operating a SHI program. The pilot would provide opportunities to build such capacities.

And, because sustainability of the current “relief” efforts is doubtful, the pilot represents an important, though transitional step toward a more sustainable health system.

The pilot, then, is an opportunity to examine another way of financing and managing delivery of HIV/AIDS care wherein financial resources can be put in a pool (including those from donor and NGO organizations) and managed professionally and transparently to pay for services as they are used by eligible beneficiaries for covered services delivered by qualified providers.

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### 3.3 Features of Pilot Design

The SHI pilot program would need a one-year start-up period to contract with an independent administrative contractor to further administer the program, to set up systems infrastructure, to establish policies, to do training, and the like.

The SHI program as implemented is expected to have the following features.

- ▲ It will start in late summer 2006 in order to allow ministries that will contribute funds to include premium sharing amounts in their budget for the next fiscal year. This will also allow time to further refine the draft design, to prepare for implementation, and to organize technical assistance.

- ▲ An initial phase of the pilot will enroll about 15,000 government workers (for some ministries, or in some locations – this is also being finalized with the SCE subcommittee – about 7 percent of the civilian (nonmilitary) government workforce. Qualifying dependents are a worker’s primary spouse and their biological children under 18 living at home; with dependents, total SHI enrollment is expected to be about 75,000. All enrolled persons will receive an identification card, which is to be presented to providers to establish eligibility for services.
- ▲ Premiums will cover services (see below under “Covered Services”) and administrative costs. The annual premium amount must still be finalized; it is currently estimated to be \$460,000 for all 75,000 enrollees, or \$30 per worker.
- ▲ Nonrecurring implementation start-up costs – considerable technical assistance, setting up (or adapting) administrative systems for eligibility verification, billing, and payment – are not part of the premium.
- ▲ A central fund will be established to pay providers for services delivered to enrollees.
- ▲ Enrollees will seek services from a list of qualified full-service providers that will be paid from the aforementioned fund according to a fee schedule. Fees in this schedule are set to cover full payment to government providers. If enrollees seek services from private for-profit providers or NGOs, those providers would be permitted to collect from the patient a supplemental co-payment for certain services (see below).

It might be possible to require patients to choose a provider for all their care and to be “locked in” to this provider for a year; this would encourage continuity, and might permit more efficient provider payment (possibly using capitation). However, the pilot needs to start with more flexible access to providers. Over time, it could (and possibly should) examine the idea of enrollees choosing a single provider.

- ▲ Premium sharing is a key feature of the program. Donors, ministries, and workers would all be required to contribute.
- ▲ Pilot performance should be monitored and evaluated each year on the basis of captured utilization, payment, and outcome measures.

Table 1 describes some aspects of pilot design that are still unresolved. It also presents alternatives resolutions and the advantages and disadvantages of each.

**Table 1. Unresolved Pilot Issues**

<b>Issue</b>	<b>Option 1</b>	<b>Option 2</b>	<b>Comments</b>
1. Enrollment	Enroll dependents living at home including spouse and <i>biological</i> children <18	Enroll dependents living at home including spouse and <i>all</i> children <18	Option 2 will be much more expensive and may create incentives for adverse selection
2. Location of pilot	Kampala	Other urban center, such as Mbarara	Kampala will be much easier to implement
3. Ministries to be involved in the pilot	All ministry workers except local government in Kampala	A sample of workers from all ministries with staff in Kampala	The 14,000+ workers in Option 1 will be easier to implement
4. Supplemental co-payments charged by nongovernment providers	Disallow co-payments from ART, tracking calls, and home-based care Fund approves individual provider co-payment policies	Providers free to charge co-payments on all services and products, with prior approval	Option 2 is easier to implement, but patients may be disadvantaged due to co-payments on ARVs
5. Coverage for outbound phone calls for ART patients and a 24-hour helpline	Include in benefit package	Exclude from benefit package	Option 1 is more comprehensive; tracking of ART is critical to encourage compliance

The following subsections describe individual features of the pilot SHI program.

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### 3.3.1 Covered Services

The benefit structure follows the one contained in the National HIV/AIDS Policy statement. Currently, the official policy regarding government workers is that ‘all necessary HIV/AIDS services are available free of charge in government health facilities.’ While it is theoretically possible to get all services from government providers, many workers choose to utilize NGO and private providers to improve their access to products and services by avoiding long waiting times and stock-outs in government facilities, to protect confidentiality, and to receive better-quality service and technical quality.

Providers selected for the pilot SHI program will be required to demonstrate capacity to deliver all of the services specified in the National Policy:

- ▲ HIV voluntary counseling and testing (VCT)
- ▲ Counseling, testing, and treatment for pregnant women for prevention of mother-to-child transmission (PMTCT)
- ▲ Medical investigations and laboratory tests for HIV and opportunistic infections (OIs) including TB and STIs
- ▲ Outpatient treatment and regular medical monitoring for HIV/AIDS, OIs, and STIs
- ▲ Necessary inpatient care for OIs (pneumocystic carinii pneumonia [PCP] and meningitis in particular)

- ▲ ART and follow-up monitoring for qualifying patients
- ▲ Appropriate drugs for treating OIs and STIs
- ▲ HBC for persons on ART and other AIDS patients who are bedridden and therefore unable to travel to clinics to receive services. These services include personal services and professional nurse visits (as required), drugs, nutritional supplements and food. Palliative care is included, though morphine is not considered a HBC drug and must be supplied by doctors at the clinic.
- ▲ Monthly outbound tracking phone calls to ART recipients
- ▲ An inbound phone helpline for enrollees
- ▲ Palliative care and drugs (as part of home-based care [HBC])

The pilot program will not itself deliver any of the covered services. Nor will it pay employers (government ministries) for educating and counseling workers in the workplace, no matter how important these prevention programs are and need to be continued and improved. The benefit package includes only services delivered to individuals (counseling, testing, diagnosis, and treatment).

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### 3.3.2 Fund Organization

The SHI Fund will be governed by a voluntary (unpaid) Board of Directors that comprises government officials, nongovernmental experts on HIV/AIDS, providers, and donor representatives. Both will be located in the Ministry of Public Service. The Board will have full responsibility and independence for:

- ▲ Maintaining financial integrity of the SHI Fund, including ensuring a sustainable balance between premium levels, provider payments, and benefits
- ▲ Making and enforcing policies regarding enrollment eligibility, provider certification, and program operations
- ▲ Auditing financial performance and public financial reporting on a semi-annual basis, for which it is expected to hire an independent audit organization to monitor fund finances and prepare financial documents
- ▲ Selecting, hiring, and monitoring the performance of an independent administrative contractor that will administer enrollee eligibility, pay providers for services rendered to patients, and monitor provider compliance with policy (below).
- ▲ Preparing an annual report on Fund performance
- ▲ Otherwise hiring and contracting services to accomplish Board responsibilities

All Board activities will be financed from premium contributions to the Fund. Its expenses (other than those related to hiring a contractor to administer operations) would be limited to no more than 5 percent of the annual premium level. This would include having a small staff, space, and office equipment.

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### 3.3.3 Premiums and Financing of the Pilot

Based on earlier costs studies in Uganda (Chandler and Musau 2004, Murra et al. 2003), a costing model was developed, and used to calculate premiums for the SHI pilot program. (The model is more fully described in Annex B.)

The model estimated an annual cost of almost \$112.3 million for a program that provides all listed HIV/AIDS services to all 26.6 million residents of Uganda (Table 2). The annual per capita cost would be \$4.20. Assuming an average of four dependents per worker (spouse and biological children under 18 living at home), the cost per covered worker is approximately \$21 per year.

**Table 2. Estimated Total Annual Costs for HIV/AIDS Care in Uganda**

ART	\$ 71,095,000
PMTCT	\$ 323,000
OI	\$ 4,177,000
VCT	\$ 860,000
STI	\$ 807,000
HBC	\$ 24,795,000
Subtotal: provider operating costs	\$ 102,057,000
Capital costs (10% of operating costs)	\$ 10,206,000
Estimated total cost of services	\$ 112,262,000
Cost per capita	\$ 4.20
Covered persons per worker	5
Cost per worker	\$ 21.02 (Ugandan shilling [Ugx] 38,000)

Additional assumptions lie behind these cost estimates. The most important are:

- ▲ A population-wide prevalence rate of HIV of 7 percent
- ▲ Ten percent of HIV-positive persons will require ART (approximately 178,000 persons)
- ▲ Five percent of persons getting HIV tests per year
- ▲ Crude birth rate of 5.8 percent
- ▲ Average annual number of investigations (and follow-up treatment) for STI of one per person on ART
- ▲ Annual average of 0.36 episodes of investigation/treatment for OIs per person on ART
- ▲ Hospitalization for OI of 0.7 days per person on ART (10 percent admission rate, 7-day average length of stay) per year

These estimates are used to determine the premiums required for the SHI Fund, which will pay providers, administer eligibility, and bear the risk of financial sustainability. The premium calculation is shown in Table 3. A premium of \$30.48 would have to be collected on behalf of each government worker each year to fund the program of services for workers and their dependents.

**Table 3. Premium Calculation for Pilot**

Cost		Comment
Service payments	21.02	Per worker per year
Administrative costs	7.36	35% of service payments
Board administrative costs	1.05	5% of service payments
Fund risk pool	1.05	5% of service payments
Premium	\$30.48	Per worker per year

This calculation adds certain costs to the required service payments per worker shown in Table 2. As noted elsewhere, the SHI program will be administered by an independent contractor that will deliver services such as administering the eligibility system, accepting bills from providers, establishing their validity and reasonableness, paying providers, and reporting performance to the Board of Directors. The estimated cost of this contract is 35 percent of service costs. This cost estimate of 35 percent of total operating costs is highly dependent on the scale of the insurance program: the central funds of many large national SHI programs incur administrative expenses of 5 percent or less.

The Board of Directors, though volunteer, will have certain expenses related to its duties of auditing and reporting on Fund financial performance, hiring staff to administer policy and monitor performance of the administrative contractor, etc. As its staff are operations should be limited – the independent contractor will administer day-to-day operations of the Fund itself – these expenses should be modest, no more than 5 percent of the service costs.

The final component of the premium is a provision for the risk that the premium is set too low or that service costs are underestimated. There is no certainty about how sick the covered population may be, or how aggressively they will seek services. In the event that there is a year-end surplus (premiums collected exceed costs), then the surplus can 1) be used to reduce premiums in the next year, or 2) be accumulated to cover deficits in subsequent years, or 3) be apportioned for both purposes.<sup>1</sup>

How would the premium be financed? There are many options. As noted previously, this pilot program intends to demonstrate the viability of a “mixed” financing model for HIV/AIDS services in Uganda. Those financing sources would include:

- ▲ Government ministries that employ the workers
- ▲ Workers themselves (through payroll deductions)
- ▲ Donors
- ▲ Other sources (such as special tax proceeds)

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<sup>1</sup> Deliberately charging an ‘add-on’ to the premium is only one way of dealing with the Fund’s financial risks. Another approach used is to buy re-insurance. For example, the fund could contract with a re-insurance company to pay providers up to an average of \$25 a year per worker; the re-insurance company would pay for any provider payments that exceeded \$25. The Fund would pay the re-insurance company a premium for this risk protection. This would likely be very expensive for the Fund at this time, because there is no experience (data) on which to establish the risk and the associated premium.

As also noted above, the pilot will be small, restricted to possibly 15,000 government employees and their dependents (75,000 persons, 15-20 percent of the civilian government workers possibly restricted to Kampala). This number of enrollees will necessitate a total annual premium requirement of \$457,000. While this amount is intended to cover recurring service and administrative costs, it does not include two one-time cost items: initial technical assistance and systems start-up. Table 4 shows a possible allocation of premium financing.

**Table 4. Proposed Allocation of Contributions to Premiums**

Source	Share of premium	Amount of premium financed per worker	Annual total outlay
Ministries	40.0%	\$ 12.19	\$182,880
Workers	16.7%	5.08	76,200
Donor 1	16.7%	5.08	76,200
Donor 2	16.7%	5.08	76,200
Donor 3	10.0%	3.05	45,720
Total	100. %	\$30.48	\$457,200

The table shows that each worker contributing \$5.08 annually (about 0.8 percent of average salary). It also would be possible to make the payroll deduction progressive, with highly paid workers paying more, and lowest paid workers paying less (or nothing at all).

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### 3.3.4 Provider Certification and Payment

Services will be provided by a network of qualified (accredited) providers, each demonstrating the capacity to deliver all covered services. To promote access and broad choice, providers will include government facilities, nonprofit facilities, and for-profit facilities.

Providers will be required to be formally accredited by the AIDS Control Programme (ACP) of the MOH. Existing ACP accreditation criteria will need to be expanded to meet the needs of the Fund. Providers will apply for certification/accreditation by submitting their qualifications and demonstrating their capacity to deliver all covered services; to do this, some providers may need to ally or subcontract with other providers. This requirement will promote continuity of patient care and streamline payment and eligibility control administrative processes for the Fund.

The Fund will pay all providers according to a fixed single rate schedule for each service. Government facilities will be required to accept this payment in full; that is, no co-payment can be charged to patients. Nonprofit and for-profit facilities will be able to supplement revenue by charging a co-payment amount on services.<sup>2</sup>

Because government providers already receive some (albeit modest, and declining<sup>3</sup>) budget support and because their salaries are paid by the central government, the fee schedule might be

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<sup>2</sup> The co-payment policy could be (1) providers can charge whatever co-payments they want, as long as they notify the Fund before the fact of their policies, (2) the Fund sets a limit on co-payment amounts for all providers, or (3) limits are set on co-payments separately for nonprofit providers (e.g., not to exceed 40 percent of the fee schedule amount) and for-profit facilities (e.g., not to exceed 100 percent of the fee schedule amount).

<sup>3</sup> If not totally inadequate, resulting in the practice of informal payments being paid for theoretically free care.

thought of as duplicative financing. Ideally, the budget support would be diverted to the Fund, and paid to facilities according to the volume of patient services they provide. However, the government facilities serve all types of patients, and it would be impossible to disaggregate provider budget and salary amounts that support for HIV/AIDS patients. So, to ease implementation, the pilot will pay these facilities on the basis of modest fees. While this will make premiums somewhat larger than they otherwise might need to be, the redundancy is likely to be minimal.

The fee schedule to be utilized by the Fund is therefore approximated as shown in Table 5. Amounts were drawn from cost model calculations (Annex B) in some instances, and from provider discussions in others. The tentative fees for drugs and tests were taken from a schedule supplied by a provider and need to be verified to assure that they are consistent with the calculated premium. This could be done during the implementation period by two methods: (1) If an administrative services vendor (MicroCare, Alexander Forbes, etc.) is able to supply service utilization volumes for a covered population, the services could be ‘priced’ using our tentative fee schedule to see the relationship to premiums; (2) Less reliable, a small group of consulting physicians and nurses could construct typical patient scenarios (typical ART patient, HBC patient, pregnant woman, patient with candidate PCP infection, etc). The scenarios would include a detailed listing of services rendered. These scenarios would then be ‘priced’ according to the fee schedule. Scenarios would also be made to show the relative mix of these kinds of patients, some lower users, some more expensive patient, and covered persons who would not use any services. Total ‘payments’ would then be estimated.

**Table 5. Tentative Fee Schedule**

<b>Service</b>	<b>Fee schedule amount (UGX*)</b>	<b>Comments</b>	<b>Supplemental co-payments for nongovt. providers</b>
Inpatient care (per night)	21,960	All inclusive rate	Allowed
Professional services			
Counseling visit	2,000		Allowed
Medical exam/Evaluation visit	10,000		Allowed
Outbound tracking phone calls for ART patients	400	Monthly	Not allowed
Home visit by nurse for HBC ART patients	6,800	Nurse salary only. Drugs and food included in HBC monthly fee (below)	Allowed
HBC monthly fee per ART patient (includes drugs and food)	21,960	Paid per month of caseload on ART. The actual caseload receiving HBC will comprise a subset of ART recipients as well as others not on ART	Not allowed
Drugs	To be developed	Free ARV supplies not reimbursed Fee is cost plus prescribing expenses of 200 UGX per prescription	Not allowed for ARV
Tests	To be developed		Allowed
Other nonlisted service, drugs, and tests	Only paid with prior authorization	Fee would have to be negotiated with provider	

\* UGX=Ugandan shilling

The right-most column of Table 5 shows that not all services delivered in nongovernment facilities should be eligible for a co-payment. For example, it would be counterproductive to charge patients for monthly monitoring calls. There is also research evidence that ARV co-payments are associated with poorer compliance (Ivers, Kendrick, and Doucette 2005: 217-24).

Providers would be obliged to purchase ARV and other drugs. The Fund will not reimburse them for program-related drugs acquired for free. Audit requirements for providers will enforce this policy.

It is critical that a plan be formed to finalize the fee schedule. One consideration is that the work wait until selection of an administrative contractor. As part of the tender process the candidate firms could be asked to provide a utilization database from their existing clients with which to do this fee schedule verification work.

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### 3.3.5 Program Administration

A private (i.e., independent) contractor, selected using a tender offer, would manage all day-to-day operations of the Fund, the eligibility system, and the payment distribution. This contractor would report to the Fund's Board of Directors. The contractor would be paid a fee based on a percentage of provider payments for services (such as the 35 percent proposed above). The fee would be supplemented by a start-up fee to establish program systems (probably about \$100,000).

The specific duties of this administrative contractor would be to:

- ▲ Establish an enrollment system with identification cards
- ▲ Establish a provider payment system
- ▲ Establish a financial control process with related reporting requirements
- ▲ Prequalify providers, including establishing a coordination processes for provider accreditation with the MOH/ACP
- ▲ Operate the eligibility system
- ▲ Operate the provider payment system
- ▲ Monitor fund flows and update provider payment rates and premium recommendations, as required
- ▲ Monitor practice patterns for delivery of covered drugs and make recommendations regarding utilization controls
- ▲ Audit drug acquisition policies of the providers, ensuring that billed drugs for program beneficiaries are purchased, and that drugs acquired free of charge (presumably to treat the poor) are not diverted for use for SHI enrollees
- ▲ Operate phone help lines for providers and enrollees
- ▲ Collect patient-level data to support evaluation activities (utilization and payment data by patient and by service)

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### 3.3.6 Program Implementation Start-up and Support Requirements

Implementation of this pilot program will require two start-up (nonrecurring) activities, and related costs. Development partners would likely need to finance both of these implement activities, the costs of which would be in addition to the premium contributions shown earlier. The first activity is significant technical assistance from development partners. This would include the following:

- ▲ Setting up a monitoring mechanism and evaluation activity, which will depend on the administrative data collected as part of the payment system; this require working closely with the independent administrative contractor
- ▲ Assisting in selection of a qualified administrative organization
- ▲ Working with Ministry of Public Service and other ministry officials to develop a viable governance structure for the program and working with that new body to develop fund policies (i.e., training the Board of Directors)
- ▲ Assisting the administrative contractor to establish professional insurance operations such as actuarial soundness, financial reporting, systems integrity, appeals functions, provider relations, and eligibility security
- ▲ Assisting the administrative contractor in training providers regarding policies
- ▲ Assisting the MOH and the administrative contractor to modify criteria for provider certification, and establish a process for allowing providers to be assessed
- ▲ Working with the Board of Directors to help them establish technical guidelines for premium requirements, and for verifying the soundness of initial estimates
- ▲ Preparing a plan for annual evaluations of pilot activities
- ▲ Supporting the Board of Directors in planning annual evaluations of the pilot

These technical assistance activities will require a full-time person, possibly two, on the ground for the start-up period – possibly a year, supplemented by 6-8 short-term technical assistance visits for developing technical and training materials to roll out the pilot based on implementation experience.

The second start-up activity is for the administrative contractor to establish (adapt) systems for enrollment verification and for billing and payment. The cost of this activity is not included in the premium calculation because it is not recurring. It could be amortized and included in the premium, though the current program design segregates it. The final cost of this activity would be negotiated with administrator candidates during the tender process, but currently estimated at around \$100,000.



## 4. Feasibility of the SHI Pilot

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### 4.1 Technical Feasibility

Implementing a pilot program of social health insurance is feasible at this time. There is a fledging capacity for administering insurance schemes, mainly in the firm MicroCare. MicroCare has dozens of private sector clients for whom they provide a dedicated network of contracted NGO and private providers, computerized enrollment (including a photo ID card), eligibility verification, and billing/payment services. Similarly qualified administrative service providers are apparently available in nearby countries as well (South Africa, Kenya, maybe others).

Using MicroCare makes program administration expensive (about 35 percent of service payments) owing largely to fact that they place a dedicated employee in each provider clinic to verify eligibility and that the services billed were actually received.

There are also a small number of private care delivery organizations (Workers' Treatments Center, Africa Air Rescue, International Air Ambulance, MicroCare) that provide "coverage" for general medical and HIV/AIDS services for a premium (actually, a capitation fee). They also do business on a fee-for-service basis using fee schedules, and bill private clients on the basis of the agreed schedule. These organizations each have multiple sites in Uganda, and are committed to growth in insurance arrangements as a financing approach to all forms of medical care.

These capabilities in country make it feasible to implement a pilot that requires contracting with a program administrator for the Fund. Work does remain to be done on technical matters including verifying (revising) the fee schedule, negotiating with and selecting an administrative contractor, and deciding on outstanding features of the pilot design. With assistance, these technical issues seem resolvable.

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### 4.2 Leadership and Support from Government Stakeholders

The government is clearly interested in cooperating with the pilot design and feasibility assessment activities, though there does not yet appear to be a champion for the program outside USAID. There are many issues that need to be resolved by July 2006, the tentative start date for the pilot. These issues are solvable, but they require strong government leadership; they cannot be resolved by development partners or contractors. These issues include:

- ▲ Getting participating ministries to budget for premiums for their workers, and getting the Ministry of Finance to approve the budget amounts
- ▲ Getting permission to withhold a small portion of the premium from worker salaries
- ▲ Sustaining support for an independent Fund Board of Directors, and the hiring of a professional private contractor to administer day-to-day operations of the SHI program

- ▲ Generating widespread support for the pilot study, and sustaining it in the face of objections, administrative and legislative challenges, and other pressures

Encouragingly, a subcommittee of the Line Ministry Self-Coordinating Entity for HIV/AIDS was established for assisting in the design of pilot parameters. The SCE comprises a representative of each ministry, is chaired by an official from the President's office, and its secretary is from the Ministry of Public Service (the cognizant ministry for issues and policy relating to benefit programs for government workers). The subcommittee met twice with the PHR*plus* consultant and provided concept materials intended to contribute to pilot design. Members voiced strong support for dependent coverage and for an independent administrative contractor. They also recommended that a survey and focus groups be done to verify worker interest in the program. This survey was designed by the consultant, and has reportedly been sent out. Additional meetings have not yet occurred due to subcommittee concerns about lack of official mandate. This has apparently been resolved, but progress in getting closure on outstanding parameters of the pilot design has been delayed. It is not yet clear if the subcommittee will take an advocacy position, if the Ministry of Public Service or the Ministry of Health will emerge as a champion for the pilot, or if another organization (Uganda Aids Commission, the President's Office, the MOH, etc.) will step forward to do so. Without such government leadership, it seems doubtful that further investments in the pilot can be justified.

There seem to be three obstacles to getting stronger expressions of support for and leadership with the pilot. One relates to bureaucracy: the newness of the concept being discussed (it was first raised with the government in July 2005), authority to move forward in design efforts, and uncertainty about where to locate the SHI Fund in the government structure. These issues clearly impede progress.

A second issue is general public concern about insurance funds in Uganda, including the National Social Security Fund, which holds retirement funds for many organizations, and a series of unsuccessful efforts by the MOH to introduce SHI.<sup>4</sup> It is not clear how much this concern contributes the inability to get stronger support for the pilot.

A third issue is the fact that this Fund would be financed by contributions from employers and workers, in addition to donors. Initial government interest in a donor-sponsored pilot project possibly reflected the hope that this would be a new way to get additional donor funds into Uganda. As noted previously, bureaucratic obstacles to payroll deductions definitely exist; lack of strong government leadership for this "donor push" initiative may reflect a deeper distrust of a contributory venture.

In this environment, feasibility of the pilot is questionable. A significant government champion needs to be found for this pilot if it is able to overcome these issues.

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### 4.3 Donor and Other Sources of Financial Support

The project will require significant donor support for premium sharing, for technical assistance, and for start-up of administrative systems. This seems problematic at this time. In July 2005, a briefing on the SHI pilot concept for a group of development partners working in the health field got a mixed reception, even though the idea of financial participation (beyond USAID) was not explicit.

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<sup>4</sup> The current SHI proposal to the Parliament includes a provision to have the Fund administered by an organization within the MOH, with staff appointed by the Minister. This differs from the concept here, where an independent governance structure and administrative contractor would manage the Fund.

This situation seems not to have changed. Because PEPFAR financing to the USAID mission has been more modest than hoped, USAID is not currently able to provide significant additional support at this time.<sup>5</sup> In addition, the current hiatus in grants from the Global Fund to Fight AIDS, Tuberculosis and Malaria further stresses donor financial capacity in Uganda.

It seems clear that some USAID Mission work will need to be done to “sell” this activity locally if it is to take hold at all. This could involve the development partners, who have a big stake in developing a sustainable financing/delivery mechanism for HIV/AIDS (and all health care) services as they look to move out of the “relief” phase of assistance. While the idea of the pilot is clearly not a short-term priority for anybody, it provides elements of a sound health care strategy for the formal sector: (1) integrating public and private providers into the same program, (2) creating contributory financing, (3) reducing administrative costs, and (4) promoting continuity through the use of full service providers.

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#### 4.4 Provider and Worker Support

The provider community seems, predictably, quite willing to have the pilot proceed. The feasibility assessment included meetings with the many of the leading provider organizations outside the government sector (Catholic Medical Bureau, Joint Clinical Research Center, Workers’ Treatments Center, Africa Air Rescue, The AIDS Support Organization, MicroCare). All were supportive.

Obtaining worker views was among the objectives of the government worker survey. That survey (instrument is in Annex A) was aimed at several things: getting parameters for the pilot design (such as family size, HIV prevalence, usual source of care) as well as reaction to the concept of a contributory insurance program. The SCE subcommittee took responsibility for administering the survey. No results are available at this time. Therefore, we cannot say at this time if workers are inclined to support contributory financing of the premiums for this program.

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<sup>5</sup> Three kinds of support would be required from USAID: premium sharing, technical assistance, and start-up for building administrative systems.



# Annex A: Instrument for Survey of Government Workers

## Survey of Government Workers about an HIV/AIDS Health Scheme

The Government of Uganda in collaboration with Partners for Health Reform (PHR*plus*), a USAID-funded project, is carrying out a feasibility study on a health scheme for government workers. This scheme will make payments for HIV/AIDS services for workers who are affected by this epidemic. The purpose of this questionnaire is to solicit your opinion on some of the key issues being considered. We hereby request your assistance by answering the following questions. Your cooperation is highly appreciated.

Thank you.

This survey is entirely voluntary and your responses will be treated confidentially. Please do not sign your name to the form, or write anything on the form or envelope that could identify you.



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

Name of Ministry/Government parastatal: \_\_\_\_\_

What is your employment scale? (Tick applicable)

- U1
- U2
- U3
- U4
- U5
- U6
- U7
- U8

### **Confidential Survey Questions**

1. Gender: Male  Female

2. What is your age? (Tick applicable range)

- <23
- 24 -30
- 31 – 37
- 38 – 44
- 45 – 51
- 52 – 58
- 58 +

3. What is your marital status? (Tick applicable)

- Single
- Married
- Separated
- Divorced
- Widowed

3.b. If married, how many wives do you have? \_\_\_\_\_

4. How many biological children under 18 years do you have? (Write number)\_\_\_\_\_

5. How many persons in your immediate family (yourself, spouse (s), and biologic children) have been tested for HIV? (Write number) \_\_\_\_\_

6. How many persons in your family (yourself, spouse (s), and biologic children) are HIV positive? (Write number) \_\_\_\_\_

7. How many persons in your family (yourself, spouse (s), biologic children) receive ARV drug treatment now? (Write number) \_\_\_\_\_

8. For HIV/AIDS services do these family members generally receive care from? (Tick applicable)

- government health care facility/hospital
- private doctor or clinic/hospital
- mission or NGO clinic/hospital
- specialized HIV/AIDS service provider (Workers Treatment Centre, TASO, JCRC, Mildmay)

9. When you need to see a doctor for an illness of any type, what kind of facility do you and your family members usually visit? (Tick applicable)

- government health care facility
- private doctor or clinic
- mission or NGO facility

#### **Questions about the health scheme:**

The government is considering the creation of a scheme for all government workers to pay for HIV/AIDS services (including ARV drugs). All the workers (even those who are not HIV positive) would be part of this scheme by paying an agreed amount of money into the scheme. In addition, each ministry and a number of donors would contribute funds into the scheme. This pooled amount, or basket fund, would be used to make payments to facilities to pay for all HIV/AIDS services (diagnostic tests, and drugs). Please answer the following questions on this general concept:

10. In general, how much would you value having a program like this in the ministry you work? (Tick applicable)

- High value
- Low value
- Do not value it at all

11. How important do you think it would be to include the spouse(s) and biological children in this health scheme for government workers, recognizing that if dependants are included the scheme will cost more for all concerned: (Tick appropriate)

- extremely high value/important
- valuable but not essential
- somewhat valuable
- not important at all
- do not know how I feel about it

12. How willing would you be to have some of your pay deducted to pay for this program, even if you were not sure whether you or your family would ever need it? (Tick appropriate)

- I would be willing to have a small amount of my pay deducted for this scheme as long as all other employees had similar deductions.
- I would be willing to have a small amount deducted for the scheme, but I think the people that earn the most, should be contributing more, and the people who earn the least should be contributing least
- I would not be willing to have money deducted from my pay in order to have this scheme.
- I am not sure how I feel about this yet

13. Do you think the size of one's family should influence the amount of his/her deductions from their salary? (Tick applicable)

- Yes, I think employees who have bigger families should be required to pay more from their salary for a program like this
- No, I don't think the size of the family should determine the amount paid by the worker
- I am not sure how I feel about this yet

14. If you or your family need to use HIV/AIDS services, would you be willing to pay some of the costs of the services and drugs if you chose to go to private health facility? (Tick appropriate)

- Yes, I think that workers who choose to go to private sector providers should pay more out of their pockets than workers who visit government facilities
- No, I do not think workers going to private clinics should pay more
- I am not sure how I feel about this

15. An organization will need to manage the scheme, and pay money to the providers who deliver the services and drugs. Do you have opinions about who should manage the funds collected in order to maintain high levels of trust in funds management? (Tick appropriate)

- the ministry of public service should do it for all government workers
- the ministry of finance should do it for all government workers
- each ministry should do it for themselves
- an independent organization should be chosen by tender /or through a competitive process to do it
- I am not sure how this is best done

16. Any other comments?

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# Annex B: Costing Model to Support Premium Calculations

Traditional forms of actuarial analysis are not possible in Uganda, because no utilization data are available and no claims data exist. Therefore, premium calculations for the social health insurance pilot program were based heavily on a prior costing study by PHR*plus* (Chander and Musau 2004) and a published study of hospital costs (Marra et al. 2003).

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## Method for Adapting Chandler and Musau Costs

The estimates of costs contained in the reference study by Chandler and Musau are presented by category of vertical program (VCT, PMTCT, ART, HBC, STI, OI)<sup>6</sup> for the nation of Uganda as a whole. Costs were developed by those authors by pricing the requirements for resources for the expected numbers of patients. The resources include drugs, tests, professional labor, food and in some cases, capital<sup>7</sup>.

The study report described the method as follows:

*For cost components that are driven primarily by the volume of patients (e.g. HAART, VCT, PMTCT), a per patient cost was calculated and multiplied by the number of patients expected to receive the care to arrive at the total cost for that component of the ART package.... The cost of home-based care was computed per home based care unit, but also taking into account the number of patients expected to receive nutritional support and palliative care. The cost of donated commodities – mostly food donated as part of the home-based care programs – was included.*

The authors did not present all the costing assumptions that were derived from their survey of providers. But, relevant assumptions about the expected volumes of care were presented, including those shown in the following table.

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<sup>6</sup> The Chandler and Musau study (2004) actually included other categories of service that were not germane here: training costs, and information, education and communication (IEC) and chemoprophylaxis for TB. These activities are not delivered to patients per se, and are not to be included in the premium for the insurance program.

<sup>7</sup> Capital costs are operationally defined by the study authors to be up-front expenditures unrelated to service volumes. Capital costs were sometimes not made explicit.

### Chandler and Musau Assumptions about Volume

No. of persons tested (VCT)	Head of VCT in MOH estimates 500,000 for 2005. Annual increase of 10,000 thereafter
Average # of STI per ART patient 2005-12	1.0
Average # of OI (TB, PCP and CM) per ART patient 2005-12	0.33
Home-based care	56 district hospitals and 107 HC IV to start HBC programs in 2004; in 2006, the remaining 107 HC IV start providing services.
No. of PMTCT patients	For 2005: 5,000; 2006: 7,500; 2007: 14,500 then annual increases of 2,500 patients from 2008 to 2012
No. of persons receiving ART	80,000 in 2006

Source: Chandler and Musau (2004)

The total cost projections of Chandler and Musau for the entire country are shown (for one year only) in the following table.

### Extract from Chandler and Musau Table ES1, Cost Projections (US\$ millions)

ART Component	2006
Highly Active ART (HAART)	31.2
Home based care – recurrent	15.1
Training	2.2
VCT	1.0
Home based care – capital	6.0
Facility capital costs	1.7
IEC	1.0
STI	0.4
OI	0.5
Chemoprophylaxis (TB)	0.1
PMTCT	0.0
Total costs per year	59.3
Number of patients on ART ('000)	80

Source: Chandler and Musau (2004): p 10

These estimates exclude certain costs:

- ▲ General IEC and behavior change and communication programs related to HIV prevention: the study however includes the costs of specific IEC related to ART
- ▲ Condom distribution and promotion
- ▲ Costs to patients (travel time, transportation and family caregiver's time)
- ▲ Central-level management of the program

- ▲ Donor costs in managing/monitoring the ART package
- ▲ Logistics of delivering and warehousing drugs and equipments (although we have built in an allowance of 6.5 percent to cover transportation costs to ensure delivery of drugs from the central warehouse to facilities)

Note also that some of these cost elements (training, IEC) will not be covered as professional services in the insurance premium calculation.

To establish the face validity of the estimates from the costing study we made some global comparisons with available data. The estimates from the costing study are roughly consistent with other research results. The estimated HAART costs are about \$400 a year (most of which is drugs). This is roughly comparable to the recent study in Uganda of the lifetime costs of ART of \$5,000 (Kyomuhangi 2005). Private employers we spoke with who reimburse private provider charges for ART and related OI diagnosis and therapy for their workers are paying about UGX 1,000,000 (or a bit more than \$500) a year. The total spending for this program is about \$ 2.30 per capita per year, against a national average health spending total of about \$ 13. For HBC, the Chandler and Musau study computed a cost per ART patient of about \$ 40 a year for professional services. A leading NGO provider with whom we spoke in depth had professional costs of about \$35 per ART patient. So, we conclude that the detailed costing study is roughly consistent with other evidence available to us, and we felt confident proceeding to use the detailed estimates for computing premium requirements.

Basically, we split the Chandler and Musau cost estimates into two multiplicative parts:

1. Cost per person (or per episode) in the category (VCT, ART, etc)
2. Number of persons (episodes) in the category

We used the Chandler and Musau unit cost estimates (for #1 above) religiously, and modified their estimates of the population size being treated in each category (#2). We used different prevalence rates, different ART need rates, different numbers in all categories.

Specifically, our method in adapting these Chandler and Musau cost estimates was to:

- ▲ Develop their unit costs (per capita, per episode, per ART patient, per testee, etc.) for recurring costs only (omitting capital)
- ▲ Make our own population estimates and volume of needed care for each service category based upon estimated prevalence rates and expert opinion about needs
- ▲ Apply the cost per unit of service to the volume projections
- ▲ Make adjustments to the OI category by adding inpatient care for PCP and meningitis to the costs, using unit cost estimates from Lacor Hospital (from Murra et al. 2003).

Adding a capital cost factor to the recurring costs in the aggregate (a capital cost factor of 10 percent of recurring costs was used)

Our resulting national cost estimates for the service categories (using the population of Uganda as a whole) was as follows:

### Cost Summary for Uganda in Total

	Dollars per year
ART	71,094,648
PMTCT	323,026
OI	4,176,571
VCT	859,945
STI	807,247
HBC	24,795,244
Subtotal operating costs	102,056,680
Capital costs (10% of operating costs)	10,205,668
Estimated cost of services	112,262,348
Cost per capita	4.204739819

These estimates are much higher than those of Chandler and Musau (see above). The difference is largely due to the number of ART patients. They were assuming (for 2006) that a total of 80,000 might be receiving such care. This was a projection off of best estimates of current number of ART recipients. Our adaptation uses a number of ART recipients that is about 178,000. We arrived at this total by assuming a prevalence rate and an estimate of the number of ART recipients of 10 percent of the HIV positive population. Categories of cost that are driven by the numbers of persons on ART are much higher in our estimates (ART, OI, HBC). Otherwise, the total cost projections of the two approaches are, predictably, quite similar.

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### The Costing Model for Setting Premiums

An Excel model was developed for calculating costs for any population, using assumptions about unit costs and drivers of the numbers of persons (units) served by particular services. The unit costs are largely taken from Chandler and Musau.

A number of our critical assumptions differed from the earlier work to reflect our population of government workers. The resulting model calculates a cost per enrollee per year, and a cost per employee (which assumes a number of dependents per worker). The model can calculate these outcomes according to any set of possible assumptions.

A number of critical assumptions about the volume drivers of the epidemic as it might affect a population of government employees were made. As noted above, the number of persons with HIV and those receiving ART might be expected to be higher in a more educated population such as is our target group. The key assumptions are shown in the following table.

### Assumptions of the Model

PMTCT	crude birth rate=5.8%
	HIV+ rate for adult females=7%
ART	HIV+ adults=7%
	HIV+ children=7%
	ART Need = 10% of HIV+
VCT	Annual test rate of 5% of adult population
STI	1 episode of test/treat per ART patient
OI	0.36 episode of test/treat per ART patient
	10% hospital admission rate
	7-day average length of stay
Population of Uganda	26,699,000

We used an average prevalence rate of 7 percent for the entire covered population. Basically, the urban adult (15-49) prevalence rate is 10.7 percent. The prevalence rate for children (and older adults in the covered population) will be much lower. Our estimate of the all-population rate of 7 percent may be a little high, but it seems in the ballpark. The SCE subcommittee survey of workers would verify this assumption. But, if the adults are in the 10-12 percent range, and the others are in the 2-4 percent range, then 7 percent will be close, and a conservative estimate for premium setting. The results of the model for particular service categories are shown below. In each case, we display the unit costs and the calculation for number of units.

#### PMTCT

For PMTCT we estimated the number of births and the number of HIV-positive mothers among them for calculating the counseling and pharmaceutical expenditures. The cost of HIV testing for these women is included in the estimates. The cost estimate per woman tested is \$2.98.

PMTCT Per HIV+ mother (\$ per year)		Crude birth rate	No. births	HIV+ %	No. HIV+ mothers
Drugs	1.02	5.80%	1,548,542	7.00%	108,397.94
Personnel	1.96				
Subtotal	2.98				

#### VCT

For VCT, we estimated the number of persons tested based on an estimate of 5 percent of the adult population. The cost estimate per person tested is \$1.51.

VCT Per person tested		No. of adults (15-49)	% of adults tested per year	No of adults tested
Drugs	0	11,390,211	5%	569,511
Personnel	0.3			
Tests	1.21			
Subtotal	1.51			

## ART

For ART, we estimated the prevalence of HIV/AIDS using a 7 percent rate for the entire population (which is certainly higher than the estimates of 6 and 6.2 which are often discussed). We chose a higher estimate because in discussions with experts there was a consistent view that the prevalence rate was higher among government workers (more educated, more traveled). The percentage of the population qualifying for ART was estimated at 10 percent, suggested by experts. We implemented a survey of government workers to validate these assumptions, but the results are not yet available. The premium estimates will be altered based on the survey results. The cost estimate per year per person on ART is \$412.17.

ART Per year cost per person on ART		Total population	HIV+ %	Total no. of HIV+	% of HIV+, qualified for ART	Number on ART
Drugs	321.71	26,699,000	7.00%	1,724,887	10%	172,489
Personnel	74					
Tests	16.46					
Subtotal	412.17					

## Opportunistic Infections

OIs require testing and treatment including occasional hospitalization. Our estimates are somewhat higher because we added to the Chandler and Musau estimates the cost of hospitalization. This includes costs of 0.7 days of hospitalization a year for PCP and meningitis at \$12 a day. The assumption of 36 percent of the ART population having episodes of OI is taken from Chandler and Musau. The cost estimate for dealing with OI is \$67.26 per episode of OI.

OI Per episode cost		Total target pop for ART (from above)	Percent of ART patients with episodes	Number of episodes of OI
Drugs	39.71	172,489	36%	62,098
Personnel	11.37			
Tests	13.85			
Food in hospital	2.33			
Subtotal/episode	67.26			

## Sexually Transmitted Infections

The methodology for estimating the burden of STIs is the same as for OIs above. The assumption of the number of STI episodes in a year being equal to 100 percent of the ART population is taken from Chandler and Musau. The estimated cost per episode of STI is \$4.68.

Per patient cost		Total target pop. for ART	No. of STI episode per person on ART	No. of STI episodes
Drugs	1.87	172,489	1.00	172,489
Personnel	2.8			
Tests	0.01			
Subtotal/episode	4.68			

## Calculating the Premium

The premium calculation is as follows using the model to estimate total costs per each service category for the entire population, and then creating a per person estimate.

### Cost Summary, Uganda Population

PMTCT	323,026	
OI	4,176,571	
VCT	859,945	
STI	807,247	
HBC	24,795,244	
Subtotal operating costs	102,056,680	
Capital costs (10% of operating costs)	10,205,668	
Estimated cost of services	112,262,348	
Cost per capita	4.20	
Persons per worker	5	
Cost per worker	21.02	
Premium calculation		
Service payments	21.02	
Administrative costs	7.36	0.35
Board admin costs	1.05	0.05
Fund risk pool	1.05	0.05
Premium calculation	\$30.48 per worker per year	

In the table, the premium of \$30.48 would be amount to be collected on behalf of each government worker each year to fund the program of services for workers and their dependents. This amount would recover enough to pay the estimated annual costs of services from the model (\$21.02) plus estimated administrative costs and a risk premium.

This calculation adds certain costs to the required service payments per worker from the table above. The estimates are based on discussions with an administrative service provider and experience of the consultant. The program will need to be administered by a professional organization. The cost of this contract is estimated at 35 percent of the service costs. This expense covers services such as administering the eligibility system, accepting bills from providers, establishing their validity and reasonableness, paying the providers, and reporting performance to the governing body (Board of Directors). The governing body, though volunteers, will have expenses to audit and report financial performance of the Fund, and to hire staff to administer policy and monitor performance of the administrative contractor. This expense is estimated to be no more than 5 percent of the service costs. The final component of the premium is a provision for the risk that premium is set too low (or that service costs are underestimated). There is no certainty about how sick the covered population may be, or how aggressively they will seek testing and treatment services. In the event that at the end of the year there is a surplus in the fund (premiums collected exceeded costs) then the surplus can be used to either (1) reduce premiums in the next year, or (2) the surplus can be accumulated for covering deficits in subsequent years, or (3) the surplus can be apportioned for both purposes.



## Annex C: References

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