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TECHNICAL REPORT

Value for Money in Donor HIV Funding

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Preface

This report describes the funding flows of the two major international donors combating the human immunodeficiency virus (HIV) epidemic—the U.S. President's Emergency Plan for AIDS [acquired immunodeficiency syndrome] Relief (PEPFAR) and the Global Fund to fight AIDS, Tuberculosis and Malaria (GFATM)—and systematically lays out how to track the efficiency of HIV service provision at the funder level. It also discusses existing gaps in data availability that prevent an evaluation of the efficiency with which current services are provided. The report is sponsored by the AIDS Healthcare Foundation. The analysis is based on publicly available data, as well as discussions with representative of the Joint United Nations Programme on HIV/AIDS (UNAIDS), the Office of the U.S. Global AIDS Coordinator (OGAC), and GFATM. This report should be of particular interest to scholars and policymakers in international donor institutions and other agencies, as well as individuals involved in the funding process for these activities.

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Summary

Although there is nearly $16 billion in worldwide funding for HIV services (Kates et al., 2009), countries with the highest burden of disease are heavily reliant on donor funding from such sources as PEPFAR and GFATM for their HIV programs (UNAIDS, 2010, Annex 2). In recent years, commitments from these organizations have flattened while demand for HIV/AIDS care continues to rise. To meet the continued need for more HIV services in developing countries, existing resources need to be better leveraged, i.e., to provide improved value for money. This report examines options for improving value for money in HIV funding by using a case study that focuses on the two largest funders, PEPFAR and GFATM, with funding for antiretroviral therapy (ART) as our leading example.

Understanding Value for Money

An understanding of value for money requires measures of an organization's financial inputs (i.e., what funds are available to the organization) and outputs (i.e., what the funds are used to buy). Input and output measures need to be linked in order to arrive at cost estimates for the services provided. These estimates can then be used for efficiency analysis to compare costs over time and across funders. Efficiency is typically defined as "the extent to which the interventions are produced at least cost" (Bautista-Arredondo, Gadsden, et al., 2008).

Inputs

Ideally, inputs would be assessed using data on actual expenditures. If expenditure data are not available, budget data might also be used; however, budget categories often change over time, and budgeted amounts often differ significantly from actual expenditures. Input measures should describe both how money is allocated at each level of an organization's funding hierarchy—from headquarters down to the country level and implementing partners—and how funds are allocated to different spending categories, including overhead and administration, capacity building, and HIV services.

Outputs and Outcomes

A variety of output and outcome measures have been identified in the literature and used by funders to determine what progress has been achieved with the funds spent to date. These include health outcome measures (e.g., infections averted, number of HIV cases detected through screening and counseling) and process measures of HIV services (e.g., percentage of funds disbursed, what funds were used to purchase) or health interventions (e.g., number of

clients served, number of people on ART). Some measures attempt to capture health outcomes in addition to quality (e.g., fraction of ART clients maintaining a certain level of adherence).

Data Challenges

Our case study of PEPFAR and GFATM identified some challenges with existing data:

- Cost data: Expenditure data are not readily available for PEPFAR (necessitating the use of budget data for our analysis), and only aggregate expenditure data are available for GFATM, limiting our ability to review individual programs.
- Output and outcome data: There is significant potential for double-counting of services provided in programs supported by multiple funders. In addition, output and outcome indicators for such activities as health system strengthening, strategic information, and technical assistance are still underdeveloped.
- Data accessibility: The information we sought was scattered across multiple documents and locations and not readily available in a coherent manner. For both organizations, cost and outcome data were often located in separate documents, making it difficult to link these to arrive at a cost ratio.

Results of the Case Study

Our assessment of available input and output data for PEPFAR and GFATM suggests that current spending allocations across direct and indirect services are not based on increasing value for money. Indirect services, such as capacity investments or health system strengthening, represent investments that might lead to cost reductions in the future. At the same time, these investments reduce the money currently available to provide services to people living with HIV. Allocation of funds among direct services (such as prevention and treatment) is made in accordance with loose (and sometimes competing) organizational guidelines.

We found little explicit focus within either organization on improving value for money. Neither funder has implemented a system based on explicit performance measures that links financing inputs with program outputs, such as linking the number of people on ART to the money spent to put people on ART. The measures currently in place look either at the money being spent (such as when countries are denied follow-on funding by GFATM when there is suspicion of corruption) or at the outcome level, such as when PEPFAR mandates that a certain percentage of PEPFAR's funds is planned for treatment as opposed to prevention. As long as these two dimensions are not linked, funders have no information on how to allocate monies toward better-value-for-money services.

Recommendations

Input Data

Expenditure data for PEPFAR should be made available to the public in a transparent fashion on an annual basis in a usable format. GFATM's Enhanced Financial Reporting system

is designed to clarify how funds are spent across individual programs. As GFATM publishes these results, we encourage it to make these data accessible for each program funded.

Output Data

Due to the potential for double-counting of patients, it is necessary to provide low and high estimates of treatment costs that account for a range of possibilities, from full overlap to no double-counting. Program output indicators to track indirect services are incomplete and need to be further developed.

Spending Portfolio

The trade-off between providing current services and providing future ones needs to be stated clearly, and funding decisions made accordingly. Spending decisions need to be periodically revisited and reviewed, particularly when new evidence comes to light, such as recent evidence on the merits of treatment as prevention.

Focus on Value for Money

Given projections that funding for HIV will likely not increase, particularly for low-income countries facing the highest HIV burden, an explicit emphasis on improving value for money by finding ways to better leverage existing monies is imperative.

Acknowledgments

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Abbreviations

AHF	AIDS Healthcare Foundation
AIDS	acquired immunodeficiency syndrome
ART	antiretroviral therapy
ARV	antiretroviral
CCM	country coordinating mechanism
CD4	T-helper
CDC	Centers for Disease Control and Prevention
CDVC	care delivery value chain
CEA	cost-effectiveness analysis
CHAI	Clinton Health Access Initiative
CODB	cost of doing business
COP	country operational plan
DALY	disability-adjusted life year
FY	fiscal year
GAO	U.S. Government Accountability Office
GDP	gross domestic product
GFATM	Global Fund to Fight AIDS, Tuberculosis and Malaria
GHCS	Global Health and Child Survival
GHI	Global Health Initiative
HHS	U.S. Department of Health and Human Services
HIV	human immunodeficiency virus
HPTN	HIV Prevention Trials Network
HRH	human resources for health

ICASS	International Cooperative Administrative Support Services
IOM	Institute of Medicine
IQR	interquartile range
IT	information technology
LFA	local fund agent
MDG	Millennium Development Goal
M&E	monitoring and evaluation
mm^3	cubic millimeter
NASA	National AIDS Spending Assessment
NGO	nongovernmental organization
NIH	National Institutes of Health
OGAC	Office of the U.S. Global AIDS Coordinator
OI	opportunistic infection
OVC	orphans and vulnerable children
PMTCT	preventing mother-to-child transmission
PEPFAR	U.S. President's Emergency Plan for AIDS Relief
PPY	per person-year
PR	principal recipient
TB	tuberculosis
UN	United Nations
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNGASS	United Nations General Assembly Special Session on HIV/AIDS
USAID	U.S. Agency for International Development
WHO	World Health Organization

CHAPTER ONE

Introduction

Although there is nearly $16 billion in worldwide funding for human immunodeficiency virus (HIV) services, countries with the highest burden of disease are heavily reliant on donor funds for their HIV programs. From 2002 to 2008, total donor funding for HIV and acquired immunodeficiency syndrome (AIDS) increased from $1.6 billion to $8.7 billion, owing in large part to the creation of the U.S. President's Emergency Plan for AIDS Relief (PEPFAR) and the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM) (Kates et al., 2009). Although funding from these sources surged throughout the 2000s, commitments in recent years have flattened while demand for HIV/AIDS care continues to rise. According to projections by the Institute of Medicine (IOM), the need for treatment will increase significantly in the next decade if current trends continue (IOM, 2011).

Given that donor funds are unlikely to increase substantially in the future, existing resources will need to be better leveraged to meet the continued need for more HIV services in developing countries. There have been calls for specific funding mechanisms to deal with an ever-growing number of people on antiretroviral therapy (ART), such as conditioning money for treatment on prevention measures or even rationing services. However, such approaches are problematic given the moral imperative to put people on life-saving ART treatment.

Another option is to improve value for money in providing HIV services. This might be achieved, for example, by changing the way funds are allocated across different expenditure categories, such as direct and indirect services, in order to prioritize those activities that provide the greatest value for money. Another approach would be to increase the efficiency with which services are delivered, irrespective of the allocation of funds across service areas. However, in the absence of a framework that guides thinking about these issues, it is difficult to make informed suggestions about how to improve value for money using either of these approaches.

The purpose of this report is to present options for improving value for money in HIV funding in developing countries. We focus on the two largest funders, PEPFAR and GFATM, and use funding for ART as our leading example. Our approach is novel in that we view HIV funding mechanisms from the taxpayer's perspective and investigate the entire funding pipeline, from the donor agency's headquarters down to the implementing agency or clinic. We argue that current perspectives focusing only on costs at the service level (currently the predominant view in the literature) ignore costs associated with delivering funds to service providers and those associated with indirect services, such as capacity building—both of which can be significant. (See Text Box 1.1 for definitions of costs for indirect services.)

It is likely that more HIV services can be delivered at current funding levels if those funds are allocated in a way that maximizes value for money. However, as is shown in this report, making such an optimizing allocation is currently not possible given the lack of effec-

Text Box 1.1
Cost Definitions

PEPFAR and GFATM use different terms to describe the indirect costs incurred as part of their HIV funding. In this report, we use a consistent set of terms to describe and aggregate these different types of costs to ease comparability and understandability:

Overhead and administration are costs incurred to ensure the organization's functioning, including administrative, infrastructure, information technology (IT), and other business operations costs, regardless of the level of the organization at which they are incurred. In general, we use *overhead* to refer to costs not attributable to specific services and that can arise at any level in the hierarchy and *administrative costs* to refer to the costs of program management, including staff salaries.

- At PEPFAR, these include line items, such as costs of doing business (CODB) or field management and operations at the country level and technical oversight and management at the headquarters level.
- For GFATM, overhead and administrative costs are taken directly from financial statements for expenses incurred for secretariat operations, country coordination mechanisms, and local funding agents.

Capacity-building costs are incurred with the primary aim of supporting the ability of recipient-country organizations (including government, nongovernmental organizations or NGOs, and the private sector) to carry out and sustain funded projects or to independently meet the demand for HIV services now or in the future. These costs can include technical assistance and support activities, operations research and other information-gathering activities (including development of HIV surveillance systems), and health system strengthening.

- For PEPFAR, this would include line items, such as health system strengthening, technical leadership and support, and strategic information. It would also include human resources for health (HRH), which is a key technical area without an associated budget code.
- For GFATM, health system strengthening is its own category measured in the enhanced financial reporting system. It does not have a standard definition in GFATM, and what is included in this category can vary across programs and countries.
- *Health system strengthening* costs are incurred for initiatives that aim to improve one or more of the functions of the health system toward greater access, coverage, quality, or efficiency of HIV services.

tive mechanisms for monitoring expenditures and the inaccuracy and incompleteness of available data on program outputs and outcomes. We provide recommendations for improving the monitoring and evaluation of current funds so that future funding decisions can be made in a way that maximizes value.

In the remainder of this introduction, we explain why a focus on improving value for money in HIV funding is imperative. We discuss recent trends in donor funding and describe various options for meeting the growing demand for HIV services. This first section briefly

describes the current need to improve value for money in HIV service delivery, outlining several options.

Recent Trends in Donor Funding for HIV Services

Most people with HIV live in low-income countries, with 68 percent residing in sub-Saharan Africa (Joint United Nations Programme on HIV/AIDS [UNAIDS], 2010). However, countries with the highest HIV burden are heavily reliant on donor funds for their HIV programs. We define *donor funding* as multilateral and bilateral aid for HIV, excluding domestic sources. Table 1.1 lays out the global funding available in 2009, split up by source of funding, income level of the recipient country, and type of services provided. Low-income countries have the least ability to pay for HIV services, so the majority of funding comes from international donors. For example, in 2009, only 14 percent of total HIV/AIDS expenditures in low-income countries came from domestic sources, compared with nearly 70 percent globally. More than half the funding came from bilateral sources (primarily PEPFAR), with 16 percent from GFATM (authors' calculations from UNAIDS data).

From 2002 to 2008, total donor funding for HIV/AIDS increased from $1.6 billion to $8.7 billion, largely due to the creation of PEPFAR and GFATM (Kates et al., 2009). Although funding surged throughout the 2000s, commitments in recent years have flattened (see Figure 1.1). The increases in donor funding for HIV services observed in the past are unlikely to continue going forward.

One benefit of the great increase in funding is that more people are being treated for HIV than ever before—globally, more than 5 million people are now on ART. However, there is still a significant need for more services. For example, in 2009, only 36 percent of those in need of ART treatment received it (see Figure 1.2). In 2008, ART coverage in low-income countries was only 23 percent (authors' calculations based on data from UNAIDS, undated [b]). Furthermore, the IOM projects that the need for treatment will increase significantly over the next decade: By 2020, approximately 35 million people in Africa alone will be infected with HIV, while the estimated number of people on treatment might be only as low as 7 million, or a mere 37 percent of the approximately 19 million people who will be in need of ART according to the most-recent treatment guidelines (IOM, 2011).[1]

Given the substantial yet flat-lined funding available for HIV services, it becomes imperative to come up with creative ways to provide appropriate services to the largest possible number of people in need.

Options for Meeting the Growing Demand for HIV Services in Developing Countries

In theory, there are some potential solutions for meeting the growing demand for HIV services. These include increasing donor funds to high-burden countries and rationing services. However, as explained in this section, these options are either unrealistic or undesirable. Therefore,

[1] See IOM, 2011, Figure 2-5. WHO issued new guidelines beginning in 2009 and 2010, recommending that ART be initiated when CD4 cell counts fall below 350 cells/mm^3 regardless of whether the patient is symptomatic.

Table 1.1
Global HIV Spending in 2009

Spending	Amount ($ billions)	Percentage of HIV Spending
Source		
Domestic	10.8	67.7
Bilateral	3.2	20.0
GFATM	1.0	6.2
UN and other multilaterals	0.5	3.0
Other international	0.4	2.4
Income level		
High	9.0	56.4
Middle	3.8	23.9
Low	3.1	19.7
Domestic	0.4	14.3
Bilateral	1.7	54.3
GFATM	0.5	16.0
UN and other multilaterals	0.3	9.7
Other international	0.2	5.5
Service[a]		
Prevention	3.1	19.2
Care and treatment	10.1	63.8
Care for and treatment of OVC	0.5	2.9
Program management and support	1.4	9.0
Other	0.8	5.0

SOURCE: UNAIDS, 2010, Annex 2, "Country Progress Indicators 2004 to 2010."

NOTE: UN = United Nations. OVC = orphans and vulnerable children. Percentages of expenditures are calculated based on 2008 and 2009 reported figures in the source data.

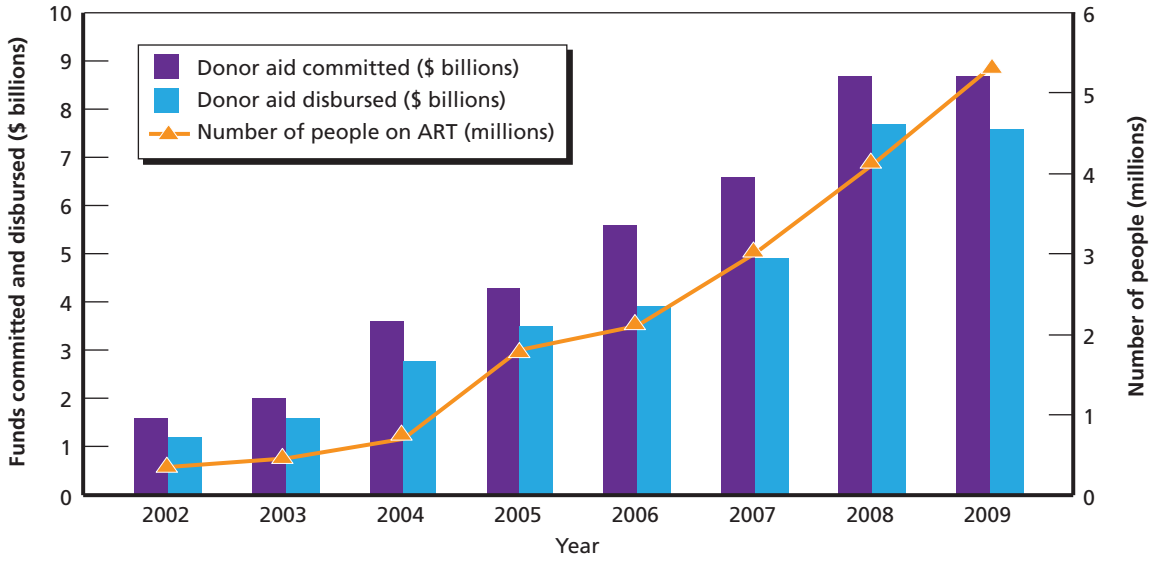
[a] Not every country reporting HIV expenditures provided spending data by service area. Percentages are calculated based only on countries reporting these expenditures by service area and are then extrapolated to all expenditures.

we conclude that funders should instead consider ways to better leverage existing resources so that more services can be delivered with the same amount of money.

Option 1: Increase Funds

Although highly desirable, the prospect of increased donor funding for HIV is unlikely. There are signs that donors have reined in spending on foreign aid for HIV. Between 2005 and 2008, PEPFAR funding increased by 120 percent (from $2.7 billion to $6.0 billion); however, since 2008, when PEPFAR was reauthorized for an additional five years, funding has increased by only 15 percent ($6.8 billion was budgeted for 2010). Greater congressional scrutiny of

Figure 1.1
Donor Aid Committed and Disbursed and Number of People on Antiretroviral Therapy, 2002–2009



SOURCES: Data on total funding for HIV/AIDS are obtained from Kates et al., 2009. Data on the number of people receiving and in need of ART are obtained from World Health Organization (WHO), 2010.

RAND *TR1158-1.1*

Given that donor funds are unlikely to increase substantially in the future, existing resources will need to be better leveraged to meet the continuing need for more HIV services in developing countries.

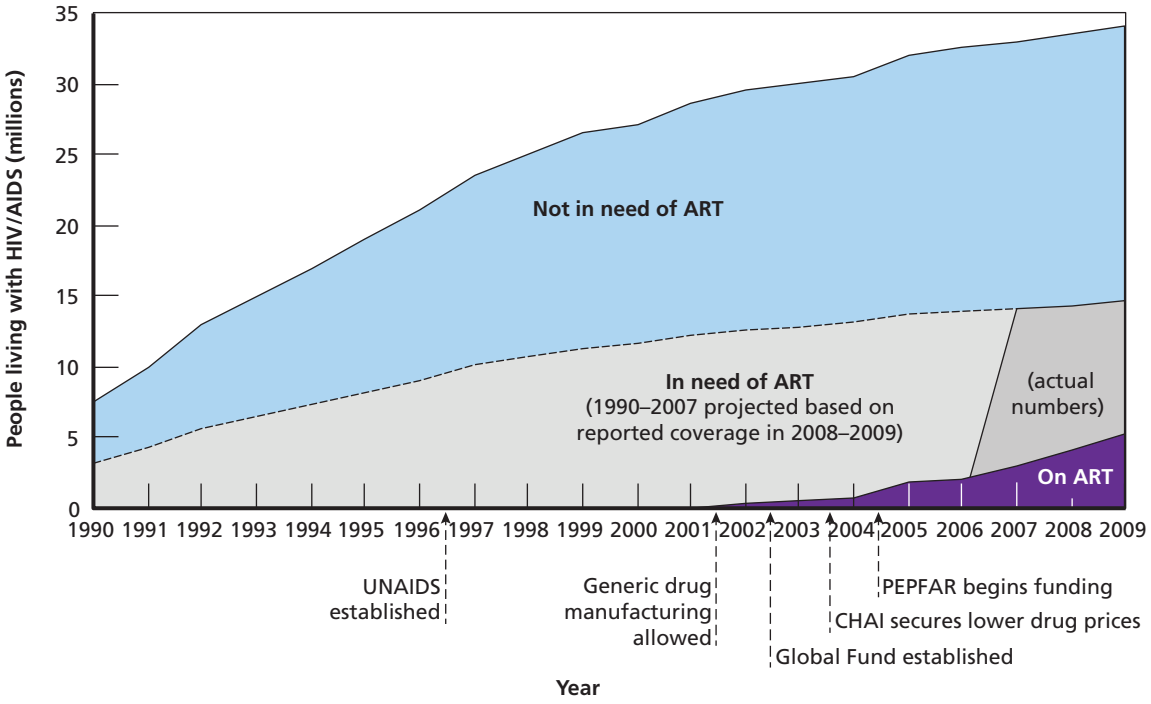
spending on foreign assistance can be seen in the proposed budget from the House of Representatives, which cut PEPFAR funding by 8 percent and U.S. contributions to GFATM by 40 percent (Sheridan, 2011).

Contributions to GFATM from the United States and other donor governments are expected to stay flat or be reduced ("Global," 2010; Sharma, 2010). During the October 2010 replenishment meeting, pledges by donor governments amounted only to $11.7 billion over three years even though GFATM requested $13 billion as the "lowest funding level" necessary to continue expanding its work and $20 billion as the "ideal" (Jack, 2010). Moreover, recent allegations of corruption have also seen large donors withhold funds already pledged (Heilprin, 2011). UNAIDS reports that, as a result of decreases in external funding, the number of countries in which ART programs have been adversely affected nearly doubled between July 2008 and July 2009 (UNAIDS, 2009b).

Option 2: Increase Rationing

An alternative solution for allocating scarce resources is to ration services. Underfunding of HIV treatment services in the United States has led public providers to take such an approach. For example, critical underfunding of the AIDS Drug Assistance Program, which provides treatment for the poorest patients, has led to waiting lists, cuts to drug formularies, reductions in benefits, and disenrollment of patients (National Alliance of State and Territorial AIDS Directors, 2011).

Figure 1.2
Number of People Living with HIV/AIDS, 1990–2009



SOURCES: Kates et al., 2009; WHO, 2010.
NOTE: CHAI = Clinton Health Access Initiative. WHO determines ART need according to the threshold of 350 CD4 (T-helper) cells per cubic millimeter (mm3). Actual data on people in need of ART are available only for 2008–2009. Numbers of people in need of ART in years before 2008 are projected based on a constant 43-percent average of need in 2008–2009.
RAND *TR1158-1.2*

Continuing with the status quo will result in an ethically indefensible situation of a growing number of people dying of AIDS-related preventable causes.

Given current levels of ART coverage and growing numbers of people living with HIV (see Figure 1.2), the number of individuals who receive ART is lower than the number in need of such services. Hence, although rationing of services is possible, it is undesirable, given the significant need for life-saving ART. Even continuing the status quo will result in the ethically indefensible situation in which a growing number of people are dying of preventable AIDS-related causes, and it could have other negative consequences, such as a potential rise in new HIV infections.

Option 3: Improve Value for Money in HIV Funding

A third option is to improve the value for money in providing HIV services. There are two potential approaches for doing this. The first alternative is to change the current way in which funds are allocated across different expenditure categories. The second alternative is to increase the efficiency with which services are delivered.

Changing the Way Current Funds Are Allocated. To examine this approach, we make a critical distinction between direct service expenditures (i.e., those going toward the provision

of treatment and care and prevention services) and indirect service expenditures (i.e., capacity building, system strengthening, technical assistance).

Allocation of Funds Across Direct Services. There is a lively and heated discussion within the research and policymaking community of the relative merits of prevention versus treatment (Canning, 2006; Moatti et al., 2008). One side stresses that prevention activities reduce the number of new infections and, hence, future treatment expenses, while others argue that investment in treatment is required now in order to prevent unnecessary deaths.

HIV funders are spending significant amounts of money on activities that are not directly providing services. All these funds should be carefully tracked, and those with the highest value for money should be prioritized.

Although all aspects of HIV services can work in concert to combat the further spread of the disease, there is emerging evidence that the total benefits of treatment, including economic benefits, outweigh the costs of continuous care (see, for example, Walensky et al., 2007) and that optimal adherence can substantially reduce transmission. Recent results from the HIV Prevention Trials Network (HPTN) 052 trial indicate that, given optimal adherence to ART, the risk of virus transmission from an HIV-infected person is reduced by 96 percent ("HIV Treatment as Prevention," 2011). The distinction between treatment and prevention is therefore beginning to blur, which could warrant a reconsideration of how funds are allocated across these services, perhaps shifting the focus to the provision of *the most-appropriate* services to all people in need.

Table 1.2 provides an example of the trade-off suggested by reallocating funds across direct service areas. In 2008, a total of $2.8 billion (from all funding sources) was spent on HIV services in low-income countries.[2] In 2008, there were also 3.3 million people on ART, amounting to a total of $855 available per person if all funds were used for treatment (as an upper bound on the maximum treatment cost that would allow all people to be covered at that cost).[3] If, instead, the annual treatment cost were $460 per capita in low-income countries, as calculated by Over, 2010, more than 6 million people could be treated with existing funds if all available funds were directed toward treatment. PEPFAR reports a cost of $467 per person in low-income countries among a sample of supported clinics (PEPFAR, 2010b).[4]

Although the actual treatment costs differ across countries and treated populations, making it difficult to arrive at a "right" estimate of the cost of ART treatment for one person for one year, we note that, with existing funding, it is theoretically possible to place at least an additional 3 million individuals in low-income countries on treatment (if all HIV funding were allocated solely to the provision of ART) and even more if further efficiency improvements were realized. Although this hypothetical scenario ignores other critical spending areas,

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[2] Some low-income countries did not report expenditures for 2008, and these countries are excluded from the total amount.

[3] Menzies et al., 2011, find the average annual per-patient cost of ART to be $896, which would not translate into more people on treatment at current funding levels. Their costing model appears to be comprehensive, including not just ART but care and support services, as well as site administration and site management costs, which could account for the higher per-patient cost. In addition, this number applies only to PEPFAR-supported programs.

[4] The costs as reported in this study are likely based on the methodology in Menzies et al., 2011, and hence do not include program management costs; it is not clear to what extent contributions from other funding sources are reflected in these estimates.

Table 1.2
Actual Versus Hypothetical Numbers of People Treated in Low-Income Countries at 2008 Funding Levels

Scenario	Total Spending on HIV in Low-Income Countries ($ billions)	Per-Person Spending ($)	People Covered
Hypothetical 1: current available funding	2.82	855 per person on ART	3.3 million people currently on ART in low-income countries
Hypothetical 2: spending everything on treatment at current ART unit costs	2.82	460[a]	6.1 million
Hypothetical 3: spending everything on treatment to reach 100% coverage	2.82	303	9.3 million people needing ART (CD4 < 200) in low-income countries
	2.82	186	15.2 million people needing ART (CD4 < 350) in low-income countries

SOURCES: Expenditure data are from UNAIDS, 2010, Annex 2. Figures reflect the authors' calculations of expenditures based on low-income countries that responded to the United Nations General Assembly Special Session on HIV/AIDS (UNGASS) survey and that separately reported spending amounts on HIV/AIDS treatment and care. The number of people on ART and coverage rates in 2008 were determined for each country from AIDSinfo country fact sheets; see UNAIDS, undated (a).

NOTE: Aggregate numbers for expenditures and people on or in need of ART are calculated for only the 32 low-income countries for which data are available.
[a] From Over, 2010.

such as supply-chain management, that are necessary for delivering services to individuals, it demonstrates the principle of the trade-off involved in considering spending allocations across direct services.

Allocation of Funds Between Direct and Indirect Services. HIV funders, such as PEFPAR and GFATM, spend significant amounts of their funds on activities that occur away from the clinic, such as headquarters or country office overhead and administrative costs, as well as costs for indirect services, such as country health system strengthening.[5] For example, in 2010, PEPFAR reported spending money on HIV services (prevention, treatment, OVC) (70 percent), overhead and administration (11 percent), and capacity building, including health system strengthening, technical assistance, and strategic information (19 percent). Of the 89 percent not spent on overhead and administration, there is an implicit trade-off between funding for indirect services and direct services, in which funds could be shifted between indirect activities and direct services according to which type of activity provides the most value for money and best meets the funder's objectives. Currently, decisions to invest in indirect services are made without use of a forward-looking model that seeks to minimize expenditures while attaining a specific goal for HIV services. At the moment, these indirect service expenditures are not typically linked to target outcomes, rendering it difficult to evaluate whether they achieve their objectives and therefore the efficiency with which they are delivered.

[5] The most recent Global Health Initiative strategy (Global Health Initiative, undated) increases its focus on country ownership and sustainability.

Monitoring funds and measuring their efficient use toward achieving a funder's objective are particularly important to assess the investment value of funds that are not spent on services in recipient countries. For example, PEPFAR budget narratives suggest that a good portion of funds allocated to headquarters for indirect services are paid to U.S. government staff to provide technical assistance. Although HIV funders monitor progress in combating the spread of HIV, outcomes for indirect activities should similarly be monitored and tracked over time to determine their relative payoffs.

To provide an example of the trade-off between direct and indirect costs, let us consider what would happen if PEPFAR overhead, administration, and capacity-building costs of more than $600 million in fiscal year (FY) 2009 were reduced by 50 percent. Using the 2009 unit cost of $585 (author's calculations) for PEPFAR's contributions to direct treatment-related services, we calculate that more than 500,000 additional people could receive life-saving ART treatment (see Table 5.1 in Chapter Five). Using 2010 unit cost contribution numbers, which decreased from 2009, nearly 700,000 more people could receive ART. There is clearly is a significant trade-off between spending money on direct and indirect services, and decisions should be justified and monitored to arrive at the optimal mix of direct, indirect, and overhead and administrative costs.

Option 4: Increase Technical Efficiency

Efficiency should be increased for all activities, irrespective of the allocation of funds among service areas.

Another way to improve value for money is to increase the efficiency with which HIV services are delivered. Most studies in the literature focus on efficiency at the level of the clinic or provider, which is important, but we argue that there is likely significant room for improvement in the delivery of funding itself that should not be ignored. For example, of $4.7 billion allocated to PEPFAR in 2010,[6] about 30 percent was spent on indirect services or administration and overhead, and the rest went to implementing partners for country activities. Every dollar saved because of efficiency improvements in delivering direct and indirect services, as well as administrative costs, increases the number of people who receive treatment.

Given currently available funding, to what level would the total costs of ART provision have to fall to cover all those in need? Table 1.2 presents a hypothetical scenario that illustrates the reduction in costs required to provide treatment to everyone in need, given existing funding and moving all funds to ART. We see that, if all $2.8 billion in total HIV funding in low-income countries in 2008 were used to attain 100-percent ART coverage, then costs per person would need to decrease to $186–$303 per person (see calculations in Table 1.2). Given that these unit costs are at or close to the lower range of existing treatment unit cost estimates, efficiency improvements could make it feasible to provide ART services to all those in need with existing funding using reallocation and efficiency gains.

[6] These are the majority of total approved funds for PEPFAR in FY 2010, minus funds allocated for GFATM and UNAIDS (approximately $1 billion) and funds allocated for "other country programs" (approximately $80 million), which are not broken up into any further line items in the budget. Total funds for FY 2010 were $5.87 billion.

Chapter Conclusion and Overview of This Report

Due to limited funding capacity in the countries hardest hit by the HIV epidemic, in combination with reduced commitments by international donors, it is imperative to allocate the available resources to activities that have the highest payoff and to enhance the efficiency with which HIV services are delivered. To continue and expand the delivery of HIV services to low-income countries, a greater emphasis is needed on improving value for money, both through a reexamination of allocation decisions and through efficiency improvements in service delivery.

In this report, we focus on the two largest funders of HIV services in developing countries—PEPFAR and GFATM—in order to understand how spending decisions and value for money can be enhanced. Demonstrating efficiency (over time, on which we will focus) not only provides donors with a way to expand the services they provide but also provides a means by which donor organizations can be evaluated and held accountable for spending decisions that maximize the value of taxpayer and donor dollars.

The remainder of this report is organized as follows:

- In Chapter Two, we examine the funding inputs into HIV services by describing how funds are allocated in PEPFAR and GFATM and flow from the donor down to the implementing agency within a country.
- In Chapter Three, we examine the outputs of these funds and discuss appropriate outcome measures for investigating the progress achieved with these funds.
- In Chapter Four, we examine each organization's institutional structures, including the organizational features that could enhance or obstruct efficiency improvements.
- In Chapter Five, we provide a framework for measuring the efficiency of HIV funding decisions and consider how efficiency measures can be used for funding decisions.
- In Chapter Six, we provide conclusions and recommendations.
- A technical appendix provides further details for tracking funds at each level in the funding hierarchy, case studies for cost calculations for PEPFAR and GFATM, and a short overview of the literature on studies evaluating clinic-level costs.

CHAPTER TWO

Understanding the Inputs: Where Does the Money Go?

In this chapter, we explain where current funds are being allocated throughout the system of delivering funds to program partners. We first adopt a *vertical* perspective and track the money allocated to PEPFAR and GFATM at each level in the funding hierarchy, from the headquarters down to the country level and implementing partners, identifying who controls resources at each level. Using this approach, we find that a significant fraction of funds for PEPFAR—about one-third—is allocated to headquarters or the country offices of U.S. government agencies. We then adopt a second, *horizontal*, perspective to examine how funds are allocated among different spending categories: overhead and administration, capacity building, and HIV services.[1] This second perspective allows us to tease out *how* the money is being spent in the overall allocation.

Defining Costs

It is difficult to compare costs across funders and over time not only because the information needed to do so is spread out across a large number of publications in a manner that is not always transparent but also because different funders use different definitions for *cost pockets* and because, even for one funder, these definitions sometimes change over time. In this document, we set up our own definition of *cost* and attempt to consistently classify the cost pockets of PEPFAR and GFATM within this framework.

We use the following categories to classify spending by HIV donors:[2]

- *Costs for direct services:* Spending on tangible services, such as drugs purchased or HIV tests rendered, which can result in health improvements. These are the costs typically measured in existing studies, and they include human capital expenses for staff at the level of service delivery who provide or support services.
- *Costs for indirect services:* Investments with an anticipated future payoff in terms of providing more or better direct services in the future, such as health system strengthening and capacity building.
- *Overhead and administration costs:* Spending for headquarters expenses and other costs of doing business and program management.

[1] In the appendix, we also present this division of funds for each level in the funding hierarchy separately. For clarity, in the main text, we present only the total fund division.

[2] See Text Box 1.1 in Chapter One for more-comprehensive definitions of *overhead and administration*, *capacity building*, and *health system strengthening*.

Although we use these classifications in this document, the way in which expenditures are classified can vary:

- *HIV funders are institutions whose primary goal is to deliver HIV services; therefore, all money that is not spent on direct services should be classified either as indirect costs or overhead*. This way of classifying costs stands in contrast to what is currently practiced among the HIV funders discussed. For example, funders often report staff costs at country offices as direct costs rather than administrative costs. *Overhead costs* is currently defined as only those costs that are not attributable to any activity and do not include expenses for program management related to service provision, which can occur at each level through which funds are channeled. For example, PEPFAR reports staff costs at country offices as direct costs rather than as an administrative cost.
- *Each activity funded delivers a particular service and can be considered a direct cost.* Most cost can be considered a direct cost *if the activity is associated with a particular outcome*. For example, overhead and administrative tasks can be associated with the activity of moving money. Therefore, such costs are incurred not just at the headquarters level but at each level through which funds flow: country coordinating teams, primary implementers, and all subcontractors. Other activities, such as technical assistance and support, can be associated with enhancing partners' ability to deliver HIV services and can thus be considered a direct cost.

These two concepts provide different but complementary perspectives on the efficiency of HIV funders. Our cost classification scheme adopts the notion that HIV funders are primarily in the business of delivering HIV services but also recognizes that each activity funded—direct services, indirect services, and overhead and administrative costs—should be associated with a particular service provided (and not necessarily an HIV service). Although this is not the only way to classify expenditures, we adopt these definitions to facilitate the exposition in this report.

PEPFAR Funding Flows

PEPFAR is a bilateral initiative providing funding and implementation support to help coordinate and oversee U.S. funds for global HIV efforts. It was established by Congress as part of the United States Leadership Against HIV/AIDS, Tuberculosis, and Malaria Act of 2003 (Pub. L. 108-25, 2003) and continued under the Tom Lantos and Henry J. Hyde United States Global Leadership Against HIV/AIDS, Tuberculosis, and Malaria Reauthorization Act of 2008 (Pub. L. 110-293, 2008). PEPFAR does not directly implement programs but coordinates existing government U.S. programs in their dealings with field-level partners for PEPFAR-funded activities. These partners include international and host-country nonprofit organizations, academic institutions, host-country governments, private-sector partners, and multilateral organizations.

In addition to directly funding the delivery of HIV/AIDS programs and services (e.g., treatment, care, support, prevention), PEPFAR budgets include costs for indirect services (i.e., to increase capacity of partners, local governments, and health systems to deliver and scale up HIV interventions) and overhead and administrative costs, defined as the oversight, manage-

ment, staffing, and infrastructure costs of PEPFAR agencies. Overhead costs are incurred both at the headquarters level and at the country level by the U.S. government agencies responsible for implementing PEPFAR, such as the U.S. Agency for International Development (USAID), the Centers for Disease Control and Prevention (CDC), and the Peace Corps. In addition, costs for indirect services are incurred at headquarters level by U.S. government agencies and in countries by both U.S. government agencies and those prime partners that have contracted to implement health system strengthening or related activities.

PEPFAR Expenditure Data

PEPFAR data on expenditures are largely unavailable. The ideal source of cost data would be PEPFAR expenditures at the funder level (i.e., the money that leaves PEPFAR and goes to different program areas, such as treatment, prevention, and overhead). However, for two reasons, we must instead rely on budgeted amounts. First, the expenditure data that PEPFAR releases publicly at the funder level are restricted to cumulative outlays (i.e., the amount of money that has been disbursed cumulatively since PEPFAR's inception); see PEPFAR, undated (d). Second, these outlays are broken down by U.S. government agency, country, and broad-based programs, such as HIV/AIDS programs under the Global Health Initiative (GHI), but not by service area (i.e., treatment, prevention) or by any kind of operational or overhead expenses. Text Box 2.1 highlights these cost information gaps for PEPFAR.

Disaggregated *budget* data are more readily available. Each fiscal year, PEPFAR publishes an operational plan, which details the amount of money that Congress has appropriated for PEPFAR and its intended uses; see PEPFAR, undated (e). This operational plan is built on the approved country operational plans (COPs) submitted by PEPFAR country-level offices in recipient countries. Under this plan, funds budgeted for each country and the prime partner are considered "obligations," which entail a legal right of the partners to draw funds from the U.S. Treasury. The budget details obligations to PEPFAR's partners for the intended uses they have submitted, which are structured according to Congress's mandated targets. The 2003

Text Box 2.1
Cost Information Gaps for PEPFAR

There are two primary gaps in PEPFAR cost information:

- *Expenditure data are not publicly available.* Detailed financial data publicly released by PEPFAR are limited to a priori numbers on planned uses and not ex post numbers on how the money was actually used. The lack of expenditure data severely limits the ability that oversight mechanisms have to hold PEPFAR accountable for uses and to compare it with other funders. Both budgeted and actual expenditures should be publicly available, by program area.
- *Program management and overhead expenses are not broken down by service area.* Although we assume that these allocations are apportioned according to the share that each service represents in the budget, some services might have disproportionately higher indirect administrative expenses. For example, managing the supply chain of antiretrovirals (ARVs) and overseeing the quality of PEPFAR's investment in treatment services might require more staff time than certain prevention activities, which are focused on diffusion of behavioral change.

act founding PEPFAR set a target of obligating 55 percent of funds toward the treatment of individuals with HIV/AIDS, not including palliative care. In the 2008 reauthorization act, the targets changed to require that at least half of PEPFAR money be obligated toward treatment, care, and support of people with HIV/AIDS, including ART, care for opportunistic infections, palliative care, and other forms of care and support. Headquarter-level overhead and country-level program and management allocations are not included in these targets, as reflected in the budgetary requirement table in the PEPFAR operational plan.

Change in PEPFAR Budget Classifications and Reporting. Two related challenges in tracking PEPFAR's planned spending on overhead and capacity-building costs are (1) changing budget classifications over fiscal years and (2) changes in the reporting of line items over fiscal years. This makes it difficult to compare how overhead and indirect costs at different levels (i.e., headquarters versus country) have changed during PEPFAR's lifespan.

We have chosen to focus on data from FY 2009 and FY 2010, which are both most recent and most comparable. However, comparing these years with each other, as well as with data from earlier fiscal years, presents a problem because of the changes in line-item classification and reporting, especially in the areas of oversight and administration, as well as indirect services. For example, between 2009 and 2010, there was a change in the way management and operations funds were measured and reported; for the first time, in 2010, it is possible to see all the line items that go into this important category (PEPFAR, 2010c, 2011b). Although this change was implemented to increase transparency, the change in accounting and budgeting procedures makes it difficult to track funds by category through the years. Similarly, in technical oversight and management (or headquarter-level administration costs), line items are reported directly only in FY 2009 and FY 2010 and for only one account (albeit the largest conduit of funding). No overhead and administration funding, whether at headquarters or field level, is broken down by program area (e.g., treatment, prevention).

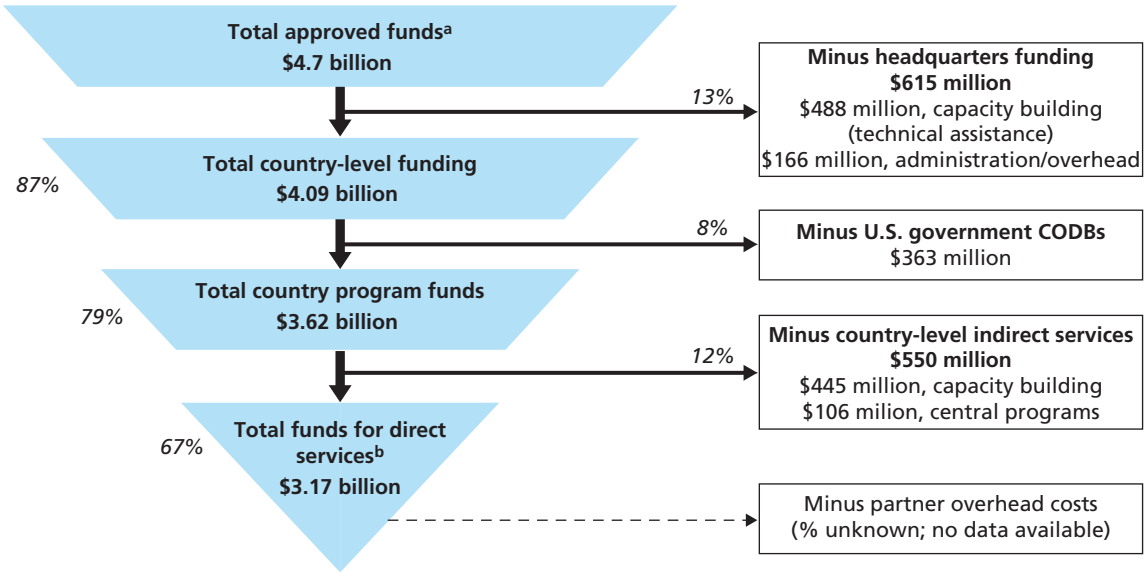
A more detailed description of the PEPFAR budget data is provided in the technical appendix, along with our approach for classifying budget line items into different activity categories and hierarchical levels for the purposes of this report.

Tracking of Funds from Headquarters to Implementing Partners: Vertical Perspective

Figure 2.1 uses budget data from FY 2010 to show how funds flow from the headquarters level down to the HIV service delivery level. Total approved funds at the top of the inverted pyramid ($4.7 billion) reflect all budgeted funds for 2010, less funds for UNAIDS and GFATM, whose uses are budgeted by recipient agencies. In addition, funds for other PEPFAR countries (less than 1 percent of all funds) are excluded because no line-item budget data are available for planned uses of these funds (see the appendix for detailed breakdown of planned uses of funds at each level).

Moving down from the top of this pyramid, we see that about 13 percent of total funding was budgeted for overhead and administration at headquarters and for technical assistance to support country capacity. After accounting for headquarters costs, the remaining $4.09 billion went to PEPFAR countries to fund programs approved under the COPs, which are the basis for PEPFAR country activity budgets. Of these funds, $363 million, or about 7 percent of the original $4.7 billion, went toward country-level overhead and administration for U.S. government agencies, also known in the PEPFAR budget as field management and staffing or CODB. Of the $4.7 billion available to PEPFAR in 2010, $3.17 billion, or about 67 percent,

Figure 2.1
Following PEPFAR Funds from Headquarters to Service Delivery, Fiscal Year 2010



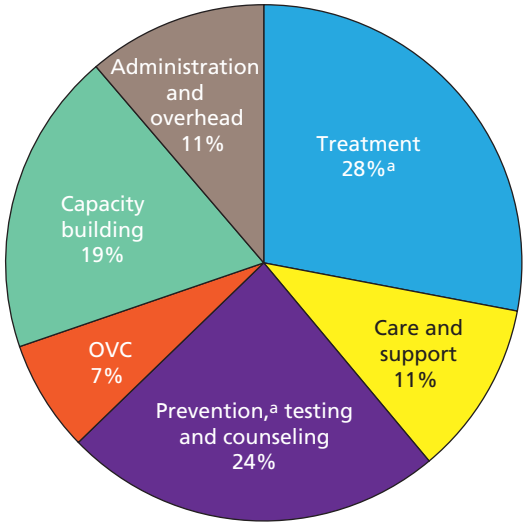
SOURCE: Authors' calculations based on PEPFAR, 2010b.
[a] The total excludes funds for international partners (GFATM and UNAIDS) ($1.1 billion), as well as funds for other PEPFAR-supported countries that do not have country operational plans ($80 million). The total PEPFAR budget, including these items, was $5.87 billion in FY 2010.
[b] Total includes all funds for treatment, care, support, prevention, testing, counseling, and OVCs at the country level except for central programs, which we treat as indirect services).
RAND *TR1158-2.1*

ended up for service delivery at the level of the implementing partner. This includes funds for treatment, care and support, prevention, testing and counseling, and OVCs, excluding funds explicitly targeted for capacity-building activities. However, this does not take into account the overhead and administration costs for implementing partners, for which data are not publicly available. Hypothetically, if these partner costs were 11 percent—assuming the same overhead as PEPFAR itself in FY 2010—only about 60 percent would end up at the service delivery level. Close to $2 billion was spent on activities other than direct services, making it clear that there is significant money above the service delivery level, on which the current efficiency literature focuses. The benefits of funds spent on the system level (such as capacity building) are typically of a less tangible nature, but that should not exempt these funds from being recorded in a transparent fashion (i.e., ultimate recipient, conditions for services delivered) and being evaluated because they represent funds that could otherwise be used for direct service provision. Most of these funds are of an investment type and expected to deliver a future payoff that needs to be compared with more-direct service delivery to arrive at a funding mix that is optimally adjusted to achieve the mission of the funder.

Spending by Service Area: Horizontal Perspective

In Figure 2.2, we show FY 2010 PEPFAR funds allocated to each service category, including direct services (treatment, care and support, prevention, testing and counseling, and OVCs), indirect services (capacity building, i.e., health system strengthening, strategic information, and technical assistance), and administration and overhead costs. Once all these cost categories

Figure 2.2
Overall Funding by PEPFAR, by Intended Use, FY 2010



Total = $4.7 billion

SOURCE: Authors' calculations based on PEPFAR, 2010b.
NOTE: The total excludes funds for international partners (GFATM and UNAIDS) ($1.1 billion), as well as funds for other PEPFAR-supported countries that do not have country operational plans ($80 million). The total PEPFAR budget, including these items, was $5.87 billion in FY 2010.
[a] This includes central programs to reflect how PEPFAR budgets funds to meet congressional requirements. Central programs for ART in FY 2010 accounted for $98 million (2% of the $4.7 billion PEPFAR budget). Central programs for prevention in FY 2010 accounted for $7.5 million (<1% of the PEPFAR budget).
RAND *TR1158-2.2*

are taken into account, we see that only slightly more than 25 percent of overall funds, or about $1.2 billion, goes toward treatment, less than the amount of money currently spent on capacity building, administration, and overhead.

Global Fund Funding Flows

Since its creation in 2002, GFATM has become a key financier of programs to fight AIDS, tuberculosis (TB), and malaria, with approved funding of $21.7 billion for more than 600 programs in 150 countries. According to GFATM, supported programs have collectively saved 6.5 million lives by contributing to the HIV treatment for 3 million people and anti-TB treatment for 7.7 million people and by distributing 160 million insecticide-treated bed nets for the prevention of malaria (GFATM, undated [a]).

In contrast to PEPFAR, GFATM is solely a funding mechanism and does not implement programs directly. GFATM grants are demand-driven in that program implementers—which can range from ministries of health to private NGOs, as well as broad-based collaborations—apply for funding and grants. It relies on a broad network of public/private partnerships with governments, civil society, the private sector, affected communities, bilateral and multilateral organizations, and other development organizations on the ground to supply local knowledge

and technical assistance. The organization's core structure consists of the following main components for management and oversight of operations:

- The GFATM Secretariat manages the grant portfolio, executes board policies, and oversees monitoring and evaluation; no staff are located outside headquarters.
- The Technical Review Panel is comprised of independent international experts who meet regularly to review proposals and provide funding recommendations to the board.
- The board of directors is responsible for the organization's governance, including policy-setting, funding decisions, and budgets.
- The trustee (currently the World Bank) manages the organization's money, which includes making payments to recipients at the instruction of the secretariat.
- Country-level operations are organized by the following entities:
- Local fund agents (LFAs) are contracted by headquarters to monitor implementation and periodically review performance of principal recipients (PRs).
- PRs are the legal grant partners designated by the country coordinating mechanism (CCM) to whom financing is directly given.
- The CCM coordinates a country's response to HIV/AIDS, TB, and malaria but does not handle financing.

Global Fund Expenditure Data

In contrast to PEPFAR, GFATM publishes expenditure data in its annual report.[3] Expenses for the fiscal year are broken down by grants disbursed, headquarters operating expenses, and fees to LFAs. However, the data are difficult to use to assess HIV-related expenditures because annual expenditure data are not broken down across the three diseases (HIV/AIDS, TB, and malaria) or for particular service areas (i.e., treatment, prevention, care and support). Because GFATM is purely a financing mechanism, spending on service delivery by grant recipients is not reported in its own financial reports.

However, more-detailed spending data are available on only a limited basis and spread out over a variety of other publicly available documents. The GFATM website has data on the number and amount of grants disbursed to each recipient and country, grant progress reports, and performance reviews; see GFATM, undated (a). Grant disbursement data are broken down by financing round, country, and disease, but details regarding the services to which these disbursements were geared are not listed, rendering it difficult to link money spent to services delivered. Moreover, funding rounds do not necessarily coincide with fiscal years. Text Box 2.2 highlights the major cost information gaps for the Global Fund.

In order to estimate spending amounts on different HIV services, we combined information from various sources. From the 2010 progress report, we obtained the total funds disbursed for HIV programs for 2009—$1.35 billion (GFATM, 2010a, p. 20). To estimate the contributions by direct service area,[4] we assumed that the yearly allocation across service areas

[3] GFATM annual reports (fiscal year of January to December) are available online; see GFATM, undated (c).

[4] According to the 2009 *Global Fund ARV Fact Sheet* (GFATM, 2009e), ART treatment activities include "drug provision, human resources, treatment of opportunistic infections, laboratory and testing facilities, and health systems strengthening." The same report notes that the "drug provision accounts for about one-third of the financing of many ART treatment programs." Separately, in the 2010 progress report, the cumulative expenditures on treatment were 27 percent of total HIV/AIDS spending through 2008 (GFATM, 2010a, pp. 25–26). However, it is unclear whether this 27 percent was calculated using the same definition of *treatment*.

Text Box 2.2
Cost Information Gaps for the Global Fund

There are three main gaps in information on GFATM costs:

- *Yearly expenditure data are not broken down by service area.* The 2010 progress report provides only cumulative expenditures broken down by service areas through the end of the 2008 expenditure cycle. Yearly expenditures by service area are needed to arrive at a timely and comparable cost-efficiency measure.
- *Headquarters operating expenses are not broken down by disease focus.* Headquarters expenditures are reported only in aggregate. Although not essential for financial reporting, attribution of administrative costs across diseases is necessary to derive accurate total costs of services that include indirect expenditures.
- *Detailed spending by grant recipients is not reported.* Although GFATM requires periodic reporting from grant recipients for performance reviews, it does not require recipients to submit spending reports delineating how grant funds were directed toward different services. Therefore, it has a limited capacity to evaluate the efficiency of the programs that it supports.

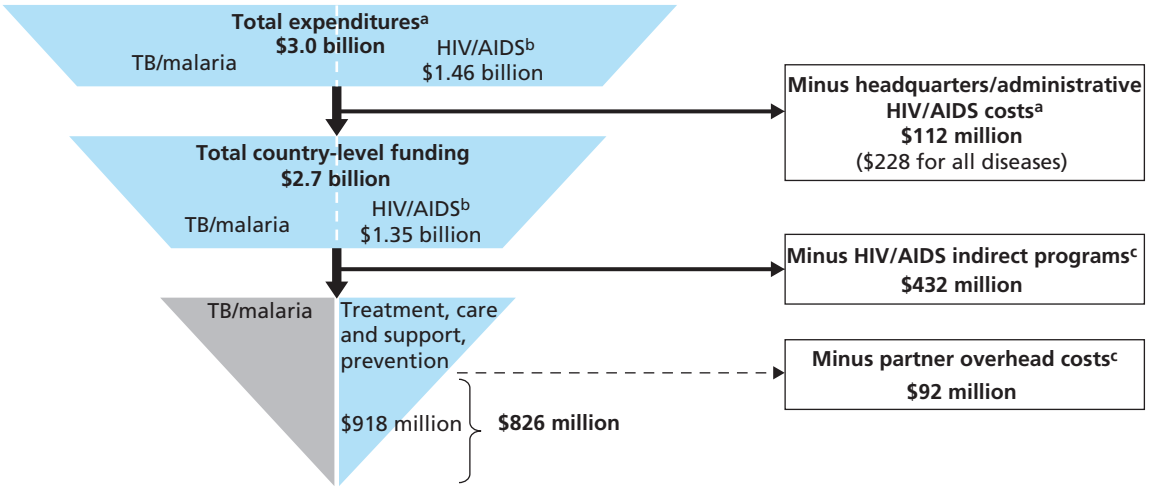
is the same as the cumulative percentage through 2008, the only data that are reported in a disaggregated manner across service area for HIV/AIDS.[5] In 2008, treatment expenditures comprised 28 percent of all GFATM cumulative expenditures for HIV/AIDS, while 30 percent went toward prevention, 9 percent for care and support, and 1 percent for TB/HIV collaborative work. Within-country expenditures for capacity building and creating a supportive environment (i.e., laboratory services, medical staff, monitoring and evaluation) amount to 32 percent. Information on 2010 expenditures was not available at the time of this writing.

Tracking of Funds from Headquarters to Implementing Partners: Vertical Perspective

Figure 2.3 illustrates how funds flow from GFATM headquarters to the level of HIV/AIDS service delivery. Total expenditures for FY 2009 amount to about $3 billion, excluding amounts for grants yet to be disbursed for that year. About $228 million of this amount went toward expenditures incurred at headquarters. Because the administrative and overhead expenditures incurred by the secretariat of GFATM are used for grants across all three diseases, these costs cannot be attributed to HIV services alone without further assumptions. We do know, however, that, of the remaining $2.7 billion in grant monies available, roughly $1.35 billion, or about 49 percent of all grants disbursed, went toward HIV services. If we assume that the same percentage of secretariat expenses went toward HIV grant administration, $112 million, then total expenditures toward HIV/AIDS, including secretariat expenses in 2009, amounts to $1.46 billion. We assumed that, within HIV spending, cumulative expenditure proportions across service areas are representative of yearly expenditures (32 percent for within-country capacity building and creating supportive environments, as given earlier)—and we calculate

[5] See GFATM, 2010a, Figure 2.2, "Allocation of Cumulative Expenditure by Service Delivery Area for Three Diseases (Through 2008 Expenditure Reporting Cycle)," p. 25. Comparable information through 2009 is not available at the time of this writing. The figures mentioned in the progress report come from *Enhanced Financial Reporting Data, 2008*, which is unpublished and currently not available to the public.

Figure 2.3
Following Global Fund Grants from Headquarters to Service Delivery, Fiscal Year 2009



[a] Total excludes undisbursed grants payable (GFATM, 2010b). Using the figure of 49 percent of the grant monies given for HIV/AIDS ($1.35 billion of $2.7 billion), we estimate that $112 million of secretariat expenditures goes to HIV/AIDS.
[b] Expenditure amounts are reported in GFATM, 2010a.
[c] We estimate spending on indirect and direct programs based on cumulative expenditures reported in the 2010 progress report (GFATM, 2010a). Headquarters and administrative costs include funding for secretariat operations, LFAs, and CCMs. Indirect program costs include health system strengthening and creating supportive environments. Direct costs include care and support, prevention, treatment, and TB/HIV collaborative activities.
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that about $432 million was spent on indirect services (health system strengthening and supportive environments) and the remaining $918 million on direct service provision. Of this amount, about 10 percent went toward the overhead costs of implementing partners (GFATM, 2011b).

Funding by Service Area

If we assume that cumulative expenditures across disease and service areas are representative of yearly expenditures, then, of the $1.46 billion spent in FY 2009 (which includes apportioned secretariat administrative expenses), $405 million went toward prevention activities, $365 million for treatment, and another $149 million for care and support.[6] These would represent 27 percent, 25 percent, and 10 percent, respectively, of the total estimated HIV/AIDS expenditures by GFATM in 2009 when administrative and overhead expenses for headquarters are apportioned to HIV/AIDS (see Figure 2.4).

Notably, GFATM headquarters and administrative costs amount to about 8 percent of all expenditures, including independent third-party monitoring by LFAs and support for CCMs. In comparison, PEPFAR spent 4 percent on headquarters administration and another 7 percent on within-country administrative teams in FY 2010.

[6] At the time of this writing, cumulative expenditures through 2009 are not yet available. Thus, the annual expenditures between 2008 and 2009 cannot be separately calculated.

Chapter Conclusion

Available Expenditure Data Are Inadequate, Limiting the Value of Efficiency Comparisons

Ideally, expenditure data would be needed to estimate actual costs. However, expenditure data are largely unavailable for PEPFAR, so we had to rely on budgeted allocations, which can differ significantly from and potentially underestimate actual costs. Cumulative expenditure data are available for GFATM through 2008 but are broken down only by disease or service area, precluding an effective analysis of any efficiency improvements over time. With further data collection in the enhanced financial reporting system, trend analysis will likely be possible in the future.

Therefore, although we attempt to classify costs in as similar a way as possible for both funders while making a minimum number of assumptions, it is difficult to determine the reliability of the estimated costs calculated using available data. Similar data limitations hinder an efficiency evaluation over time.

A Better Understanding Is Needed of Which Activities Are Funded and How Funds Are Distributed Among Direct, Indirect, and Administrative Costs

It would be important to know exactly which activities are being funded because this information is necessary to evaluate the relative efficiency of service provision and to identify the optimal mix of activities found. Similarly, it is important to know the vertical flow of funds and their distribution into direct, indirect, and administrative costs because such information is needed to improve efficiency and, ultimately, to hold implementing partners responsible for increasing cost efficiency.

CHAPTER THREE

Understanding Outputs and Outcomes: What Does the Money Buy?

In Chapter Two, we argued that it is not straightforward to track funds for PEPFAR and GFATM from headquarters level down to service provision, or across service areas (in particular for GFATM). In this chapter, we discuss appropriate output and outcome measures that can be used to determine what progress has been achieved with the funds spent to date. In order to improve value for money, input and output measures need to be linked so that efficiency can be evaluated at all levels in the funding hierarchy. *Outputs*, as defined in this report, refers to services provided (such as the number of clients seen in a certain clinic), whereas *outcomes*, refers to the effects brought about by these outputs, such as health outcomes (e.g., CD4 suppression, HIV infections prevented).

Measuring Outcomes

There are several challenges involved in defining relevant health outcomes against which costs can be benchmarked. A multitude of outcome measures have been suggested in the literature and used by funders. For example, UNAIDS, 1998, distinguishes between different outcome measures—disability-adjusted life years (DALYs), infections averted, opportunistic infections treated and cured, the number of people receiving free condoms, the number receiving educational materials, the number of HIV cases detected through screening and counseling—and discusses the strengths and weaknesses of each. In the context of HIV outpatient quality of care, Griffin, 2010, uses such measures as the percentage of ART patients with a CD4 count below 200, the percentage of ART clients with an undetectable viral load, and the percentage of HIV patients who died in the past year.

Some options have been proposed to measure HIV services. Many funders emphasize input measures, such as the percentage of funds disbursed ("input bias" as a result of flawed organizational incentives will be discussed in more detail in Chapter Four). Other measures focus on what these funds were used to purchase—e.g., clinics, staff salaries, drugs. Although these outputs are useful indicators of *process* measures, they provide little insight into the impact that these funds can have on health *outcomes*.

Changes in health outcomes due to an intervention are inherently difficult to measure and attribute due to uncertainty and the considerable lag between inputs and outcomes; thus, HIV funders routinely use process or output measures, such as the number of clients served, as proxies for outcome measures, without explicitly looking at health outcomes. In the prevention arena, measures of this sort include the number of people tested and the number of people reached by prevention messages.

One of the currently most widely used output measures of treatment in this category is the number of people receiving ART. However, even though this measure is informative about the reach of a program, there is currently no agreed-upon definition that takes quality of services into account. Hence, although this measure might be commonly used and collected, there is uncertainty about whether individuals are receiving comparable levels of treatment, which could ultimately affect health outcomes.

Other measures of health outcomes, such as the fraction of ART clients maintaining a certain level of adherence or who have sustained a certain level of CD4 count, attempt to capture quality. A key advantage of these indicators is that they measure the sustainability of certain interventions. For example, people who do not adhere to their treatment regimens represent costly future investments in second-line treatments that might have to be borne by the funder. For prevention services, similar indicators would, for example, count not just the number tested but also the number tested who came back for the results. Although these measures are more meaningful and informative, they are also more costly to collect.

Another way of looking at outcome measures is to relate them to the care delivery value chain (CDVC), as discussed in Rhatigan et al., 2009. The authors posit that the CDVC for HIV/AIDS treatment consists of seven activities: prevention, testing and screening, staging, delaying progression, initiating ART, continuous disease management, and management of clinical deterioration. The efficiency of HIV/AIDS funding could be evaluated at each of these seven steps, and measures could be developed as benchmarks for each. However, defining *case management* and measuring it are also fraught with difficulty. Ideally, funders would report outcome and cost measures at each of the steps in the CDVC. However, they do not do so, and it is a challenge to judge the efficiency of the delivery of even one of these outcomes, given the limited data content currently publicly available.

For our analysis, we use the measure most commonly reported by the main funders—the number of people on ART in a given year—to compare cost efficiencies. Even though this might not be the most informative or most easily comparable measure, it is readily accessible from publicly available data and is the most consistently reported measure of treatment, so it represents a convenient, yet informative, first step for efficiency comparisons. However, as we discuss later in more detail, even this relatively tangible measure is hard to evaluate based on currently available data.

Relationship of Organizational Mission, Objectives, and Principles to Funding Allocation

Ideally, a mission statement would indicate the overriding objective of a funding organization. For example, a funder whose mission focuses on alleviating the suffering of people currently carrying the HIV virus should maximize its spending on ART treatment and care. Although mission statements might be too general to provide a clear sense of funding priorities, the directives of an organization should lay out clear objectives and principles for conducting operations. Particularly for PEPFAR, which requires periodic congressional approval, an actionable objective statement would include the objective, the time frame in which the objective is to be achieved, and any other parameters (such as discount factors for future outcomes and costs) that figure into such an optimization exercise.

In this section, we discuss the missions, objectives, and principles of the two funders and discuss how their actual funding allocation compares.

Objectives and Performance Indicators for PEPFAR

PEPFAR's Mission and Objectives Show an Increasing Focus on Indirect Services. PEPFAR does not have a mission statement per se; however, we can characterize its purpose based on other publicly available sources. On its website, PEPFAR is described as an investment vehicle for saving lives:

> PEPFAR is the U.S. Government initiative to help save the lives of those suffering from HIV/AIDS around the world. . . . PEPFAR is driven by a shared responsibility among donor and partner nations and others to make smart investments to save lives. (PEPFAR, undated [a])

Meanwhile, the congressional acts establishing PEPFAR in 2003 (Pub. L. 108-25) and reauthorizing it in 2008 (Pub. L. 110-293) provide a broader sense of the objectives underpinning the program:

> The purpose of this Act is to strengthen and enhance United States leadership and the effectiveness of the United States response to the HIV/AIDS [pandemic] as part of the overall United States health and development agenda. . . . (Pub. L. 110-293, § 4)

As part of this objective, the 2008 bill sets targets for PEPFAR to achieve during the five years of its reauthorization. For example, PEPFAR must annually increase the numbers of people treated proportional to increases in funding, decreases in drug costs, and other strategic factors, in each of the five years. In order to refine and articulate the strategy to reach these targets, Congress further mandated the creation of a five-year strategy document. The five-year strategy (PEPFAR, 2009c) articulates PEPFAR's commitments under the 2008 reauthorization, as well as under GHI (2009–2014), a six-year, $63 billion initiative to expand U.S. global health efforts.

Accordingly, PEPFAR's five-year strategy includes the following measurable goals (PEPFAR, undated [b]):

- Support the prevention of more than 12 million new HIV infections.
- Ensure that every partner country with a generalized HIV epidemic has both 80-percent coverage of testing for pregnant women at the national level and 85-percent coverage of ARV drug prophylaxis and treatment, as indicated, of women found to be HIV infected.
- Double the number of at-risk babies born HIV free, from a baseline of 240,000 babies of HIV-positive mothers born HIV negative during the first five years of PEPFAR.
- Provide direct support for more than 4 million people on ART.
- Provide direct support for care for more than 12 million people, including 5 million OVCs.
- Support training and retention of more than 140,000 new health care workers to strengthen health systems.

In general, the five-year strategy represents a shift away from the "emergency" focus under which PEPFAR was founded and toward a focus on "sustainability" and "country ownership"

of programs. This reported shift in PEPFAR's focus has material implications for its funding priorities. In the era of emergency response, PEPFAR made funding decisions aimed at quickly establishing and scaling up prevention, treatment, and care programs. In the second phase, capacity-building activities have received increased attention with a specific emphasis on health system strengthening, particularly around building workforce capacity (Henry J. Kaiser Family Foundation, 2008). As seen in Figure 2.2 in Chapter Two, about 20 percent of the PEPFAR budget in FY 2010 was designated for capacity-building activities, which appears to be an increase from previous years. For example, funding for health system strengthening doubled as a percentage of the budget compared with PEPFAR's first phase (author's calculations based on PEPFAR budgets for 2006–2010). However, there is a notable absence of measurable targets for assessing the success of capacity-building efforts at the funder level, especially around health system strengthening (Kendall, 2011). The exception is health workforce training, which appears to be the only capacity-building area with a clear set of benchmarks (Henry J. Kaiser Family Foundation, 2008; Pub. L. 110-293, 2008).

Despite the high-level shift in focus toward capacity building, the law continues to have a strong emphasis on supporting HIV service delivery, including "intensifying efforts to . . . ensure the continued support for, and expanded access to, treatment and care programs" (Pub. L. 110-293, 2008, § 4). This is reflected in the congressional mandate that at least 50 percent of bilateral funding be spent on HIV treatment, care, and support (§ 403[c]). Although no mandate for prevention spending exists, it takes up about one-quarter of the PEPFAR budget in 2010. Finally, as part of this second phase, PEPFAR has also increased the countries targeted from an initial 15 focus countries to 31 countries and three regions (Central America, the Caribbean, and Central Asia) currently receiving major support based on COPs in FY 2010 (PEPFAR, undated [c]).

PEPFAR's Outcome Measures Do Not Cover All Relevant Areas. *PEPFAR Next Generation Indicators Reference Guide* (PEPFAR, 2009a) provides a framework for all the indicators that PEPFAR collects, including technical details for calculating all indicators (see the appendix to this report for more details). These include indicators for treatment, care and support, and prevention, as well as expanded attention toward health system strengthening. However, there are no published indicators for tracking the outcomes of such activities as technical assistance and support to countries or to PEPFAR field teams. Rather, the actual program or activity that the technical assistance sought to implement or improve is considered the reportable output or outcome. However, we argue that, if funds are allocated toward technical support, then the outcomes of these activities should be monitored and tracked. Text Box 3.1 outlines the major gaps in information on outcomes and outputs for PEPFAR.

Global Fund Objectives and Performance Indicators

Objectives for GFATM Emphasize a Balanced Approach to Financing. GFATM's stated objective in its framework document is primarily focused on its capacity as a financing instrument rather than as a service provider (GFATM, 2001, § 2):

> The purpose of the Fund is to attract, manage and disburse additional resources through a new public-private partnership that will make a sustainable and significant contribution to the reduction of infections, illness and death, thereby mitigating the impact caused by HIV/AIDS, tuberculosis and malaria in countries in need, and contributing to poverty reduction as part of the Millennium Development Goals [MDGs].

Text Box 3.1
Outcome Information Gaps for PEPFAR

The following are information gaps regarding PEPFAR outcomes:

- *PEPFAR collects a large amount of data but does not release it publicly.* In *PEPFAR Next Generation Indicators Reference Guide* (PEPFAR, 2009a), a large number of indicators appear to be collected on PEPFAR programs around the world. However, there are few indicators published by PEPFAR that allow evaluation of its progress along multiple dimensions.
- *There is overlap between PEPFAR and GFATM in counting people in outcome measures. PEPFAR Next Generation Indicators Reference Guide* devotes a brief appendix to the issue of double-counting and how services delivered can be attributed to PEPFAR. A two-part assessment checklist is used to determine whether a site is receiving U.S. government direct service delivery support (e.g., "Compared to other donors/partners, the dollar value that we invest at the service delivery site[s] is substantial"). If at least one item is checked, then U.S. government "direct support is assumed to be direct and likely providing sufficient impact to justify claiming 100% of the site-specific results for the program-level indicator under consideration." If either "no" or "don't know" is checked for all items in one or both parts of the checklist, then it might be necessary to calculate the percentage of outputs that can be attributed to PEPFAR and then document the estimation procedures so this can be audited. Unfortunately, data on the distribution of outcomes attributed to PEPFAR are not publicly available.

The document further lays out several guiding principles that govern all GFATM decisions and activities. These include the following:

- Operate as a financial instrument, not an implementing entity.
- Make available and leverage additional financial resources.
- Support programs that evolve from national plans and priorities.
- Operate in a balanced manner in terms of different regions, diseases, and interventions.
- Pursue an integrated and balanced approach to prevention and treatment.
- Evaluate proposals through independent review processes.
- Operate with transparency and accountability.

These principles notably emphasize a balanced approach to disbursing funds across regions, diseases, and service areas, and the scopes laid out indicate that the fund will "balance its resources by giving due priority to areas with the greatest burden of disease, while strengthening efforts in areas with growing epidemics" (p. 3). The funding across HIV service areas depicted in Figure 2.4 in Chapter Two does show nearly equal HIV-related expenditures on treatment and prevention, with smaller amounts going toward care and support, supportive environments, and health system strengthening.

Global Fund Performance Indicators Are Defined by Countries and Partners. GFATM's grant disbursement cycle is based on its performance-based system, which collects indicators for building capacity (i.e., inputs and processes), outputs (i.e., people reached), and impacts

and outcomes toward the MDGs. GFATM does not impose its own indicators but rather uses indicators and targets defined by the countries and partners themselves. Incremental results reported are then matched against the milestones agreed to in the approved budget to assess performance.

However, there is concern regarding the accuracy of the measures that GFATM currently reports. For example, to monitor the performance of supported ART programs, GFATM monitors the number of people on ART. However, national ART results in supported countries may be reported in lieu of aggregated numbers from program-specific results, overestimating the actual number of people being treated (see the technical appendix for more details). Moreover, comparing performance across grant recipients is more difficult without standardized indicator definitions. Text Box 3.2 outlines the major gaps in information on outcomes and outputs for the Global Fund.

Chapter Conclusion

Current Outcome and Output Measures Might Be Inaccurate and Are Incomplete

We find two main issues regarding the measurement of outcomes. First, there is a substantial chance that clients receiving services that are funded to at least some extent by more than one funder are being counted as being treated by both funders, inflating the denominator and rendering it difficult to calculate costs per person effectively treated. Second, indicators are clearest for direct services provided but also need to be extended to services above that level, such as health system strengthening, which constitute an investment whose return needs to be measured.

Text Box 3.2
Outcome Information Gaps for the Global Fund

The following are gaps in information about GFATM outcomes:

- *It is unclear how GFATM reconciles numbers across funders.* Although regular meetings are held to reconcile treatment numbers across different international funders to avoid double-counting, it is unclear how GFATM ultimately handles cases in which there is clearly overlap with other funders. For example, even though GFATM recognizes that there are 1.3 million people on ART who are supported by both GFATM and PEPFAR (GFATM, 2009e), this document still claims that 2.5 million people are treated by GFATM, including this apparent double-counting.
- *GFATM reports national figures in which presence is "significant."* Thresholds for adopting national ART results in place of aggregated program-specific results are low when comparing funding portfolios across different developing countries. In many cases, although GFATM might deem its own financing of country programs to be "significant," it might still constitute a minority of funds within a country. Further, such wholesale adoption of national outcomes limits GFATM's ability to assess the efficiency of its financing mechanisms.

One Major Limitation of Outcome Measures Currently Reported Is the Large Potential for Double-Counting of Services Provided in Programs Supported by Multiple Funders

Even within a single country, such as Uganda, there is the potential for considerable double-counting between PEPFAR and GFATM. For example, in 2009, UNAIDS reported a total of 200,400 individuals on ART in Uganda (UNAIDS, undated [c]), but PEPFAR claims to directly support 175,400 individuals (PEPFAR, 2010a), while the number reported to GFATM by its grantee was 72,315 (GFATM, undated [b], p. 8). The combined PEPFAR and GFATM numbers treated—247,715—significantly exceed the 200,400 total for the country.[1] In order to harmonize country-level data and estimate the overlap in results, PEPFAR representatives meet twice per year with GFATM and other international partners (e.g., WHO HIV/AIDS programs, UNAIDS) to look at the consistency of each funder's results in light of the overall national numbers of people treated and the collaboration between funders that is taking place in each country. During this process, they go country by country through the results and assess the level of overlap using a standard methodology across countries. At the end of the process, these overlap results are aggregated and reported in the annual report to Congress.

Outcome Indicators for Such Activities as Health System Strengthening, Strategic Information, and Technical Assistance Are Still Underdeveloped

Of these, visible effort is being made to increase measurable and reportable indicators in health system strengthening. For PEPFAR, HRH has received particular attention. Although measuring these indicators is difficult to do, given that these services are less tangible than direct services rendered to patients, they need to be measured over time in order to calculate the returns on these investments and their evolution over time.

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[1] Even if we take into account the number of individuals on ART who are indirectly supported by PEPFAR—23,800—this number cannot account for all of the discrepancy.

CHAPTER FOUR

Is the Current System Set Up to Improve Value for Money?

To understand some of the main mechanisms through which inefficiencies can arise in the current donor-based HIV funding system, we continue our case studies of PEPFAR and GFATM and take a closer examination of each organization's institutional structures. We draw on insights from contract theory and institutional economics to highlight particular organizational challenges involved in delivering HIV services to resource-poor countries and formalize criteria for judging organizational features for minimizing efficiency losses. Overall, we find that incentives need to be incorporated into the institutional design of HIV funding streams to encourage more-efficient service delivery at all points in the funding chain and that these incentives need to be enforced using a transparent monitoring and evaluation system that focuses on the cost of delivery for a service package of a given quality. Currently, neither of the existing systems is set up to address these issues, which makes it difficult to assess efficiency, much less enforce and ultimately improve it.

Insights from Contract Theory and Institutional Economics

Institutions can be defined as the entities embodying formal and informal rules governing behavior and constituting incentive structures. They typically consist of hierarchies, which are defined as the points at which a principal gives instructions to an agent to perform a task. In the delivery of HIV services, there are different stakeholders throughout the funding chain; for example, in the case of PEPFAR, these start from the taxpayer and donor governments that generate revenue and go down to implementing agencies that oversee actual service provision.

At each point of interaction, tasks are typically delegated, and contracts are set up to regulate an exchange of money for services delivered. Such delegation can result in two inefficiencies: The agent could misrepresent itself (e.g., by claiming skills it does not possess), which is called *adverse selection*, or the agent could perform actions that are in its own self-interest rather than in the principal's interests, which is termed *moral hazard*. For example, an implementing agency, such as a within-country NGO, might have specific knowledge about the cost of reaching target populations but will opt to withhold such information in order to receive a higher price for services offered.

Within a contract, it is nearly impossible (or impractical) to spell out all contingencies, which, for HIV services, might include future epidemiological developments. In such situations, the challenge is to establish incentive structures that motivate the agent or implementer to reveal information to the principal in order to align the interests of both parties in a manner that accomplishes the principal's objectives. Although asymmetric information (i.e., one side

in a contract has more information than the other) can be found in all types of institutions, some characteristics of foreign aid funding in general, and HIV funding in particular, make it especially prone to engender inefficiencies.

Challenges Specific to HIV/AIDS Service Delivery

International HIV funders, such as PEPFAR or GFATM, face difficulties similar to those faced by other foreign aid institutions, as well as additional difficulties that make it challenging to efficiently deliver ART and other services to populations in need:[1]

- *Multiple objectives:* HIV funders have several (sometimes competing) objectives, such as saving lives or preventing new HIV infections. The existence of multiple objectives can make it difficult to formulate a coherent strategy for allocating funds among service areas. In such cases, the implementer might be uncertain as to which outcomes should take priority, which also makes it is difficult to evaluate the implementer's performance, particularly regarding allocative efficiency, i.e., whether the funder has chosen the right mix of activities to achieve its objectives. In contrast, in the private sector, profit maximization is the single, overriding objective, which is easier to evaluate.
- *Multiple principals:* Although private enterprises frequently have multiple principals (shareholders) who share the same objective—profit—public administrations can have multiple principals (e.g., politicians, taxpayers), each of whom might have his or her own objective in addition to those common to all parties. The need to answer to multiple parties with political clout can give rise to multiple and potentially conflicting priorities, leaving a public organization with the task of balancing efforts across myriad expectations. For example, many public organizations (e.g., the U.S. Postal Service) must satisfy public demand for services with budget demands dictated by Congress, as well as the organization's own objectives for protecting the job security of its workers and the existence of the organization itself.
- *Multiple hierarchies*: Each level of hierarchy in an institution represents another principal/agent interaction that has the potential for inefficiency. As shown previously for both PEFPAR and GFATM and discussed further later, donor funding for HIV-related services must go through many levels of hierarchy, creating the potential to waste resources in setting up contracts and monitoring the performance of implementing agents.
- *Inadequate performance measures:* Although private companies can measure the opportunity cost of alternative options through profits, public administrations do not have as clearly defined or measurable a trade-off. In particular, when there are two or more potentially competing objectives whose outputs or outcomes are hard to measure, this can result in weak performance incentives within aid agencies. For example, input bias can occur because activities, such as the disbursement of funds or hiring of staff, are used as proxies for performance measures. Inputs are easier to monitor than are less tangible outputs, such as the quality (and even the amount) of services delivered, or outcomes achieved in a system in which outcomes are neither systematically measured nor benchmarked.

[1] This discussion is, in part, adapted from Martens et al., 2002, who discuss foreign aid delivery from the point of view of institutional economics.

- *Broken information feedback loop:* In contrast to many domestic public health programs, in which the taxpayers are typically both the payers for and the recipients of health interventions, the beneficiaries of HIV-related donor funds are not part of the population that generated the funds. Sponsors or funders (the U.S. taxpayer, in the case of PEPFAR; taxpayers across multiple countries, in the case of GFATM) live in different countries and answer to different political constituencies. Sponsors that do not receive the services delivered might have difficulty evaluating the program's performance and must rely on various indirect indicators of performance reported by the funder.

Evaluating Institutional Efficiency

Due to the institutional challenges associated with providing HIV services in resource-poor countries, there can be multiple points along the transaction chain—from funder to point of service—at which efficiency is lost. However, organizations can improve efficiency by shaping the institutional operating framework so that the number of transaction points is minimized; performance toward the principals' objectives is incentivized, defined, and measured; and greater transparency is achieved for all stakeholders. Continuing our case studies of PEPFAR and GFATM, we assess how well the institutional features of these organizations are set up to minimize potential inefficiencies.

Evaluation Criteria

We evaluate each funder's organizational strengths and weaknesses based on the following criteria derived from the discussion of challenges:

1. levels in the hierarchy (i.e., number of links in the chain of principal/agent relationships)
2. number of principals
3. existence of at least one explicitly stated performance objective at each relationship or hierarchical level
4. use of performance criteria when selecting agents
5. established monitoring system in place
6. performance-based funding for agents
7. enforcement of consequences for not following through with objectives.

Institutional Analysis of PEPFAR

1. Levels of hierarchy: PEPFAR has multiple levels of hierarchy in both its funding structure and coordination role, leaving many points at which asymmetric information can hamper efficiency in contracting for services.

The Office of the U.S. Global AIDS Coordinator (OGAC) is responsible for central coordination of PEPFAR and must align the interests of officials from multiple U.S. government agencies (i.e., USAID, CDC, the U.S. Department of State) working at in-country field offices as part of PEPFAR's country team. These field offices are then responsible for planning and implementing PEPFAR programs, identifying prime partners, and interacting with country

government officials.[2] To improve coordination, OGAC recently created the Deputy Principals group, which is composed of high-level representatives from implementing agencies.

Funds, however, are appropriated from Congress and transferred to the various PEPFAR implementing agencies within the U.S. government, including the State Department, the U.S. Department of Health and Human Services (HHS), USAID, the U.S. Department of Defense, the U.S. Department of Labor, and the Peace Corps. Other implementing agencies receive their funds from these departments (e.g., CDC and the National Institutes of Health [NIH] receive funding via HHS). The latter agencies develop funding agreements with prime partners in countries that, in turn, develop agreements with subpartners to fulfill work commitments. The country teams are the gatekeepers of (most) country-level PEPFAR funds because they coordinate the preparation of country budgets and determine the mix of projects proposed for funding; however, ultimately, it is OGAC that controls PEPFAR funding (including country funds) because all work plans and budgets must be approved centrally (IOM, 2007; IOM and National Research Council, 2010). Figure 4.1 depicts the levels of hierarchy present in PEPFAR's funding structure.

These multiple levels of hierarchy have implications for efficiency because every level will incur some CODB, increasing overall costs. For example, operating costs will be incurred for central coordination, implementing agencies, field teams, U.S. embassies, and other parties all the way down to partners and subpartners. In addition, the numerous levels of hierarchy in PEPFAR increase the possibility that objectives across the levels will compete, get diluted, or be reinterpreted as they move up and down the chain.

2. Number of principals: PEPFAR implementing agencies are directly accountable to Congress, but their operations are also open to the review of U.S. taxpayers and voters.

Created by an act of Congress and directly supported with U.S. government funds, PEPFAR and its implementing agencies are directly accountable to Congress for their performance in combating HIV. The law authorizing PEPFAR requires priority areas to be funded at specified levels in order to fulfill its mandate. Less directly, though just as important, PEPFAR must demonstrate to Congress that it is fulfilling its mission and using government money wisely in order to receive funding in future reauthorization cycles. Ultimately, it is the taxpayer to whom PEPFAR must answer, and funding for foreign aid has come under considerable scrutiny within the current budget crises.

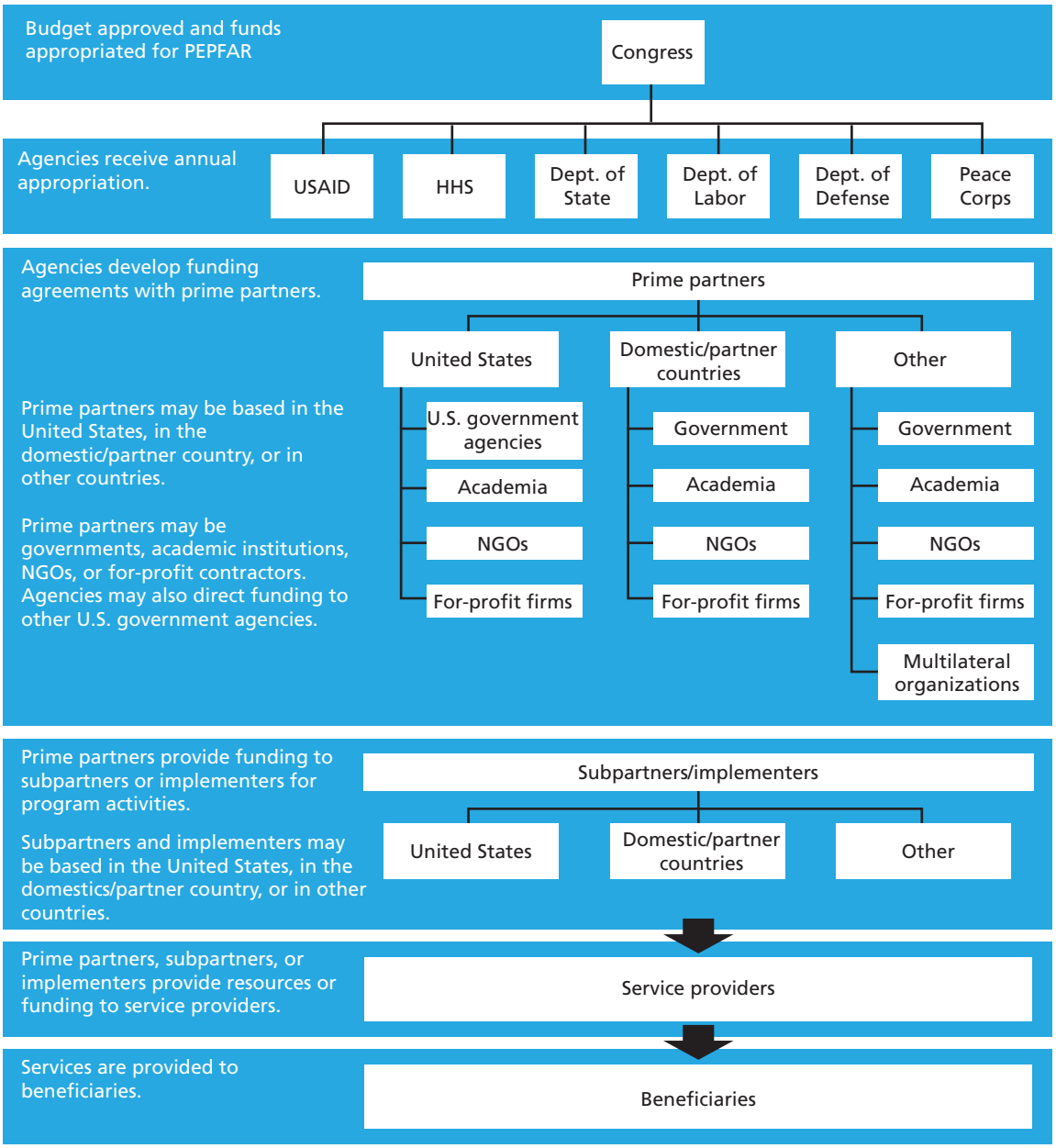
3. Existence of at least one explicitly stated performance objective at each relationship or hierarchical level: PEPFAR objectives, which are laid out by Congress, are both process- and result-based.

At the highest level, a clear performance objective has been built into PEPFAR in the form of congressional targets. PEPFAR is obligated by law to devote predetermined proportions of its resources to priority interventions. For example, in the 2003 legislation, 55 percent of funding was legally required to go toward treatment. In the 2008 reauthorization act, this restriction was loosened so that at least 50 percent of the total budget goes toward treatment and care. However, this objective is a process measure rather than an outcome measure.

Broad outcome- and output-based targets are presented in the bill, referring to the five-year period over which PEPFAR is authorized. For example, the 2008 reauthorization act sets an outcome-based goal of averting 12 million new infections over the next five years, and progress toward this goal is reported each year in PEPFAR's annual report to Congress. Meanwhile,

[2] The country team also coordinates the creation of each country's operational plan, which is now required only every two years, with a lighter version every year. In previous years, the country operational plan was annual.

Figure 4.1
Funding Flows for PEPFAR



SOURCE: IOM and National Research Council, 2010, p. 62.

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the treatment target is output-based and directs PEPFAR to annually increase the numbers of people treated each year proportional to changes in funding, drug costs, and need.

In addition, PEPFAR's five-year strategy document refines congressional targets and the strategy to reach them. For example, it specifies a goal to directly support treatment for at least 4 million people over the five years of the current authorization (PEPFAR, 2009c, p. 8), with a focus on the sickest people, pregnant women, and those with TB/HIV co-infection.

At the country level, performance objectives are set out in the partnership frameworks between PEPFAR and host-country governments as part of the strategic plan for tackling HIV in partnership with PEFAR. These frameworks describe the indicators the country will use to assess its progress, and targets based on these indicators are determined by the country in consultation with the PEPFAR country team, other international organizations, and country experts (PEPFAR, 2009c). Indicators and targets are PEPFAR-specific, tend to be process or output indicators (e.g., number of people served), and include any special objectives that are unique to PEPFAR (e.g., to meet organizational reporting requirements). However, these frameworks are nonbinding and are meant to guide strategy rather than be used as a legal accountability tool.

The COPs use the objectives laid out in the partnership framework to set targets for each fiscal year, including overall country-level PEPFAR-specific indicators and specific targets for each program activity. However, it is not always possible to link stated performance objectives to specific partner organizations using publicly available documents. When a program activity includes only one partner, one can assume that the stated targets will be attributable to that organization. However, when there is more than one partner or work is carried out by subpartners, it is not possible to attribute responsibility for targets across partner organizations.

4. Use of performance criteria when selecting agents: There are no central, unified criteria for selecting partners.

PEPFAR partners are selected by the implementing U.S. government agencies, most often via a competitive bidding process, which is based on strategic assessment of program needs. According to a U.S. Government Accountability Office (GAO) evaluation of PEPFAR's partner selection process,

> CDC and USAID generally engaged in competitive selection processes, such as issuing solicitations and convening review panels, to select candidate organization proposals with the best approach for meeting program needs. In addition, CDC and USAID evaluated candidate organizations' technical, management, and financial capacities to ensure that candidates had the systems and resources needed to meet program needs. (GAO, 2009, p. 2)

Anecdotal descriptions of PEPFAR indicate that criteria for selecting partners were initially based on the existence of a relationship between the partner organization and one of the U.S. agencies receiving PEPFAR funds, experience in HIV services, and an existing presence in PEPFAR focus countries. According to these descriptions, these criteria were used informally as a way to get PEPFAR projects off the ground as quickly as possible and were not particularly geared toward performance measures per se (Oomman, Bernstein, and Rosenzweig, 2007, p. 22). As PEPFAR has expanded and exhausted the pool of potential partners fitting these criteria, it has had to look for other partners. The criteria used to select new partners appear to be at the discretion of the implementing agencies and transmitted through their requests for proposals; in other words, there are no central "PEPFAR criteria" for selecting partners.

5. A monitoring system is in place: Although PEPFAR has a system to track the progress of individual programs, the disaggregated results are not available to the public.

PEPFAR's monitoring and evaluation (M&E) system is based on semiannual reports from country teams on progress of all implementing partners in all program areas. These reports are submitted once in May to cover the first six months of the fiscal year, and once in November

to cover the entire fiscal year. M&E is based on PEPFAR's indicator guidelines, most recently published in 2009 (PEPFAR, 2009a). These guidelines reflect efforts to harmonize PEPFAR indicators with globally accepted HIV indicators, in order to improve comparability across funders and to reduce the burden of multiple streams of data collection by countries. In addition, PEPFAR works with host countries to develop and improve their own internal M&E systems for health and HIV, both to build capacity in host countries and to improve the success of PEPFAR's own M&E activities.

For high-level evaluation of PEPFAR, both the original act creating PEPFAR and the reauthorization in 2008 include a mandate for the IOM to carry out an official and in-depth evaluation of PEPFAR's performance and progress and to make recommendations to improve the U.S. government's response to HIV/AIDS globally. The first of these reports was published in 2007 (IOM, 2007) and provided an external assessment of PEPFAR that guided Congress in making changes to PEPFAR as part of the 2008 reauthorization. Some of its main findings were that there should be increased support for national M&E frameworks; it influenced reauthorization by suggesting an increased focus on prevention and country capacity strengthening (IOM, 2007). The next evaluation is due to be published in 2012 (IOM and National Research Council, 2010).

6. Funding for agents based on clearly defined performance measures: Although PEPFAR sets performance measures with implementing partner organizations, it is not clear whether or how funding decisions are based on these measures.

The COPs describe the work plan and objectives of the sponsoring agencies (e.g., USAID, CDC) and the implementing partner organizations, including targets for performance (as described in Chapter Three), which are tied to a specified budget for each program activity. However, the COPs are a prospective mechanism, and it is not clear how future funding is tied to these performance measures. Although funding allocations happen annually, partnership agreements are multiyear, with annual funds often not spent within the fiscal year. This approach might dilute partners' incentives to reach annual targets. On the other hand, U.S. government agencies receive appropriated funds from Congress annually and have targets for performance described in the COP and aggregated up in the PEPFAR budget (i.e., the PEPFAR operational plan). Although it is not clear that agencies' annual funding is tied clearly to reaching these targets, they might have more incentive than partners to do so. Finally, congressional targets set for PEPFAR's relative investments in treatment, care, and prevention are also only prospectively tied to funding via the PEPFAR operational plan and not evaluated ex post, nor are future funding decisions based on realized spending patterns.

7. Enforcement of consequences for not following through with objectives: There is no publicly available information indicating that there are consequences to not following through on stated objectives.

On a country level, there is no formal, publicly available report that shows stated versus actual indicators, nor is there publicly available information on how or whether PEPFAR decided to renew certain partnership agreements in response to organizations failing to reach targets. On a higher level, although PEPFAR as a whole reports to Congress its progress in meeting congressional targets for, e.g., treatment and prevention, it does not appear that falling short of the target (as has occurred in the past) has resulted in any formal consequences in terms of funding appropriations to PEPFAR or the distribution of appropriations across U.S. agencies.

Institutional Analysis of the Global Fund

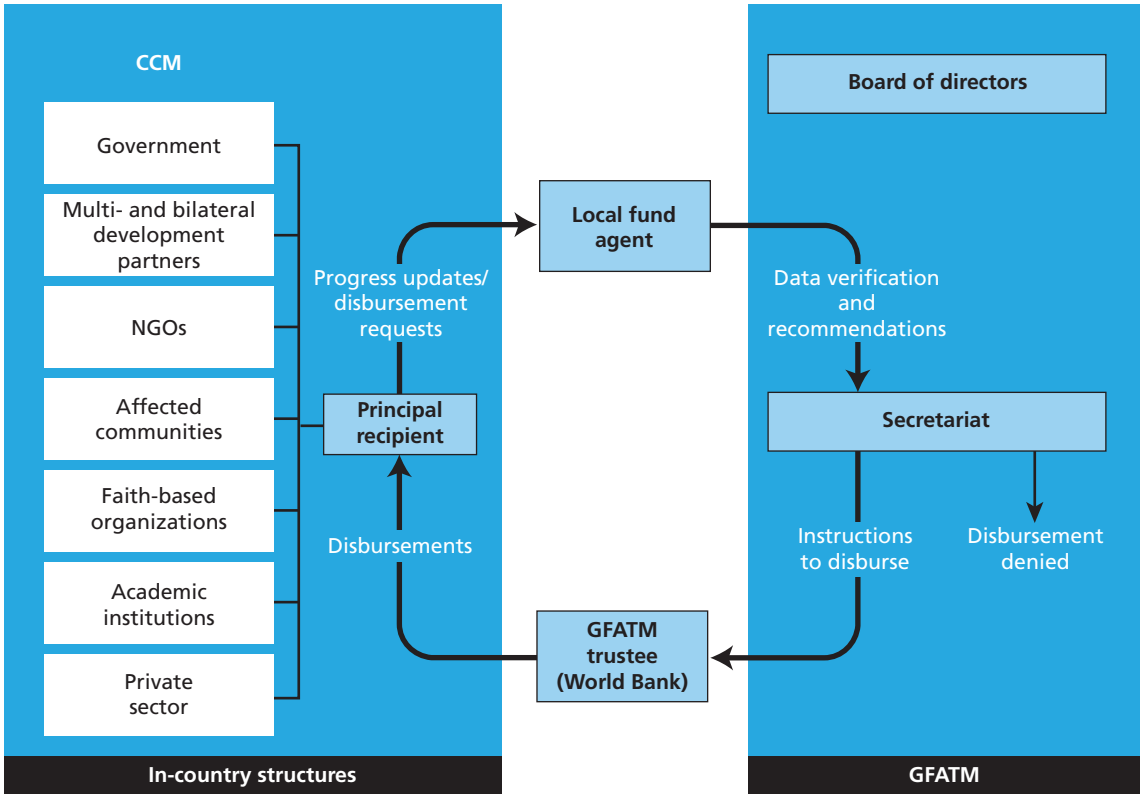
1. Levels of hierarchy: Because there are relatively few mediators between headquarters and primary recipients, the possibility of additional inefficiencies is reduced.

In contrast to PEPFAR, GFATM has a secretariat that works directly with all primary recipients of funds and has primary control over disbursing grant monies (see Figures 4.1 and 4.2). In addition to managing the grant portfolio and screening proposals, the secretariat also issues instructions to disburse money to grant recipients and implements performance-based funding of grants. The secretariat does not have any staff located outside its headquarters. Hence, instead of relying on internal staff to coordinate service delivery within country, GFATM places this responsibility on the CCM—a collaborative partnership among all relevant parties engaged in planning, decisionmaking, and implementation. Although the CCM does not handle GFATM financing itself, allowing funds to flow directly from GFATM to PRs, PRs can subcontract tasks to other organizations, increasing the number of transactions with each layer.

2. Number of principals: GFATM is directly accountable to its board, but its operations and policies are also influenced by the actions and opinions of donor governments.

Operationally, the GFATM Secretariat answers to the board of directors, which is composed of representatives from donor and recipient governments, civil society, the private sector, private foundations, and communities living with and affected by the targeted diseases. The

Figure 4.2
Global Fund Grant-Making Process



SOURCE: Oomman, Rosenzweig, and Bernstein, 2010.

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board is responsible for the organization's governance, including establishing strategies and policies, making funding decisions, setting budgets, and mobilizing resources. Once donations are made to GFATM, all disbursement decisions are made independently by the GFATM board. Donor countries have, in the past, disagreed with GFATM grants that funded controversial services or practices (e.g., condom promotion) and have elected to support favored approaches (e.g., abstinence only) through direct bilateral funding with recipient countries or organizations (e.g., PEPFAR) rather than making greater contributions to GFATM. Although donations to GFATM are made unconditionally, misappropriation or abuse of funds does not escape public scrutiny. All donations are voluntary, and, because funding pledges by donor countries do not directly translate to a transfer of monies to GFATM coffers, backlash from donor countries can significantly influence GFATM financing and operations. For example, recent suspicions of GFATM grant mismanagement have led several countries to withhold donations already promised, sparking an internal audit of all grants disbursed (Heilprin, 2011). Hence, GFATM is accountable not only to its board of directors but also to its portfolio of donors and beneficiaries.

3. Existence of an explicitly stated performance objective at each relationship and hierarchical level: Mutually agreed-upon performance measures are result-based but apply only to PRs.

GFATM's stated objective focuses primarily on its capacity as a financing instrument rather than as a service provider. Although GFATM is focused on tackling three diseases, there is not a mandate to allocate funds either across diseases or across service areas within disease (e.g., HIV prevention rather than treatment). Grant applications from countries and regions with the greatest need (i.e., the highest burden of disease and the least ability to self-finance) are given highest priority.

At the time the funds are awarded, performance targets (e.g., number of people on ART) are set by the PR and ratified by an independent technical review panel comprised of experts.[3] These targets measure outputs (e.g., numbers treated, staff trained) rather than spending goals, although expenditures are separately tracked in GFATM's enhanced financial reporting scheme. In addition, milestones for reaching goals are planned from the outset so that progress can be measured over time. Because performance measures are mutually agreed upon, there is less of an incentive for agents to misrepresent themselves. However, the process of negotiation does provide an opportunity for moral hazard if recipients intentionally negotiate for lower performance targets rather than striving to improve efficiency in service delivery. This possibility might be mitigated by recent changes in GFATM policy. Due to lower-than-expected donor funding, GFATM recently tasked LFAs to scrutinize grant renewals to identify areas in which "budget cost-efficiencies" can be gained in order to reduce approved grant amounts by a targeted 10 percent (GFATM, 2011b).[4] For all subcontractors below the PR, GFATM does not set out explicit performance objectives, expecting PRs to put their own criteria in place (GFATM, 2009d). Therefore, little is known about how performance objectives are set, if at all, for downstream entities.

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[3] The Technical Review Panel is an independent group of international with expertise in the three diseases and crosscutting issues, such as health systems. It meets regularly to review proposals based on technical criteria and provide funding recommendations to the board.

[4] This essentially reduces requested amounts based on past performance results so that performance targets can be reached with less money.

4. Use of performance criteria when selecting agents: Selection criteria for funding grant proposals are transparent, and due diligence is independently conducted by a third-party evaluator.

Applications to GFATM are scored and weighted across a number of publicly available[5] criteria, which not only prioritize countries with the greatest demonstrated need for grant monies but also consider the political and institutional capacity to carry out the proposed project. By requiring the involvement of a CCM, GFATM places responsibility for coordinating service delivery in the hands of officials from the beneficiary country, allowing country officials rather than its own representatives to guide implementation. Moreover, the CCM does not handle financing itself because funds flow directly to PRs, reducing the likelihood that CCM members stand to gain personally from grant monies. To further reduce the likelihood that any one organization might misrepresent itself, the secretariat contracts with one LFA in a country to certify the financial management and administrative capacity of the CCM-nominated PRs, as well as the soundness of regular requests for the disbursement of funds and resulting reports submitted by PRs.[6] In essence, the LFA is a third-party monitoring entity that makes its assessments independently of both CCM and PRs' interests.

Despite this independent and branched organizational structure, in practice, GFATM has drawn criticism for basing existing partnerships largely on goodwill and shared impact-level objectives rather than negotiated commitments or clearly articulated roles and responsibilities (GFATM, 2009b). The same evaluation found that CCMs in studied countries did not effectively execute their roles in grant oversight, monitoring, and technical assistance mobilization. Other studies have highlighted a lack of due diligence on the part of LFAs for actually carrying out thorough reviews of CCM and PR activities (Plowman, 2008). Therefore, even though the ideal structure might seek to minimize mismanagement, actual oversight might be limited by the capacity of agents involved.

5. A monitoring system is in place: GFATM has systematic tools to collect expenditure and outcome data from PRs.

GFATM monitors its own progress, as well as that of its PRs. PRs are required to report progress toward results regularly, and these reports are independently evaluated by the LFA. Recognizing the need for more-harmonized expenditure data, in 2008, the enhanced financial reporting mechanism was implemented, requiring recipients to categorize expenditures by service area, cost category (e.g., human resources, training), and type of implementing entity (e.g., NGO, government). Although these data facilitate periodic evaluation and enable a broader assessment of how funds are spent, categorical definitions are not universal, and large variation can exist in how expenditures are reported across different PRs.

On the outcome side, GFATM also collects a variety of measures, which largely follow UN guidelines.[7] For monitoring its own progress, GFATM reports its achievements against several targets in its 2011 result report (GFATM, 2011b). Although these charts show much progress of overall progress toward achieving MDGs, it is important to bear in mind that what

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[5] GFATM, 2001, lays out the following criteria: (1) current and projected disease burden for HIV, TB, or malaria; (2) poverty level; (3) political commitment; and (4) existence of a CCM.

[6] Organizations that have served as local fund agents include Crown Agents, Deloitte, Emerging Markets Group, Finconsult, Grant Thornton, Hodal, KPMG, MSCI, Pricewaterhouse Coopers, Swiss Tropical and Public Health Institute, United Nations Office for Project Services, and the World Bank (GFATM, 2010b).

[7] See performance reviews posted online on the GFATM website for each of its grants (e.g., GFATM, 2010c), which can be cross-referenced with UNAIDS, 2009a.

is reported are country-level results, not those specific to Global Fund–financed programs, which oftentimes comprise a minority of all financing within a country. Notably, however, GFATM has taken the lead on focusing on improving efficiency for itself. It is unclear whether efficiency targets are set a priori or ex post, but reported 2010 results are consistently meeting nearly all 2010 targets, including keeping secretariat expenditures below 10 percent of total expenditures and reducing portfolio budgeting by 10 percent (GFATM, 2011b).

6. Funding for agents is based on clearly defined performance measures: Performance reviews are systematic, conducted by an independent third party, and used to make funding decisions, and all progress (or lack thereof) is made publicly available.

One of the key features of GFATM is performance-based funding (GFATM, 2009d, p. 2). Initial funding for the programs is provided on the basis of the soundness of the proposals. To receive subsequent financing, programs must demonstrate results against the predefined, mutually agreed-upon performance targets.[8] Grant performance is graded on an A-B-C scale by the LFA and made publicly available. Although the statement of agreed-upon targets is expressly written into contracts, these targets often involve country-level goals coordinated at the level of the CCM. As mentioned before, we have no information on how contracts made by the PR to downstream entities are structured. Thus, we do not know whether the disbursement of funds is conditional on meeting performance standards for entities below the PR. However, when considering applications for new grants, the Technical Review Panel has placed increasing reliance on performance information from past or existing grants to the same PRs (Plowman, 2008).

7. Consequences for not following through with objectives are enforced: GFATM initiates corrective action for underperforming grants.

The LFA verifies progress reports submitted by PRs and recommends disbursements based on demonstrated progress. Lack of progress triggers a request by the secretariat for corrective action. Although the LFA and GFATM have come under fire for lack of oversight, there have been notable instances in which underperformance has been detected and sanctioned. For example, in Nigeria, a grant for HIV was terminated when the performance rating fell to C, the lowest rating possible. The M&E system was subsequently rebuilt, and a new grant was signed and successfully implemented (GFATM, 2009d). As evidence of how well its performance-based funding mechansism works, GFATM reports that, for grants graded C, only 26 percent of the original proposal amount was actually committed during the phase 2 cycle.

Chapter Conclusion

In general, GFATM has fewer levels of hierarchy, resulting in fewer links in the funding chain at which efficiency can be lost. GFATM also makes renewal of funds conditional on past performance. GFATM works directly with grant recipients in contracting, financing, and setting performance targets. In contrast, although a minority of programs in PEPFAR are run directly out of OGAC, the vast majority of programs and funds are channeled through to other U.S.

[8] The grants are initially approved for two years (phase 1) and renewed for up to three additional years (phase 2) based on the performance of the grant-funded programs. Funding is disbursed incrementally every three to six months throughout the grant's lifespan, and each disbursement is based on performance.

government agencies, adding another layer of administrative burden, coordination, and organizational objectives to PEPFAR funding.

Because both PEFPAR and GFATM operate in the public sector, public opinion as to how funds are spent can be an important consideration. Because GFATM is financed by donations from governments around the world, its operations and policies might be influenced by the opinions of these stakeholders, who could decide to withhold future donations. However, GFATM has made a concerted effort to increase the transparency of how its monies are spent and what progress its grants make. PEPFAR, on the other hand, does not provide as much information to the public on its operations.

From publicly available information, it appears that GFATM has also gone further than PEPFAR in trying to establish target measures, together with country partners, against which funding decisions are formally evaluated. Moreover, GFATM has instituted an independent, third-party evaluation system that can mitigate potential abuse of grant monies. As such, corrective action is immediately taken when underperformance is detected. In comparison, because there is no public information on what targets PEPFAR establishes with its partners and how funding decisions are tied to such targets, it is unclear whether PEPFAR is attuned to value for money. This limits not only independent evaluation of PEPFAR spending but also accountability for any misappropriation or waste. The IOM reports discussed earlier represent a step in the right direction but do not go far enough toward making PEPFAR funding decisions transparent.

Neither funder has implemented a system based on explicit performance measures that link financing inputs with program outputs, such as linking the number of people on ART to the money spent to put people on ART. The measures currently in place look *either* at the money being spent (such as when countries are denied follow-on funding by GFATM when there is suspicion of corruption) *or* at the outcome level, such as when PEPFAR mandates that a certain percentage of its funds be used for treatment as opposed to prevention. As long as these two dimensions are not linked, funders have no information on how to allocate monies toward better-value-for-money services. In the next chapter, we indicate how the two sides could be linked in order to evaluate efficiency.

CHAPTER FIVE

How Can Efficiency Be Measured and Improvements Tracked?

In the previous two chapters, we discussed difficulties and associated areas of improvement for measuring inputs (i.e., money flows), outputs (i.e., services delivered), and outcomes. In this chapter, we argue that value for money can be improved only if these two measures are linked to arrive at cost estimates for the different services that can then be used for efficiency analysis by comparing the costs over time and across funders.

We provide an illustrative example of how efficiency can be measured and used to make funding decisions about ART provision. We estimate the total contributions, respectively, of PEPFAR and GFATM toward providing ART treatment to one person for one year in order to compare the funders' efficiency in delivering this service. This example is intended to allow us to highlight where improvements in the existing M&E mechanisms can be made so that funding decisions can move toward increasing value for money. However, due to limited data availability and a lack of consistency in the way data are used by the two organizations, we are unable to make a credible efficiency comparison. Thus, we conclude the chapter by summarizing some of the notable challenges involved in evaluating HIV funding efficiency.

Funding Decisions Incorporating Efficiency Measures Tracked over Time

Efficiency is typically defined as "the extent to which the interventions are produced at least cost" (Bautista-Arredondo, Gadsden, et al., 2008). However, measuring the efficiency of activities related to HIV donors and HIV services entails several fundamental challenges. First, HIV services are funded largely by donor aid, which includes upstream costs associated with the delivery of funds to the implementing agency. Therefore, measuring the efficiency of activities related to HIV donors and HIV services needs to incorporate costs throughout the complete funding pipeline, not just service delivery at the provision level. Nearly all previous cost-efficiency studies focus only on clinic-level costs, ignoring potential inefficiencies at levels above the point of service (see also the literature review in the appendix).[1] Text Box 5.1 describes our approach to assessing efficiency in more detail.

[1] There is increasing agreement among experts that efficiency improvements in the delivery of HIV services are greatly needed. Soni and Gupta, 2009, identify four main areas for optimizing the impact of resources: technology choices, clinical policies, service delivery, and health system strengthening. Bautista-Arredondo, Gadsden, et al., 2008, focus on the roles of program managers, health practitioners, and patients for optimizing treatment programs. These studies focus on efficiency in the delivery of HIV-related services rather than funding efficiency—that is, they ignore other components of HIV/AIDS treatment and care that can arise at different stages throughout the funding pipeline, ultimately ending at the point of service. Another noteworthy approach was described by Bendavid and Bhattacharya, 2009, who set out to evaluate PEPFAR's ultimate impact on HIV/AIDS outcomes. Using empirical data from 12 PEPFAR focus countries in Africa and 29 control

Text Box 5.1
Effectiveness Versus Efficiency: What Are We Measuring?

In this report, we measure the efficiency with which funding for HIV-related services is used to achieve a certain set of outcomes. This is theoretically distinct from effectiveness, the focus of much HIV/AIDS health services research. Efficiency relates to how a certain task gets implemented, whereas effectiveness asks what tasks should be done to achieve an outcome (Marakas, 1999). The effectiveness of health care interventions is typically evaluated using cost-effectiveness analysis (CEA) designed to inform planning choices under constrained resources based on costs of different, substitutable actions (Gold et al., 1996). Its main purpose is to evaluate the relative merit of different interventions in creating a healthier or longer life span (Gold et al., 1996).

In HIV/AIDS, CEA has been used mainly to evaluate the relative merits of HIV prevention versus ARV treatment in reducing the number of HIV infections over time (e.g., Holtgrave, Valdiserri, and West, 1994; Canning, 2006; Moatti et al., 2008). In this report, we do not discuss the relative importance of prevention versus treatment; instead, we present allocation across direct services as one option to consider for HIV funders. In addition, because we additionally assess the entire funding pipeline and include spending on administrative and indirect investments as potential trade-offs, the term *CEA* cannot be applied because these additional spending options are not mutually exclusive. Therefore, we adopt the term *allocative efficiency* to encompass all such spending options. Further, conditional on the portfolio of activities chosen, we apply *technical efficiency* to refer to the relative efficiency with which these interventions are delivered. Our approach is more akin to process evaluation (i.e., the use of empirical data to assess the delivery of programs) as defined by Bliss and Emshoff, 2002. Rather than evaluating the impact of a program, we assess whether the program is implemented as designed.

In addition, donors of funding for HIV-related services provide funding for a variety of indirect services that aim to increase organizational capacity to facilitate the delivery of HIV-related programs. The efficiency of these indirect services should also be monitored. There are two ways in which indirect services can be viewed: (1) as an investment premium on top of direct service expenditures or (2) as the delivery of particular services, such as training. Due to the limitations of publicly available data, which do not allow capacity investments to be linked to cost reductions achieved, our illustrative example takes the former approach (i.e., to proportionally add indirect costs to direct costs). However, we stress that the second approach is likely to be more accurate and informative for funding allocation decisions and that the ideal situation would be to develop separate performance indicators for indirect services.

Finally, there is no agreed-upon minimum cost benchmark to guide funding decisions on how to achieve HIV-related outcomes with the least cost. Although the most efficient allocation mix of activities is unknown, providers can move toward a more efficient allocation in two

countries, the authors compare trends in the number of HIV-related deaths and people living with HIV between 2004 and 2007 and conclude that PEPFAR reduced the number of deaths but not the number of people living with HIV or HIV prevalence. Although the study is noteworthy in its analytic rigor, its focus on evaluating outcomes and the effectiveness of PEPFAR does not speak directly to the efficiency of PEPFAR funding. In other words, measures of outcome successes are not related to the cost of bringing these outcomes about.

ways: (1) by basing future funding decisions on past efficiency data or (2) by comparing their own efficiency performance measures to that of other institutions that fund the same activity.

We believe that comparing a funder's own efficiency measures over time may be more informative and achievable than comparison with other institutions, given each funder's unique objectives and M&E mechanisms. Given that HIV services are often provided with funding from multiple sources and donors, calculating funder-specific efficiency measures represents a challenge if the funding source mix for HIV services is not tracked or reported, as currently is the case. Although funding inputs from multiple sources are widely recognized and even encouraged, the range of potential sources presents an added complication in accounting for the full cost of service provision and attributing efficiencies to a specific funder.

A Sample Efficiency Calculation Highlighting the Limitations of Existing Monitoring and Evaluation

We estimate the total contributions of each funder toward providing ART treatment to one person for one year, including costs for indirect services, such as capacity building, overhead, and administration, and compare the funders' efficiency levels in delivering this service. We focus on the provision of ART because the need is clearly established by the WHO treatment guidelines, its success is relatively easy to measure (keeping one person on ART for one year), and ART provision typically represents one of the objectives of HIV funders. However, we stress that methods of assessing efficiency should be applied to all activities supported by funders of HIV-related services, including capacity building and administration.

We present the results of the calculations in this section. A description of the data and methods used to calculate our cost-efficiency measures is provided in the appendix.

Contributions by PEPFAR to the Cost of Antiretroviral Therapy per Person-Year

For PEPFAR planned contributions to ART services, Table 5.1 shows three ratios calculated per person-year (PPY) for fiscal years 2009 and 2010.

The spending amounts reflect allocations rather than expenditures and are contributions rather than full costs because other sources, such as country governments and GFATM, typically also contribute toward the care provided for clients in PEPFAR clinics. Therefore, the cost estimates in this section represent lower bounds (a likely underestimation); if we added the (currently unknown) additional sources into the total costs, the per-person cost would increase. Further, because PEPFAR does not report overhead and administrative costs for each of its direct service areas, we apportion these costs using the percentage share of treatment in the PEPFAR budget, making the implicit assumption that administrative costs do not differ by service area. We take the same apportionment approach with indirect service costs (i.e., capacity building) because, beginning in 2009, PEPFAR ceased to report such costs for each direct service area. We apportion indirect service costs to the direct cost of treatment in order to take into account the added cost of developing infrastructure and capacity for ART (e.g., supply-chain improvement, health workforce training). More information about PEPFAR data sources is available in the appendix.

The first ratio in Table 5.1 shows the funds budgeted by PEPFAR per person on ART treatment, including only direct costs. The second ratio includes overhead and administration costs apportioned to treatment services and gives an indication of the additional CODBs

Table 5.1
Cost Ratios of Contributions by PEPFAR to Antiretroviral Treatment

Contribution	FY 2009	FY 2010
A) Approved funding for ART ($)	1,453,600,000	1,316,000,000
B) Approved funding for ART + apportioned administration costs ($)	1,580,910,049	1,482,916,205
C) Approved funding for ART + apportioned administration and capacity-building costs ($)	2,059,422,339	1,887,022,179
D) Cumulative number of people reached on ART (direct)	2,485,300	3,209,700
Funding per person on ART (A ÷ D) ($)	585	410
Funding per person on ART including program management costs (B ÷ D) ($)	636	462
Funding per person on ART (direct) including program management and capacity-building costs (C ÷ D) ($)	829	588

SOURCE: Authors' calculations based on PEPFAR operational plans and annual reports to Congress for FY 2009 and FY 2010 (PEPFAR, 2009a, 2010a, 2011a, 2011b).

when applied to a common denominator. The third ratio additionally includes apportioned capacity-building costs. Although we do not claim that these ratios constitute actual costs for providing treatment (the number of people that PEPFAR claims to treat is uncertain, as we have discussed previously) or that clients on treatment actually receive this service mix, these ratios represent a useful means of evaluating how much money, on average, is being spent on what services.

It is clear from Table 5.1 that substantial funds are being spent on services other than direct services and that these expenditures change over time. For example, there is an indication of significant efficiency improvements from one year to the next for direct services between 2009 and 2010 when standardized by the number of people treated. However, although the fraction apportioned to CODBs remains constant as a level at about $50 per person, it increases significantly from about 8 percent to about 11 percent of the unit contribution, including program management cost. Capacity building decreases in absolute terms but remains approximately constant as a fraction of the total unit contribution. Given the data limitations discussed in previous sections, it is not clear whether these cost changes represent real changes in efficiency (e.g., the number of people treated increases substantially over the two years, which could constitute either a real increase or a change in how the number of people treated is being measured, which has a direct and significant effect on the direct unit contribution per person). If reliable data were available, such calculations would give a clear picture of what areas are in need of efficiency improvements.

Regardless of the ratio used, we have reason to believe that our estimates of PEPFAR cost contributions PPY are low due to potential double-counting of individuals treated between PEPFAR and GFATM. The overall number of people treated jointly PEPFAR and GFATM in 2009 was 3.7 million (PEPFAR, 2010a). However, both PEPFAR and GFATM claimed roughly 2.5 million people in their outcome reporting, resulting in a count of at least 1.3 million people being supported by both funders. Essentially, this means that a large number of people are double-counted and that the actual number of people effectively treated by PEPFAR should be lower in our estimates. Hypothetically, if all 1.3 million individuals double-counted were primarily attributable to GFATM, PEPFAR cost ratios as presented here would nearly

double to close to $1,700 PPY when including apportioned program management and capacity building.

Global Fund Contributions to the Cost of Antiretroviral Therapy per Person-Year

Table 5.2 displays our estimates of GFATM's contribution per person-year to ART treatment services in FY 2009. Financial reports for FY 2010 were not available at the time of this report. Moreover, we do not perform this exercise with data from FY 2008 because we would have to apply the same assumptions (relying on proportional expenditures through 2008 to calculate yearly figures) to FY 2008 annual report numbers, yielding little insight into the year-by-year changes in actual proportional spending.

Two caveats should be noted. First, although annual expenditure data are available, only aggregate spending is reported, and expenditures broken down by service area are available only as cumulative numbers (for more information, see the appendix). We assume that these cumulative expenditures by service area reflect yearly expenditures and calculate annual direct treatment expenses, management costs, and capacity-building investments based on the cumulative proportions. Second, outcomes reported for GFATM can often reflect national results rather than program-specific results, according to loose definitions (see the appendix for more information). Therefore, calculated cost ratios are likely be underestimated if outcomes (e.g., number of people treated) are overstated. As such, the first ratio (1) includes only direct ART contributions divided by the number of people receiving treatment supported by GFATM, resulting in a very low amount, $146 PPY. When we adjust our estimates to account for administrative costs incurred at the headquarters, the ratio increases to $164 PPY, an increase of 12 percent over the base ratio. When indirect capacity-building costs are included, our cost-efficiency ratio increases by 60 percent to $234 PPY.[2]

As with the PEPFAR estimates, there is also reason to believe that these estimates are too low due to double-counting of individuals treated by GFATM and other international agencies. Hypothetically, if the 1.3 million individuals known to be dually covered by PEPFAR-funded programs were all treated primarily by PEPFAR funds, then our estimated cost-efficiency

Table 5.2
Cost Ratios of Global Fund Antiretroviral Therapy

Contribution	FY 2009
A) Total funds disbursed for ART ($ millions)	365,000,000
B) Funds disbursed for ART + apportioned headquarters management costs ($) (millions)	410,130,000
C) Funds disbursed for ART + apportioned program management and capacity-building costs ($ millions)	584,350,000
D) Total number of people on ART (at the end of 2009)	2,500,100
Funding per person on ART (A ÷ D) ($)	146
Funding per person on ART (direct) including headquarters management costs (B ÷ D) ($)	164
Funding per person on ART (direct) including headquarters management and capacity-building costs (C ÷ D) ($)	234

[2] This number is too low to be credible as the full cost PPY for ART provision and is likely to be the result of GFATM's role of filling the gap in service delivery when other funders or providers to meet this need.

ratios 1 and 2 would double to about $300 and $500 PPY, respectively. Although working in tandem with other funders is encouraged, this illustrates the challenge in understanding what the "effective" numbers of individuals treated by funders are when accounting for matching funds from other donor organizations or the domestic government. Not only are the true costs of treating a person higher when other financing sources are added in, but the "effective" numbers of individuals treated are lower than those currently reported. However, because performance reviews for GFATM do not measure or report outside funding sources, these adjustments cannot be performed without additional assumptions.

What do these ratios mean for the cost-efficiency of GFATM funding? Overall, we see that GFATM PPY contributions appear to be significantly lower than those calculated for PEPFAR and even much lower than costs typically estimated from clinical-level studies. In fact, our calculated base ratio is similar to the unit drug cost reported by GFATM—$188.[3] Although we expected the costs for GFATM to be potentially lower due to some advantages in the organizational structure discussed earlier, these low estimates are not credible (because they are lower than even the costs of drugs alone). The number of people treated is likely to be grossly overestimated or GFATM expenditures likely reflect only partial funding of services by GFATM, either largely associated with procuring drug supplies or other costs related to providing treatment, such as staff, facility, and non-ART drugs. Additional resources provided by other funders are not reported anywhere in GFATM's monitoring system. In the 2010 progress report, GFATM addresses these missing indirect cost components by inflating its own calculated drug procurement prices by $350–$500 derived from in-depth clinical-level costing studies (GFATM, 2010a). GFATM's self-reported unit contribution of ART, adjusted for indirect costs, is $612 PPY, which is more in line with contribution estimates for PEPFAR.[4] The large missing pieces of outside funding information also detract from the utility of comparing cost-efficiency measures over time because there is no clear way of assessing whether expenditures are comparable from year to year. However, we do see that headquarters costs add minimally to the unit cost of treatment. Overall, it is difficult to tell how efficient GFATM service provision is compared with that of PEPFAR because we were not able to obtain credible cost levels, and it is even more difficult to determine changes in these levels over time that are needed for calculating efficiency.

Chapter Conclusion: Challenges in Evaluating Funding Efficiency for HIV-Related Services

It is difficult to arrive at credible cost estimates for efficiency comparisons due to limited data availability and lack of harmonization between outcome and cost measures between funders. Although we attempted to define numerator and denominator values as similarly as possible for calculating the cost ratios for PEPFAR and GFATM, there are still ambiguities surrounding

[3] In 2008, the overall median price of commonly used drug regimens for the countries supported by GFATM was $188 (interquartile range [IQR]: $171–$209) (GFATM, 2010a, p. 70).

[4] In 2008, the overall average contribution per adult patient per year was $612 (IQR: $591–$645) (GFATM, 2010, p. 71). The overall estimated median contribution for providing first-line ART for GFATM programs was about $588 PPY (IQR: $571–$609) (GFATM, 2010a, p. 70).

the ways in which each organization classifies the statistics that it reports.[5] Here, we summarize some of the notable challenges.

Overhead Costs

We differentiate between overhead costs, which are costs not attributable to specific services and can arise at any level in the hierarchy, and administrative costs, which are the costs of program management, including, for example, staff salaries. To the extent that such costs constitute expenditure that does not directly benefit people in need, funders should attempt to minimize these costs. However, it is also clear that some of these expenditures are needed to effectively manage the funds and make sure they are going to the most-appropriate implementing agents to reach the intended people in need. Because these costs take up a significant fraction of monies for both funders, they need to be scrutinized just like all the other costs (direct, indirect) to make sure that they are at an optimal level. However, there is currently no best-practice guideline as to how high these costs should be.

Alternatively, we can assess the change in overhead and administration costs over time to observe any improvements in efficiency. One would expect these costs to account for a decreasing proportion of the budget as an organization matures and optimizes its operations as part of a learning curve. In plotting budgeted amounts (in the case of PEPFAR) or expenditures (in the case of GFATM) for overhead and administration as a percentage of all costs, we find that they do not necessarily decrease over time for either funder. We observe that the rate for GFATM increases from about 6 percent in 2006 to nearly 8 percent in 2009. For PEPFAR, the increase is even greater, reaching 11 percent in 2010. However, care must be taken in interpreting these figures because budget classifications can change from year to year. For example, between 2009 and 2010, PEPFAR shifted some funds that had been previously lumped together under direct program budgets into its field management and operations budget code and publicly reported the line times for this budget code for the first time in order to aid transparency; however, this shift also caused field management and operations to look like it increased from roughly 6 percent in 2006–2009 to 9 percent of the total budget in 2010.

Indirect Costs

Indirect costs for the two funders include capacity-building costs, such as health system strengthening, training of government officials, scaling up biological and behavioral surveillance, creating favorable environments, and supply-chain management, with the intention of increasing sustainability. Such expenditures can be viewed as investments in a country's public health infrastructure that have some expected future payoff, as well as investments in a country's capacity to effectively implement and track HIV services now. The outcome measures for indirect services are difficult to establish and monitor, further adding to the challenge of making evidence-based resource allocations. The proportion of spending on indirect costs is different for the two funders, with PEPFAR spending 19 percent of its total budget on these activities in FY 2010 and GFATM spending about 29 percent in the same period. Currently, it is difficult to calculate the payoff, if any, of these investments because there are little usable outcome or output data associated with such activities as health system strengthening. To address this challenge, both PEPFAR and GFATM are currently engaged in trying to improve result

[5] For a more detailed discussion of what measures are reported and the assumptions made in our calculations, see the appendix.

indicators related to capacity building; the area in which the most development can be seen is in tracking HRH, e.g., numbers of health workers trained. Although it is difficult to systematically measure the costs, outcomes, and efficiencies related to capacity building, it is still pertinent to question the wisdom of spending one-fifth to one-third of total funds on activities for which accountability systems are still underdeveloped.

Donor-Specific Contributions

Because donors can fund different elements of treatment services, from drugs to staff training, examining only donor-specific contributions to the delivery of ART services can severely underestimate the total cost of ART provision. Our estimated unit contribution for PEPFAR (using the number of people directly supported by PEPFAR funding), $829 PPY, is more than three times as large as GFATM's unit contribution of $234 PPY. If we inflate GFATM's contribution by additional service delivery costs covered by other funders as similarly done in its 2010 progress report, GFATM's unit contribution rises to about $600–$700 PPY. Neither donor reports what proportion of total service costs its contributions constitute. Hence, estimates cannot be adjusted for donor-specific inputs.

These findings make clear that urgently needed efficiency improvements currently cannot be fully performed because they require clear data on all cost categories, as well as associated outputs and outcomes. In addition to making individual efforts to improve the monitoring of these costs, outputs, and outcomes, funders should continue to strive to harmonize their measurements so that efficiency improvements across funders can be detected and shared.

CHAPTER SIX

Findings and Recommendations

Amid flat-lined funding (though at a substantial level), efficiency has to become a top priority in HIV funding. In this report, we set out to examine options for improving value for money in HIV funding between the two largest funders, PEPFAR and GFATM. However, we found that it is currently difficult (or perhaps impossible) to assemble information from publicly available data necessary to investigate the efficiency of GFATM and PEPFAR funding for ART treatment over time or between the two funders.

In the current section, we suggest that value for money needs to be improved at all levels in the funding hierarchy in order to provide more services to a larger number in need given the available funds. Improving efficiency can be done only when credible data are collected both on funding flows and on outputs and outcomes achieved with these funds; this way, efficiency can be tracked over time and made a criterion for partner selection. In this chapter, we summarize the main data problems we encountered when evaluating funding efficiency for this report, and we suggest four areas of improvements that the major funders need to address to improve value for money.

Data Gaps

Cost Data on Actual Expenditures Are Needed

Actual expenditure data for PEPFAR are not available, limiting the value and possibility of efficiency comparisons based on budgeted data, which we had to use in this report. Although definitions for cost categories and what should be included therein can vary, such as indirect program costs or upstream administrative costs, actual spending amounts are necessary because these can stray far from planned allocations. In general, for HIV-related donor funding, a considerable gap is known to exist between funds that are committed and actually withdrawn (Kates et al., 2009). For PEPFAR, actual withdrawal of obligated funds can fall well behind yearly spending plans.[1]

Output and Outcome Data Should Be Comparable Between Funders and over Time. The number of people on ART—a key output—contains a significant fraction of double-counts, leading to overestimates of the number of clients treated by each funder. Moreover,

[1] PEPFAR partners are not required to withdraw within the fiscal year all funds that have been committed to them. Because partnership agreements are multiyear, these withdrawals may happen over the life of the agreement. For PEPFAR accounting purposes, funds committed but not yet withdrawn are considered "obligated"; funds withdrawn are called "outlays." PEPFAR quarterly financial statements show the amount of funds obligated versus outlays; as of the end of FY 2010, about 80 percent of all obligated funds were outlays.

because proportional funding of treatment service is not reported, even if double-counting is not an issue (e.g., at a clinic that is funded by only one organization), the number of people "effectively" treated after taking into account support from local and domestic sources cannot be estimated without recognition of other funding sources in current M&E practices. As discussed earlier, first and necessary inputs needed for efficiency analysis are output and outcome measures that are comparable between funders and over time and that are clearly defined and measurable. Funders acknowledge this and attempt to estimate the extent of the overlap based on a process of harmonizing country-level results with each other and with national figures. However, overlap is not assessed at the clinic level, which is ultimately necessary when moving toward a system based on efficiency that is able to hold implementing partners accountable for their outcomes achieved.

Data Needed to Evaluate Efficiency Are Not Readily Accessible. The information we sought was scattered throughout multiple documents and places for both funders and not readily available in a coherent manner. Data accessibility was somewhat better for PEPFAR, which provided country budgets in the overall operational plan, which summarized the lengthy COPs. However, for GFATM, we were able to locate information on budgeted amounts only after sifting through documents associated with the approved grants. Although the GFATM website provides a status summary for each country, there are limited options for drilling down to details, and nowhere is information summarized about different categories of program services supported (i.e., treatment versus prevention). For both of these funders, cost and outcome data are often found in separate documents, making it difficult to link them and arrive at a cost ratio.

No (Harmonized) M&E Mechanism Is in Place. These challenges ultimately serve to highlight the difficulty of performing a retrospective study like we do in this report (Haddix, Teutsch, and Corso, 2003). If an M&E system had been built into the funding system for HIV/AIDS–related activities, goals and targets would have been established from the outset, indicators set up to track progress over time, and information systems put in place to relay data effectively and in a timely manner. Within the current environment of HIV/AIDS funding, there is no clearly defined objective across funders because each has its own range of focus areas, so it is difficult to harmonize goals and make comparisons across organizations. Although some efforts in harmonization have recently taken shape and continue to be emphasized within the international community of donor agencies, these goals have materialized only a substantial number of years after funding mechanisms were first established.

Even If We Accept These Measurement Caveats, Overall Assessment of Efficiency Is Difficult Because No Clear Benchmark Exists for Optimally Efficient ART Service Delivery. In other words, there is no established minimum-cost function against which to evaluate our estimated cost-efficiency ratios. As a first step, funders need to improve their M&E systems to track their costs for a given service over time. A second step is to harmonize these measurements across funders to be able to also compare them between different agencies. In this report, we present some data to compare the efficiency of delivery of the two major funders; there are few data available to allow us to track performance over time.

Recommendations to Address Four Pressing Issues

There are four main areas for which we present our findings and that we recommend be addressed to make HIV funding more efficient. We discuss each of these in this section.

Recommendation 1: Improve the Measurement of Program Outputs and Outcomes

Finding 1.1: Current indicators of program outputs are potentially subject to a significant denominator problem. Although both funders indicate they each treated about 2 million people with ART in FY 2008, UNAIDS estimates that a total of 4 million people were treated in low- and middle-income countries (including by other funders and domestic governments). Although PEFPAR and GFATM recognize this problem and attempt to quantify the extent of overlap in people treated, such double-counting of patients would still tend to underestimate the unit costs per person. To address this problem, in the report, we provide low and high estimates of treatment costs by assuming full overlap and no double-counting.

Finding 1.2: Program output indicators for tracking indirect services are incomplete. Although there are some indicators for system strengthening, such as health workers trained, other spending categories, such as technical assistance and support, do not have output or outcome measures that can be tracked. These can take the form of output measures (e.g., number of people trained) or outcome measures (e.g., improvement in quality of health service delivery). Although the intangible nature of these services renders them difficult to track, we observe nevertheless that this cost category seems to increase over time rather than go down as would be expected from an investment, which is how these costs are typically justified.

Recommendation 2: Improve the Measurement of Program Inputs

Finding 2.1: Expenditure data are not readily available for PEPFAR (only budget allocations). Expenditure data should be made available to the public in a transparent fashion on a yearly basis in a usable format. In this report, we focus considerable effort in assembling data from a multitude of sources, making it clear that, for a private individual, it is currently close to impossible to learn how taxpayer money is being spent.

Finding 2.2: Expenditure data for GFATM do not facilitate easy review of individual programs. Performance review reports provided online list only aggregate expenditures with little further detail about how funds were spent. The 2008 enhanced financial reporting system is designed to make such programmatic expenditures more transparent. As GFATM publishes these results, we encourage it to make these data accessible for each program funded.

Recommendation 3: Spending Decisions Should Be Based on Economic Principles and Transparency

Finding 3.1: Current spending allocations across direct and indirect services are not based on increasing value for money. Indirect services, such as capacity investments or health system strengthening, represent investments, with expected payoffs largely in terms of cost reductions in the future and contributing to country ownership and sustainability. At the same time, they reduce the money available for current expenditures to provide services to people living with HIV presently. The trade-off between providing current and future services needs to be stated clearly, with funding decisions made justified accordingly.

Finding 3.2: Allocation among direct services (such as prevention and treatment) is made in accordance with loose (and sometimes competing) organizational guidelines. Although we

do not advocate any set of spending priorities in this report, spending decisions should be periodically revisited and reviewed, particularly when new evidence comes to light, such as recent evidence on the merits of treatment as prevention.

Recommendation 4: Focus on Value for Money

Finding 4: There is currently little explicit focus on improving value for money. Given projections that funding for HIV is unlikely to increase, particularly to low-income countries that are suffering the highest HIV burden, finding ways to leverage existing monies is imperative.

To summarize, in this report, we attempted to arrive at cost estimates for the two major funders of HIV services, PEFPAR and GFATM, using all data publicly available at the time of this writing. We encountered significant difficulties in arriving at such estimates due to data either being unavailable or being dispersed across data sources. These data limitations also limit urgently needed efficiency evaluations across and within the two funders. We therefore suggest making funding data, as well as output and outcome data, available so that these two dimensions can be linked to arrive at cost estimates of clearly defined outputs and outcomes. These data will allow future funding decisions to be based on efficiency criteria that maximize value for money, which is imperative given an ever-growing need for life-saving ART in the face of flat-lined funding levels.

APPENDIX

Technical Notes

Tracking Funds at Each Level in the Hierarchy

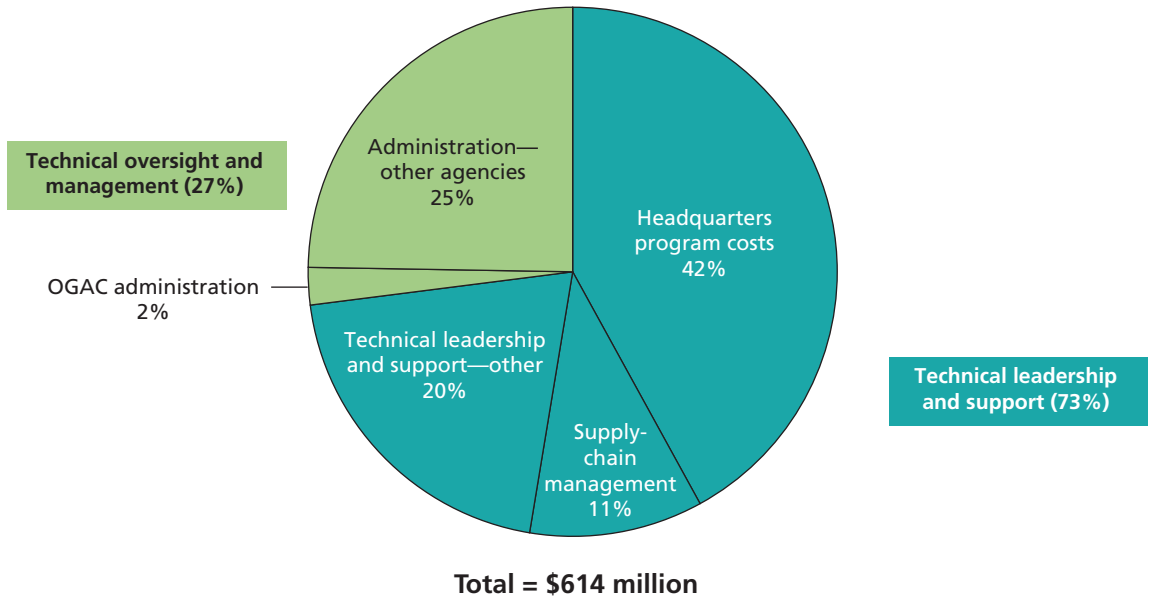
PEPFAR Funds at Each Level in the Hierarchy

Figure A.1 highlights the planned uses of headquarter funds in FY 2010, three quarters of which goes toward technical assistance to PEPFAR countries and programs; the other quarter is for administration and overhead costs.

Of the remaining funds, $363 million was budgeted for U.S. government country-level administration and overhead funds (Figure A.2), about 70 percent of which goes toward salary for U.S. government staff.

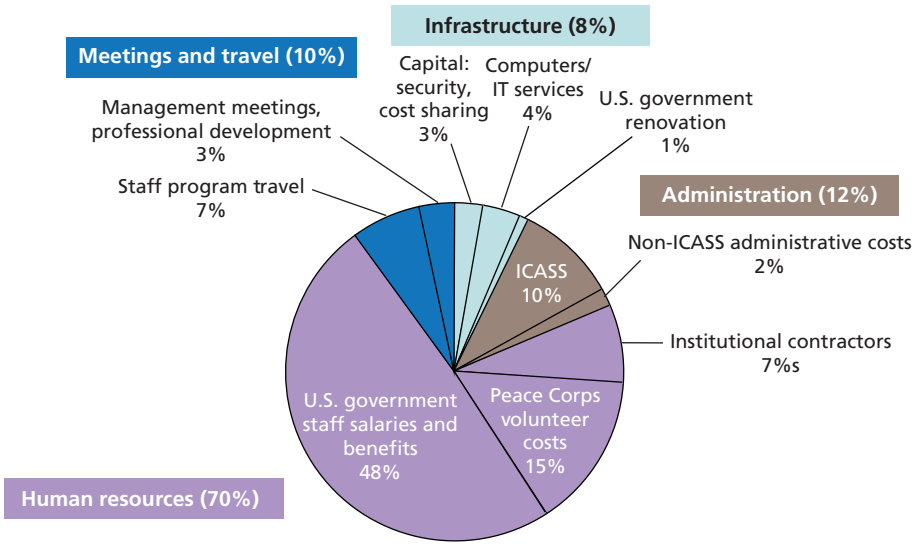
After taking U.S. government overhead into account, the total funds available in-country for both direct and indirect HIV/AIDS services in FY 2010 was $3.7 billion—79 percent of the total budget. Of this, $550 million was budgeted for indirect services at the country level (Figure A.3). This is money spent at country level but not all directly toward direct HIV/AIDS services. Half of this money was targeted for health system strengthening, with another third targeted for strategic information activities (see Table A.1 for an explanation of these catego-

Figure A.1
Headquarter Funds, by Line Item, Fiscal Year 2010



RAND *TR1158-A.1*

Figure A.2
U.S. Government Country-Level Overhead Funding, by Line Item, Fiscal Year 2010

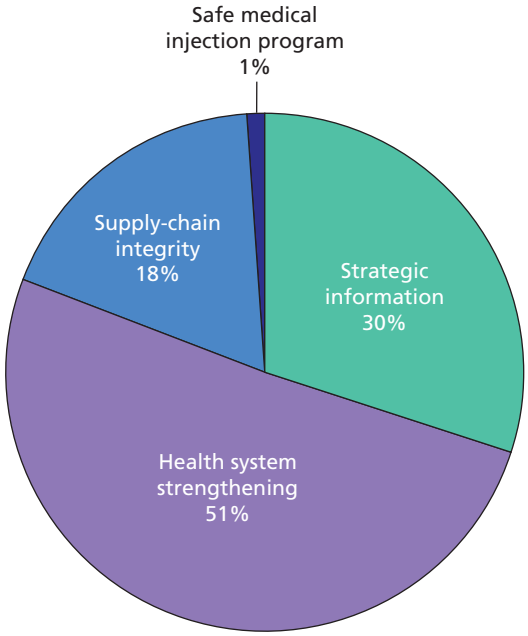


Total = $363 million

NOTE: ICASS = International Cooperative Administrative Support Services.

RAND *TR1158-A.2*

Figure A.3
Country-Level Indirect Services Funding, by Program Area, Fiscal Year 2010



Total = $550 million

RAND *TR1158-A.3*

Table A.1
Classifying PEPFAR Budget Line Items, 2009–2010

Category	Line Items	Justification or Explanation	Location in Budget
Treatment	Adult treatment	Includes spending on treatment in country activity budgets and central programs (including program for supply-chain integrity)	Budgetary Requirements Summary: Table 5 (FY 2009), Table 4 (FY 2010)
	Pediatric treatment		
	ART drugs		
	Laboratory infrastructure	Counted toward treatment in annual report to Congress	
Care and support	Adult care and support		Budgetary Requirements Summary: Table 5 (FY 2009), Table 4 (FY 2010)
	Pediatric care and support		
	TB/HIV		
Prevention, testing, and counseling	PMTCT		Budgetary Requirements Summary: Table 5 (FY 2009), Table 4 (FY 2010)
	Sexual prevention	Abstinence and fidelity, other prevention	
	Biomedical prevention	Male circumcision, injection safety, blood safety, and drug use; includes central program budget for safe medical injections	
	Counseling and testing		
Administration and overhead	Management and staffing, operations	Country-level CODB for U.S. government agencies	Budgetary Requirements Summary: Table 5 (FY 2009), Table 4 (FY 2010)
	Technical oversight and management	Headquarter-level administration and overhead	Operational plan program funding summary: Table 2 (FY 2009 and FY 2010)
Capacity building	Health system strengthening	Includes broad policy reform efforts and system-wide approaches, such as national procurement and logistics systems	Budgetary Requirements Summary: Table 5 (FY 2009), Table 4 (FY 2010)
	Strategic information	Includes support for HIV/AIDS surveillance systems and health information systems (including assisting countries to establish or strengthen such systems)	
	Technical leadership and support	Headquarter-level funding for technical assistance to recipient countries to scale up or implement HIV activities, including support for supply-chain management	Operational plan program funding summary: Table 2 (FY 2009 and FY 2010)

NOTE: PMTCT = preventing mother-to-child transmission.

ries). The rest went toward capacity-building programs for supply-chain integrity and medical injection safety managed directly by U.S. government agencies. Although the supply-chain program was counted in the overall treatment budget and thus as part of PEPFAR's ART cost

in our ratio calculations in Chapter Five, it does not go toward direct services and is broken out separately here, where we are interested in direct service funds only.

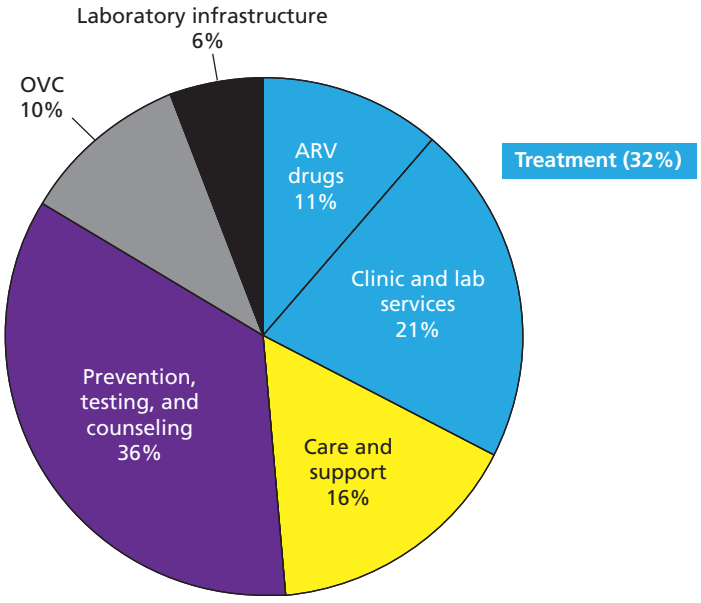
The final amount available for direct HIV/AIDS service delivery by PEPFAR partners was $3.17 billion, two-thirds of the total approved budget. Figure A.4 shows how these funds were divided among HIV/AIDS program areas, with about one-third going toward ART specifically and about half going collectively toward treatment, care, and support, per congressional targets. It is worth noting that no budget or cost information is available for recipient organizations of PEPFAR funding. Some part of the funding that organizations receive to implement HIV/AIDS services and programs is likely to go toward overhead and indirect costs. However, this percentage is not known.

Global Fund Funds at Each Level in the Hierarchy

We can further disaggregate spending at each of these levels in the GFATM financing chain. At the headquarters level, a large fraction of these expenditures are for secretariat operations, including staffing, infrastructure, travel, professional services, and other expenses (see Figure A.5). Expenditures for LFA fees account for only 25 percent of all administrative costs, and funding for CCMs is only about 1 percent. Together, spending on all administrative tasks occurring above the country level amounts to 7.6 percent of all GFATM expenditures for FY 2009.

Within HIV spending, we can similarly break down expenditures across service areas. Here, we rely on cumulative expenditures directly reported by GFATM in its latest result report to avoid making further assumptions (see Figure A.6). The indirect costs amount to a

Figure A.4
Funding for Direct Services, by Program Area, Fiscal Year 2010

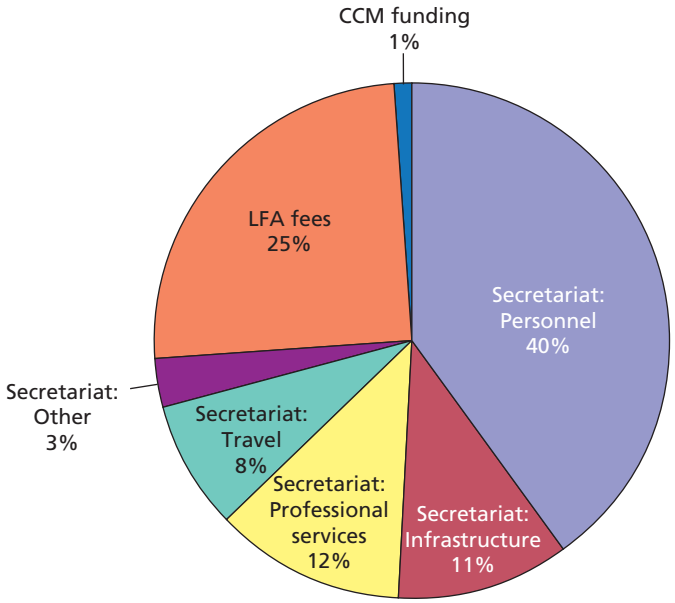


Total = $3.17 billion

NOTE: Central programs in treatment and prevention (about 3 percent) were included in indirect program costs rather than here because of their focus on capacity building.

RAND *TR1158-A.4*

Figure A.5
Administrative Headquarters Costs, by Line Item, Fiscal Year 2009

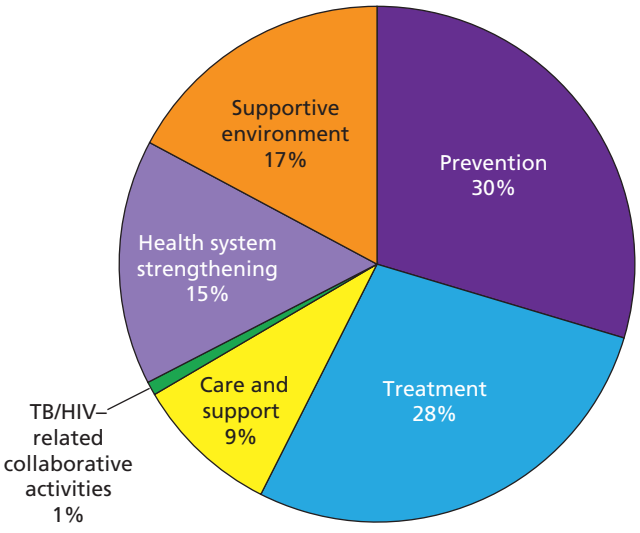


Total = $228 million

SOURCE: GFATM, 2010b.

RAND *TR1158-A.5*

Figure A.6
HIV/AIDS Macro Categories, Cumulative Expenditures



SOURCE: GFATM, 2011b.

RAND *TR1158-A.6*

total of 32 percent of all HIV expenditures. For supportive environments (17 percent), these activities include policy development, program management and administration, stigma reduction, and strengthening of civil society and institutional capacity building. For health system strengthening (15 percent), this includes activities for community system strengthening, human resources, information systems and operations research, infrastructure, other M&E, procurement and supply management, and service delivery. For direct services, 30 percent of expenditures went toward prevention, 28 percent for treatment, 9 percent for care and support, and 1 percent for TB/HIV–related collaborative activities.

PEPFAR Case-Study Calculations

PEPFAR Cost Data: Sources

The ideal source of cost data would be PEPFAR expenditures at the funder level (i.e., the money that actually leaves PEPFAR and goes toward different program areas, such as treatment, prevention, and overhead expenses). However, for two reasons, we must calculate our cost-efficiency ratios based on budgeted amounts. First, the expenditure data that PEPFAR releases publicly at the funder level is restricted to cumulative outlays, i.e., the amount of money that has been disbursed cumulatively since PEPFAR's inception (PEPFAR, undated [d]). Second, these outlays are broken down by U.S. government agency, country, and broad-based programs, such as HIV/AIDS programs under GHI, but are not broken down by service area (e.g., treatment, prevention) or by any kind of operational or overhead expenses. Therefore, we cannot use outlays in our cost calculations of the cost efficiency of PEPFAR's provision of ART.

Disaggregated budget data are more readily available. Every fiscal year, PEPFAR publishes the PEPFAR operational plan, which details the amount of money that Congress has appropriated for PEPFAR and its intended uses (PEPFAR, undated [e]). The country activity budget of the operational plan is built on the approved COPs submitted by PEPFAR country-level staff in recipient countries. Funds budgeted for each country and prime partner under this plan are considered obligations, which entail a legal right of the partners to draw funds from the U.S. Treasury. The budget details obligations to PEPFAR's partners for the intended uses they have submitted, which are heavily structured around reaching Congress's mandated targets. The 2003 act founding PEPFAR set a target for 55 percent of funds to be obligated toward the treatment of individuals with HIV/AIDS, not including palliative care. In the 2008 reauthorization act, targets changed to require that at least half of PEPFAR money be obligated toward treatment; care and support of people with HIV/AIDS, including ART; care for opportunistic infections; palliative care; and other forms of care and support. The denominator for these targets is all funding for prevention, treatment, and care as reflected in the budgetary requirement table in the PEPFAR operational plan. Headquarter-level overhead and country-level program and management allocations are not included in these targets, either in the numerator or in the denominator.

The PEPFAR operational plan includes two key tables that form the source of the budget-based cost data used in our calculations:

The PEPFAR Operational Plan Program Funding Summary (PEPFAR, 2010c, Table 2; PEPFAR, 2011b, Table 2). This table includes data on planned uses of funds on country activities, headquarters' operational plan programs, and support of international partners (GFATM and UNAIDS). Within country activities, planned funds are broken into field-managed and

centrally managed programs. Field-managed activities represent by far the bulk of PEPFAR-funded country activities. Centrally managed funds, but not field-managed funds, are broken out by program area (e.g., ART) in this table. Both field and central programs are used to calculate the budgetary requirement summary and meet congressional targets for treatment and care. Within headquarters' operational plan programs, line items are included for technical leadership and support and for technical oversight and management. Of these, only technical oversight and management is clearly identifiable as overhead and administration costs. Technical leadership and support is closely related to technical assistance and support of capacity-building and country scale-up activities. Furthermore, with the exception of the funds allocated to the State Department's Global Health and Child Survival (GHCS) account for technical leadership and support, no headquarters funds are broken down by program areas, such as treatment and prevention, as of 2009. The State GHCS account for technical leadership and support comprises about 60 percent of headquarters' operational plan funds.

Budgetary Requirements Summary (PEPFAR, 2010c, Table 5; PEPFAR, 2011b, Table 4). This table breaks down the total planned spending on country activities into treatment, prevention, and care and support, including subcategories. Comparing the total planned program funds in the Budgetary Requirements Summary and the planned funding for country activities in the PEPFAR Operational Plan Program Funding Summary, we calculate that the Budgetary Requirements Summary includes only field- and centrally managed programs and does not include "other country programs,"[1] which have a small line item in the Operational Plan Program Funding Summary.

The treatment and care category in the Budgetary Requirements Summary includes the following line items: adult treatment, adult care and support, pediatric treatment, pediatric care and support, ART drugs, TB/HIV, and, in certain years, laboratory strengthening.[2] In these definitions, treatment refers specifically to treatment services, such as clinical monitoring, adherence support, and laboratory monitoring. All other care and support services are included in the line items for care and support.

The overhead and administration–related line items in the Budgetary Requirements Summary include management and staffing (FY 2009) and management and operations (FY 2010). Overhead and administrative costs are not broken out by program area (e.g., treatment, prevention), forcing us to make an assumption that they are apportioned according to how big a share treatment, prevention, or other line item, has in the budget. However, there might be reasons that some programs have a disproportionate share of these kinds of costs.

Finally, line items for health system strengthening and strategic information relate to capacity building—the former focuses on broad policy reform efforts and system-wide approaches for strengthening health systems, including national procurement and logistics systems, while the latter focuses on support, strengthening, and scaling up health information and surveillance systems, as well as operations research to improve HIV service delivery.

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[1] Brief narrative descriptions of other PEPFAR country programs can be found in the appendix of the PEPFAR operational plans, even though no breakdown of their costs appears in the budget tables. Total funding for other PEPFAR country programs was $80 million in 2010 (less than 1 percent of all PEPFAR-approved funding) and funded programs across Africa, Asia, Latin America, the Middle East, and Europe. For example, in Sierra Leone, $500,000 goes toward "technical and financial assistance to the establishment and expansion of a national infectious disease surveillance system that includes HIV/AIDS" (PEPFAR, 2011b, p. 90).

[2] In addition, laboratory strengthening is included as part of the treatment category in the budget summary pie chart in the annual report to Congress for both FY 2009 and FY 2010.

An additional table, titled "PEPFAR Field Management and Operations" (Table 7, FY 2010), breaks down the management and operations category found in the Budgetary Requirements Summary (Table 4, FY 2010) into specific line items, such as staff program travel, U.S. government staff salaries and benefits, and computer and IT services.

An annex in the back of the PEPFAR operational plan lists exactly what is included under each budget category (e.g., *adult treatment* includes infrastructure, training clinicians and other providers, exams, clinical monitoring, related laboratory services, and community-adherence activities).

In addition, PEPFAR includes data on planned uses of funding at the country level in the operational plan, broken down by program area. When these numbers are compared with those in the COPs, we note that all the numbers are the same, which is to be expected because the COPs are the basis for PEPFAR's overall budget. However, because the COPs are the only country-level source of financial data publicly released by PEPFAR, there is no way to determine whether there is a discrepancy between funder-level and country-level financial data, which is especially key for tracking overhead expenses.

Change in PEPFAR Budget Classifications and Reporting. Two related challenges in tracking PEPFAR's planned spending on overhead and capacity-building costs are (1) changing budget classifications over fiscal years and (2) changes in the reporting of line items over fiscal years.

A prime example is the treatment of the line item technical leadership and support. From FY 2005 to FY 2008, technical leadership and support was a sub–line item under central programs, together with other indirect line items, such as supply-chain management, twinning, and the New Partners Initiative, and some direct programs, such as ART and abstinence and faithfulness. In 2009, technical leadership and support became its own line item under the new classification of headquarters operational plan programs and subsumed the indirect sub–line items from central programs just listed into the new technical leadership and support category. In FY 2010, however, only two sub–line items remained: headquarters program costs and supply-chain management. From the budget narratives, it appears the previous sub–line items have been folded into headquarters program costs (e.g., twinning). However, the ongoing changes in accounting and budgeting procedures make it very difficult to track funds categorically through the years.

For technical oversight and management (headquarter-level overhead), line items are reported directly only in FY 2009 and FY 2010 and only for the State GHCS funding account (albeit the largest conduit of funding). No overhead funding, whether headquarters or field level, is broken down by program area (e.g., treatment, prevention).

Technical Notes: PEPFAR Indicators

PEPFAR Next Generation Indicators Reference Guide (PEPFAR, 2009a) provides a framework for all the indicators that PEPFAR collects, including technical details for calculating all indicators.

In Table A.2, we present an overview of the PEPFAR indicator classification and note the sources of the publicly available outcome data for PEPFAR as published in the annual reports to Congress (PEPFAR, 2010a; PEPFAR, 2011a).

The number of individuals directly supported on ART is considered essential, reported to headquarters; PEPFAR direct; and output.

Table A.2
Indicator Classifications for PEPFAR

Category	Indicator	Source of Publicly Available Outcome Data in Annual Reports to Congress
Importance	Essential, reported to headquarters	x
	Essential, not reported to headquarters	
	Recommended	
Reporting level	PEPFAR direct	x
	Country	
M&E classification	Output	x
	Outcome	
	Impact	

Other indicators fall into these categories too but are not publicly released (e.g., number of adults and children with advanced HIV infection who are *newly* enrolled on ART). In addition, those not checked in the third column are also not publicly available, either on the funder level or at the partner or country level. In other words, some essential indicators are collected but not reported to HQ and therefore perhaps not publicly reported. Recommended indicators are not publicly reported. It is important to note that *PEPFAR Next Generation Indicators Guidelines* was released only in 2009, so there might be a reasonable delay in releasing all but the most-essential indicators due to implementation or analysis issues.

Cost-Contribution Calculation for PEPFAR

The costs used in our calculations are the approved budget costs (i.e., planned uses) and include adult and pediatric treatment, ART drugs, and laboratory infrastructure as found in the Budgetary Requirements Summary. We exclude care and support and TB/HIV services because these categories, as defined by PEPFAR, reflect a mix of services to people on ART and not on ART, and not all people on ART receive care and support. PEPFAR reports the outcome measure we used—the number of people served—separately (i.e., the number of people on ART is distinct from the number of people on care and support). To avoid double-counting when aggregating categories, we isolate only ART treatment and drug cost contributions and link these to the numbers of people reported to be on ART.

Further, because PEPFAR does not report overhead and administrative costs or capacity-building costs (i.e., health system strengthening) for each of the direct service areas, we apportion these costs using the percentage share of treatment in the PEPFAR budget, making the implicit assumption that overhead and capacity-building costs do not differ by service area.

In our calculations, the output in the denominator is the number of individuals receiving ART directly supported by PEPFAR as reported in the annual report to Congress (PEPFAR, 2010a; PEPFAR, 2011a). The number of individuals on ART is the cumulative number receiving treatment, minus those who have died, abandoned treatment, or been lost to follow-up. *Directly supported* refers to people who receive ART from service providers that are directly supported by PEPFAR activities or programs at the point of service delivery. In previous years, PEPFAR provided numbers of people *indirectly supported* by PEPFAR to reflect PEPFAR's

investment in health system strengthening and capacity building of national HIV/AIDS programs as a whole (see PEPFAR, 2010a, p. 18). However, it discontinued this reporting in FY 2010. Our calculations use direct results only.

Global Fund Case-Study Calculations

Global Fund Cost Data

Unlike PEPFAR data, expenditure data for GFATM are published in its annual report.[3] Expenses for the fiscal year are broken down by grants disbursed, headquarters' operating expenses, and fees to LFAs. However, annual expenditure data are not broken down across the three diseases (i.e., HIV/AIDS, tuberculosis, and malaria) or for particular service areas (i.e., treatment, prevention, and care and support). Because GFATM is purely a financing mechanism, spending on service delivery by grant recipients is not reported in its own financial reports. However, more-detailed spending data are available on only a limited basis and spread out over a variety of other publicly available documents. The GFATM website (GFATM, undated [a]) has data on the number and amount of grants disbursed to each recipient and country in various rounds, grant progress reports, and performance reviews. The grant disbursement data are broken down by financing round, country, and disease, but details regarding the services toward which these disbursements were geared are not listed, rendering it difficult to link money spent to services delivered. Moreover, funding rounds do not necessarily coincide with fiscal years.

In a first step toward efficiency evaluation, we combined this information from various sources to arrive at estimated expenditures on ART treatment. From the 2010 progress report, we obtained the total funds disbursed for HIV programs for 2009: $1,351 million (GFATM, 2010a, p. 20). In order to estimate the cost contributions for only treatment services,[4] we assumed that the yearly allocation across service areas is the same as the cumulative percentage through 2008, the only data that are reported in a disaggregated manner across service area for HIV/AIDS.[5] In 2008, treatment expenditures comprised 27 percent of all GFATM cumulative expenditures for HIV/AIDS, and within-country capacity-building expenditures (i.e., laboratory services, medical staff, M&E) separately amounted to 32 percent. Further, to attribute headquarters' operating expenditures and fees to LFAs (a total of $228 million) to the delivery of treatment services, we applied 49 percent of these expenditures to HIV/AIDS according to proportional spending across the three diseases, and we further apportioned this remaining amount across HIV/AIDS services according to the cumulative percentage spent on treatment (i.e., 27 percent). Information on expenditures in 2010 is not available at the time of this writ-

[3] GFATM annual reports are available to the public online (GFATM, undated [b]).

[4] According to *Global Fund ARV Fact Sheet* (GFATM, 2011a), ART treatment activities include "drug provision, human resources, treatment of opportunistic infections, laboratory and testing facilities, and health systems strengthening." The same report highlights that the "drug provision accounts for about one-third of the financing of many ARV treatment programs." Separately, in the 2010 progress report, the cumulative expenditures on treatment were 27 percent of total HIV/AIDS spending through 2008 (pp. 25–26). However, it is unclear whether this 27 percent was calculated according to the same definition of *treatment*.

[5] See GFATM, 2010a, Figure 2.2, p. 25. Comparable information through 2009 is not available at the time of this writing. The figures mentioned in the progress report come from *Enhanced Financial Reporting Data, 2008*, which is unpublished and currently not available to the public.

ing. Spending on joint TB/HIV services, which is about 1 percent, is excluded from our definition of *treatment* to enable a calculation that is more comparable to that used for PEPFAR.

Global Fund: Output and Outcome Data

GFATM publishes the *ARV Fact Sheet* (GFATM, 2011a), which reports the number of people on ART, in total and by country, for the all GFATM-supported countries. According to this document, this number reflects unique individuals currently on ART reported by each grant recipient and verified by the LFA. National ART results may be reported in lieu of aggregated numbers from program-specific results if GFATM financing fulfills the following criteria:

- It supports an essential element of ART treatment on a national scale (drug provision; human resources; infrastructure, including clinics, laboratory and testing facilities, and health distribution and logistics systems).
- It is performing adequately.
- There are no significant data-quality issues raised.
- It contributes significant financial resources to the national effort:
  - More than US$50 million has been disbursed to the country for HIV programs.
  - Total disbursement for HIV programs in 2008 is at least 10 percent of total reported domestic public and international expenditure data, based on estimates derived from the National AIDS Spending Assessment (NASA) reported to UNAIDS, where available.

Country-level data are then harmonized with the results from other international partners (e.g., WHO HIV/AIDS programs, PEPFAR, UNAIDS) on a regular basis, but it is not clear exactly how this is done. According to the fact sheet, the total number of people on ART in 2009 was 2.5 million for GFATM-supported programs. However, this figure might be higher than the actual number treated by GFATM if national treatment numbers are used instead of GFATM-supported program-specific achievements. This can also explain why, in some instances, the two numbers coincide.

Uganda Cost-Efficiency Cost Study

The wide range of cost-contribution estimates calculated for PEPFAR and GFATM suggests that there is considerable measurement error in the reported outcome numbers that preclude a reliable analysis of cost efficiencies across organizations when using total budgeted or expenditure amounts. Our estimated cost contributions for GFATM ($146–$234 PPY; see Table 5.2 in Chapter Five) are less than half of the most conservative estimate obtained for PEPFAR ($383 PPY, including indirectly supported programs; see Table 5.1 in Chapter Five). Although our calculated ratios for both funders might independently be too conservative for a variety of reasons, other differences between these funders' portfolio mixes limit our ability to compare costs between funders.

Thus, our global cost contributions calculated for each funder might not be fully comparable due to differences in grant portfolios. To control for these possible confounders, we examine a single country—Uganda—and repeat our cost-efficiency exercise for PEPFAR and GFATM. By focusing on a single country, we can essentially rule out cross-country differences

in the stage of the epidemic and other factors that affect the treatment cost per person and obtain more-comparable estimates that are more representative of actual cost differences. We cannot control for differences happening within country, such as when different funders target different populations or sponsor different activities.

PEPFAR supports 15 main focus countries, mainly in sub-Saharan Africa, whereas GFATM provides grants to a larger array of countries, including more middle-income countries. Differences in the progression of the HIV/AIDS epidemic across countries will necessarily change the demand for ART services. Countries that have generalized epidemics will need to treat more people, including increased numbers of people progressing to more-expensive second-line regimens, and expand coverage more quickly than countries where the epidemic is still primarily found in high-risk populations. Hence, some portion of higher treatment costs per person observed across different settings could be explained by the epidemiological environment. Other differences, such as the institutional capacity and the development of the health system, will also shape countries' abilities to invest in treatment scale-up. Finally, countries at higher levels of economic development will face higher overall costs merely due to differences in labor costs.

PEPFAR in Uganda

Similar to the global PEPFAR cost data, information on actual expenditures is not available, and we therefore must again rely on budgeted data. Summary-level information on approved funding is provided for each country in the overall PEPFAR operational plan for 2010.[6] Here, we can obtain budget allocation across service areas, including field management and staffing. The total budget allocated to Uganda is $285 million, of which $106 million is provided for treatment (37 percent)[7] and $26.6 million for care and support (9 percent).[8] The budget for program management and operations is separately allocated at $12 million, representing about 4 percent of the total country budget.[9] Including other capacity-building funds, such as strategic information (4 percent) and health systems (4 percent), these indirect service provision costs amount to $36 million, or 13 percent of the total PEPFAR budget for the country.

Therefore, the numerator in our cost-contribution calculations reflect approved budget amounts for adult and pediatric treatment and ART drugs. As in our global PEPFAR estimates, we do not include care and support or TB/HIV allocations, to be consistent with the way the number of people on ART is counted (which is distinct from the number of people on care and support). We further apportion management and capacity-building costs to treatment using the percentage share of treatment in the budget.

Aggregate outcomes for each country are reported in PEPFAR, 2010a. The information for Uganda indicates that 207,900 individuals are receiving ART as a result of direct PEPFAR

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6 There is a COP provided for each focus country that lists each program, funding level, recipient, and objective. The latest Uganda COP for 2010 is more than 800 pages long. Even though details are provided, it is difficult to synthesize the information therein.

7 We include $13,800,894 for laboratory strengthening in treatment costs.

8 Treatment and care includes care and support, treatment, and drug costs for adults and children (PEPFAR, 2011b, p. 127).

9 These administrative costs primarily support U.S. government staff overseeing within-country activities; they do not include administrative costs for implementing partners that are directly providing program services, which are likely to be accounted for in program area budgets.

funding in 2010 (PEPFAR, undated [f]). The numbers of individuals who were receiving ART as a result of indirect PEPFAR funding are not reported for 2010.

Table A.3 shows the resulting cost contributions for PEPFAR in Uganda. The first ratio (1) is the basic ratio using just ART costs and dividing by the number of people receiving treatment directly supported by PEPFAR. These cost contributions generally fall into a similar range as the global PEPFAR cost estimates presented in Chapter Five. The cost ratios inflate by about 7 percent when adding in indirect program management costs (ratio 2) and by about 21 percent when also including costs associated with capacity building (ratio 3).

Global Fund in Uganda

GFATM has given the Uganda Ministry of Finance a grant for the scaling up of prevention, treatment, and health system strengthening for HIV/AIDS (grant UGD-708-G07-H). Within this grant commitment, GFATM disbursed a total cumulative amount of $76.8 million up to the end of 2009 and $101.1 million up to the end of 2010. Taking the difference in the cumulative numbers reported between 2009 and 2010, we calculate that GFATM disbursed $24.3 million in 2010 for HIV/AIDS–related services to Uganda. However, it is unclear how much of the disbursed amount went toward treatment. In the grant performance review for Uganda's current grant, disbursements and expenditures for each year of grant life are reported. However, expenditures are not broken out by program area, so we cannot determine the amount spent on just treatment.

In order to get at service-specific amounts, we have to make use of budgeted amounts for HIV treatment in the signed grant agreement instead of expenditures (GFATM, 2010c). A detailed budget for each year of the grant is given in the appendix of the signed agreement, which lists budget allocations across specific categories (e.g., human resources, technical assistance, drug procurement) and separately by service area (i.e., treatment, prevention, system strengthening), but not broken down across both dimensions. For year 2 of the grant, which corresponds to the period covering July 2009 to June 2010, the allocation for HIV/AIDS treatment was $27 million out of a total $47 million. This amount appears to be inclusive of all direct and indirect costs incurred in-country but does not take into account headquarters' expenditures dedicated to managing this grant (similar to the PEPFAR calculations just presented).

Table A.3
Cost Ratios of PEPFAR Antiretroviral Therapy Treatment in Uganda

Cost	FY 2010
A) Approved funding for ART ($)	105,786,689
B) Approved funding for ART + apportioned program management costs ($)	113,474,783
C) Approved funding for ART + apportioned program management and capacity-building costs ($)	121,158,334
D) Number of people reached on ART (direct)	207,900
Funding per person on ART (A ÷ D) ($)	509
Funding per person on ART, including program management costs (B ÷ D) ($)	546
Funding per person on ART (direct), including program management and capacity-building costs (C ÷ D) ($)	583

In order to arrive at the number of people treated, we turn to grant performance reviews, which are publicly available on GFATM's website and report outcome measures for each of the stated goals in the original grant agreement. The measures reported correspond to the UNAIDS reporting guidelines. The latest grant performance report indicates that 72,315 individuals were on ART by mid-2010 (GFATM, 2010c, p. 3). For the case of Uganda, this number reflects individuals supported by GFATM and not a national outcome.

Taking the budgeted expenditures for the period July 2009–June 2010 and dividing by the number of individuals on ART by mid-2010, we obtain a cost contribution of $376 per person-year on ART. This is much higher than the cost-efficiency ratio we obtained for all GFATM grants earlier (see Table 5.2 in Chapter Five)—by 40 to 120 percent. This ratio would also increase by a relatively minor amount (based on our global estimates in Chapter Five) if headquarters' costs and LFA fees were included.

Literature Review on Clinical-Level Costs

In order to understand how our calculated top-down and country-level cost ratios compare to existing bottom-up (i.e., clinical-level) estimates, we undertook a systematic review of studies that estimate the cost of ART treatment in developing countries. With two main aims, we review studies published in peer-reviewed academic journals since 2000: (1) to assess the variety of methods used to estimate costs and (2) to compare estimated costs collected at the clinic level across different settings. We include one unpublished study conducted by Aledort et al., 2010, because it is notable for estimating costs associated with a single-donor funding source. Only publications since 2000 were included for two main reasons. First, ART was not as widely available in developing countries until more-recent years. Second, older cost estimates are likely to be less comparable to more-recent cost figures collected in this comparative organizational cost-efficiency analysis because PEPFAR and GFATM were only established in the early 2000s. Studies that did not specifically estimate the cost of providing ART were excluded. For example, several studies estimated the cost to treat HIV-positive patients, but none of the patients was given ART because ART treatment was not available at the facility at the time of study. A total of 19 cost studies were reviewed.

The majority of these studies (12) were conducted at clinics in South Africa, and only two were conducted outside of the African continent. The majority of clinics chosen to be studied were located in urban or peri-urban areas. A minority of studies focused on stand-alone HIV outpatient treatment clinics compared to many others that assessed costs associated with a chosen cohort of patients to study and include both inpatient and outpatient services associated with their care. One study estimated only inpatient costs (Guinness et al., 2002).

In determining total costs of ART provision, most studies took a "provider" perspective in that costs were determined based on those incurred to the provider of services. However, one study separately accounted for private costs to patients themselves in terms of travel and caretaker expenses (John, Rajagopalan, and Madhuri, 2006). For the remainder of this exposition, only costs borne by the provider of services are described.

The methods used to arrive at these cost estimates were generally similar. For direct costs associated with drugs, testing, and procedures, most studies took a "bottom-up" approach and either used the retail price or standard list price for these items coupled with utilization data to arrive at a total cost estimate. For indirect costs of staff, overhead, and capital, most stud-

ies took a "step-down" approach as described by Drummond et al., 2005, in which resources are apportioned according to the amount used by the final service department.[10] In most cases, these apportionments are estimated by interviewing administrative staff, but one study is notable for conducting an observational study to track staff time commitments (Koenig et al., 2008). However, two studies ignore capital costs (Yazdanpanah et al., 2005; John, Rajagopalan, and Madhuri, 2006), two others included only direct costs (Haile, 2000; Bautista-Arredondo, Dmytraczenko, et al., 2008), and one study included only indirect costs because the main objective was to estimate the marginal costs of running a dedicated ART clinic (Harling, Bekker, and Wood, 2007).

Estimated costs across studies are primarily calculated per person-year (PPY), although some studies focusing on inpatient care report estimates per admission. Two studies in which the main objective was to estimate the cost-effectiveness of ART, not ART costs per se, reported estimates per a person's lifetime (Badri, Cleary, et al., 2006; Badri, Maartens, et al., 2006). Estimates from these cost-effectiveness studies are not compared because reported costs cannot easily be converted to a PPY basis. In most cases, published estimates were already converted to U.S. dollars. In cases in which local currency was used, estimates were converted to U.S. dollars based on the average exchange rate in the year in which amounts were reported.[11] When a dollar-year could not be determined from the published paper, no effort was made to convert estimated amounts. However, reported amounts have not been adjusted to a common dollar-year.

Aside from the relevant inpatient and outpatient services that a facility provides, most studies included costs associated with ART drugs, treatment of other opportunistic infections, diagnostic tests and procedures, staff (including clinical, administrative, and support staff), and overhead (including recurring operational costs, such as utilities and supplies, as well as fixed capital costs, such as equipment and buildings). Note that costs attributed to overhead reflect only those that are spent by the clinic. In contrast to our results presented in Chapter Five, further upstream indirect costs associated with above–clinic-level management are not included, with one notable exception (Aledort et al., 2010).

Final estimated costs vary widely within and across countries studied. Among studies that examine inpatient and outpatient costs, estimates range from $265 PPY in rural Ethiopia to $5,585 PPY in urban Mexico. In South Africa alone, estimates range from $290 PPY to $2,505 PPY. The wide range of estimates might reflect the added variability of including inpatient costs, which are often higher than costs for routine treatment procedures performed on an outpatient basis. These encounters can also be associated with later-stage disease management.

For studies that focus on stand-alone ART clinics, estimates range from $287 PPY in rural Uganda to $1,428 PPY in urban South Africa. Three of these studies are notable for focusing on facilities that are funded by a particular donor agency. Hounton et al., 2008, examined one dedicated outpatient clinic in Benin funded jointly by GFATM and the national government. The ART care package, including quarterly exams, testing, and counseling and monthly ART and opportunistic-infection (OI) drugs, is estimated to cost $1,160 PPY. Martinson et

[10] A standard step-down costing methodology involves these steps: (1) Allocate hospital-level recurring and capital costs to individual departments using allocation criteria reflecting actual resource use; (2) allocate costs of running overhead departments to support and final service departments; (3) costs of running support departments are allocated to individual final service departments.

[11] We used OANDA Corporation, undated, to get the average yearly exchange rate.

al., 2009, studied one dedicated ART clinic in urban South Africa for costs directly linked to PEPFAR. The basic care package of CD4 cell count and viral load testing every six months, hematology and liver function tests every three months, and other tests as necessary, in addition to drugs, are estimated to cost $1,428 PPY. Aledort et al., 2010, examined four outpatient clinics in Uganda and one dedicated ART clinic in urban South Africa that are funded in large part by AIDS Healthcare Foundation (AHF). In Uganda, estimates range from $287 PPY to $376 PPY, with lower costs estimated for rural facilities. In South Africa, the estimated cost was $892 PPY. ART treatment in these AHF-funded clinics is similar to those offered by other clinics, including periodic ART drug supply, testing, and other treatment of OIs.

A recent report by the Center for Global Development estimates that the average annual cost for AIDS treatment per enrolled patient in low-income countries was $460 in 2008, which is about half the amount in 2004–2005 (Over, 2010).

What explains the differences in costs across these studies? Some differences in cost could be due to differences in epidemiology of the HIV/AIDS epidemic, clinical setting, and health infrastructure across countries. Higher cost estimates tend to come from countries with higher gross domestic product (GDP) per capita, reflecting greater indirect operational costs. Higher costs are also associated with larger facilities located in urban areas. However, in South Africa, where there are studies conducted at clinics supported by different funders, estimates varied by as much as 60 percent between urban clinics. Moreover, the care package provided appears to be fairly comparable. Therefore, the differences in these bottom-up clinical cost ratios suggest that some ART clinics might be run more efficiently than others across different funders and that there might still be opportunities to decrease the cost per person at some sites.

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