More Health for the Money

Putting Incentives to Work for the Global Fund and Its Partners

A Report of the Center for Global Development
Working Group on Value for Money in Global Health

Amanda Glassman, chair, with Victoria Fan and Mead Over

CENTER FOR GLOBAL DEVELOPMENT

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Preface

The Global Fund to Fight AIDS, Tuberculosis and Malaria, set up in 2002, was meant to implement a new model of financing aid, under which it would eschew the usual donor bureaucracy and red tape and simply provide financing to countries needing support for expanded health programs. The idea was that priorities in fighting the three major diseases should be set at the country level by consortia of government, civil society actors, and health providers. The assumption was that the resulting country ownership, along with periodic evaluation of countries' performance in implementing programs they proposed, would translate into good health outcomes at reasonable costs.

In the decade since a tremendous amount has been accomplished in the fight against AIDS, tuberculosis, and malaria in countries benefiting from Global Fund financing. But relying on country-based consortia, usually with government in the lead, did not create incentives for maximizing what has come to be called "value for money"—that is, the maximum health benefit for the minimum cost. Most recipient countries faced political pressures to distribute funds to many different constituencies, independent of the countries' different exposures to the diseases, as well as social and other pressures at times not to spend—for example, in the case of local religious objections to working with prostitutes and other populations most at risk to HIV/AIDs.

While well intentioned and aligned with the Global Fund's core principle of country ownership, the model thus suffered from what the Global Fund's High Level Panel in 2011 labeled the "free-for-all phenomenon," wherein countries "[had] every incentive to seek as much money as possible"—despite actual need, other funding sources, or a strategic assessment of their most pressing priorities when facing a budget constraint.

This report deals head-on with the resulting challenge to the Global Fund going forward. It sets out a new model of financing more closely related to actual outcomes at a given cost, and builds in better measures of recipient accountability for their performance on outcomes not just inputs. It retains the sensible focus on country ownership while making the Global Fund itself far more accountable to its own funders for ensuring, as the report title says, more health for the money.

My colleagues at the Center for Global Development have closely followed the Global Fund over the years, from Steven Radelet's working group for incoming leadership in 2006, to Nandini Oomman's HIV/AIDS Monitor between 2006 and 2010, to Ruth Levine's analyses of the quality of health aid, allocation, and effectiveness. Mead Over's work on the missing AIDS "transition" in the absence of incentives to invest in prevention built on our cash-on-delivery model to recommend aligning incentives in the U.S. President's Emergency Plan for AIDS Relief, the Global Fund, and bilateral programs to reduce AIDS by rewarding the outcome of reduced HIV incidence not just inputs to treatment.

This report, however, raises deeper and tougher challenges for the Global Fund and indeed for all the major funders of global health programs. Our global health policy team supporting the Working Group analyzed all available data and placed the Global Fund's policies and practices in the context of the broader global health ecosystem. As a result this report has proposals that are relevant to all health funders concerned with getting the most health impact for every dollar invested.

The Global Fund has navigated significant changes in recent years. These changes include new leadership, a new funding model, and renewed commitment by donors that is focused more clearly on incentives, outcomes, and greater accountability of country consortia. The changes at the Global Fund and among its contributors make this an opportune time to move to a new model that buys much more health for the money. I hope the recommendations in this report will be adopted by the Global Fund's Board and implemented by its Secretariat and partners, and look forward to reporting on progress in implementation.

Nancy Birdsall
President
Center for Global Development

Acknowledgments

This report is based on the deliberations of a working group comprising government officials, aid agency staff, technical partners, civil society, and thematic experts. The Working Group members served as volunteers representing their own views and perspectives, and were at the center of the messages and recommendations included in this report. A list of the Working Group members and their biographies is in appendix 3.

This report was written by Amanda Glassman, Victoria Fan, and Mead Over with Rachel Silverman, Kate McQueston, and Denizhan Duran. Kate McQueston coordinated the Working Group and its meetings, and Amanda Glassman served as its chair. Jenny Ottenhoff coordinated policy outreach around the report, and John Osterman coordinated the production of the report. All the working and background papers, data, and presentations that informed this report can be found on the Working Group's website (www.cgdev.org/initiative/value-money-agenda-global-health-funding-agencies). The Working Group meetings and staff time dedicated to this research were supported by grants to the Center for Global Development from the Bill & Melinda Gates Foundation, the Rockefeller Foundation (Bellagio Center), and individual donors.

Beginning in April 2012 the Center for Global Development—an independent think tank working on financing, economics, and global public goods issues in development—convened a working group of policymakers, funders, and experts, and conducted policy research to define value for money, set out the challenges facing funders and recipients, and build a practical agenda to enhance the value for money of Global Fund investments. Broader consultations were also undertaken with low- and middle-income country government policymakers, Global Fund staff, principal recipients, Board constituencies, advocacy partners, and others. While deeply informed by the Working Group members and consultations (named in this acknowledgments section), the content of the report is the responsibility of the authors, and does not represent the opinions and positions of the entire Working Group or the Global Fund itself.

At different stages in developing this report, many individuals offered comments, critiques, and suggestions. We are very appreciative of these contributions.

The authors are grateful to Till Barnighausen, Gemma Berenguer, Salal Humair, Ananth Iyer, and Jomkwan Yothasamut for their contributions. We thank Ida Hakizinka, David Kim, Aida Kurtovic, and David Logan for their input to the report in February 2013. We thank Stefano Bertozzi, Simon Bland, Chris Collins, Geoff Garnett, Robert Hecht, Jason Lawrence, Jeff Sturchio, and Mitchell Warren for their feedback during the early stages.

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We apologize for any omissions. All errors in the report remain our own.

Executive summary

The Global Fund to Fight AIDS, Tuberculosis and Malaria (the Global Fund) is one of the world's largest global health funding agencies. From 2002 to 2011 the Global Fund disbursed about $15.5 billion to support programs aiming to prevent and treat these three diseases, to care for people suffering from them, and to strengthen health systems in more than 150 countries. Although it is difficult to systematically track the Global Fund's health outcomes, the sheer scope of its activities suggest that many millions of people are alive today because of its efforts. In 2013 the Global Fund requested an additional $15 billion from donors to support grant-making activities through 2016.

While the Global Fund has made important contributions to fight HIV/AIDS, tuberculosis, and malaria over the past decade, the organization and its partners could save many more lives with the same amount of money by allocating it in ways that maximize the positive impact on health.

This is what we call "value for money."

Value for money is not about reducing costs or cutting budgets, but rather about maximizing the health impact of every available peso, pound, or pula to reduce human suffering and save lives. Or, simply put, getting more health for the money.

Ensuring more health for the money is especially urgent in the current austere budget environment. Governments and global health donors are making tough decisions on how to invest scarce resources and demanding that their investments in health yield higher returns.

This report describes practical steps for the Global Fund and its partners to see these demands become reality. The recommendations are straightforward, if not uniformly easy to implement. Still, the moral imperative that drove the Global Fund's creation more than a decade ago also motivates them to ensure that the billions of dollars raised and disbursed reduce the disease burden as much as possible. By applying modest changes to its grant-making process, the Global Fund could save hundreds of millions of dollars that could then be reprogrammed to save even more lives.

Achieving more health for the money is the core business of all global health funders. But the Global Fund is particularly well positioned to lead, and its new funding model offers an opportunity for quick and flexible adoption of "value for money" principles and practices.

The Global Fund Board has already identified value for money as a priority, and has taken steps within the new funding model to improve the health impact of their funding. However, current efforts stop short of realizing their full potential.

How to get more health for the money

Global health programs operate within a complex funding architecture, where competing mandates and sometimes perverse incentives can stand between money and health impact—the latter being the appropriate measure of success.

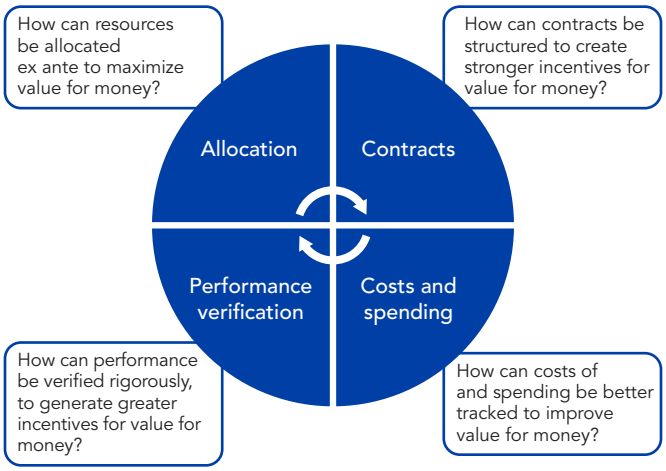
For example, a standard grant agreement between donor and recipient often contains health goals and objectives, a description of activities, a budget of inputs required to carry out the activities, and requirements for routine reporting and financial audits. Yet this design contains no explicit incentive for efficiency, offers few incentives for effectiveness, and may create perverse incentives to over-report results to meet agreements.

These forces make up an incentive environment unlikely to be aligned with maximizing health. Getting more health for the money thus requires re-examining explicit and implicit incentives for funders and recipients, and adjusting them in ways that encourage the allocation of funds to highly cost-effective interventions.

Getting more out of the grant cycle

This report identifies four domains within the Global Fund's grant cycle where value for money can be improved: allocation, contracts, costs and spending, and performance verification (figure 1). Decisions in each domain affect the availability and quality of services provided to people at risk of or suffering from disease, and ultimately the Global Fund's ability to reduce suffering and save lives.

Figure 1 Value for money domains for global health funders



Source: Authors.

More health for the money in action

To illustrate this idea, think of common problems that a Global Fund–supported bed net distribution program might face during implementation, and how better decisions and incentive structures in each domain could help solve them.

At the allocation stage, funding might be directed to more than 200 different types of bed nets—including those with custom labeling or nonstandard sizes—despite a lack of evidence that these specifications improve outcomes. A program may purchase too many nets or too few due to inaccurate demand forecasting, unknown program efficiency, or an inability to assess which mix of interventions will achieve the greatest reduction in disease incidence.

To get more health for the money, the Global Fund should ask countries to purchase their bed nets from a menu of proven, cost-effective interventions and commodities for malaria. The Global Fund could also require that recipients describe the distribution of malaria in their respective countries, to help target bed nets to the most-at-risk groups and geographic locations, and to decide on the mix of interventions—bed nets or otherwise—that will maximize disease impact. And the Global Fund should make this information available to other donors and country programs to reduce gaps in coverage.

At the contract stage, a country may include bed nets in the budget, but no incentives—financial or nonfinancial—are built into the grant agreement to ensure their availability and use in the most affected areas.

To get more health for the money, contracts between the Global Fund and a recipient country should connect some funding to incremental progress on a few important indicators, like the number of children sleeping under bed nets. This progress should be rigorously measured in a simple, objective way to ensure accuracy.

At the costs and spending stage, supply chains may be slow or subject to leakage in moving bed nets from warehouses to front-line providers, and program managers may not have data or leverage in real time to solve these problems. The cost to distribute each net to the right population is unknown, so money may be wasted.

To get more health for the money, the Global Fund should increase and expand reporting to commodity price tracking systems to ensure that the lowest prices for best value products are obtained, track and use cost information on supply chains and service delivery, and create financial and accountability incentives to ensure bed nets arrive in the right place at the right time for the right price.

At the performance verification stage, neither the Global Fund nor recipients rigorously collect data on the use and distribution of bed nets at the household or facility level, and the Global Fund and country programs must rely on incomplete or unreliable self-reports from recipients. Without accurate information on performance, it is difficult for the Global Fund and country governments to know if the bed net program should continue to receive funding, or how its management and delivery strategy could be adjusted to improve effectiveness and efficiency.

To get more health for the money, the Global Fund should verify performance in a rigorous and representative manner, and use data to contract better, allocate better, and strengthen the overall impact of the bed net distribution program over time.

As all this shows, opportunities exist within each domain for the Global Fund and its partners to generate more or less health for the money depending on decisions made and incentives put in place.

Recommendations

Table 1 summarizes key problems in each domain and opportunities for improving incentives to generate more health for the money.

Table 1 Value for money: summary of domains, key problems, and recommendations

DOMAIN	KEY PROBLEM	RECOMMENDATION
Allocation. How can resources be allocated to maximize impact on HIV/AIDS, tuberculosis, and malaria?	National and donor funding is not consistently supporting best practice, despite substantial evidence on what works most cost-effectively to reduce disease.	Choose from a menu of effective and cost-effective interventions and commodities. Identify and target key populations with appropriate interventions. Optimize investments for the greatest health impact. Improve ex ante budgeting and transparency on spending.
Contracts. How can contracts and agreements between the Global Fund and its recipients be structured to create stronger incentives?	Current agreements provide only weak incentives for impact.	Directly connect a portion of funding to incremental progress on performance. Link performance payments to incremental progress against the most important indicators. Support performance incentives between the principal recipient and service providers.
Cost and spending. How can costs of and spending on commodities, supply chains, and service delivery be better tracked and used?	Cost, price, and spending on commodities varies widely between countries; this variation is unexplained.	Continue to improve the scope, completeness, and timeliness of reporting to commodity price tracking systems. Benchmark and use supply chain costs and outputs. Identify core services for more extensive analysis and use of service delivery costs and spending. Share costing data with partners and the public. Develop a strategy to use unit-cost data throughout the new funding model grant cycle.
Performance verification. How can performance be verified and evaluated rigorously, to generate greater incentives and accountability?	The Global Fund relies on weak instruments to verify the accuracy of self-reported performance measures.	Define a subset of core indicators to receive strengthened performance verification. Independently verify the accuracy and quality of principal recipients' self-reported results using rigorous, representative measurement instruments. Complement output verification with population-based measurement and formal impact evaluation for interventions and service delivery strategies of unknown efficacy.

Source: Authors.

The challenge ahead

More health for the money cannot be an afterthought, a checklist, or an extra obligation—it is the very essence of ethical and responsible global health funding.

The Global Fund Board has already identified a subset of these recommendations as priorities, particularly those on market shaping and optimization of commodities. But other areas have attracted less attention, such as reforming and redesigning the performance-based financing system, strengthening performance verification, and using cost and spending data to improve the efficiency of procurement, supply chains, and health care delivery.

While this report focuses mainly on practical technical policies and practices to improve impact, it is also worth anticipating the political challenges posed by the agenda. For example, shifts in allocations by intervention mix—while favoring those at risk for or affected by disease—may threaten the interests of those invested in a less optimal intervention mix.

Further, beyond the incentive environment, increasing the availability and use of economic analysis and expertise is critical to improving value for money. Using unit-cost benchmarking and variability analysis more in different health systems and epidemiological contexts could help, as could increasing technical assistance capacity to build recipient economic and financing

analysis. But mandate and funding for these analyses still lack scale and support.

The challenges for the Global Fund are recognizing that this systematic agenda of more health for the money can influence all aspects of its business, obtaining higher priority for the agenda from the Secretariat, Board, and key strategic partners, adapting, adopting, and integrating the report's recommendations into its operations, and systematically implementing and evaluating the agenda along with the new funding model. The Working Group hopes this report can prompt and guide the Global Fund and its partners to greatly enhance their contribution to reducing disease burden and improving health and well-being—the heart of the Global Fund's mission.

More Health for the Money

Putting Incentives to Work for the Global Fund and Its Partners

Chapter 1

The Global Fund and value for money

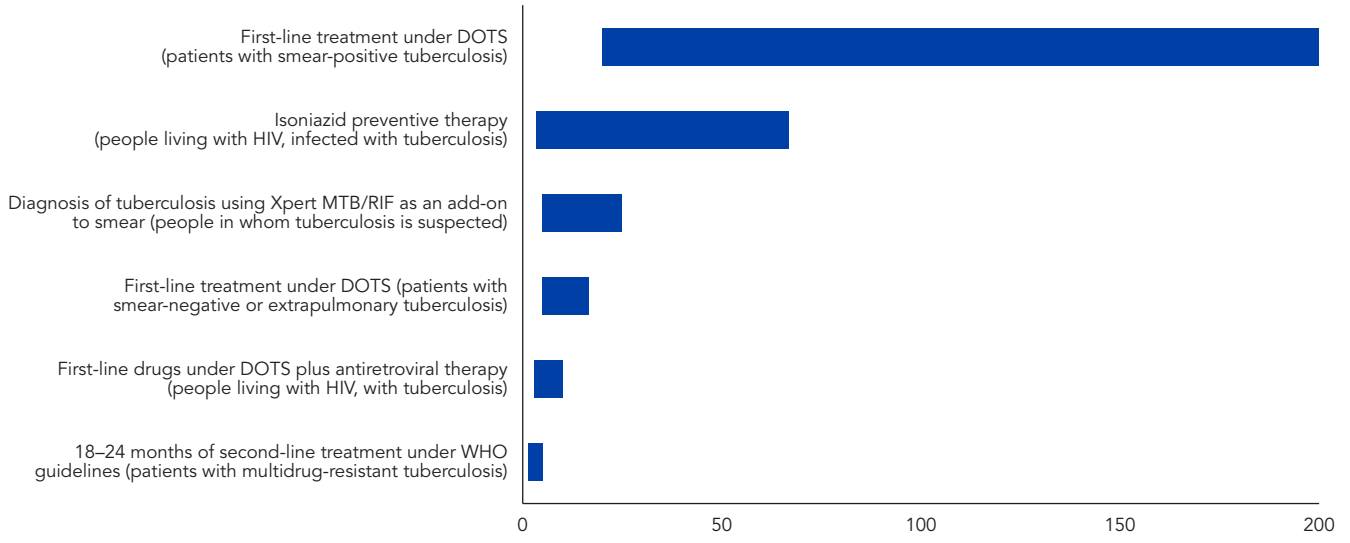
With the same amount of money spent today, the Global Fund to Fight AIDS, Tuberculosis and Malaria (the Global Fund) and its partners could save more lives—if they are willing to create stronger incentives for evidence-based resource allocation and proven health impact.

Contrary to misconceptions and misuses, value for money is not about reducing costs or cutting budgets, but rather about maximizing the health impact of every peso, pound, or pula spent. Yet these transactions occur within a complex funding architecture, where competing mandates and sometimes perverse incentives can stand between health financing and health impact—the ultimate measure of collective success.

And we've come a long way. For all who value the inherent dignity and worth of human life, investing in global health is fantastic value for money. The United States spends upward of $20,000 a year per patient on life-sustaining antiretroviral treatment,[1] a service provided in low- and middle-income countries for an estimated average of $768,[2] less than 4% of the cost of U.S. treatment. Likewise, about $200 buys enough bed nets to save a child's life from malaria[3]—or to fund a routine pediatrician visit in wealthy countries.

Nonetheless, getting better value for money is still imperative, as well as a moral and human rights issue. The least effective intervention in HIV/AIDS produces less than 0.001% of the value generated by the most effective strategies.[4] Tuberculosis interventions may be universally cost-effective when compared with a gross domestic product per capita threshold, yet they range enormously in their cost per disability-adjusted life year saved (figure 1.1). Further, some

Figure 1.1 Life-years saved for $1,000 of tuberculosis interventions



DOTS is directly observed treatment, short-course; WHO is World Health Organization.

Note: Estimates of cost-effectiveness do not take into account positive externalities on other disease conditions.

Source: WHO (2012a).

commonly funded interventions have never been rigorously evaluated, and may not produce health benefits. Where evaluation has occurred, results are decidedly mixed—35 of 45 trials evaluating HIV/AIDS prevention interventions found no statistically significant effect.[5] Ignoring cost-effectiveness in resource allocation can thus imply huge losses relative to the maximum achievable health. In practical and ethical terms this translates to hundreds, thousands, or millions of avoidable infections and deaths due to a failure to prioritize on value for money.

This does not mean that all decisions about allocation and spending should be made based on cost-effectiveness—equity, ethics, feasibility, and other factors also play a role. But the missed opportunities to achieve shared HIV/AIDS, tuberculosis, and malaria goals may be substantial. So value for money should be among the major factors considered in decision-making.

Why this Working Group? Why now?

The Working Group was motivated by three windows of opportunity. First, the world has rallied around ambitious global HIV/AIDS, tuberculosis, and malaria goals, pledging unprecedented funds to combat the "big three" diseases. Yet in recent years budgets have plateaued even as effective new technologies and interventions have become available, requiring tough choices on the use of resources to maximize impact.

Second, low- and middle-income country governments are spending more on health given rising domestic economic growth and stagnating global health funding, suggesting that donors should focus more on leveraging their money where recipients are spending smartly. Global health funders have set increasingly stringent co-financing requirements for governments that receive their support, creating an even greater imperative to ensure that funds are spent on the best possible uses for health in each recipient country.

And third, more governments and global health funders are demanding that their investments yield "value for money" returns (box 1.1). Yet the practical steps needed to fulfill those demands have remained vague up to now.

While these global trends affect all health systems and global health agencies, the Global Fund's mandate, resources, partnerships, and flexible model offer a unique opportunity for leadership in—and partnership for—value for money. Created in 2002, the Global Fund is a public-private partnership mandated to invest "the world's money to save lives" and create "a world free from the burden of AIDS, tuberculosis, and malaria."[6] The Global Fund is a "financial instrument, not an implementing agency,"[7] so it relies on its recipients and its partners, particularly the World Health Organization, the Roll Back Malaria Partnership, the Stop TB Partnership, and the Joint United Nations Programme on HIV/AIDS, among others, to provide technical guidance and support.

The Global Fund also plays a central role in the complex ecosystem of global health funding agencies, requiring extensive cooperation with the U.S. President's Emergency Plan for AIDS Relief, the U.S. President's Malaria Initiative, UNITAID, and the World Bank. Having emerged from a period of transition, the Global Fund's new leadership and new funding model (figure 1.2)—both put in place in 2013—offer an opportunity for adopting the value for money agenda quickly and flexibly (box 1.2). For these reasons, and though the underlying analysis and principles can be extended to other funders and disease-control priorities, this report's main audience is the Global Fund and its partners—country governments, recipients, Secretariat, Board constituencies, and technical partners.

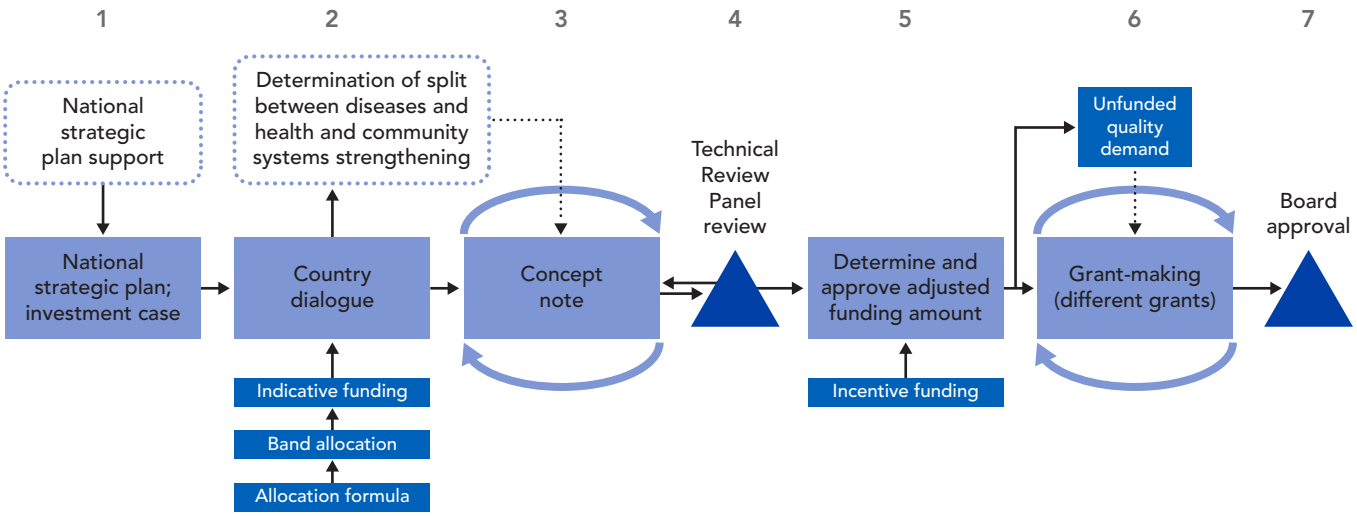
Recent scientific progress, paired with global investments over the past 10 years, has created a unique moment for global health (box 1.3). Whereas pioneers in the fight against HIV/AIDS, tuberculosis, and malaria had to rely on intuition, trial and error, and their own perseverance to aid afflicted communities, today's practitioners can base their work on an expanding, rigorous toolbox for "what works." Value in global health can now be planned, implemented, and documented according to established best practice.

Box 1.1 Statement by African Ministers of Finance and Ministers of Health on value for money

"We recommend [taking] concrete measures . . . to enhance value for money, sustainability, and accountability in the health sector . . . to accelerate progress toward the health [Millennium Development Goals]."

Source: Joint Declaration by Ministers of Finance and Ministers of Health of Africa, July 5, 2012.

Figure 1.2 The new funding model (as of April 2013)



Source: www.theglobalfund.org/en/activities/fundingmodel/process/.

Box 1.2 Global Fund aspirations meet aid realities

The 2002 creation of the Global Fund was motivated by dissatisfaction with the "mainstream aid industry" and its responses to HIV/AIDS. The new model of aid—to be embodied by the Global Fund—was intended to: "be evidence based, sharing cutting-edge technology and good practice globally; show quantifiable results and provide performance-based financing to help achieve them; have the ability to bring off massive short-term change; be nimble and adaptable; serve as a financing agency and rely on partner agencies for help in-country; and set a high standard of transparency,"[1] among other goals. Yet competing mandates in the global health field and in the governance of the Global Fund have played out in ways that did not always support founders' aspirations.

This report suggests that the Global Fund's grants have not consistently supported evidence-based interventions or best value for money technologies, and rarely share good practice globally. Quantified performance is documented, but, as chapters 4 and 6 discuss, the measures used may create perverse incentives, and rigorous verification of these measures has been missing. Relying on partner agencies to ensure that grants are designed and implemented adequately has been problematic. While the new funding model is intended to structure partner agency contributions better through national plans and country dialogue, it does not yet create clear incentives to ensure good results. And while the Global Fund has been a leader on transparency, it was not able to link its spending with outputs or outcomes, thus missing opportunities to understand costs and incentivize greater efficiency. This report presents recommendations to help close the gap between the Global Fund's original intent and the operational challenges of reality.

Amid a difficult economic climate and ever-increasing demands for accountability, the Global Fund's progress on value for money will be its best justification for a strong replenishment—planned for later this year—and for ensuring that those resources have the desired impact on the global fight against HIV/AIDS, tuberculosis, and malaria. As noted by Executive Director Mark Dybul in a recent blog post: "[W]e must make our money count. . . . Great investments are effective, and efficient. In order to raise the money we need for global health, we need to demonstrate to everyone that this money is put to excellent use."[2]

Notes

1. Isenman and Shakow (2010).
2. Dybul (2013).

Box 1.3 Global Fund leadership and value for money

"Every era offers something special. I think the most special thing about our current time is the incredible opportunity that scientific advances have provided in the field of global health, giving us the ability to completely control highly dangerous infectious diseases such as AIDS, tuberculosis, and malaria. . . . Timing is critical. If we do not start to act this year, we may miss that opportunity. . . . As a financing institution, the Global Fund will continue investing in programs that support national health strategies, and will expect that implementers increasingly engage and focus on high value for money and high-impact programs."

—Executive Director Mark Dybul

"Value for money is a challenging, but essential and highly collaborative, process. . . . There is no other alternative."

—Board Vice-Chair Mireille Guigaz

Notes

1. www.cdc.gov/hiv/topics/preventionprograms/ce/index.htm.
2. PEPFAR (2012b).
3. WHO (2007).
4. Ord (2013).
5. Padian and others (2011).
6. www.theglobalfund.org/en/about/whoweare/.
7. The Global Fund (2001).

Chapter 2
What is value for money?

"Value for money" has different meanings in global health. Some use the term to refer to the cost-effectiveness of a health technology, such as a vaccine. Others use it to refer to efficiency as cost minimization—as described in the Global Fund's Value for Money Information Note. The World Bank defines value for money as efficiency and effectiveness, while the U.S. President's Emergency Plan for AIDS Relief refers only to efficiency and effectiveness and does not use the specific term "value for money." At times the term is also used to characterize an agency's overall value proposition relative to other agencies, as in the United Kingdom's Multilateral Aid Review.

The definition of value for money here builds on all these views but focuses on the broader goal of maximizing health impact, given disease-control goals and a health funder's resource constraint. This Working Group's definition implies that health funders will increase value for money if they create and apply incentives for recipients to allocate resources to an optimal mix of cost-effective interventions that maximizes impact toward a disease-control priority within a given budget (box 2.1).

Value for money measures such as cost-effectiveness and efficiency are standard, quantitative indicators used in health economics to compare the health results of alternative health spending choices. Cost-effectiveness, measured as the cost per quality-adjusted outcome achieved, informs both allocative and technical efficiency. Technical efficiency is achieved by minimizing the cost per quality-adjusted unit of intervention or service, while allocative efficiency is achieved when technically efficient interventions or services in the health sector produce the highest health gain given a resource constraint.[i]

In thinking about the value for money of investments, a starting point is to consider the relevant perspective—that is, whose investments are under question? From a country's perspective its ambition to optimize its overall strategy for a given disease through a range of interventions is often described as achieving "value for money" for that disease. This perspective is a simplification of a very

Box 2.1 Definition of value for money and its components

Value for money in the health sector is defined as creating and complying with rules or procedures for allocating resources that elicit the production and use of the health-maximizing mix of services for the available donor, national, and private resources. In keeping with this definition, achieving value for money entails high levels of "technical efficiency" and "allocative efficiency," which can only be reached by ensuring "incentive compatibility." These terms are defined as:

Technical efficiency implies producing as much quality-adjusted output as possible with a given set of inputs, or, conversely, producing a given output with a minimum amount of inputs. For example, measures of technical efficiency would be expressed as "antiretroviral treatment person-years gained per $1,000."

Allocative efficiency implies the distribution of resources to maximize health or minimize selected diseases across countries, across subpopulations, across diseases, and across interventions. A measure of allocative efficiency would be expressed as "malaria cases averted per $1,000."

Incentive compatibility implies creating and complying with rules or procedures that align incentives to achieve technical and allocative efficiency based on the disease-prevention and -control goals set by the global health community.

i. The term "allocative efficiency" can also be used to describe the socially optimum allocation of resources between the health sector and other sectors of the economy, such as education or transport. In this report the concept applies to allocations within the health sector.

complex problem, since a low-income country is not a "unitary" decision-maker. With many actors in a country, value for money requires all internal and external actors to coordinate their investments around a single coherent strategy.

Meanwhile, global health funding agencies must optimize their investments not only for a given country—but also across countries, particularly because infectious diseases can create cross-border spillovers and externalities. And global health funding agencies are also not unitary decision-makers. They must be accountable to many different constituencies, including country governments, beneficiaries, their own governance structures, and a diverse group of donors—each with distinct priorities. Likewise, country governments are accountable to both donors and their own citizens. A country thus embarks on planning its disease-control strategy, potentially conditional on simultaneous decisions from multiple actors with competing interests and with uncertainty on the year-to-year availability of budgetary and donor funds.

The definition here implies that incentives are essential to managing this complex landscape, and thus that the explicit and implicit incentives operating between funders and recipients should be structured to enhance value for money. To illustrate, consider a standard grant agreement between a bilateral donor and a recipient country government. These agreements usually contain health goals and objectives, a description of activities, a budget of the inputs required to carry out the specified activities, and requirements for routine reporting and financial audit. The standard grant agreement thus creates incentives to spend along the approved budget, and to report activities as specified in the grant agreement.

But resource-constrained governments often have other pressing priorities and, given the fungibility of government resources, may reasonably prefer to shift scarce funds away from health sector activities already funded by an external donor. Should government funds be shifted away, the recipient would produce less health and services, but that variation in performance would be hidden from the donor and thus would not affect remuneration or subsequent funding allocations. With this design an agreement limits spending through a hard budget constraint, but otherwise contains no explicit incentives for efficiency, offers few incentives for effectiveness, and may create perverse incentives to over-report results in order to meet agreed targets.

These forces comprise the "incentive environment," where the conditions governing grants may create financial and nonfinancial incentives not necessarily aligned with maximizing health improvement. An incentive environment can never be perfect, and there is no single best approach. Further, introducing new incentives affects how current incentives operate, and thus requires constant monitoring and continuous adjustment to keep them aligned with overall health objectives. For these reasons the incentive environment is an important starting point for discussing value for money.

Improving value also requires adequate information, and the ability to link information on costs and spending with data on outputs and outcomes. Measures of cost-effectiveness and efficiency are comparative. The maximum achievable value for money is based on historical data and comparisons across recipients and providers, controlling for other factors that might affect costs and performance. As a result, data are most useful to funders or program managers when they are comparable across time and context, and when spending is related to outputs and outcomes. Databases of this scope, detail, and quality remain scarce, however.

In conducting the analyses for this report, the Working Group has faced challenges in obtaining data on donors' actual costs and spending, and sometimes even in obtaining ex ante budgets. Where available, budgets themselves are of limited use because they are organized by input type, rather than by interventions, outputs, or outcomes. The inability to link money to outputs and outcomes, thus clearly defining and prioritizing "what we are buying," is reflected in the difficulty of measuring value for money in typical grants and contracts. This is a serious limitation of the analysis, and represents a value for money priority in its own right.

Generating incentives for value for money: a framework for funders

As an international group committed to achieving the global community's ambitious health goals amid a plateau in donor spending, this Working Group focused on value for money from the perspective of a global health funder (box 2.2). An external funder of health policies and interventions, such as a bilateral donor or global health partnership, is just that—a funder. The funder does not set national policies, produce health commodities, or provide health services, all of which must be optimized to achieve health goals. Indeed, with few exceptions, external funders usually pay only a small portion of the costs for purchasing commodities or providing services in a country.

Box 2.2 Selected global health funders

- The Global Fund to Fight AIDS, Tuberculosis and Malaria
- GAVI Alliance
- World Bank
- U.S. President's Emergency Plan for AIDS Relief
- U.S. President's Malaria Initiative
- Bill & Melinda Gates Foundation
- UNITAID
- European Commission
- Bilateral Development Assistance Committee donors

Rather, a funder must work with a very limited toolbox to leverage or create value for money incentives among recipient country governments and implementing agencies.[ii] Global health funders can exercise six authorities to achieve their objectives:

- The authority *to grant money*.
- The authority *to set standards* for allocating or disbursing funds.
- The authority *to verify the performance* of recipients or suppliers against those standards.
- The authority *to finance or facilitate technical assistance* in support of standard adherence and performance verification.
- The authority *to convene* stakeholders in order to improve standard adherence or performance verification.
- The authority *to iterate* the exercise of these authorities in a project cycle, making adjustments to improve value for money.[iii]

These authorities derive from the charter or founding documents, from established precedent, and from the consent of an organization's board members. Note that these authorities differ substantially from the tools available to sovereign states, multilateral development banks, or civil society organizations, each of which can exercise more direct control over program implementation.

Thus while an international nongovernmental organization or a bilateral donor agency can directly hire and supervise doctors and managers, an organization like the Global Fund must take a more indirect approach. The Global Fund can award grants to attain predefined health objectives. It can measure the performance of its grantees against these objectives. It can give or deny approval of procurement proposals by principal recipients. And, importantly, it can offer or withhold payments, bonuses, rewards, and other incentives based on measured performance.[1] Further, because of its standards-setting authority, the Global Fund can ensure that its principal recipients have and exercise analogous authorities over subrecipients such as facility managers, program managers, and subcontractors.

Keeping the limited authorities in mind, this report sets out a framework of value for money domains for decision-making. There are four domains within the grant or funding cycle where value for money can be improved: allocation, contracts, costs and spending, and performance verification (figure 2.1). The approach to each domain is necessarily collaborative and starts with country policymakers in partnership with funders.

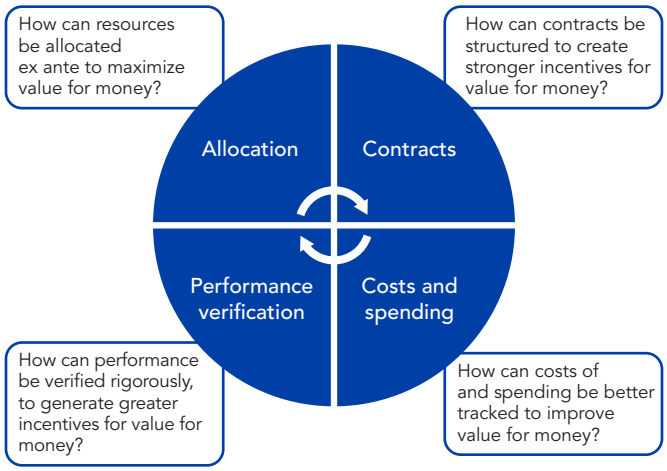
How can resources be allocated ex ante to maximize impact on HIV/AIDS, tuberculosis, and malaria? Despite expanding evidence on what works most cost-effectively to reduce disease, national and donor funding does not consistently support best practices. Using stronger evidence thresholds for funded interventions through a fair process, shifting funds to best value commodities, and encouraging the use of economic evaluation and modeling to inform national and Global Fund resource allocation can help drive value for money.

How can contracts and agreements between the Global Fund and its recipients be structured to create stronger incentives for value for money? Current agreements provide only weak incentives for impact. Directly connecting performance to a portion of funding, linking performance payments to progress on the most important indicators of quality and impact, and supporting performance incentives between principal recipients and service providers are ways to get more value for money.

ii. Definitions of "value" also depend on the type of intervention that a global health funder supports. While this report focuses on funders that support the Global Fund–related global health goals—where value is defined as incidence, prevalence, and access to quality services with equity—funders with other goals such as market shaping, as with UNITAID, will define value differently.

iii. The Working Group's background paper entitled "Value for Money in Health: A Framework for Global Health Funding Agencies" defines "value for money" as it applies to a health funding agency and enumerates the limited number of policy instruments or "tools" available to the Global Fund, which are derived from these basic authorities.

Figure 2.1 Value for money domains for global health funders



Source: Authors.

How can costs of and spending on commodities, supply chains, and service delivery be better tracked and used to improve value for money? Improving the scope, completeness, and timeliness of reporting to commodity price tracking systems, identifying a core package of services for more extensive analysis of costs, sharing cost and spending data with partners and the public, and developing a strategy to use cost and spending data to drive value for money improvements throughout the grant cycle are main value for money agenda items.

How can performance be verified and evaluated rigorously, to generate greater incentives and accountability for value for money? Despite well-known discrepancies between self-reported administrative data and actual performance, the Global Fund has relied on weak instruments to verify the accuracy of self-reports. Defining a subset of essential indicators to receive strengthened performance verification, independently validating the accuracy and quality of principal recipient's self-reported results using rigorous and representative measurement instruments, and complementing output verification with impact evaluation for interventions of unknown efficacy are essential to aligning incentives and creating accountability for impact and value for money.

Decisions in each domain directly affect the availability and quality of services provided to those at-risk for and suffering from disease, and ultimately the collective impact. Consider why a bed net distribution program might run into trouble in implementation and how better decisions and incentive structures in each domain might help solve these problems.

At the allocation stage, a lower value for money net can be eligible for purchase rather than a long-lasting insecticide-treated bed net, as recommended by the World Health Organization. Too many or too few nets may be purchased due to the inability to assess the mix of interventions that will have the most impact on disease incidence, or due to inaccurate demand forecasting or unknown program efficiency.

At the contract stage, nets may be budgeted, but no incentives—financial or nonfinancial—will guarantee their availability and use in the most-affected areas. During implementation, supply chains may be slow to move product from warehouses or out to front-line providers, but program managers may have no data or leverage in real time to deal with these problems.

At the cost and spending stage, the cost to distribute each net to the right population is unknown, and money may be wasted.

And at the performance verification stage, no household or facility data are collected in a representative way, and the funder and the government program must rely on principal recipients' self-reports of unknown accuracy to determine whether to continue funding, decide on how to adjust the management and delivery strategy to be more effective, or provide feedback to the allocation process to improve efficiency.

At each stage, within each domain, funders—both countries and international actors—can successively lose value from their investments.

Together all four decision-making domains reflect a systematic agenda for value for money that previously may not have been interpreted as essential to impact. Chapters 3–6 each track one of the four domains, analyzing current practices and offering recommendations to enhance value for money at every stage of the Global Fund grant cycle.

The four domains also make implicit what is not value for money or efficiency. One such example is that the term "value for money" has been misused to refer to cutting country budgets by 10 percent or more amid financial uncertainty. Efficiency is not achieved by reducing budgets without considering health outcomes or outputs.

While the Global Fund Board has already identified a subset of the recommendations as priorities (particularly those on market shaping and optimization of commodities), other areas have attracted less attention, including the need to reform and redesign the performance-based financing system, strengthen performance verification, and use cost and spending data to improve the efficiency of procurement, supply chains, and health care delivery.[iv] This report identifies actions to take now—and build into the business model over the next two to five years.

The challenges are recognizing that a systematic value for money agenda can influence all aspects of the Global Fund's business; obtaining higher priority for the agenda from the Secretariat, Board, and key strategic partners, adapting and adopting the report's recommendations into operations, and implementing and evaluating the value for money agenda with the new funding model.

Value for money is not merely a checklist, a principle, or another task on the to-do list—it is the core business of any health funder. The Working Group hopes that this report can contribute to the effort.

Note

1. The Global Fund (2011c).

iv. Indeed, some of these recommendations are not new. Variants of recommendations have been issued by the Global Fund's High-Level Independent Review Panel on Fiduciary Controls and Oversight Mechanism in 2012, the Fund's Technical Evaluation Reference Group Five-Year Evaluation in 2010, and the Fund's Office of the Inspector-General in recent years. Further, a recent U.S. Institute of Medicine evaluation of the U.S. President's Emergency Plan for AIDS Relief highlighted similar issues, reinforcing the universality of the value for money challenge.

Chapter 3

Planning allocation

Recommendations

- **Choose from a menu of effective and cost-effective interventions and commodities**
- **Identify and target key populations with appropriate interventions**
- **Optimize investments for the greatest health impact**
- **Improve ex ante budgeting and transparency on spending**

A value for money agenda for any funding agency must start at the beginning: Which programs and interventions are eligible for the agency's financial support? And how can the agency ensure that its allocations best achieve objectives for disease control and health improvement?

These questions lie at the heart of "allocative efficiency," or "doing the right things."[1] Allocative efficiency means selecting interventions that achieve maximum health impact within a given budget constraint. It typically requires tailoring interventions to geographical and epidemiological contexts, and can be achieved either for a single disease area or for a population's health more broadly. Any funding agency must allocate its resources along a set of allocation criteria. Such criteria may be explicit, as in the U.S. President's Emergency Plan for AIDS Relief's (PEPFAR) 10 percent earmark for programs targeting orphans and vulnerable children, or implicit, as in the Global Fund's historic approach to grant-making, where allocations were based on expressions of country demand.

Despite the expanding evidence base on intervention effectiveness, both global and national funders continue to allocate resources to interventions and intervention packages that do not provide the best value for money. To maximize the value for Global Fund investments, this Working Group believes that the Global Fund must make good on its commitment to take a more active approach to grant allocations, including using stronger evidence thresholds for funded interventions, shifting funds to best value commodities, and encouraging economic evaluation and modeling as part of the proposal process. Together, a deliberate and coordinated approach to resource allocation will enable countries and funders to drive better value for money from their shared investments.

Overview

The Global Fund adopted a passive approach to grant allocation, driven by the belief that its "demand-driven approach ensures that the money is going where it is needed most,"[2] albeit with reviews for technical merit by the Technical Review Panel (TRP). Countries were expected to optimize their portfolios, without a clear resource constraint. The Global Fund relied on countries to do this despite their often limited capacity to do so (lack of tools and expertise in costing, epidemiologic surveillance, and modeling) and potentially without addressing political or economic conflicts of interest (political or religious objections to working with most-at-risk populations, or political imperative to distribute funds to many different constituencies).

While well intentioned and consistent with the Global Fund's core principle of country ownership, this model suffered from serious limitations. By failing to provide countries with a clear budget constraint, predictable funding windows, or rewards for efficiency, the Global Fund created strong incentives for countries to maximize their funding requests—often without considering actual need and other funding sources, or assessing their most pressing priorities given scarce resources. As the Global Fund never had enough resources to meet the full demand of all countries for all diseases—and arguably never will because country demand is always increasing and also incorporates a desire to build general health systems and address health challenges outside the Global Fund's "big three" purview—demand was insufficient as a mechanism to ensure an effective and efficient response to HIV/AIDS, tuberculosis, and malaria. While the Global Fund would reject the most incomplete or inappropriate

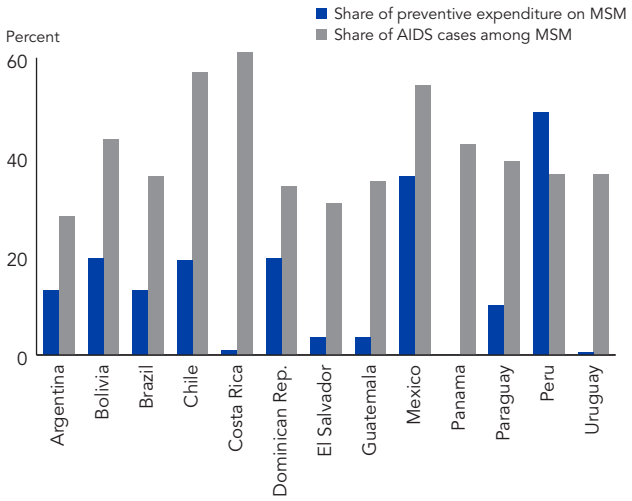
proposals, it rarely pushed countries to select the most effective or cost-effective interventions and commodities. Some interventions that could be effective were nonetheless proposed in a manner that either disregarded the dynamics and distribution of disease nationally and subnationally or ignored national implementation capacity.

Given the overwhelming public health evidence on tailoring responses to the characteristics of an epidemic in a country, the Global Fund is increasingly recognizing that efficient allocation is an essential part of the value for money agenda. With the new funding model, the allocation formula represents a way to distribute global resources across many countries more methodically, but much work remains on optimizing investments within each country. Amid severe budgetary constraints in a difficult economic climate, any spending on interventions—that are poorly coordinated, not targeted to key populations, not cost-effective, or, worse, not even known to be effective—represents a missed opportunity to improve health through high-impact interventions.

A widespread failure to explicitly target and reach populations most at risk has had serious consequences, both for stopping transmission of a disease (prevention) and reducing mortality and morbidity from that disease (treatment). This failure has been particularly acute for HIV/AIDS (and arguably much less so for tuberculosis and malaria) because of the political sensitivity of the relevant populations at risk (sex workers, injecting drug users, and men who have sex with men [MSM]), where political barriers to acknowledging these populations are coupled with fear of further discrimination against them if prioritized for outreach.

Underinvestment in high-risk populations appears to be obvious and widespread. MSM in Latin America tend to receive scant resources for HIV prevention relative to their central role in the region's epidemic (figure 3.1).[3] In Costa Rica, the most extreme case, an estimated 60 percent of all infections occur among MSM, yet this high-risk group receives only about 1 percent of the country's spending on HIV prevention.[4] A similar misalignment occurs in Ghana, where more than 99 percent of HIV/AIDS funding failed to specifically reach high-risk populations, despite that 76 percent of HIV transmission in Accra has been driven by the commercial sex industry.[5] While correlating funding proportions with the distribution of disease burden provides only a crude assessment of allocative efficiency, such extreme misalignments suggest a joint failure of donors and country governments to deploy strategic investment and target populations most at risk.

Figure 3.1 Misalignment between men who have sex with men's share of disease burden and funding level



MSM is men who have sex with men.

Source: Forsythe, Stover, and Bollinger (2009).

While these misalignments speak to aggregate inefficiencies in the global response, the Global Fund itself (alongside most other donor agencies and national governments) shares only limited information on its investments, particularly on the mix of interventions and commodities financed by its grants and on the populations targeted by those interventions. For each country a donor agency may be aware of its own distribution of funding by intervention. But this information is rarely available to the public, other donor agencies, and often even the country itself. Without such information on the distribution of investments—both by intervention and targeted population—it is not possible to assess the overall allocative efficiency of a country's intervention mix. As noted in the Institute of Medicine's PEPFAR evaluation report, even recipient countries are at a loss for "where (geographically) the money is going and what services are being supported so that they can identify unmet needs."[6] Because allocative efficiency requires that actors and donors share information to optimize a country's intervention mix, suboptimal allocations are likely to prevail without full transparency.

This limited sharing of information seriously constrains both achieving and analyzing allocative efficiency. After all, how can

we determine whether resource allocation is efficient if we do not even know what the allocation was? Even so, some sources suggest a misalignment of donor financing given current evidence on high-impact and cost-effective interventions. For the Global Fund's HIV grants, for example, observed misalignments include low uptake of medical male circumcision in Global Fund grants (despite its large and proven potential to reduce HIV transmission)[7] and large allocations to prevention interventions of questionable efficacy (behavior change communication and various training interventions) that often lack evidence from rigorous evaluations.

The chosen interventions (even those determined "cost-effective") must be determined jointly with their intended key populations. For example, despite a progressive official policy in place (the Sexual Orientation and Gender Identities Strategy[8]), whether this policy influences disbursement decisions is unclear: "of the $1.5 billion in funding allocated to these six countries since 2001, only 0.07 percent was for programs specifically targeting [gay men, other MSM, and transgender individuals]. Moreover, the majority of this support is concentrated in just one of these six countries (Namibia)."[9] A recent amFAR report notes that Global Fund proposals often take a "tokenistic approach" to MSM and other key populations in which these groups are mentioned in passing but do not receive specifically targeted (let alone budgeted) activities.[10] Moreover, there is evidence of underinvestment in harm reduction in countries where the epidemic is fueled by injecting drug users.[11]

HIV interventions are not always clearly or appropriately targeted to high-risk groups. In a sample of grant agreements from five countries with varying epidemiologic profiles (Ethiopia, India, Nigeria, the Philippines, and South Africa), most funding over 2002–12 was either earmarked for the general population, or did not indicate a specified target group.[12] While this finding does not necessarily imply that the Global Fund itself did not tailor interventions to specific populations, it suggests that other funders such as PEPFAR are unlikely to know what populations Global Fund grants reach, and to respond accordingly.

Further, there are still opportunities to scale up the most cost-effective interventions in the pursuit of disease-control objectives. For example, first-line regimens are more cost-effective than second- and third-line regimens. In countries that have not fully scaled up the coverage and quality of first-line treatment to the entire eligible population, investing in second- and third-line treatment is not likely the most cost-effective intervention.[13] However, the Global Fund subsidizes second- and third-line antiretroviral (ARV) and tuberculosis medications in several low-income countries where first-line coverage and, perhaps, quality remains low. In the last round of commodity spending reported to the Price and Quality Reporting (PQR) system, spending on second- and third-line ARV and tuberculosis medications represented the majority of total medication spending.[i] Spending on second- and third-line treatment is likely to increase as more patients fail first-line treatment, which may imply tradeoffs in reaching the Global Fund's expressed disease goals and in achieving equitable access or (still implicit) disease goals specific to drug-resistant strains.[ii] The Global Fund likely offers second- and third-line regimes for reasons of "gap-filling" role as countries take on (though incompletely) raising coverage and quality of first-line treatment. Or because patients failing on first-line treatment that stay on first-line can develop resistant strains of the virus. Or for ethical reasons of continuing treatment for those already being treated,[14] though there are also reasons for doing otherwise—for example, based on the "fair innings" principle.[15] Ethical arguments on equitable access aside, the Global Fund risks pursuing an ad hoc approach with an unclear disease-control objective without a systematic policy to tackle the spread of drug resistance and subsequently the use of second- and third-line or other newer treatment regimens.

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i. Analysis of the PQR indicates that the majority of tuberculosis commodity funding in the last available round (round nine) went to second-line drugs (85 percent), though in six of the nine rounds the majority of commodity funding went to first-line drugs. For HIV commodity purchases, the majority of purchases were spent on first-line drugs until the last round, when second-line spending was higher (88 percent). Note, however, that only half of total spending on PQR-reportable commodities is actually reported and reflected in the PQR, so this may not be a representative sample of spending.

ii. In March 2013, for example, the government of Zimbabwe announced that it would be financing third-line ARVs as part of its approach to HIV treatment services. But there are still an estimated 238,000 people living with HIV in Zimbabwe that have not yet accessed first-line treatment, and retention rates on first-line treatment are around 70 percent (HEALTHQUAL International 2012). Similarly, in 2011 Zambia announced that that it would be providing free third-line ARVs to more than 200 people that need them. Uganda similarly has been offering second-and third-line ARVs on a limited basis since 2010.

Even within the same categories of medication, shifting resources to more cost-effective formulations can yield health gains and savings. For example, research in South Africa found that the most commonly used first-line ARV combination (stavudine, lamivudine, and nevirapine) was among the least cost-effective and efficacious.[16] Shifting to another World Health Organization (WHO)–approved first-line regimen would thus be a win-win, both in improving patient outcomes and in saving money. The extent of these potential gains will likely increase in the coming years due to the growing need for second-line treatment.[17]

Among nonmedical health commodities such as condoms and bed nets, there are also likely to be savings from shifting investments to better value for money commodities. The Global Fund along with the U.S. President's Malaria Initiative has been the main purchaser of insecticide-treated bed nets (ITNs), standardizing to some extent ITN purchases through better reporting of prices and specifications (durability, acceptability, usability). But countries receive funding for more than 200 different types of ITNs—including requests for customized labeling or nonstandard sizes. Some have hypothesized that diverse ITN specifications could be critical for uptake, but to date no evidence supports or refutes this hypothesis, and choosing to fund different kinds of ITN comes at higher cost with no evidence of marginal benefit. Under some assumptions on ITN uptake conditional on observed specifications, this inefficiency appears substantial. One report finds that more than $340 million could be saved worldwide by purchasing more cost-effective long-lasting ITNs over the next five years.[18]

In short, better incorporation of cost-effectiveness criteria for procurement decisions could produce effectiveness and efficiency gains—though cost-effectiveness must be balanced by acceptability, usability, timeliness, market stability, quality, and other local considerations.

Opportunities and limitations

With stagnating support for global health funding, there is a moral imperative to spend Global Fund money on interventions and commodities that are effective and cost-effective, reach those most at risk, and realize disease-control objectives. In the 10-plus years of the Global Fund, the epidemiological knowledge base for preventing and treating HIV/AIDS, tuberculosis, and malaria has expanded. Systematic reviews evaluating the effectiveness of prevention, diagnostic, and treatment interventions are now accessible, and epidemiological and economic models and available data can be used to estimate the ex ante optimal mix of interventions and target populations to prevent disease or reduce mortality. Here, the Global Fund and countries share a common interest in optimizing their investments—and a common challenge that can only be addressed through collaboration and mutual support.

Although the Working Group advocates greater use of cost-effectiveness criteria in investment decisions, it recognizes that cost-effectiveness, particularly in a clinical setting, is but one factor in decision-making. Other factors are the overall efficiency and effectiveness of the delivery and implementation, and the context in which a commodity or intervention is purchased—for example, the supply, acceptability, durability, or user-friendliness of a product—which could in turn influence its ex post cost-effectiveness. Moreover, slavish devotion to static cost-effectiveness can ignore relevant long-run dynamics. For example, standardizing procurement could reduce prices (see chapter 5) and competition, which may affect the long-run entrance of competitors and the long-run value for money of products.

The Global Fund and PEPFAR each have distinct goals and objectives, but some need clarifying. For example, both the Global Fund and PEPFAR fund programs to mitigate the adverse effects of AIDS on orphans and vulnerable children (OVC). But the relative cost-effectiveness of different OVC interventions should be judged not on their ability to prevent HIV/AIDS per dollar of investment, but on their ability to improve OVC well-being per dollar. Cost-effectiveness still applies, but the measure of effectiveness will differ.

With unclear objectives and intended outcomes of OVC programs, there has been a consequent lack of consensus on indicators used to measure the effectiveness of these programs. However, recent work in Kenya and South Africa—supported by the United Nations Children's Fund—illustrates that rigorous measurement and evaluation of OVC interventions is eminently feasible,[19] while recent efforts by PEPFAR to better define OVC program outputs and outcomes can also be adopted by Global Fund–supported efforts.[20]

Goals and objectives also need clarifying in health systems strengthening (HSS) investments by the Global Fund.[21] HSS investments require clarity on and links to the expected outcomes, such as increased access, quality of care, efficiency, financial risk protection, responsiveness, and patient satisfaction. The goals of HSS investment are not mutually exclusive from that of disease-specific

investments: each disease-specific investment can and should be classified as having an HSS characteristic or building block. Given the lack of clarity on expected goals of HSS investment, many HSS investments focus on the WHO building blocks, which emphasize system inputs (service delivery, health workforce, health information system, drugs, financing, and leadership and governance), but less so their links to outcomes, however defined, as well as current incentives affecting each input.

For example, for human resources for health (under the building block of "health workforce"), a recent study examined the investments in human resources for health by three donor agencies—the GAVI Alliance, the Global Fund, and the World Bank.[22] This study found that most GAVI Alliance and Global Fund grants finance health worker remuneration, largely through supplemental allowances, with little information on how payment rates are determined, how any negative consequences are mitigated, and how payments are to be sustained at the end of the grant period. Only a third of GAVI proposals and less than a tenth of Global Fund proposals considered health workforce policies, despite a median share of 27 and 22 percent of grants devoted to human resource activities.

Finally, cost-effectiveness as a criterion for decision-making is sometimes critiqued as "unfair" to non-biomedical interventions, particularly for HIV prevention. The approaches proposed by countries should, for the most part, exclude interventions not effective in some dimension of the disease response. But there are examples of non-biomedical—social or behavioral—interventions that have been rigorously evaluated and can be cost-effective, though not against impact measures of HIV incidence. For example, peer support for ARV adherence and nutrition was found to increase the timeliness of clinic and hospital visits in South Africa. And peer mentoring for HIV counseling and testing was effective in increasing testing of a HIV+ partner in Senegal.[23] Despite the lack of evidence on many social and behavioral interventions on health outcomes, conditional cash transfers are an important and unique category of non-biomedical intervention for which there have been statistically significant declines in the incidence or prevalence of sexually transmitted infections (including HIV) and pregnancy.[24]

Recommendations

A country's national strategic plan (NSP), the starting point for the Global Fund's new funding model, is intended to frame the subsequent steps of the grant proposal process (country dialogue, concept note, TRP review, approval). This is appropriate since allocative efficiency is most relevant to the total spending on disease control in a country.

The new funding model—and the Working Group—envision a country's NSP as a foundational document, where value for money recommendations on "doing the right things" should be first addressed. However, given the focus on the Global Fund and some of the challenges around current NSPs,[iii] the four recommendations below are more closely linked to the country dialogue, concept note, and TRP review steps in the new funding model.

Choose from a menu of effective and cost-effective interventions and commodities

The Global Fund's country dialogue and TRP review of concept notes are important opportunities to shape allocation in accord with evidence-based funding criteria. The TRP review has included an explicit value for money component since 2011,[25] and the TRP is now empowered to rank individual components within the grant proposal according to its value for money review criteria.[26] While important, these changes will not be enough without explicitly recognizing the importance of cost-effectiveness, not just effectiveness and efficiency.

A key recommendation of this report is to invest mainly in effective and cost-effective interventions and commodities, provided as guidance to recipients through a predetermined "menu" of options. The TRP should be mandated to ensure compliance with this requirement during its review of concept notes, while encouraging countries to innovate and experiment in the delivery of these interventions as well as when there is an absence of proven

iii. A cursory review of current NSPs finds that most do not include any significant analysis of choice or mix of intervention given disease dynamics, most lack accurate and updated information on and scenarios of budgets and spending from different revenue sources, and most follow different time periods (five to six years) than the Global Fund three-year grant cycle. Further, the donor coordination that would be required to address these challenges is itself a difficult task, at least in the past. For example, a 10-country study on coordination for HIV/AIDS programs found that "incentives for coordination are weak and practice falls far short of policy intent" (WHO 2008, p. 1).

interventions or an apparent failure to slow the transmission of diseases.

If the menu lacks proven interventions, if recipients prefer to invest in interventions not included on this menu, or if recipients recognize a need to innovate and experiment, recipients can "opt out" of the intervention and commodity menu if their proposed intervention is better value for money. Countries should provide local analysis showing that the proposed product or intervention would be more cost-effective within the local context to justify their decision. If the country chooses not to provide such analysis, it should be asked to pay the differential between its selected product or intervention and the most cost-effective option. Further, recipients that deploy other interventions should be required to assess their effectiveness and cost-effectiveness through rigorous evaluation (see chapter 6).

For grants seeking renewal, the Global Fund should assess the cost-effectiveness of each grant's intervention and commodity mix. To speed the reprogramming of grants, the Global Fund could enable countries to retain the savings generated by shifting to a more efficient intervention and commodity mix.

Among interventions in treating and preventing the big three diseases, the evidence on proven interventions for HIV prevention (beyond male circumcision and conditional cash transfers), particularly for the key populations of MSMs and sex workers, is still developing.[27] So interventions in these areas will likely require ex ante justification of plausibility and epidemiologic importance, combined with rigorous evaluation on key outcome or impact measures (see chapter 6). These requirements should not be seen as onerous but rather a means to document ongoing experimentation and innovation in the search for effective interventions.

To encourage countries to pursue the most efficient and equitable strategy, the Global Fund needs to develop a systematic policy on prioritizing high-quality first-line treatment of HIV/AIDS and tuberculosis in countries that are still scaling up first-line services and have poor results on retention and completion of treatment. Specifically, the Global Fund needs to articulate a clearer vision to realize goals on disease control and equitable access and to articulate a policy on how to respond to drug-resistant disease transmission. Some members of the Working Group strongly agree that the Global Fund should offer funding for second- and third-line treatment only if countries have fully scaled up or quality-assured first-line treatment or if they demonstrate that second-line treatment is equitable, affordable, and critical for achieving certain disease-control goals. For example, one justification for expanding to second- and third-line treatment is that adding such patients can be a marginal cost, whereas expanding first-line treatment may involve larger capital investments, such as in infrastructure and outreach. The costs and impact of different paths and strategies must be carefully weighed.

This recommendation is consistent with the Board-approved market-shaping strategy focused on commodities (and not interventions more broadly),[28] and the Working Group recommends that the Global Fund fully implement this strategy. The Global Fund's Market Dynamics Committee identified opportunities for efficiencies through product optimization, incentives to use cost-effective products, and expedited reprogramming. As these recommendations have already been developed and approved by the Board for implementation by the Secretariat, these changes should be expedited to ensure that efficiency gains are realized as soon as possible. Specifically, the Global Fund Secretariat should implement the following recommendations as suggested by the Market Dynamics Committee and approved by the Board in May 2011:

- Optimize commodity purchases using cost-effectiveness analysis. Identify gaps in product quality assurance for procurement guidance, and identify partners or processes to fill those gaps.
- Require that recipients opt out of purchasing cost-effective products. Develop credible and reliable process to assess opt-out requests.
- Expedite reprogramming processes to allow principal recipients to absorb new cost-effective technologies or respond to new evidence.
- Ensure principal recipients have first right to savings from adopting higher cost-effective products or increasing cost-effective deployment.

These recommendations also create financial incentives by entitling recipients that switch to lower cost commodities of comparable quality to a "right of first use" and the opportunity to reinvest freed resources.[29] Similarly, shared savings programs, being piloted in the United States, reward health care providers for keeping per-unit spending below targets while maintaining quality.[30] A proportion of those cost savings are then allocated back to successful programs. Within the U.S. health care system, this tool is used to encourage strengthened coordination and to reduce unnecessary or high-cost care. Likewise, the Global Fund could create incentives to reduce costs while improving value for money. Savings from improved

efficiency could be returned to recipients, the country coordinating mechanism, or other implementers as appropriate (and as agreed on before implementing the program).

A critical issue for this recommendation is how the Global Fund will obtain a menu of eligible interventions and commodities for each disease area. The Working Group recognizes that the Global Fund is constrained by a lack of appropriately helpful technical guidance on the cost-effectiveness of commodity purchases. While the WHO has helped inform medicine purchases through its treatment guidelines, WHO guidance tends to focus on quality assurance rather that cost-effectiveness[iv] (with exceptions for specific categories, such as multidrug-resistant tuberculosis[31]), and on clinical treatment rather than prevention or population interventions (such as bed nets and condoms). Moreover, WHO guidance on cost-effectiveness is often deemed "weak" under the Grading of Recommendations Assessment, Development and Evaluation methodology for not relying on randomized controlled trials.[32] Because there is limited guidance and quality assurance for nonclinical commodities, and because current guidance rarely incorporates affordability, the Global Fund often lacks the technical expertise to inform its product purchases. Moreover, given a dynamic environment with shifting commercial demand and emerging scientific evidence, guidance will require regular modification to reflect changing conditions.

Many members of the Working Group recommend that the Global Fund formally request such a menu from its key technical partners such as the WHO. If the technical partners are unable to provide such a menu, the Global Fund must commission it from an independent expert body. A 2011 Results for Development report prepared for the Market Dynamics Committee also suggested that the Global Fund commission expert guidance for key commodities, such as from the UK National Institute for Health and Clinical Excellence, "to conduct robust comparative cost-effectiveness analyses of two or more WHO-recommended products and provide that information to the Global Fund and its recipients."[33]

Further, this is an area of growing interest to recipient country governments. In South Africa an analysis of the first 18 months of health insurance recommended "a policy and institutional mechanism . . . to assess the cost-effectiveness of new health technology and make recommendations for inclusion or not in [insurance-] funded services."[34] In addition, with the Tunis Value for Money declaration, many countries plan to build capacity to conduct cost-effectiveness analysis and carry out health technology assessments of new interventions as a tool to rationalize scarce national resources for health. Indeed, more countries are willing to address the financial sustainability of HIV programs through strategies that prioritize interventions and improve the efficiency of service delivery.[35]

To draft the terms of reference for such an exercise, the Global Fund will need to agree on the key principles and methods of health technology assessment. For example, the National Institute for Health and Care Excellence published the 2013 edition of the *Guide to Methods of Technology Appraisal,* which reviews the principles and methods of health technology assessment and appraisal within the institute's appraisal process.[36] The menu should be regularly updated to reflect emerging evidence, new innovations, and evolving cost structures for existing interventions.

In addition to obtaining a menu of cost-effective interventions, the Global Fund could better house and share the results of health technology assessments with country coordinating mechanisms and principal recipients, which in turn should use such information in writing their concept note. The country dialogue process and subsequent TRP review should also encourage the incorporation of cost-effectiveness analysis (both guidance used by the Global Fund and by independent research) as an indicator for well-designed and actionable NSPs. The TRP should disseminate relevant cost-effectiveness research, which should be used in all parts of program design, particularly during the country dialogue phase.

The Global Fund's new release of guidance through "strategic investment guidance and information notes" developed by technical partners is one important but limited step to ensure the value for money of new concept notes and renewal of grants.[37] Each note needs to better reflect value for money and cost-effectiveness criteria. For example, the recent "Strategic Investments for HIV Programs" note describes several basic programs that have high impact while referring applicants to review "the most recent technical and normative guidance related to these high-impact interventions." Rather than refer grant applicants to technical partners for guidance, the Global Fund should make technical and normative guidance more explicit to its applicants based on the above process.

iv. See, for example, the WHO Prequalification program (WHO 2013) and the WHO Pesticide Evaluation Scheme that primarily aims to "[study] the safety, efficacy, and operational acceptability of public health pesticides and developing specifications for quality control and international trade" (www.who.int/whopes/en/).

Countries have innovated—and will continue to innovate—in a dynamic epidemiologic and economic context with Global Fund support. This recommendation ensures value for money of investments by largely investing in proven interventions that are already effective and cost-effective. Countries should nonetheless be encouraged to experiment, innovate, and learn, particularly when the evidence base is still developing.[38] Indeed, the Global Fund's Affordable Medicines Facility for Malaria represents a unique and large-scale experiment that contributed to the evidence base on malaria treatment and that countries may choose to draw on when developing their proposals.[39]

Identify and target key populations with appropriate interventions

The investment case in each concept note should reflect an understanding of the key populations driving new infections, address the country's strategy to better reach these populations, and target "hot spots" of disease transmission with appropriate interventions. Targeting is essential, as a nominally cost-effective intervention package may not be effective or cost-effective if it is not appropriately tailored to reach key populations. In its most recent replenishment the Global Fund has prioritized better targeting, particularly for using geographic and epidemiologic data to identify (and target) the foci of HIV transmission. Likewise, new Global Fund Executive Director Mark Dybul has publicly stated that using hot spots to improve targeting is a critical disease-control strategy.

As countries strive toward a generation free from HIV/AIDS, tuberculosis, and malaria, optimizing national interventions to reflect the subnational diversity of disease transmission takes on added importance, and new concept notes should reflect tailored subnational approaches (box 3.1). In a study with minimal data inputs, the optimal HIV intervention mix in two different provinces of South Africa (Kwazulu-Natal and Western Cape) vastly differed.[40]

To better target high-risk populations and identify geographical hot spots, the Global Fund has undertaken mapping exercises within its "impact reviews." The first two reviews were conducted in Cambodia and Thailand, mapping the geography and characteristics of the epidemics. In addition to these impact reviews, Burkina Faso and the Democratic Republic of the Congo have conducted Service Availability and Readiness Assessments, in-depth reports measuring facility capacity for stock-outs, diagnosis, and service readiness. As necessary parts of the micro-targeting approach endorsed by Executive Director Mark Dybul, these reviews should be systemized, scaled up, and integrated in the grant-making process to improve allocative efficiency and drive value for money. Moreover, facility surveys will have only limited impact in identifying hot spots beyond populations already seeking care. New measurements and surveys will be required.

To operationalize this strategy, the Global Fund should require that concept notes use available data (even if out of date) to describe the distribution of new infections within a country across key populations—not only MSMs, sex workers, and injecting drug users, but also key epidemiologic parameters of gender, age, place of residence, and geographic region (such as province or district)—that represent the main modes of transmission and infection.

The Global Fund should require that applicants collect data, when they are not already available, and submit evidence for geographic locations and establishments that can be identified as hot

Box 3.1 Redirecting resources to hot spots of infection and transmission

"These interventions, however, would be misdirected and used inefficiently if we did not understand what drives the HIV epidemic. Fortunately, we know more about the epidemic today than ever before and the insights we are gaining present major opportunities to sharpen the impact of our interventions. . . . So, in many settings HIV exists in clumps—or hot spots—amid a sea of much lower levels of infection. . . . In fact, there are hot spots within hot spots. Within the highest prevalence corner of South Africa, a study has found that up to a third of infections may occur within just 6 [percent] of the area. And, within those hotspots, we see that the risk of infection is piled upon specific small groups. . . . Now that we have the tools and resources, we can leverage this new intelligence to squeeze even more impact out of the resources we have. Our computer models suggest that impact could increase by 20 [percent], just by redirecting the same resources to the populations at greatest risk of infection and transmission."

Source: Hallett (2013).

spots, in conjunction with technical partners. Moreover, the Global Fund can encourage applicants to designate part of the grant for collecting such data of key populations that can help shape future investments. Innovation is needed in identifying and characterizing hot spots, particularly in countries that have not surveyed key populations for political reasons, or where the quality and rigor of data collection has been weak. Such information on the aggregates of key populations should be regularly shared and reported to the Joint United Nations Programme on HIV/AIDS database as a public good, which in turn will further drive value for money among all donors, not just the Global Fund.[41]

Optimize investments for greatest health impact

Beyond ensuring that funded interventions are effective and cost-effective, and with an eye on the key populations driving incidence of the big three diseases, the Working Group urges the Global Fund to ensure that the funded intervention mix is tailored to local disease epidemiologic dynamics and implementation capacity. To align incentives with disease-control goals, the Global Fund should clarify its institutional objectives—that is, the outcomes it hopes to attain through its grant-making, and the time horizons for those objectives. The Global Fund has envisioned in its strategy framework a "world free of the burden of AIDS, tuberculosis, and malaria," and targeted saving 10 million lives and preventing 140–180 million new infections by 2016.[42] But focusing on preventing new infections will yield a very different intervention mix from a portfolio optimizing for persons enrolled in treatment within the next five years. For example, whether the Global Fund optimizes for person-years on ARV treatment, lives saved (within 1 year or 20), or number of HIV infections averted will result in dramatically different optimal portfolios.[43]

While reaching those targets would greatly improve the health and welfare of millions of people worldwide, reaching them would not by itself be enough to free the world of HIV/AIDS, tuberculosis, and malaria. A world free of HIV/AIDS will require targets on infections averted, which the Global Fund has not yet established. To achieve both the strategy framework's vision and targets, each recipient will need to design an intervention mix tailored to key populations, all while abiding by the Global Fund's guiding principles of country ownership, human rights, value for money, and performance-based funding.

Moreover, designing an intervention mix will differ depending on the stated budget constraint, as an optimized investment case under "full expressions of demand" will differ greatly from an investment case given actual budget constraints. Funding interventions at some level of target coverage under "fully funded demand" scenarios does not optimize impact on disease under the actual budget constraint, suggesting that planning under a range of budget scenarios will be important.

The Global Fund and the TRP should require that all concept notes and proposals justify their program design based on a comprehensive assessment of epidemiologic and cost-effectiveness data, focusing on identifying key populations within a country and selecting cost-effective interventions for them. Better budgeting by intervention mix will be essential to achieving such optimization. While the Working Group recognizes the importance of models and tools to optimize investments, these tools can range in simplicity and complexity, and the technical expertise required to conduct such analyses will also vary. While adopting higher sophistication should be encouraged by the Global Fund, there will be a need for technical assistance, supported through multilateral partners such as the WHO or bilateral assistance such as PEPFAR or other Global Fund monies allocated specifically for country use.

Encouragingly, the Joint United Nations Programme on HIV/AIDS and World Bank are working together to develop 15–20 country "investment cases" that will rely on detailed epidemiologic and economic modeling of priority countries for the Global Fund. For priority countries and diseases (tuberculosis and malaria) not covered in this process, the Global Fund should request that such analyses be conducted by technical partners. These analyses will build on the WHO's standardized cost-effective analysis model, "Choosing Interventions that are Cost Effective" (WHO-CHOICE), which reports on costs and effects of health interventions in 14 epidemiologic subregions using a generalized cost-effectiveness analysis method.[44] But because WHO-CHOICE results are standardized and not updated regularly, within-country variation and flexible country parameters are not taken into account.[v] So, the Global Fund could commission key technical partners for each disease to adapt WHO-CHOICE so that countries can then

v. In recent years WHO-CHOICE has been adapted, however, to develop country-specific estimates for three to four countries each year depending on country interest.

use it to input country-specific information and in writing their concept note.

To encourage countries to optimize their intervention package for key populations, the Global Fund could make funding available to countries for conducting such modeling work to be reflected in the concept note. Such modeling is dually beneficial. It simulates the impact of different intervention mixes and targeted populations to triangulate an optimal investment portfolio given local institutional and resource constraints. And it generates an ex ante model of feasible performance targets and program impacts. The Global Fund could allocate this funding to countries wishing to conduct these analyses with support from technical partners or experts.

The simplest (and back-of-the-envelope) approach to optimizing investments is identifying the key populations that represent the major source of infections or new cases and then shifting resources to reduce transmission in these populations. The Global Fund should encourage applicants to use analytics and tools, adapted for country-specific needs and data. Country applicants can develop over time from using simple prefabricated tools to developing more complex, tailor-made models, all with country-specific data.

Several prefabricated modeling tools offer basic and simple allocative guidance at low costs. Most have been tested and applied in various settings, though not usually for resource allocation planning in NSPs or specific grants. For example, Maude and others (2011) offer a "free, Internet-based, user-friendly, and interactive model of malaria elimination" to guide short- and medium-term decision-making. However, they caution that the model's "simple" calculations should be supplemented by "more complex and detailed models" to inform long-term strategies.[45] Likewise, the online Malaria Tools software, developed by researchers at Imperial College London, attempts to optimize an intervention mix for malaria control based on data inputs such as intervention coverage, parasite prevalence, and seasonality.[46] The Futures Institute has also developed modeling tools for needs assessment and the costing and planning of HIV interventions, all offered on its website.[47] And the U.S. government has recently piloted an HIV prevention resource allocation modeling pilot (HIV RAMP) to achieve the U.S. National HIV/AIDS strategy "to focus efforts in communities where HIV is concentrated and to target resources on tailored combinations of effective, evidence-based strategies."[48] The project will develop a model that will help jurisdictions decide how best to invest in HIV prevention.

Box 3.2 Data requirements to optimize for impact

- Length of time over which optimal allocations are to be determined.
- Available budget or expected budget scenarios over time.
- Set of interventions for prevention and treatment.
- Production functions for different interventions, specifying the coverage achievable for an intervention as a function of total resources allocated to that intervention.
- Epidemiological profile of the population including prevalence of HIV by gender, men who have sex with men, sex workers, injecting drug users, and other key populations.

Source: Barnighausen, Bloom, and Humair (2013).

Selected applicants who wish to go beyond what can be gleaned from existing data and information or the use of prefabricated tools or models supported by technical partners (as described above) can develop more nuanced guidance on their plans including their intervention portfolios and targeting strategy and investment levels. For selected applicants the Global Fund should encourage commissioned expertise that can conduct the detailed, more complex economic evaluations for the concept note. As noted above, this can be supported by technical partners from ongoing modeling efforts or can be specially commissioned.

Although models can vary in their complexity and data requirements, simpler models can provide clearer insights and recommendations.[49] As Barnighausen, Bloom, and Humair (2013) suggest, the data requirements do not need to be more onerous than the due diligence required to understand the geography and epidemiology of a disease and the costs of prevention and treatment in the country (box 3.2). Applicants would not be required to plan their programs exclusively based on results from economic evaluation and modeling. But they would be expected to articulate their application of the optimization analysis and modeling to program design, and to explain any major deviations (related to cultural, legal, and other implementation constraints, or concerns about human rights, ethics, and equity).

In general these tools should be seen as a means for gaining more information and insight, and certainly not as a cure-all silver bullet

or a binding straightjacket. Rather, it is because situations are so dynamic and complex that models can help broadly inform the reasonableness of allocations to drive value for money or whether significant shifts in investments and strategies need to be considered to slow the transmission of diseases. As an epidemic changes, so too must strategies be altered. Indeed, recent modeling helped highlight the importance of targeting hot spots in achieving greater impact, a strategy with little traction until the new leadership of the current executive director (see box 3.1). With more data on the effectiveness of different interventions as well as strategies to deliver those interventions, models can be updated and adapted accordingly.

Box 3.3 Modeling as a success

"Based on my experience in Myanmar—a country where many believe there is no local information available and no capacity to use modeling itself—I've found if we work with local government staff, if we are transparent on the modeling, and if we get all stakeholders involved to inform us about the likely information to be, then we are able to use modeling despite limitations.

"We use these results to talk to decisions-makers, explaining to them step by step. I've found that they really like the modeling results and they like to learn about the likely impact of what they are going to do. The program is implementing there. I would like to tell everybody that it's possible."

—Yot Teerawattananon, HITAP,
Ministry of Public Health, Thailand

Improve ex ante budgeting and transparency on spending

The lack of transparency on both planned and actual spending by intervention mix and target population, a major challenge to achieving overall value for money, prevents coordinated investment across donors and national governments. The Working Group urges the Global Fund and other donors to increase transparency on the detailed planned and actual distribution of funds through improved budgeting and spending reporting. Such sharing of information is needed to maximize health gains; sharing will make it possible to analyze the consistency of actual spending with a value for money knowledge base and allow for decisions by a single actor to be made with full knowledge of what other actors are doing.

Pre-existing budgeting and resource allocation platforms, and current data and information to explicitly cost the proposed intervention mix by the target population, are available but not necessarily used. Guidance on concept notes should encourage applicants to use such platforms. As greater emphasis is given to the International Health Partnership (IHP+) and its potential to harmonize reporting to multiple donors, using the IHP+-supported tools will be more important. For example, the OneHealth Tool, a joint United Nations tool developed by multiple partners for the IHP+, supports strategic "planning, cost analysis, impact analysis, budgeting, and financing of strategies" for a national health plan, including all major diseases and health system components.[50] The software uses recent available data and epidemiologic and health systems models to help countries set priorities within a national budget envelope (box 3.3). The OneHealth Tool's cost estimation approach expands on previous costing tools, such as Roll Back Malaria's Malaria Costing Tool, the Resource Needs Model, and the Excel-based Marginal Budgeting for Bottlenecks costing tool, which enables countries to plan and forecast "the potential cost and impact of scaling up investments to increase the intake, coverage, and quality of high-impact health interventions" for HIV and malaria (among other health priorities).[51]

As noted above, the overall value for money in a country depends on knowing the full portfolio of investments within a country, such as through national health accounts. Indeed, the Global Fund has supported national health accounts through the WHO since 2012. To date there are 47 funded national health accounts, and the Global Fund continues to work on extending guidance on disease subaccounts. To complement disclosure of budget data, several countries have begun to fully institutionalize the System of Health Accounts 2011 framework, an internationally comparable methodology for comprehensive tracking of health spending as the standard platform facilitated through the Health Accounts Production Tool (HAPT). The Global Fund has adopted a concern for the HAPT at the aggregate national level and for counterpart financing largely because of concerns of additionality and fungibility. But this neglects the multiple benefits of HAPT when disaggregated, though these other potential functions of the HAPT have yet to be recognized or used systematically. When disaggregated the HAPT could also be used to assess the interventions and key populations

supported by other financiers in the country. Moreover, the HAPT when disaggregated can also help funders and program managers to understand the costs of service delivery of different delivery models and channels, such as integrated or vertical programs and community or hospital-based programs.

Encouragingly, the Global Fund has signed a memorandum of understanding with the WHO to use the HAPT to assess aggregate counterpart financing for a given disease. The HAPT will be conducted in the 75 priority countries of the United Nations Commission on Information and Accountability for Women's and Children's Health. The Working Group recommends that this work be prioritized for the Global Fund's high-impact countries as well.

The OneHealth Tool and the HAPT should be tested and used for assessing both aggregate and detailed counterpart spending and for understanding the distribution of spending by intervention mix and key populations. Countries can use these tools to seek better value for money in the context of sustainability and increasing national ownership of programs. Both tools, when combined with the NSPs and the Joint Assessment of National Health Strategies tool,[52] could reduce duplication in planning and reporting in most countries. If explicit about the interventions used and targeted to key populations, these exercises could enhance the value for money of investments.

While the OneHealth Tool can inform strategic planning for a national health plan and improve the transparency of spending to countries and donors, countries need to test its effectiveness and appropriateness within the new funding model. These tools represent supported approaches to budgeting and costing, various other tools developed with the OneHealth Tool[53] and by such organizations as Management Sciences for Health and Abt Associates that may be as or more adaptable and flexible to specific needs.[54]

As is true for optimizing investments for the greatest health impact, improving budgeting and expenditure transparency will also require technical assistance—for example, through technical partners and bilateral assistance or Global Fund monies allocated to countries for this purpose.

Summary

In recognition of suboptimal portfolio allocations from its past demand-driven approach, the Global Fund is embracing a more active role in directing its resources toward the highest impact interventions. The Working Group urges the Global Fund to define a set of effective and cost-effective interventions that is eligible for funding; clearly articulate its own institutional objectives; demand high-quality, strategic proposals that justify the selected intervention mix within the national program, and with respect to cost-effectiveness; and disclose a detailed profile of its own investments to enable a coordinated, efficient joint response.

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Chapter 4
Designing contracts

Recommendations
- **Directly connect a portion of funding to incremental progress on performance**
- **Link performance payments to incremental progress on the most important indicators**
- **Support performance incentives between the principal recipient and service providers**

Ensuring accountability for performance is crucial for health systems worldwide, regardless of disease burden or income. Among high-income countries, for example, the United States has unimpressive health outcomes despite sky-high health spending—a dynamic created at least in part by a long-standing failure to align provider and patient incentives for better health at lower cost. With economic growth, health spending will inevitably increase, but health or health system efficiency will not necessarily improve.

To increase the impact of each health dollar, the incentive environment must receive careful attention. One key tool for aligning incentives and promoting accountability is performance-based financing (PBF), where an agency structures its payments to countries so that they are at least partly conditional on demonstrable improvements in health care coverage and health outcomes. Through PBF, country recipients gain incentives to achieve maximum health impact, while donor agencies are ensured that their investments contribute to real health improvements. PBF is thus a contract between two parties, with explicit expectations of progress that ensure accountability for results in the short term.

Since its creation in 2003 the Global Fund has been a leader of innovation in PBF. Yet the details of its contracts and grant agreements dilute performance incentives, squandering an opportunity to improve results and health outcomes. This chapter describes the limitations of the Global Fund's approach and suggests adjustments to unite funders, implementers, and national governments around shared health goals.

Overview

Over the past decade several aid agencies have deployed innovations in PBF as part of contracts with countries. These agencies all practice PBF, but the design, structure, and implementation of their PBF systems vary widely. For example, the World Bank's Health Results Innovation Trust Fund (HRITF) supports a portfolio of PBF projects within country health systems, where facilities and providers are paid conditional on coverage and quality of health services.[1] Similarly, the Inter-American Development Bank's Salud Mesoamerica 2015 initiative seeks to close Central America's health equity gap by conditioning a portion of funding on independently measured progress toward predefined coverage goals, health status gains, and policy changes.

Both the GAVI Alliance and the Global Fund have applied variants of PBF. Between 2002 and 2007 the Alliance's Immunization Services Support program paid countries $20 for each additional child vaccinated with three doses of the diphtheria-tetanus-pertussis vaccine.[i] Likewise, the Global Fund establishes PBF as a guiding principle in its strategy framework.[2] Historically, the Global Fund has given performance ratings to its grants throughout the grant period, in which ratings are constructed from "country-owned objectives and targets,"[3] countries choose their performance indicators and targets, and principal recipients report their own progress, subject to verification by local fund agents.

Nonetheless, many donor agencies—the Global Fund included—have yet to realize PBF's full potential.[4] Contracts with PBF work best when payment is linked clearly and directly with performance and when performance is measured in a simple, objective way. The Global Fund's approach is quite different. It correctly recognizes that performance should be one of several important factors in determining funding allocations. Other considerations could include country

i. As reported by the WHO/UNICEF Joint Reporting System. See www.gavialliance.org/results/evaluations/iss/.

capacity, predictability, ethical commitments, and continuity of services. Yet because there is no clear link between performance and at least a portion of overall funding, the Global Fund does not effectively transmit performance incentives to its implementing partners. Perhaps more importantly, a lack of clear and consistent criteria for PBF-related disbursements can lead to unpredictable and subjective funding decisions. The complexity of the Global Fund's PBF system has been described in previous work.[5] The Global Fund relies on local fund agents, who adhere to a multistep rating process at each disbursement request. Each grant includes indicators—primarily inputs and outputs[ii]—that the principal recipient reports as a percentage achieved of a predefined target. Local fund agents check principal recipient results, aggregate them into numeric progress scores, and convert the aggregate scores into an alphabetic performance rating. This rating can be changed for a number of reasons, including poor financial management or data quality issues.[6] The final grant rating informs an "indicative disbursement range" for the next period, which can be adjusted further at the discretion of Secretariat staff.

Several studies have identified challenges arising from this complex, multistep design. A year after the first Global Fund grants were rated in 2006, a Center for Global Development report noted several problems with the process, including input-oriented targets that did not measure impact and weak recipient country data systems.[7] More issues emerged with the Technical Evaluation Review Group's 2009 report, with particular attention paid to input-based indicators that provided a poor metric of performance (box 4.1).[8] The report recommended a comprehensive examination of the system's goals and procedures, a consensus on core indicators, and strengthening of data quality. Two years later the High Level Independent Review Panel's final report pointed out the need to "hold [principal recipients] accountable against measurable results previously agreed through clearly defined long-term roadmaps for each disease, and provide incentives for good performance."[9]

Fan and others (2013) reveal further challenges in the system. To understand and replicate the Global Fund's PBF process, they find little statistical relationship between Phase 1 performance ratings and Phase 2 disbursement levels—though higher grant scores did increase the likelihood of a successful grant renewal. Further analysis for a sample of grant scorecards also showed large discrepancies between actual Phase 2 funding and what would be expected given the applicable "indicative funding ranges" that correspond to the ratings assigned to each grant (figure 4.1). Finally, ratings for HIV and malaria grants were not significantly associated with changes in disease prevalence or incidence, demonstrating that grant ratings often fail to predict the overall impact of Global Fund resources for achievement of disease-control objectives.

Perhaps most important, the perceptions of principal recipients appear to confirm the results of statistical analyses. According to a 2013 Aidspan survey, only 34 percent of principal recipients feel that "the grant rating system accurately reflects performance."[10] If principal recipients do not feel that performance is accurately measured or tied to future disbursements, PBF incentives will not improve health outcomes.

Box 4.1 Statement by the Technical Evaluation Reference Group on performance-based financing

"[P]erformance-based financing, a key tenet within the Guiding Principles, has evolved into a complex and burdensome system that has thus far focused more on project inputs and outputs than on development outcomes, departing from the vision of an outcome-based model. Most importantly, there remain inadequate information system and monitoring and evaluation capacities in countries critically limiting the feasibility of the performance-based funding approach espoused by the Global Fund. . . . [M]any countries found the system burdensome, rigid, and fixed exclusively on short-term outputs rather than on longer term outcomes, results, and capacity building."

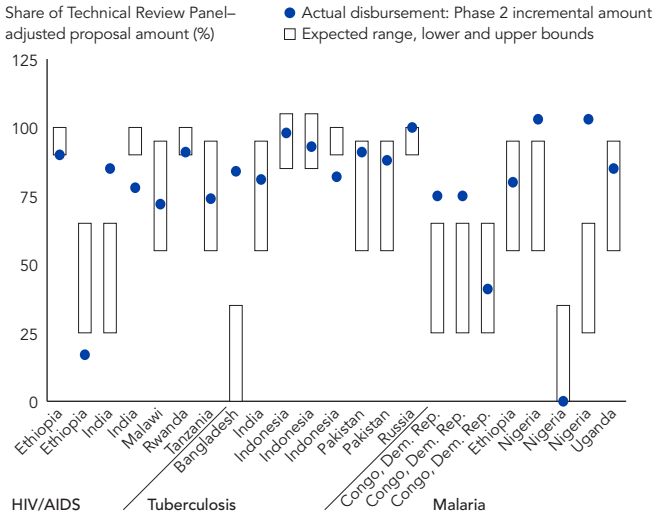
Source: Technical Evaluation Reference Group (2009), p. 30.

Opportunities and limitations

In normal competitive markets efficiency is ensured by the interplay of supply and demand. Providers must fight for their market share: either cut costs while maintaining high quality or see customers flee to a different supplier. By contrast, the Global Fund's core "suppliers"—the country coordinating mechanisms and their principal recipients—bear little risk of losing their privileged positions (with rare exceptions; box 4.2). Within the constraints of this single-buyer, single-seller relationship, performance incentives

ii. See chapter 6 for a more detailed discussion of indicators.

Figure 4.1 Grant performance does not predict disbursement levels



Source: Fan and others (2013).

Box 4.2 Comment on country coordinating mechanism incentive structure

"Current incentives don't encourage country coordinating mechanisms to actively look for the most cost-effective recipients [or] providers, and in some cases country coordinating mechanism governance and membership structures can act as a barrier to entry for providers who could deliver services at lower costs. Further work to develop models of efficiency will have limited impact until these incentives are aligned."

—Prashant Yadav, Working Group member

are one way to restore the most important characteristics of free markets in an attempt to ensure similar efficiencies. This chapter suggests feasible improvements to the PBF mechanism while assuming that the basic country coordinating mechanism and principal recipient structures will remain. Nonetheless, it is important to recognize the limitations of the country coordinating mechanism model and perhaps, in the long term, to consider other options to promote competition.

The Working Group recommends that the Global Fund redesign PBF in accord with three design principles:

- Reduce the number of key performance indicators by excluding input and output indicators, such as number of bed nets distributed, while refocusing measurement on key outcomes and coverage.
- Set aside a tranche of funding for which payments are directly connected to performance, without deference to discretionary or contextual factors.
- Use independent third-party measurement to verify self-reported results (see chapter 6).

In embarking on these reforms, the Global Fund faces an uphill battle. The perspective of risk management, driven by an accounting and audit perspective, is dominant at the Global Fund and has been emphasized in recent years. Further, the Global Fund has made performance a catch-all term, encompassing processes, inputs, outputs, and outcomes. And it has applied the term "PBF" to many core Global Fund functions, including grant monitoring and disbursement; management of the central balance sheet; stabilization of cash flow; assessment of country capacity for implementation; identification of "potential risk of fraud during assessments;" oversight, fiduciary controls, and financial management in a risk-mitigating environment; and support for fraud identification through a "bottom-up audit trail."[11] Indeed, the word "risk" appears 376 times in the Global Fund's manual for local fund agents, with "audit" not far behind, at 279. While the accounting, financial management, and fiduciary control work done by the local fund agents is important—and understandable given recent media attention to charges of fraud—the conflation of performance with risk avoidance challenges the Global Fund's ability to ensure that its programs are effective.

Although available documents on the new funding model do not mention PBF, the Global Fund has already moved toward greater emphasis on downstream indicators in its use of PBF. Specifically, Phase 2 grant renewals now include "impact assessments," through which an "impact rating" is assigned—a process that reflects country-level trends in disease prevalence.[iii] While the Working

iii. The Global Fund (2013a). AIDS treatment prevents AIDS mortality and thus increases HIV prevalence, so disease prevalence is a flawed indicator of HIV prevention unless it is restricted to the youngest age groups, say ages 15–20, where it is a useful proxy for HIV incidence among women. Measuring HIV incidence among older groups will be greatly facilitated by the new "limiting-antigen avidity assay," which can reliably estimate HIV incidence in older age cohorts (Incidence Assay Critical Path Working Group 2011; Duong and others 2012). See Hallett and Over (2010) for a discussion of how such an assay could be used to incentivize HIV prevention.

Group applauds this shift, the Global Fund can go further, as this adaptation of the existing performance-based financing system does not represent a significant redesign, nor does it address any of the three design principles.

A final consideration: while this chapter emphasizes PBF components within a given grant agreement between the Global Fund and a country, there are other important considerations when designing contractual agreements (including the importance of ensuring well-tailored ex ante allocation and planning, as described in chapter 3). While PBF often focuses on short-term gains and performance, there will be important long-term financial considerations once the Global Fund commences a contract or agreement. These financial considerations include ethical commitments related to the maintenance of already-enrolled patients on antiretroviral medication and continuity of services policy. The long-term horizon of these agreements and exit strategy are thus important aspects that should be considered carefully if not made explicit in a contract or grant agreement.

Recommendations

To create stronger incentives for coverage, quality, and impact, the Global Fund should redesign its PBF procedures to ensure that at least a portion of funding is consistently and transparently disbursed against strong performance in health outcomes and coverage. Under the leadership of the new executive director, active discussions are under way on the potential use of social impact bonds, such as for malaria, as suggested by the Roll Back Malaria Partnership.[12] Such a bond represents an application of PBF well aligned with the recommendations that follow in this chapter. At a minimum the Working Group recommends that the Global Fund should:

Directly connect a portion of funding to incremental progress on performance

The Working Group recognizes that tying all program support directly to performance is neither feasible nor desirable. Nonetheless, the ability to transmit performance incentives to recipients, and thus to create opportunities for accountability, is contingent on money following and rewarding improvements in coverage and outcomes.

For each grant the Global Fund should thus set aside a dedicated tranche of funding that would be linked directly to verified performance. This tranche could be provided on top of a guaranteed base level of funding provided to ensure continuity of care, which would be administered through a traditional grant management approach. Over time the proportion of funding linked directly to performance could increase; high-achieving countries could also choose to have a higher portion of overall funding linked to performance, perhaps in exchange for an increase in the overall grant ceiling. For higher income countries the tranche could be used to either reward performance or penalize failure (through a reduction in the total grant amount). More evaluation and piloting is needed to identify the optimal approach.

Fortunately, the basic structure necessary for this approach is already outlined in the new funding model, where the Global Fund has set aside indicative funding and incentive funding for each country. Indicative funding is determined by the allocation formula and represents the "fair share" of what a country should be allocated based on country disease burden and income. Incentive funding represents additional funds for "ambitious" proposals. The Global Fund could deploy the incentive funding tranche to reward ambitious and successful programs that aggressively pursue core objectives for disease control and health improvement as one strategy to implement this recommendation.

Link performance payments to incremental progress on the most important indicators

The Global Fund should drastically reduce the number of key performance indicators by keeping only those that are closely related to health care coverage and outcomes (for example, coverage of and retention on antiretroviral therapy) while eliminating the consideration of most input and output indicators in making payments (such as condoms distributed; box 4.3). Thus, the Global Fund will no longer need to amalgamate indicators into a single grant rating on which basis payments are made. Instead, the Global Fund should work with countries during grant negotiation to identify one or more key performance indicators to be linked to performance-based disbursements. The Global Fund, local fund agents, and principal recipients can continue to monitor financial management and implementation progress through input and output indicators, but such indicators should not be used as the basis for PBF. The Global Fund should use independent third-party verification and rigorous, representative measurement approaches to complement self-reported progress (see chapter 6).

Box 4.3 Suggested core indicators for performance-based financing

Good indicators directly contribute to or quantify a change in health status. Below is a selection of useful indicators recommended by the Working Group:

- Change in disease prevalence and incidence is the ultimate outcome of interest and should be rigorously measured through household surveys. The latest Joint United Nations Programme on HIV/AIDS data date to 2010; more frequent monitoring and evaluation is needed.
- Antiretroviral therapy retention rate, a main determinant of the effectiveness of treatment, should be measured instead of the simple number of people on treatment. As average antiretroviral retention is only 80 percent in the first 6 months and 75 percent in the next 18, it is crucial to carefully monitor this indicator.
- Tuberculosis case detection and treatment completion rates can be measured easily and cheaply with a sputum test.
- Facility stock-out, a crucial indicator in many tuberculosis grants, could be expanded for artemisinin-based combination therapy availability to treat malaria. The problem is particularly acute in tuberculosis, with 45 percent of central facilities in high-burden countries reporting stock-outs. While no studies aggregate the impact of stock-outs for antiretroviral drugs, many studies point to an effect of stock-outs on retention and death in some high-burden contexts. Further, earlier work has shown a direct connection between artemisinin-based combination therapy stock-outs and child mortality from malaria in Kenya.

Source: Stop TB Partnership (2010); Hamel and others (2011).

In some settings the core indicator could measure lasting achievements in disease control, prevention, or even elimination. This will be especially useful where malaria has been eliminated but a constant budgetary and programmatic effort must be maintained, or in geographic "hot spots," where at-risk populations are concentrated but where a substantial up-front investment of time and money must be invested to identify and approach high-risk groups to enable necessary service provision.[13]

In most cases the Global Fund should link PBF payments with incremental progress in achieving high-quality service coverage or health outcomes—for example, a fixed amount for each additional person initiated and retained on antiretroviral therapy (box 4.4). The Global Fund's complex architecture stands in stark contrast to the GAVI Alliance's streamlined (and now eliminated) immunization services support, which paid $20 per additional child covered. Immunization services support is being phased out in favor of a graduated approach based on pre-existing coverage levels.[14] By paying based on marginal progress, the Global Fund could also help mitigate countries' perverse incentives to set easily achievable targets rather than ambitious goals.

In practice the Global Fund would need to clarify and pilot more specific design features before settling on an approach. For example, the payment scheme within the incentive funding stream could take several forms, such as a fixed price per unit (say, $400 per additional antiretroviral therapy person-year above a threshold) or a varying price depending on the degree of success (say, a pay scale based on the number of additional antiretroviral therapy person-years). Box 4.5 and appendix 2 suggest pricing alternatives that are modeled on the contracts that have long been used by government regulators in Europe and North America to improve the value for money achieved by regulated private or parastatal providers of critical public services like electricity or water. Moreover, the price offered is expected to vary by country given the variation in costs of service delivery (see chapter 5) and countries' ability to pay. Where the principal recipient is not part of the national government, it might make sense to split performance payments between the principal recipient and either the country coordinating mechanism (which nominates and oversees the principal recipient) or a government ministry (which can provide a key source of support and facilitation, and to some extent oversight, for principal recipient activities). Such distribution could incentivize stronger performance and accountability across a broader range of actors, from which collaboration is needed to achieve maximum program impact.

Support performance incentives between the principal recipient and service providers

In recognition of the enormous potential for performance incentives to improve the quality and responsiveness of national health systems, several donors are supporting within-system results-based

Box 4.4 Frequently asked questions about performance-based financing

What if the country does not meet the performance targets?
The best designed programs do not set targets at all. Rather, payments are set proportional to the degree of success. For example, an amount is given for each additional course of tuberculosis treatment that is successfully completed. So, countries cannot "fail"—they can only show more or less success. This reduces the anxiety over meeting a particular threshold and facilitates financial planning by reducing the risk of losing a big disbursement. Another way to mitigate the variability in performance payments is to use this mechanism for only part of total funding, as a performance "bonus" on top of guaranteed base disbursements.

What if countries over-report their achievements, and how expensive is measurement?
To mitigate over-reporting, grants should incorporate regular independent verification of key performance measures. Experience elsewhere suggests that independent verification is not prohibitively expensive, and has considerable spillover benefits for improving routine data collection and service quality (see chapter 6).

Has funding ever been conditioned to performance before?
Yes, both by donors and by governments. Liberia and Rwanda have both structured their postconflict health systems to include performance-based financing. They are joined by many other countries that use conditional grants as part of their intergovernmental transfer schemes. In addition to countries, many donors mentioned in this chapter, such as the World Bank's Health Results Innovation Trust Fund and the Inter-American Development Bank's Salud Mesoamerica 2015, are financing projects that condition funding on health outcomes. Most of these projects are being tracked and evaluated. Impact evaluations are finding a positive effect on health coverage rates.

Who receives the incentive, and why should this work differently compared with traditional funding mechanisms?
The incentive could be received either by the principal recipient, who is the chief implementer of Global Fund grants, or by country coordinating mechanisms, which choose principal recipients. Both parties should be accountable to the Global Fund, as money would be directly conditioned to specific health outcomes.

If there are multiple funders, is it necessary to reward only "attributable" performance improvements?
Programs supported by global health funders usually receive financial resources from multiple sources. While it is not always possible to measure attributable program improvements, doing so may be neither necessary nor desirable. Rather, performance-based funding can be viewed as an incentive for the program as a whole to reach its goal, thus aligning multiple sources of funding around a common objective.

financing initiatives. The World Bank's HRITF has been a pioneer in "support[ing] the design, implementation, monitoring, and evaluation of results-based financing mechanisms" at the country level.[15] Early collaboration between HRITF and the Global Fund appears promising. In 2012, for example, a Global Fund principal recipient and the GAVI Alliance partnered with the Trust Fund in Benin to reward health facility performance based on 18 quantitative indicators and a quality dimension. Overcoming apparent fiduciary obstacles to joint implementation, all three partners were able to pool their funds in a single basket. Already, the experiment has produced promising results: increased use of some services has been observed, and the project has helped incentivize more responsive and proactive behavior among health workers, including reduced absenteeism.[16] An impact evaluation will report findings in 2014.

Given this apparent success (and especially if these preliminary findings are confirmed by the upcoming impact evaluation), the Working Group recommends continued multidonor collaboration with HRITF initiatives, with emphasis on the Global Fund's five "high-impact" countries, which also receive Trust Fund support (the Democratic Republic of the Congo, Nigeria, Tanzania, Zambia, and Zimbabwe; box 4.6). Where appropriate, the Global Fund

Box 4.5 Innovations in grant design can improve recipient efficiency and enhance the donor's cost-effectiveness while economizing on information

Two designs for an efficiency-enhancing, "contract-like" grant agreement differ on how much information they require about the recipient's cost of operation. One design, the Vogelsang-Finsinger mechanism (1979), could encourage improvements in efficiency if the recipient submits its previous year's total cost to the donor every year. The other design, the two-part tariff, could work even without such information.

Suppose that, for at least some of the activities funded in an agreement, a quality-adjusted unit of service output is agreed upon during the initial negotiation between the donor and recipient. That output would then subsequently be counted and independently verified during each year of program implementation. The two mechanisms can be briefly described as:

- *Vogelsang-Finsinger mechanism.* For each unit of output during the current year, up to a an output ceiling larger than the provider produced the previous year, pay the recipient an amount equal to its average cost the previous year.
- *Two-part tariff.* Pay the "benchmark unit cost" for every unit of output up to a threshold number of units. After reaching that output threshold, for each additional unit of output during the current year, up to an output ceiling larger than the provider produced the previous year, pay an amount that starts higher than this benchmark unit cost, and then declines to less than it.

Neither proposed contract mechanism can achieve optimal efficiency within a year of implementation. Over a period of years, through successive adjustments, both mechanisms can improve value for money for both donor and recipient. Both can motivate the recipient to achieve efficiency gains. And both can reduce the average cost to the donor per unit of service output.

The Vogelsang-Finsinger mechanism requires more information on the recipient's previous year's cost of production but offers substantial efficiency improvements because it reveals how much the recipient's average cost of service production declines over time and leverages that information to reduce the donor's average cost over successive years. Although the two-part tariff requires only an educated guess at a benchmark unit cost, it too can achieve considerable improvements in efficiency over time as it motivates recipients to explore ways to expand service delivery at lower incremental cost and passes part of this cost savings on to the donor.

Appendix 2 provides details and examples of the two contracting mechanisms. The mechanisms are intended only as illustrative examples, to outline the improvements in value for money that could be gained by exploiting the literature on optimal regulation of public sector utilities.

Box 4.6 Health Results Innovation Trust Fund–participating countries and Global Fund high-impact countries

HEALTH RESULTS INNOVATION TRUST FUND–PARTICIPATING COUNTRIES	OPPORTUNITIES FOR COLLABORATION	GLOBAL FUND HIGH-IMPACT COUNTRIES
Afghanistan, Benin, Burkina Faso, Burundi, Central African Republic, India, Lao People's Democratic Republic, Rwanda, Armenia[1], Ethiopia[1], Haiti[1], Kyrgyz Republic[1], Lesotho[1], Liberia[1],Tajikistan[1], Vietnam[1]	Democratic Republic of the Congo, Nigeria, Tanzania, Zambia, Zimbabwe	Bangladesh, China, Côte d'Ivoire, Ethiopia, Ghana, India, Indonesia, Kenya, Mozambique, Myanmar, Pakistan, Philippines, South Africa, Sudan, Tanzania, Uganda

1. Pilot under preparation.

Source: www.rbfhealth.org/rbfhealth/about; The Global Fund (2012b).

should encourage these countries to prepare grant applications that incorporate HRITF collaboration and to support joint fiduciary or other implementation arrangements between the principal recipient and partner organizations.

Summary

The opportunity for the Global Fund to redesign its PBF system is ripe. By simplifying measures of performance, focusing performance on health coverage and outcomes, and connecting a portion of disbursements directly to additional coverage achieved, the Global Fund can regain its position as a PBF leader and innovator.

Notes

1. www.rbfhealth.org/rbfhealth/about.
2. The Global Fund (2011k).
3. www.theglobalfund.org/en/performancebasedfunding/.
4. Birdsall and Savedoff (2010); Eichler, Levine, and the Performance-Based Incentives Working Group (2009).
5. The Global Fund (2008, 2011l).
6. The Global Fund (2011g), pp. 157–59.
7. Center for Global Development (2006).
8. Technical Evaluation Reference Group (2009).
9. The Global Fund (2011l), p. 78.
10. Wafula, Marwa, and McCoy (2013).
11. The Global Fund (2011a), pp. 75, 112, 115, and 119.
12. Porcher and Kerouedan (2011); WHO (2012c); Roll Back Malaria (2011); Task Force on Innovative Financing Resource Mobilization Sub-Committee (2011).
13. Over (2010); Zanzibar Malaria Control Programme (2009).
14. Hansen, Eriksson, and Stormont (2011)
15. www.rbfhealth.org/rbfhealth/about.
16. Lemière (2012).

Chapter 5

Tracking and using cost and spending data

Recommendations

- **Continue to improve the scope, completeness, and timeliness of reporting to commodity price tracking systems**
- **Benchmark and use supply chain costs and outputs**
- **Identify core services for more extensive analysis and use of service delivery costs and spending**
- **Share costing data with partners and the public**
- **Develop a strategy to use unit-cost data throughout the new funding model grant cycle**

Chapters 3 and 4 have discussed how decisions made during allocation planning and contract negotiation can leverage greater health impact throughout the funding cycle. Chapter 5 now turns to opportunities for efficiency gains during grant implementation—particularly the collection, analysis, and use of cost and spending data to drive improvements in procurement, supply chains, and service delivery.

All health funders require information on costs, spending, use, and quality of care to manage programs, identify waste, and improve value for money. But data on their own do not generate such improvements. It is using the data to improve performance that is important. High-priority uses of data for policy at the Global Fund might include identifying high-cost outliers for further analysis, adjusting incentives embedded in grant agreements, providing feedback to program managers to adjust cost structures and implementation strategies, and informing the country dialogue and requests for technical partner support. The U.S. President's Emergency Plan for AIDS Relief (PEPFAR), for example, has used spending analysis "to better understand cost structures within their programs and to identify program outliers, to provide decision-makers with data on which interventions provide the greatest value for money in terms of impact on the epidemic, and to inform country-level harmonization of expenditure tracking for governments."[1] In some cases merely disclosing average unit costs has resulted in cost savings, though the mechanisms of such changes are still being understood.

Thus, a key recommendation of the Working Group to improve efficiency is to measure and use cost, price, and spending data on commodities, supply chains, and service delivery.

Overview

Commodities. The Global Fund records and tracks the prices paid for commodities through the Price and Quality Reporting (PQR) system (box 5.1). The Global Fund has complemented the PQR with a voluntary pooled procurement mechanism, to reduce the cost of inputs through bulk purchasing and streamlined procurement.[2] The Global Fund offers a voluntary pooled procurement mechanism for most core health commodities, including ARVs, rapid diagnostic tests, and artemisinin-based combination therapies, which has lowered purchasing costs and raised procurement efficiency among participating grants.[3]

Despite substantial progress in improving price transparency, standardizing procurement costs, and reducing the average price paid for core health commodities, the limited available data suggest that persistent variability remains in the cost of some inputs—though strong convergence is apparent over time for others. Consider the variation in the price paid for Ritonavir 100 milligrams (a second-line ARV) among transactions reported to the PQR database (figure 5.1). South Africa paid $66.83 per person-year for Ritonavir in November 2010. Less than a month later the West Bank and Gaza paid $1,216.62—almost 18 times more than the price South Africa paid. And prices for this drug have not converged over time. PQR reporting suggests a fairly constant 25th–75th percentile range between 2009 and 2011 (about $80–370).

For other commodities, prices reductions have been quick and widely shared, suggesting that further transparency, standardization, and consolidation of commodity purchases represents an opportunity for substantial and rapid gains. The trend in the price

Box 5.1 The Price and Quality Reporting system

The Price and Quality Reporting (PQR) system is set up to communicate market information to principal recipients, improve transparency, and enable the Global Fund and its partners to better understand and influence the market for pharmaceutical products. It is "a web-based system used by the Global Fund to collect transaction-level procurement information from [recipients] on key health products." First called for by Vasan and others in 2006, the system now contains almost $6 billion in transactions and covers bed nets, condoms, HIV/malaria tests, antituberculosis and antimalarial medicines, and antiretroviral (ARV) therapies. The disclosure of this information is likely one of several drivers of falling ARV prices in recent years. The PQR reports that the median price of common first-line ARVs was $127 in 2012, a steady decline from $144 in 2007. Similarly, the average unit cost for long-lasting insecticide-treated bed nets purchased by Global Fund–supported programs fell from $5.10 in 2009 to $3.03 in 2012.

Source: www.theglobalfund.org/en/procurement/pqr/; DFID (2012).

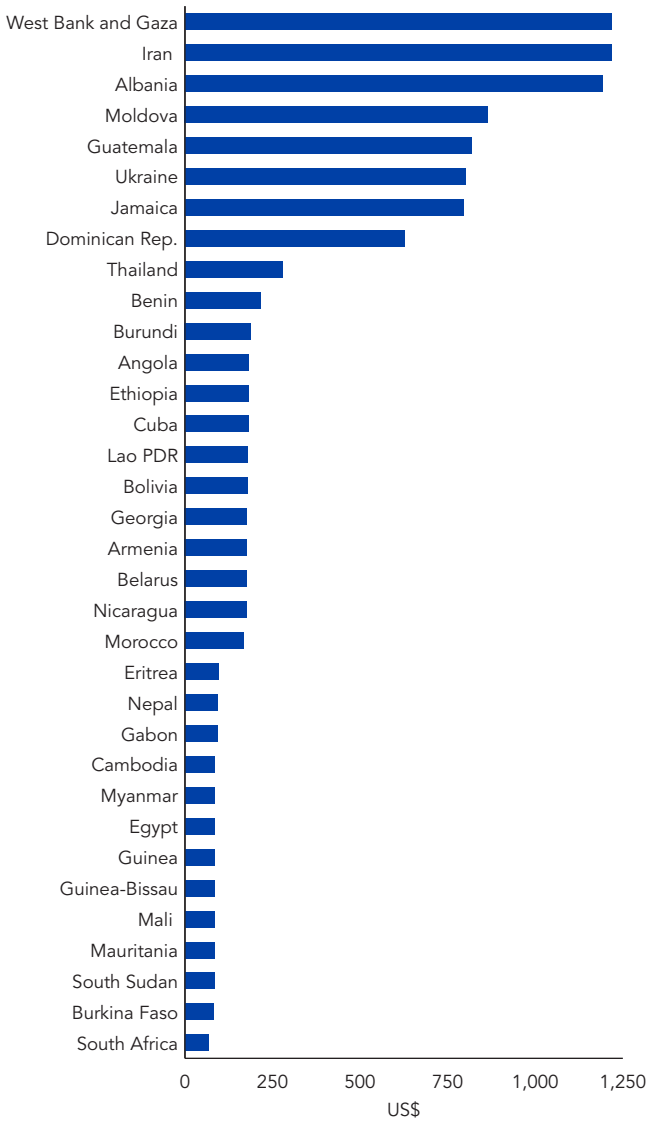
paid for Efavirenz 200 milligrams (a first-line ARV) reflects this pattern (figure 5.2); in only two years, the median purchase price was roughly halved, while the space between the 25th and 75th percentiles shrank to about a quarter of its original size.

Nonetheless, outliers persist even where overall convergence has occurred. Kazakhstan paid $1,636.48 per patient-year for Efavirenz (including freight costs) during a February 2012 transaction. To determine the driving force behind such outliers, the Working Group analyzed the PQR dataset and explored factors correlated with unit costs of one ARV (box 5.2).

Finally, Global Fund grants finance the purchase of commodities beyond medications and bed nets, such as computers, vehicles, and office supplies. The Enhanced Financial Reporting system, introduced in 2008, is intended to include such commodities, and local fund agents are required to report to it. But these costs are grouped in general spending categories, and its various limitations have led to the system's disuse.[4]

Supply chains. Once commodities are purchased, the Global Fund and its partners must ensure that the right medicines and products

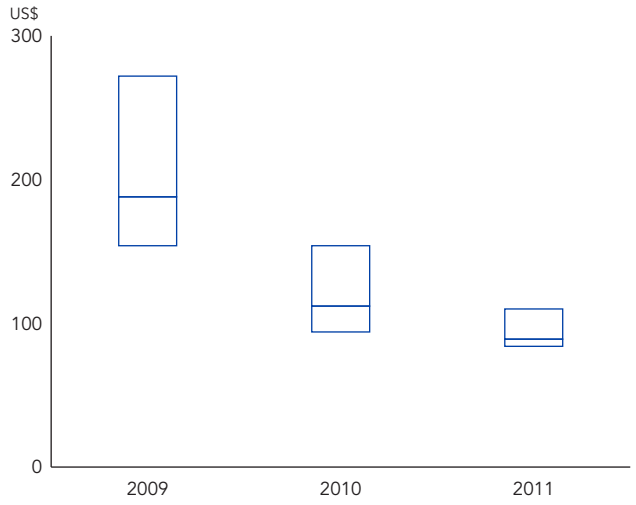
Figure 5.1 Variation in reported cost per patient-year for Ritonavir 100 milligrams, September 2010–April 2013



Note: This graph was replicated from information in the price reference report, but could not be fully replicated using data from the public version Price and Quality Reporting (PQR) database. In addition, the timeframe of 2010–13 may not reflect differences in lower prices achieved over time, differences in price due to the volume of procurement, or country-specific patent law—all of which are expected to affect price. Nonetheless, this shows variation in prices paid, and while this may be an extreme example, it reflects variation common across many drugs identified in the PQR database.

Source: Adapted from the Global Fund's PQR Price Reference Report, http://bi.theglobalfund.org/analytics/saw.dll?Dashboard&nqUser=PQRExternalUser&PQRLANGUAGE=en&PortalPath=/shared/PQR%20External%20Users/_portal/PQR%20Public&Page=Price%20list.

Figure 5.2 Trend in 25th, 50th, and 75th percentile per-patient unit prices for Efavirenz 200 milligrams



Source: The Global Fund's PQR Price Reference Report, http://bi.theglobalfund.org/analytics/saw.dll?Dashboard&nqUser=PQRExternalUser&PQRLANGUAGE=en&PortalPath=/shared/PQR%20External%20Users/_portal/PQR%20Public&Page=Price%20list.

reach the target population at the right places, in the right amounts, and at the right price.[5] Procurement processes do not end after purchasing, and the logistical challenges of placing these commodities in the hands of front-line providers remains challenging. For example, despite bulk purchasing contracts in Kenya for malaria treatment, stock-outs and drug shortages remain due to production and distribution issues.[6] The average availability of drugs at public health facilities in low- and middle-income countries is estimated at less than 25 percent.[7] Stock-outs have important health consequences, and stock-outs for essential antimalarial drugs have been associated with increased transmission and disruption of services.[8] A review of 16 supply chains in seven PEPFAR partner countries also found poor record keeping and insufficient controls for monitoring drug supply.[9] In Zambia as much as 9 percent of all ARVs in one drug facility, totaling $265,000, could not be located, partly due to inadequate inventory controls.[10]

The reasons behind these suboptimal results are many. During delivery from global suppliers to countries there can be long lead times and delays in getting shipment clearance as well as a lack of transparency of shipment data. During storage and distribution

Box 5.2 What determines the unit cost of a first-line antiretroviral drug?

Many factors can contribute to how much a first-line antiretroviral (ARV) drug costs. Using the Global Fund's publicly available Price and Quality Reporting (PQR) dataset, the Working Group chose to analyze one first-line fixed-dose combination ARV drug—Lamivudine, Nevirapine, Zidovudine (LNZ), the most frequently purchased drug in this dataset, for a 150, 200, and 300 milligram tablet dosages. LNZ purchases totaled $380 million for 839 total transactions for 57 countries over 2007–12. Most countries purchased this drug from a manufacturer, at an average cost of $11 a pack. Those who purchased it from the Global Fund's voluntary pooled procurement mechanism paid $9 a pack. The Working Group analyzed the relationship of pack cost and other factors including the number of people on ARV therapy, lags between purchase dates and delivery dates, and the share of the market controlled by the largest manufacturer (in a given country and year).

An important mediating factor is whether freight cost was included, excluded, or unknown in the pack cost. In the PQR dataset freight costs fit three categories: in 42 percent of transactions freight cost is included in pack cost, in 25 percent it is excluded, and in 33 percent it is unknown whether it is included or excluded. Results suggest that the more people who are on ARV therapy or the more people with HIV/AIDS in a country (a larger potential market), the lower the LNZ pack cost. The longer the lead time between scheduled delivery date and purchase date, the lower the price paid. Results on the concentration of markets and pack cost are sensitive to whether the freight cost is included, excluded, or unknown. For transactions in which pack cost includes freight cost, more concentrated markets are correlated with higher pack costs, with no correlation of pack cost and concentrated markets when freight cost is excluded or unknown.

These results suggest that better cost data are imperative to understanding the factors behind drug costs. The Global Fund has been purchasing drugs and commodities for 11 years, yet there is no rigorous published analysis of the factors affecting the prices that countries pay. While the PQR dataset is a good start, it should be improved to make in-depth analyses possible.

Box 5.3 The U.S. Government Accountability Office on the Global Fund

"PEPFAR has . . . provided technical assistance to the Global Fund to improve its procurement system, with the goal of reducing the need for further emergency support from PEPFAR. According to USAID officials, in September 2012 PEPFAR helped the Global Fund develop a proposal for its own emergency procurement mechanism. As of March 2013 the Global Fund had not notified PEPFAR whether it had established this mechanism."

Source: GAO (2013), p. 9.

Box 5.4 Strengthening supply chains: a new initiative at GAVI Alliance

Powerful new vaccines have been introduced that protect against the biggest killers of children, but there has been little investment or attention paid to the supply chain that moves vaccines reliably and efficiently from manufacture to immunization. The strategy will encompass many approaches, but one strategy—the use of barcodes to capture the data needed to track vaccines through the supply chain, streamline inventories, and improve vaccine targeting in developing countries—is under serious consideration at the GAVI Alliance, and may suggest similar directions for some Global Fund–purchased commodities. Barcode technology is a robust, scalable technology used in many industries. A supermarket can track a banana across the world, but vaccines cannot currently be tracked. Barcodes on vaccine packaging can improve:

- Stock management and logistics, including shipment and receipt tracking.
- Vaccine safety by improving access to insert information or lot traceability.
- Counterfeit and fraud detection.
- Patient management, insofar as barcodes can link patient records with information about the vaccine that was administered.

The GAVI Alliance and World Health Organization are together considering requiring barcodes on packaging, by the end of 2014, and barcodes on vaccine vials at a later date. A pathway program in Tanzania is under way, and once the standard is established, other countries will be able to invest in systems to better capture data and strengthen vaccine supply chains.

there can be inefficient management of inventories, poor equipment repair and maintenance, a lack of well-documented supply chain processes or poorly implemented processes, and ad hoc delivery schedules leading to unreliable distribution. And during provision there can be limited information on the frequency, size, and location of demand and use that then limits the efficiency of demand forecasting and procurement upstream. In general the limited incentives for efficiency in service delivery also apply to supply chains. Analyses from the U.S. government demonstrate that supply chains are only as effective as the systems that mobilize them. A recent U.S. Government Accountability Office report found that PEPFAR's emergency procurement mechanism was used in five countries to procure emergency ARVs due to Global Fund disruptions, and six countries almost experienced shortages following Global Fund delays (box 5.3).[11] Effective grant management and forecasting efforts are needed to minimize stock-outs, and better mechanisms should be established for emergency procurement (box 5.4).

Supply chain costs, like commodity and service delivery costs, can also be highly variable. In a review of logistics costs for several global health agencies, supply chain costs as a share of total stock value were found to range from 4.8 percent for ARVs in Nigeria to 44 percent for bed nets in Liberia.[12] Performance evaluation and benchmarking analysis of the efficiency of supply chains for contraceptive orders and shipments found that only about a quarter of 37 Sub-Saharan countries are efficient.[i] The rest experience a large excess of spending given actual supply chain output.[13]

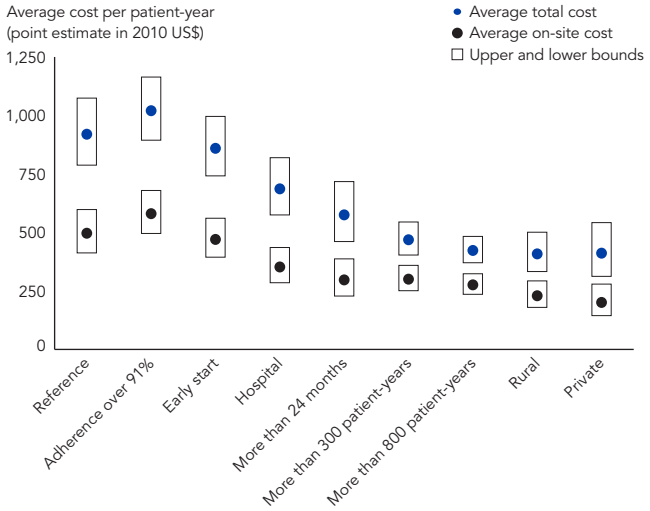
Service delivery. Beyond commodity purchases and supply chain expenses, substantial cost variation is also observed for other elements of service delivery, where total expenses may be highly malleable and dependent on the environment and contractual relationships.

i. Benchmarking is used here as "the ongoing activity of comparing one's own process, practice, product, or service against the best known similar activity so that challenging but attainable goals can be set and a realistic course of action implemented efficiently" (Balm 1996, p. 28).

Data from a sample of 45 Zambian facilities show the relationship between the cost per person-year of treatment and a selection of cost determinants, including aspects of service quality, environmental factors, and the scale of operation (figure 5.3).[14] The reference facility (on the far left of the figure) represents a relatively costly type of service delivery—a public primary-care facility in an urban setting, which began offering ARV treatments only within the past 24 months and has fewer than 300 enrollees a year—but that has poor adherence. Here, a person-year of treatment, including $497 of facility-level spending and $423 of "above facility" spending, would cost $920. Holding all other factors constant but improving adherence, the cost would rise to $1,020 per patient-year (illustrated at the second stop). Further to the right along the graph, one facility "trait" is altered at a time, with corresponding incremental changes to the indicative cost of treatment, both at the facility level and in aggregate, which includes above-facility costs of management, oversight, and procurement.

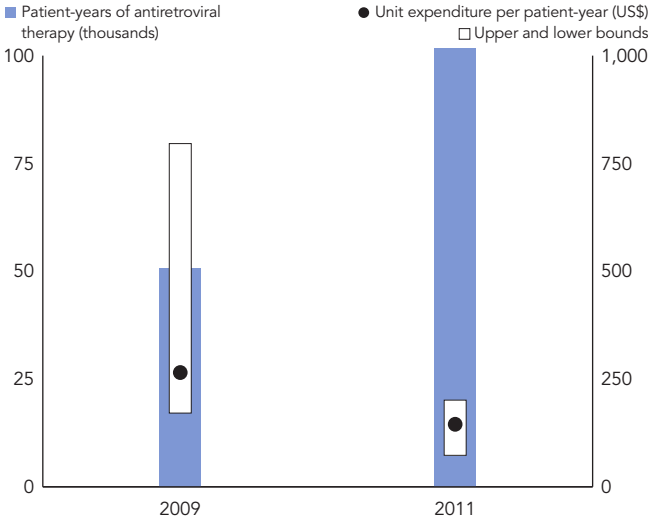
To better understand the sources of such variation in costs, several global health funding agencies have embarked on exercises to better measure unit costs of service delivery, such as PEPFAR's expenditure analysis, unit costing by the Clinton Health Access Initiative, and measurement of the costs of integrating sexual and reproductive health services with HIV/AIDS.[15] Findings from such exercises show that the savings from reducing variation in service delivery costs could be substantial. For example, a PEPFAR expenditure analysis shared findings on variation in unit expenditures on facility-based care and treatment with the PEPFAR country team in Mozambique, and documented reduced costs, up to 45 percent in some cases (figure 5.4).[ii]

Figure 5.3 Heterogeneity in the unit cost of antiretroviral treatment across 45 Zambian facilities, 2009



Source: Marseille and others (2012).

Figure 5.4 PEPFAR expenditure analysis pilot in Mozambique, mean and range of non–antiretroviral unit spending per patient-year



Source: PEPFAR (2012c).

Opportunities and limitations

Processes to better measure, analyze, and incorporate cost and spending analysis into budgeting and management processes could improve value for money, particularly among commodity purchases or supply chain processes that are readily comparable across national and subnational contexts. But costing of service delivery can be challenging and resource-intensive, and a naïve approach to costing and benchmarking could lead to perverse incentives that ultimately detract from public health objectives.

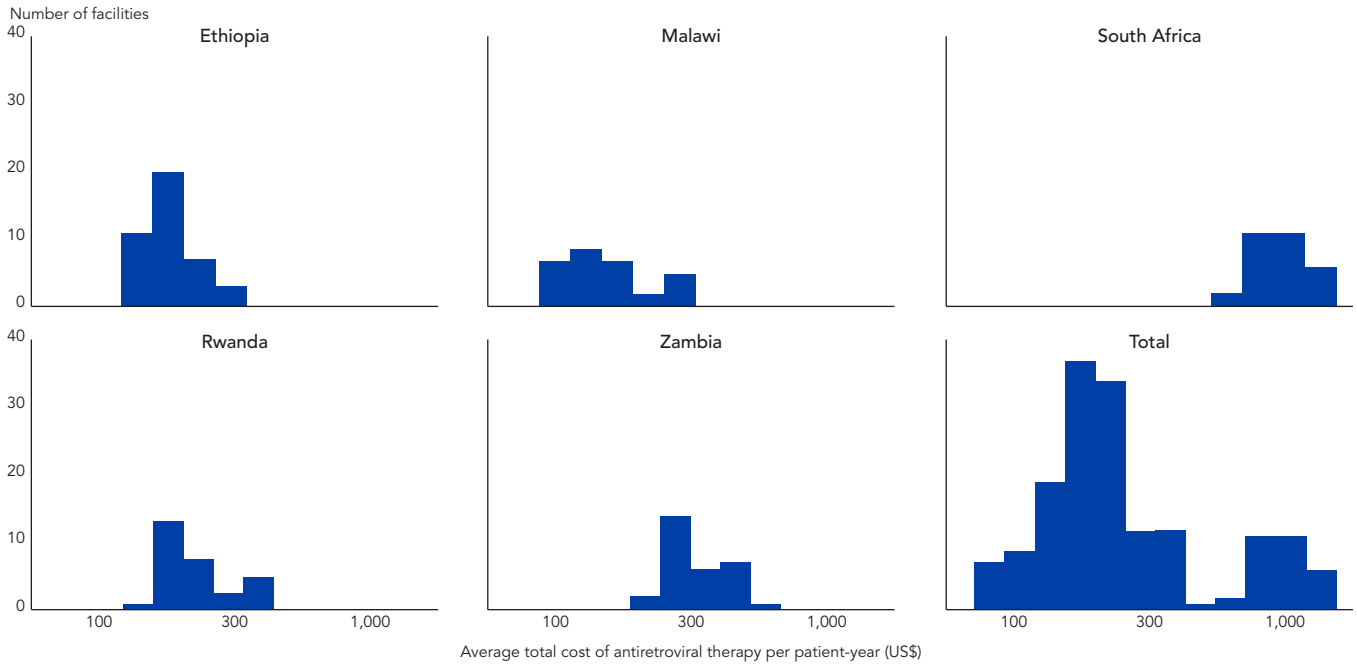
ii. While figure 5.4 shows a reduction in PEPFAR spending, note that it does not claim causality in reducing unit spending, as there are many factors that may improve efficiency fluctuations from year to year.

Benchmarking service delivery costs is challenging, and highly sensitive to methodological choices. Such costing exercises—to be comparable—require standard spending categories, as well as clear definitions of activities and related costs. Figure 5.3 presented results from one costing exercise in a sample of Zambian facilities. Figure 5.5, likewise, is drawn from a random sample of facilities in five countries, including Zambia.[16] But within this sample, the average facility-level cost in Zambia is about a third smaller than it appeared in the figure 5.3 data. There could be several reasons for the observed discrepancy, including changes in input costs over time, measurement error, or that figure 5.3 was based on a convenience sample that may not be nationally representative. Nonetheless, these two figures prove that even expensive and time-consuming efforts to collect cost data are imprecise, even when merely attempting to assess the unit cost of a single service in a single country.

The actual unit costs of service delivery are highly variable, both across and within a single country. Some facilities are indeed associated with much higher costs, yet it is not always readily apparent whether the higher costs stem from immutable characteristics of the facility or catchment population, or whether they can be attributed to inefficiencies in service delivery. Reasons why service delivery would entail higher unit costs include a rural or urban location; a new facility (with attendant capital costs) or an established clinic; or a sicker group of patients at treatment initiation versus a healthier pool of patients. Thus, pressuring all such facilities to abide by a standard cost structure may be extremely inefficient in some cases. Facilities could be incentivized to turn away sicker patients who require additional care, and would face disincentives in outreach to hard-to-reach, but potentially high-risk populations.

For these reasons one-size-fits-all benchmarking—assuming that all facilities should have the same cost structure as measured across multiple costing exercises—is inadequate and can cause harm. Still, a more nuanced approach can help all stakeholders understand their respective costs structures and cost drivers, and thus squeeze substantial efficiencies throughout implementation, including for procurement, supply chains, and service delivery. The recommendations here thus provide broad guidance on the collection and uses of cost and spending data, while leaving space for the Global Fund partnership to craft and iterate an appropriate management response to the findings of such exercises.

Figure 5.5 Variation in cost per patient-year of HIV treatment in five African countries, 2012



Source: Over, Schneider, and Velayudhan (2013).

Recommendations

Continue to improve the scope, completeness, and timeliness of reporting to commodity price tracking systems

Tools that track the prices of commodities, such as the Global Fund's PQR, have provided the information and leverage to help drive down the costs of commonly funded health commodities. Even so, this dataset remains incomplete, and the PQR database only offers partial coverage, despite previous goals to achieve full coverage of grants.[17] The Global Fund might consider expanding coverage of these commodities through incentives, including those leveraged during the grant review processes. In addition, the Global Fund should consider expanding the PQR or improving the quality of the Enhanced Financial Reporting system to cover other commonly purchased high-cost items, such as computers and vehicles. Benchmarked unit costs for these items could be used to leverage better pricing, as well as to identify comparable products purchased at higher cost.

In the medium term, procurement reporting should be extended beyond commodity purchases to encompass the supply chains and the product's end use. Incorporating the costs throughout the supply chain into cost databases could ensure that countries get best value both for commodities and for the systems used to deliver those commodities to patients and facilities.

Benchmark and use supply chain costs and outputs

Comparing relative costs per output can be used to assess performance and improve efficiency in the supply chain. For example, PEPFAR saved an estimated $38.9 million over four years by tweaking its supply chain design and management, including using the more efficient ground and sea routes over pricey air freight.[18] Comparing cost–performance ratios among peer organizations with similar challenges can provide key information on performance at the different stages of the supply chain, from upstream demand and supply forecasting, through ordering, production, and delivery to countries, to in-country delivery. Data envelopment analysis tools, used to determine an efficient frontier of performance, could be better applied to determine the highest possible level of efficiency and create incentives for supply chain entities to improve performance. Optimization analysis—for inventory and distribution—is well developed as an approach but still underused in Global Fund countries. Findings from these efforts can also feed back into the performance-based funding approach, to align incentives throughout the system (box 5.5).[19]

Identify core services for more extensive analysis and use of service delivery costs and spending

A large portion of Global Fund resources is spent on delivering a few core services. The Global Fund should identify the most frequent and costly health interventions financed with its resources that would be good candidates for collecting, analyzing, and using cost data. The Global Fund has already reported estimated unit costs of service delivery for first- and second-line ARV therapy at the national program level.[20] Building off previous experience in costing ARV therapy per person-year or contracting out to a specialized organization, the Global Fund can expand its costing exercises to other services, such as tuberculosis and malaria treatment. The Global Fund should deploy rigorous methods that relate a unit of

Box 5.5 Perspective from Liberia

In Liberia value for money discussions center on achieving higher national program coverage, pursuing efficiency objectives, and fostering country ownership in Global Fund grant management responsibilities. Implementation of Global Fund grants has focused on increasing efficiency—ascertaining unit cost per contact and costs per capita, introducing expenditure tracking systems to determine whether resources reach the beneficiaries, and, where blockages exist, working to eliminate them.

Further, efforts have been under way to build strong partnerships and improve coordination for maximum results. For example, large grants handled in the Ministry of Health and Social Welfare, especially the Pool Fund and including the Global Fund and Fixed Amount Reimbursement Agreement funds, use a newly developed spending tacking tool to gauge resource flow directed to the county health teams—where a bulk of health service provision takes place.

Source: David Logan, Global Fund Project Manager, Ministry of Health and Social Welfare, Liberia.

service delivery to its quality, thus ensuring that lower costs do not reflect (or incentivize) poor quality care. Initially, unit costs could be disclosed to recipients and subrecipients as collaborative feedback, as with PEPFAR's Mozambique expenditure analysis. Managers could then be supported to analyze the data and define and implement strategies to improve efficiency.

While better spending tracking is an important goal, doing so can be a challenge when health services and finances are decentralized.[iii] Only the vertical program elements may be tracked separately, and many diagnosis and treatment costs (depending on how drugs are bought) are embedded within general facility costs, which may be unknown. For example, Indonesia has 498 autonomous local government units that do not report health program spending. While these subnational entities are asked to submit reports on tuberculosis spending once a year, less than half actually report, and most are inaccurate. In such a system, tracking expenditures accurately in the short-term is not feasible, except with special studies. Even in countries that are not decentralized, inaccuracies can be common. While the Global Fund should work to promote better expenditure tracking, simple and rough estimations can still be useful for making decisions. Unit costs can be estimated based on inputs in different regions and multiplied by the numbers of treatments, generating a rough total cost that can be used for policy dialogue.

Share costing data with partners and the public

As a member of an information-sharing network, the Coordinated Procurement Initiative, the Global Fund participates in efforts to support procurement practices of the Office of the U.S. Global AIDS Coordinator, the World Bank, the U.S. Agency for International Development, United Nations entities, and nongovernmental organizations.[21] In addition, as a signatory to the International Aid Transparency Initiative, the Global Fund has pledged to share financial and programmatic data with external stakeholders, particularly recipients, local fund agents, and other external funders.[22] Building on this commitment, relevant information from costing and commodity price tracking systems should be distributed among partner organizations to gather knowledge on the costs of program implementation, reduce duplication, and strengthen and standardize costing methods. Expanding such costing exercises represents additional costs but has potential benefits to further reducing costs and increasing efficiencies that cannot be underestimated. As more global health organizations adopt open data standards, the Global Fund should also work to maintain its reputation for transparency and collaboration through increased availability of data to a broader audience, including the general public.

Beyond sharing data the Global Fund and its partners should leverage more open lines of communication to identify research "gaps" where further investigation is required, and for which partners can agree to an efficient division of labor to evaluate different aspects of the shared agenda. Ideally, methods for evaluation would follow similar inputs and processes, enhancing comparability across organizations. The Global Fund has already begun collaboration studies with PEPFAR[23]—and such collaborations, if found effective, should be continued and expanded. Understanding the nuances that inhibit organizations and programs from using the same benchmarks, the Global Fund and its partners should strive for comparability on at least the most commonly measured items.

Develop a strategy to use cost and spending data throughout the new funding model grant cycle

In the long run the Global Fund's new funding model provides an opportunity to better integrate and use supply chain and service delivery output data with cost and spending data. The strategy can clarify which data are required by whom to drive real-time improvement in program performance. Aside from continuing to benchmark commodity costs with data from the PQR, the Global Fund should encourage proposals to include unit costs from previous grants to inform subsequent budgeting exercises (see chapter 3).

The Global Fund should support the calculation of unit costs, which could inform future budgeting, help benchmark principal recipient or subrecipient performance, provide feedback to management on benchmarking results, inform implementation strategies, and feed into evaluation. Unit costs from previous grants can be used to determine cost estimates for countries' national strategic plans and to justify budgets in the concept note. In addition, a concomitant strategy to strengthen the capacity of program managers (down to the facility and program levels) to use the data to drive performance can be undertaken. For example, recipients can be

iii. This paragraph is based on comments to the report provided by David Collins, Management Sciences for Health.

encouraged to incorporate unit costs in their own domestic program management systems, using information to drive efficiency gains and reprogramming if necessary. The Global Fund could also reward, either financially or through visibility, principal recipients and local fund agent partners that match their cost and spending data with outputs to generate efficiencies, bringing down input costs (as suggested by current Global Fund guidance on value for money) and reducing output unit costs while maintaining quality.

In moving forward the Global Fund could better use cost and spending data to explore alternate grant management styles over the coming years. It is understood that programs that pay on a fixed cost per input are not desirable due to their limited incentives for efficiency. But the problems with a simplistic input- or output-based approach do not invalidate the use of benchmarking as a tool for project management. As chapter 4 argued, this Working Group believes that the Global Fund can create high-level incentives for efficiency gains by conditioning a portion of payment on verified improvements in population health or service coverage. But because population-level measurement is time-consuming (as is input tracking), it can only be conducted infrequently. In the interim and planning stages principal recipients and local fund agents can use indicative input and output benchmarks to help negotiate lower prices, identify cost and performance outliers, and otherwise shape a more responsive and timely approach to performance management. At the project level, recipient program managers can use benchmarking to continuously improve their efficiency, and the Secretariat should support them in this endeavor.

Summary

The Global Fund, mainly by design, is limited in its ability to directly improve program efficiency. Even so, the Global Fund can use its high-level authorities to incentivize and facilitate improved program efficiency, such as by using unit costs to determine appropriate price ranges and induce cost savings. While a one-size-fits-all approach to benchmarking is likely to fail and perpetuate perverse incentives, a nuanced approach to cost control, with flexible benchmarks as one tool, can align incentives for technical efficiency among the Global Fund, principal recipients, and subrecipients. There are many different options for deploying unit costs in the pursuit of value for money, many of which can be driven at the recipient or project level. The Global Fund should ensure that its funds are structured to support creative efforts to improve efficiency, and to continue supporting efforts to improve supply chains and generate procurement efficiencies.

Notes

1. PEPFAR (2012c), p. 40.
2. www.theglobalfund.org/en/procurement/vpp/.
3. www.theglobalfund.org/en/procurement/vpp/.
4. The Global Fund (2007a).
5. Kraiselburd and Yadav (2012).
6. Tren, Hess, and Bate (2009).
7. Kraiselburd and Yadav (2012).
8. Hamel and others (2011).
9. GAO (2013).
10. GAO (2013).
11. GAO (2013).
12. Yadav, Tata, and Babaley (2011); Sarley, Allain, and Akkihal (2009).
13. Berenguer, Iyer, and Yadav (2013).
14. Marseille and others (2012).
15. GAO (2013); Over, Schneider, and Velayudhan (2013); London School of Hygiene and Tropical Medicine (2012).
16. Marseille and others (2012).
17. The Global Fund (2010b).
18. PEPFAR (2012c).
19. USAID (2013).
20. The Global Fund (2010a).
21. GAO (2013).
22. The Global Fund (2011e).
23. Garmaise (2012).

Chapter 6

Verifying performance

Recommendations

- **Define a subset of core indicators to receive strengthened performance verification**
- **Verify the accuracy and quality of principal recipients' self-reported results using rigorous, representative measurement instruments**
- **Complement verification with population-based measurement and formal impact evaluation for interventions and service delivery strategies of unknown efficacy**

Chapter 5 highlighted the importance of efficiency and the incentive environment for realizing cost savings and stretching limited resources—that is, for minimizing the costs of any program. This chapter now shows that such measures are, however, fundamentally incomplete without a strong mechanism to verify the value created by programs and thus ensure that value for money is achieved.

Consider a program to treat malaria with artemisinin-based combination therapies (ACTs). Through benchmarking, proactive allocation, and efficient supply chain management, the Global Fund could ensure that the "right" amount of ACTs are purchased at the lowest cost, and delivered to the country efficiently. Yet all would be for naught if the pills sat unused in a warehouse or a rural clinic, or if they were improperly prescribed to children suffering from non-malarial febrile illnesses. Robust performance verification is thus essential to ensure that funded commodities and high-quality health services reach their intended beneficiaries—and to hold recipients of funding accountable for achieving health impact.

The Global Fund has taken aggressive steps to verify fiscal performance through strengthened fiduciary controls and financial oversight of principal recipients. These steps have helped win back donor confidence, and may deter financial misconduct, two essential elements for the Global Fund's long-term stability and funding outlook. But this approach addresses only the first half of the Global Fund's core mission—to "[invest] the world's money to save lives"[1]—without the necessary rigor in documenting the health returns of those global investments. The Working Group thus recommends that the Global Fund adopt a more robust and rigorous approach to performance verification, measurement, and evaluation.

Overview

The Global Fund prioritizes data and information systems as central components of its model in four key areas. The first area is program sustainability and efficiency—that is, strengthening national health information systems and other data collection to improve program management by the principal recipient and build sustainable health systems. To this end the Global Fund recommends that recipients allocate 5–10 percent of their budgets to monitoring and evaluation (M&E) activities.[2]

The second area is resource allocation, within and across countries, and for Global Fund grants and for the national strategy plans that provide a starting point for grant negotiations. The Global Fund's 2012–2016 strategy calls for "strategic investment" in "the highest impact interventions and technologies suitable to the country situation," and for "appropriate targeting of most-at-risk populations."[3] This can only be done with robust data on the efficacy of interventions (including efficacy for particular subgroups) and on the size and characteristics of a country's epidemics, including high-risk groups and geographic "hot spots" of transmission.

The third is grant management by the Global Fund, encompassing risk mitigation, regular oversight, performance incentives, and iterative reprogramming as challenges or opportunities for greater impact arise. Previous chapters discussed how performance data are intended to determine later disbursement amounts, and suggested strengthening the direct connection between grant performance and funding decisions. But this is only one aspect of the Global Fund's reliance on data for grant management purposes. Beyond

performance-based funding (PBF) the Global Fund uses data and measurement to detect and deter fraud, assess overall epidemiological trends, revise its funded activities, and coordinate funding with other partners and national governments. All require real-time measurement of financial flows, implementation progress, and other aspects of grant performance.

The fourth is accountability—between principal recipients and the Secretariat, between the Secretariat and the Board, and between the Board and donor governments. Just as the Global Fund is responsible for preventing misuse of its funds, it also provides implicit promises to its stakeholders about what it will achieve with those resources—"[save] 10 million lives and [prevent] 140–180 million new infections from HIV/AIDS, tuberculosis, and malaria between 2012 and 2016."[4] To be accountable to its Board and donors (and to mobilize additional resources in future replenishments), the Global Fund must track progress on those goals and document the appropriate use of its resources to achieve health impact.

Given the system-wide reliance on data and measurement as an integral input to core Global Fund and country-level health objectives—and given that much of the underlying data come from principal recipients themselves—it is not surprising that "data quality" is a recurring concern in Global Fund policies. The Global Fund has responded to this challenge with procedures to assess and improve the accuracy and reliability of the information on which it bases many key decisions. For example, the Global Fund has adopted a "risk management approach" to implementing data quality audits among its grants, to "provide an in-depth assessment of data quality and M&E systems" for grant recipients.[5] The Global Fund has also planned "country reviews" for recipients of its largest grants, designed to "evaluate disease outcome and impact, review program progress, and provide practical recommendations on where to achieve the greatest impact," which are expected to inform program design under the new funding model.[6]

Beyond these initiatives, routine performance validation by local fund agents (LFAs) has long been part of Global Fund oversight practice. Principal recipients provide the Global Fund with periodic reports on grant implementation, including progress on country-chosen indicators and targets. These indicators often emphasize easily documented inputs and outputs (people trained, condoms distributed)[7] rather than downstream health effects (outcomes, impacts). Once submitted these reports are forwarded to the Global Fund's designated LFA, typically an audit or consulting firm, which the Global Fund contracts to "independently oversee program performance" and "verify results."[8] For most periodic reports LFA "verification" is conducted through a desk review of data sources, in which aggregate results are compared with the underlying documentation from facilities and program managers.[9] LFAs also conduct annual site visits for each disease area and principal recipient to verify data sources and to assess the quality of health services, both as described in official policy (usually at the Ministry of Health) and as followed in practice (at health facilities).[10]

In sum, these methods represent a good faith effort by the Global Fund to monitor grant performance and assess data quality in the absence of an on-the-ground presence. Even so, the Working Group recognizes several limitations of the Global Fund's verification and measurement policies in the absence of more robust methods. Given how essential reliable data are to the value for money agenda, these weaknesses require urgent attention by the Global Fund's leaders.

Three concerns stand out. First, there are several inherent reasons to question whether recipients' self-reporting reflects genuine improvements in health, including general capacity constraints and data-quality concerns. Yet the credibility and rigor of self-reported data is of considerable concern "when information is used to reward performance or quality."[11] In such cases administrative data may be distorted by the recipients' (and thus facilities') clear incentive to report the "right" results to meet output targets, particularly when results are implicitly or explicitly tied to future funding.

For example, a Global Fund Office of Inspector General audit report for a malaria grant in Madagascar found that "net results reported to the Global Fund included UNITAID [long-lasting insecticidal nets] (and yet the indicator results were tied to funding)."[12] This challenge is not unique to the Global Fund. Lim and others (2008) found that the GAVI Alliance's results-based immunization services support program (currently being phased out) caused countries, on average, to inflate their official immunization statistics—an effect neither prevented nor predicted by the GAVI Alliance's use of data quality audits.[13,i] Similarly, more health services do not necessarily equal better health. For example, the "fee-

i. According to personal communications with the GAVI Alliance staff, the GAVI Alliance was aware of the likelihood of discrepancies between administrative and survey data at the time the immunization services support program was launched. However, the initial program design was borne from a conscious decision to endow countries with responsibility for

for-service" model common in the U.S. health care system incentivizes providers to perform unnecessary but costly procedures with little to no health benefit (and possibly net harm).[14]

Such perverse incentives, when unchecked, undermine three of the four areas of measurement described above. They undermine attempts to establish performance incentives and reward high-performing grants—a core Global Fund principle and essential tool in achieving value for money. They undermine the accountability of principal recipients to use funds appropriately and the responsibility to improve the health of populations served. And they can degrade national health information systems, with adverse spillovers for the entire health sector.

Because of these well-documented dynamics, self-reported data should be treated with caution and robustly verified to manage and mitigate perverse incentives. But despite their experience validating country coordinating mechanism's and recipient's financial performance, the Working Group assessed that LFAs lack the mandate, resources, and staff capacity to ensure representative, credible, and rigorous verification of results reported by recipients, mostly due to constrained resources and a lack of technical expertise on health and diseases.[15] Beyond regular desk reviews of program and financial documents, LFAs' annual on-site data verification and rapid services quality assessment provide the only routine on-the-ground spot checks of program performance. Yet these two procedures, while helpful in spotting or signaling egregious problems, are mostly limited to documentation review rather than independent, observational verification of intervention coverage or quality. Given their limited scope (eight or more site visits by one staff member over about 6–12 days for at least three indicators), they are also unable to offer a representative sample for all but the smallest programs, even if sites are selected through random sampling (as recommended in Global Fund guidance, though not commonly implemented). Further, selected sites are notified of the LFA visit a week before, giving time to prepare data sources.[16] In contrast Rwanda's highly successful PBF scheme also uses an audit approach, but auditors verify results at all facilities once each quarter.[17]

Second, because of the portfolio-wide emphasis on documentation review and verification, these procedures cannot assess intervention coverage and outcomes at the population level—and thus ensure that recipients' outputs lead to better health services and population health. A principal recipient could accurately report (and thus be verified) as having distributed a given number of insecticide-treated bed nets to households in high-transmission areas, yet omit (or be unaware) that nets had been misappropriated as fishing equipment[18] or soccer nets (figure 6.1).

Figure 6.1 Insecticide-treated bed net used as soccer net in Wassini Island, Kenya

Source: Jessica Brinton.

A third concern relates to innovative programs or interventions of unknown efficacy. In insecticide-treated bed net distribution, more robust verification of household use would likely provide enough documentation of program effectiveness for two reasons. First, the outcome of interest (correct use) can be easily observed[ii] by an independent evaluator—bed nets are clearly visible in households, and the target population is not stigmatized or hard to reach. Second, extensive biomedical literature demonstrates

measurement in line with principals of country ownership and health system strengthening, and as an effort to avoid creating new parallel systems.

ii. One caveat relates to the quality of bed nets, which may not be readily observable to the naked eye. If insecticide efficacy has been degraded despite nets' pristine appearance (a lack of holes or tears) and correct use, the nets may not offer the expected protection. Performance verification may need to incorporate an element of quality assurance to assess the type of net (a traditional bed net or a long-lasting insecticide-treated bed net) and the time passed since its distribution or manufacture.

a clear relationship between the outcome (correct use) and impact (prevention of malaria transmission). Yet many other Global Fund interventions will face difficulties on both outcome and impact, as in implementing behavioral interventions to prevent HIV among high-risk groups such as commercial sex workers or men who have sex with men, or with social marketing programs to encourage condom use. In such situations, impact evaluation is needed to isolate a clear causal relationship between the intervention and health impact.

Opportunities and limitations

Different approaches to assessing grant performance can be represented as a continuum between hierarchical self-reporting and purely independent measurement (figure 6.2). At one extreme, the grant recipient does all measurement, without external checks to verify accuracy. At the other extreme, self-reporting is required, but grant performance is assessed based on independently conducted population-based measurement. Few funding agencies adopt either extreme approach. Rather, they choose among hybrid approaches in the middle of the spectrum, where self-reported results are subject to increasingly rigorous verification and supplemented by population-based measurement to assess the coverage, outputs, and impacts of supported programs.

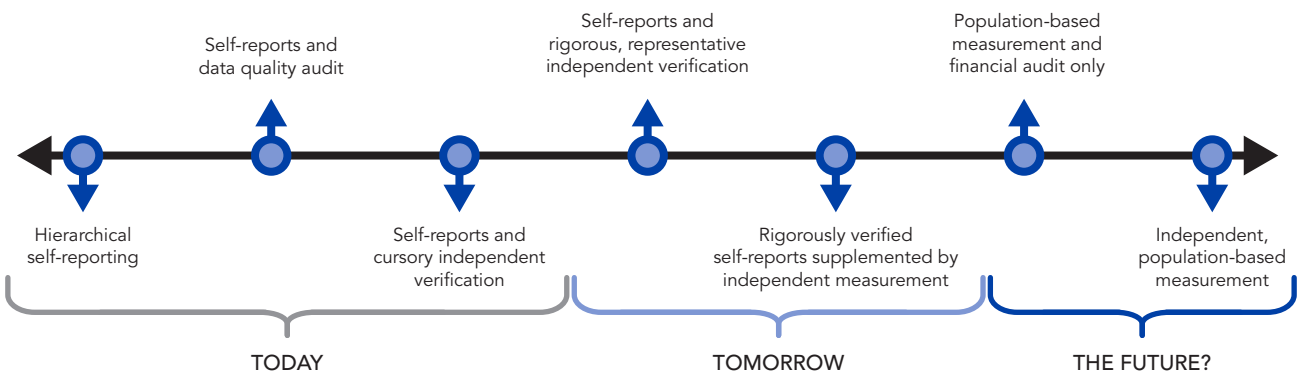
The Global Fund's verification approach is toward the left end of the spectrum, with principal recipients' self-reports and cursory independent checks for accuracy and data quality. While there is no correct approach to verifying performance, the Working Group recommends that the Global Fund move rightward along the spectrum. In the short term this entails a more rigorous and representative approach to verifying self-reported results. In the long term the Global Fund could consider shifting from "verification" toward payment based on independently measured outcomes and impact.

The Global Fund should thus immediately strengthen its verification of recipient performance through a more robust approach to measuring the quantity and quality of health services delivered with its support. The Working Group remains committed to strengthening national health information services, and urges the Global Fund to continue investing in this crucial element of health systems. Even so, to ensure that the Global Fund makes decisions based on accurate and reliable information, robust independent verification and measurement must complement recipients' self-reported data and domestic verification. Independent verification and measurement could potentially be undertaken by a polling or consulting firm, national statistics office (if independent), United Nations agency, research group, or nongovernmental organization, among others.

The benefits of robust, independently verified data are fourfold:

- First, as a recent World Bank report notes, "the very existence of the verification process is a key improvement in the governance of the health system" through its ability to both promote health system accountability and encourage national dialogue on health service results.[19]
- Second, independent data sources and rigorous verification improve the quality of administrative data, critical to promoting sustainable M&E systems in recipient countries

Figure 6.2 Approaches to assessing grant performance



Source: Authors.

and improving in-country program management. Even the best-performing countries will gain if they can regularly test their administrative reporting systems against independent robust and reliable data. For the lowest capacity countries, such independent verification may be the only way to have accurate data until the substantial time and investment in reporting systems begins to pay off. Indeed, when programs financed by the performance-based Health Results Innovations Trust Fund implemented verification in participating facilities (at times alongside penalties for over-reporting), the World Bank observed a clear and rapid jump in the accuracy of self-reported data on quantity of services delivered.[20] In Cameroon, for example, independent verification helped significantly reduce over-reporting of outpatient consultations.[21] Still, there remains much to learn about the optimal strategy for measuring and verifying service quality.

- Third, robust performance verification is critical to informed program management by the Secretariat. Without on-the-ground staff who can regularly interact with beneficiaries and observe program implementation, independent data are crucial for ensuring that the Secretariat has an accurate assessment of the returns to its financial investments. In turn accurate data ensure that performance-based payments reward real improvements, rather than administrative reporting errors or intentional manipulation. For this reason alone verification of programmatic data deserves substantial investment by the Secretariat, likely equaling or exceeding the amounts spent on LFAs.
- Fourth, high-quality data are global public goods that can be coordinated with other stakeholders and inform the work of national governments, donors, and independent researchers. To improve accountability around the Family Planning 2020 commitments, the Bill & Melinda Gates Foundation and others will support direct data collection in 69 countries, including baselines and annual follow-ups to estimate modern contraceptive users. Such large data collection efforts merit joint support, and connections with funders like the Global Fund.

In meetings and consultations with Global Fund staff and other stakeholders, the Working Group heard concerns about adopting a greater focus on independent verification and measurement. Some worried about the implications of independent measurement for country ownership and health systems strengthening. While the term "independent" is often interpreted as detrimental to country-owned processes, the Working Group takes a different view. Indeed, independent verification is valuable largely thanks to its ability to validate and strengthen the country-owned measurement architecture, as in Cameroon. Further, independent verification need not be conducted by foreign entities. Local nongovernmental organizations or research groups are often well-equipped to serve this role. And in some countries there may even be independent government agencies with a mandate and demonstrated ability to do so (for example, independent statistical offices or inspectors general).

A second stream of objections stemmed from worries about adding additional checks and paperwork to the already-extensive Global Fund grant management framework—a real concern. But robust performance verification is perhaps the most essential check of all risk management controls. After all, how can the Global Fund ensure that funds are used properly without convincingly demonstrating improvements in the results established by its strategy framework?

A separate but related concern is "attribution"—whether results need to be assigned to an individual funder or program, rather than to the joint efforts of all stakeholders. Global Fund staff described the organization's current momentum away from "project-based aid" toward "investment in the national program"—that the Global Fund was moving away from attribution of outputs and impacts. Even so, the Global Fund is committed to using its funds properly from an audit perspective, meaning that at the very least it will continue to require attribution of inputs. This speaks to the different purposes that attribution can serve, purposes closely related to the areas of measurement described above—particularly resource allocation, program management, and accountability.

Attribution is important for determining what does and does not work—whether an intervention is effective. Even if the overall national program is seeing strong epidemiological progress, it is still wasteful to invest scarce resources in an ineffective component. This is at the core of impact evaluation, which seeks to isolate the causal effect of an intervention from overall trends and other confounding factors, to "measure the net change in outcomes for a particular group of people that can be attributed to a specific program," as defined by the International Initiative for Impact Evaluation.[22] This definition is thus quite distinct from that of the Global Fund's Technical Evaluation Reference Group, which emphasizes "the importance of contribution and assessing causation and competing explanations rather than narrow attribution to

one source of financing and single intervention."[23] The core question remains quite difficult, however. At what level is attribution required to ensure accountability of funds, identify effective and ineffective program components, and enable active grant management? While attribution of impact may not be necessary in most cases, the Working Group believes that attribution of outputs remains important for accountability and management. Where the Global Fund finances only one part of the health production function, it can assess its contribution on a set of outputs—but it should still be able to draw a direct line between its investment and service delivery.

A final consideration for implementation—closely related to the question of attribution—is the difficulty of constructing a robust baseline against which to measure future progress. In chapter 4 the Working Group advocates for an explicit link between funding and incremental progress on a subset of the most important indicators. Yet without knowing the initial coverage or retention rates, it will not be possible to assess marginal improvements. Further, in many countries it may not be possible to measure a baseline before grant implementation begins for the Global Fund's first grant cycle under the new funding model. The Working Group thus recognizes that a baseline may not be immediately feasible in some contexts. Where this is the case measurement during the first round of the new funding model can serve as the baseline for the second three-year grant cycle, when PBF recommendations can be fully implemented.

Recommendations

Define a subset of core indicators to receive strengthened performance verification

As chapter 4 outlined, the Global Fund should reduce the set of M&E and PBF indicators as much as possible and shift to a small set of core indicators that measure the most important outputs and outcomes that define value. Ideally, these core indicators will be linked and aligned closely with country data systems, the U.S. President's Emergency Plan for AIDS Relief, the President's Malaria Initiative, and other significant external funders. These indicators should be based on a clear relationship between the intervention measured by the indicator and its health impact, incorporating the quality of care. Progress on these indicators should be regularly verified across all relevant grants.

Verify the accuracy and quality of principal recipients' self-reported results using rigorous, representative measurement instruments

The Global Fund should design efficient mechanisms to rigorously verify a few of the most essential self-reported program indicators. To do this, the Global Fund should create terms of reference for a local performance agent in each country, an entity independent of the LFA but conceived as the LFA analogue for grant performance. LFA nonfiduciary responsibilities (such as the on-site data verification and the rapid services quality assessment) should be gradually scaled back, and in their place local performance agents would provide independent verification of recipients' self-reported results. Verification should be at least annual, to align with the Global Fund's annual disbursement cycle under the new funding model. While the verification would vary by country and program type, it should abide by four minimum requirements:

- Verification must be technically sound and produce robust,[iii] representative results of the facilities and people involved or targeted in a Global Fund–sponsored intervention.
- Verification visits must be unannounced.
- Verification must cover the relevant core indicators—all indicators possibly tied to performance disbursements.
- Verification must be conducted by an independent third party (the local performance agent).

Verification will fall into two broad categories depending on the program: clinic-based services and community- and population-based services. For clinic-based services verification should include unannounced on-site data audits at a representative sample of facilities, assessments of service readiness and quality (stock-outs, absenteeism), and interviews with reported program beneficiaries. Where possible, the Global Fund should "piggy-back" on current verification efforts, such as the President's Malaria Initiative's deployment of end-use verification in facilities that receive joint support.

For community-based programs (that is, bed net or condom distribution, behavior change, and programs targeting orphans and vulnerable children) verification should require a representative annual "mini-survey" within the target population to assess service coverage and effects, such as whether distributed bed nets were being

iii. A robust statistic is resistant to errors in the results; a robust estimator will be reasonably efficient, with reasonably small bias.

used correctly in the targeted community. Mini-surveys—possibly through mobile phone interviews,[24] where appropriate—would be less precise but nonetheless be representative and document program implementation and effectiveness. Measuring community-based programs will require greater consensus about their core objectives and corresponding indicators of outputs and outcomes. Many programs will include multiple clinical- and community-based components. In such cases, verification should occur for any activity that represents a significant chunk of Global Fund support in dollar terms—that is, an activity costing at least $250,000, or some other threshold to be set by the Secretariat.

Independent verification, particularly at the facility level, creates incentives for investing in accurate, complete, and routine monitoring systems. These systems can be supplemented by explicit financial or reputational incentives to reward high-quality routine reporting or penalize inaccuracies, as has been done in a pay-for-performance scheme in Rwanda.[25] Many other design features of verification are being evaluated by the World Bank's Health Results Innovations Trust Fund, and the Global Fund should incorporate evolving evidence into its terms of reference for local performance agents.[iv]

Performance verification should be implemented across the Global Fund grant portfolio. Such additional checks would have financial implications, though they would be mediated by scaling back LFA responsibilities, eliminating the current rapid services quality assessment, data quality audit, and on-site data verification procedures, and coordinating measurement with other donors. To ensure that recipient and Global Fund investments achieve a strong return in service coverage and health impact, the Board should authorize all requisite resources for this endeavor. In turn the Secretariat should draft clear, standardized guidance on the expectations for verifying grant performance. Over time the Global Fund could also work to cut costs and increase the frequency of verification through new monitoring and survey technologies. For example, recent analysis by Croke and others (2012) suggests that high-quality, representative panel data could be collected by mobile phone interviews in several African countries, at a cost of about $2,500 per survey round.[26]

iv. A fuller discussion of different approaches to verifying performance in performance-based incentive schemes is available on the World Bank's Results-Based Financing for Health website (www.rbfhealth.org) and in a forthcoming cross-country analysis on verification.

Complement verification with population-based measurement and formal impact evaluation for interventions and service delivery strategies of unknown effectiveness

Regular output verification should be complemented by representative, population-based measurement of the target population once per three-year grant, timed to coincide with grant negotiations for the next funding cycle. The Global Fund should take advantage of current population-based measurement exercises, such as the Demographic and Health Survey and the Multiple Indicator Cluster Survey. But the Global Fund will also need to commission tailored surveys to meet verification needs. In both cases the goal is to measure the coverage of key health services among the targeted population and to assess trends in health that can be connected to Global Fund investments. The target population may be defined by geographic boundary, age, gender, other high-risk behaviors, or some combination—for example, key populations within geographically defined hot spots. In the long run the Global Fund may consider moving to more frequent population-based measurement, where coverage and outcomes are linked to payment, instead of output verification (further to the right on the performance assessment continuum; see figure 6.2).

In cases where a country opts out of the Global Fund intervention list (see chapter 3)—where it funds interventions of unknown efficacy or cost-effectiveness—the end-of-cycle measurement should be part of a broader strategy to facilitate causally attributable impact evaluation that links impacts to specific interventions, and that builds on a baseline established at the beginning of the grant cycle (ideally with randomized intervention and control groups, and coordinated with other partners to avoid confounding or duplication). Where impact evaluation shows new or unproven interventions to be effective and cost-effective, the Global Fund can expand its eligible interventions list to reflect the evolving evidence base. In doing so the Global Fund can both support new ideas and innovative delivery strategies, while also ensuring that its resources mainly fund interventions proven to save lives or prevent new infections.

Summary

The efficacy of the Global Fund's core model (and thus its ability to implement a value for money agenda) depends on its having accurate

and reliable data for the programs it is funding. While LFAs have a long history of validating grant performance, which has been supplemented by other exercises such as data quality audits, program reviews, and impact assessments, the Working Group believes that current checks on data accuracy are insufficient. Because ensuring results is a key component of the Global Fund's core mandate and new strategy of "investing for impact"—and because of clear evidence that administrative data are unreliable and subject to distortion by perverse incentives—the Working Group recommends that the Global Fund adopt a systematic framework for using independent, representative sampling and rigorous measurement instruments, both for performance verification and impact evaluation. Verification must include first-hand observation at the facility and beneficiary levels. Such measures will require sustained Global Fund investment and possibly a new dedicated entity, but they should nonetheless be a core element of the Global Fund's value for money agenda.

Notes

1. www.theglobalfund.org/en/about/whoweare/.
2. The Global Fund (2011h).
3. The Global Fund (2012c).
4. The Global Fund (2012c).
5. www.theglobalfund.org/en/me/documents/dataquality/.
6. The Global Fund (2013d).
7. The Global Fund (2012b).
8. www.theglobalfund.org/en/lfa/.
9. The Global Fund (2013b).
10. The Global Fund (2011f).
11. World Bank (2013a).
12. The Global Fund (2011a), p. 2.
13. Lim and others (2008).
14. Abelson and Creswell (2012).
15. Glassman and Silverman (forthcoming).
16. The Global Fund (2011f).
17. Basinga and others (2010).
18. Martins, Zwi, and Kelly (2012).
19. World Bank (2013b), p. 18.
20. Cashin and Vergeer (2013).
21. World Bank (2013b).
22. International Initiative for Impact Evaluation (2008).
23. The Global Fund (2012d).
24. Croke and others (2012).
25. Loevinsohn (2008).
26. Croke and others (2012).

Chapter 7
Conclusions

In April 2013 the Global Fund released four documents to motivate its upcoming replenishment, which aims to raise $15 billion over 2014–16.[1] The documents highlight the Global Fund's achievements thus far, including its contribution to lowering disease burden from HIV/AIDS, tuberculosis, and malaria in more than 100 countries. They further showcase the advantages of the new funding model, such as flexibility, simplicity, and a more active approach to between-country allocation and engagement (box 7.1). But despite references to themes in this report, "value for money" is not explicitly mentioned as a core Global Fund objective for the replenishment.

Since its inception in 2001 the Global Fund has undergone multiple comprehensive reviews, generating many recommendations. The Global Fund has proven dynamic and agile in its response, transforming in an effort to manage risk, maintain donor confidence, and increase its health impact. But it acknowledges that transitioning to sustainable results is not yet complete.

This report seeks to complement the Global Fund's progress with a practical value for money agenda. It targets four value for money domains: allocation, contracts, costs and spending, and performance verification. This report's recommendations, discussed in chapters 3–6, vary in urgency and immediate feasibility. Some are more pressing and require immediate action, such as defining an eligible commodity list. Others necessitate long-term attention, such as measuring and applying unit costs and more robustly verifying performance. Table 7.1 summarizes the recommendations, and appendix 1 offers suggestions on the sequencing and division of responsibility among the partners.[i] In addition to the recommendations made in each substantive area, this report offers five final "how" recommendations—thoughts on how the Global Fund can move forward in adopting this agenda.

Box 7.1 Excerpt from the new funding model

"To adapt to a new economic reality, new technologies, scientific advances, and a better understanding of epidemiological patterns, the Global Fund needed to make changes, and move . . . toward sustainable programs."

Source: The Global Fund (2013c), p. 1.

Reflect value for money in key performance indicators

The Global Fund's key performance indicators orient the action of the Secretariat, and should provide a benchmark to assess Secretariat performance and Global Fund leaders' success. But in the past the Global Fund's performance indicators have been mainly process-oriented: "percentage of funds allocated to civil society organizations as implementers"; Global Fund "operating expenses as a percentage of total expenditures"; and "percentage of well-performing grants."[2] While the performance indicators included a value for money indicator, it was narrow in scope, low in rigor, and an amalgamation of three non-comparable indicators.[ii] The extent to which the Board judged Secretariat performance against the indicators is also unknown. It is unclear whether the performance indicators represented an explicit standard for Secretariat accountability.

With the performance indicators under revision, the new indicators represent an important opportunity to set clear value for money expectations for the Secretariat.

i. Short-term recommendations are those that the Global Fund can implement with few staffing and capacity needs, within the next year. Medium- and long-term recommendations are those that will need new institutions and staffing, and could be implemented within the next three years.

ii. A simple arithmetic average of percent change in the median price paid for antiretroviral drugs per patient-year; the median price paid for insecticide-treated bed nets; and the "proportion of countries with a DOTS unit cost per patient successfully treated within reference range" (The Global Fund 2012a, p. 17).

Table 7.1 Value for money: summary of domains, key problems, and recommendations

DOMAIN	KEY PROBLEM	RECOMMENDATION
Allocation. How can resources be allocated to maximize impact on HIV/AIDS, tuberculosis, and malaria?	National and donor funding is not consistently supporting best practice, despite substantial evidence on what works most cost-effectively to reduce disease.	Choose from a menu of effective and cost-effective interventions and commodities. Identify and target key populations with appropriate interventions. Optimize investments for the greatest health impact. Improve ex ante budgeting and transparency on spending.
Contracts. How can contracts and agreements between the Global Fund and its recipients be structured to create stronger incentives?	Current agreements provide only weak incentives for impact.	Directly connect a portion of funding to incremental progress on performance. Link performance payments to incremental progress against the most important indicators. Support performance incentives between the principal recipient and service providers.
Cost and spending. How can costs of and spending on commodities, supply chains, and service delivery be better tracked and used?	Cost, price, and spending on commodities varies widely between countries; this variation is unexplained.	Continue to improve the scope, completeness, and timeliness of reporting to commodity price tracking systems. Benchmark and use supply chain costs and outputs. Identify core services for more extensive analysis and use of service delivery costs and spending. Share costing data with partners and the public. Develop a strategy to use unit-cost data throughout the new funding model grant cycle.
Performance verification. How can performance be verified and evaluated rigorously, to generate greater incentives and accountability?	The Global Fund relies on weak instruments to verify the accuracy of self-reported performance measures.	Define a subset of core indicators to receive strengthened performance verification. Independently verify the accuracy and quality of principal recipients' self-reported results using rigorous, representative measurement instruments. Complement output verification with population-based measurement and formal impact evaluation for interventions and service delivery strategies of unknown efficacy.

Source: Authors.

Build better accountability with technical partners

While responsibility for implementing many of the recommendations falls on the Global Fund's Secretariat, Board, and Board committees, value for money must be a shared agenda among Global Fund partners. In the past the loose accountability between the Global Fund and its technical partners has sometimes failed to deliver key inputs to grant proposals and implementation that would enhance value for money. The Global Fund may require more formal contracts with technical partners to obtain needed data, skills, and support. Instead of a memorandum of understanding, the Global Fund Secretariat can contract with partners for specified deliverables, following the example of the GAVI Alliance and its relationships with the United Nations Children's Fund and the World Health Organization. Or the Global Fund can seek external support when needed, as it did when it contracted for the impact evaluation of the Affordable Medicines Facility–malaria with the London School of Hygiene and Tropical Medicine. Alternatively, the Global Fund's donors may wish to fund technical partners directly for certain deliverables, as part of their technical assistance funding to the Global Fund.

Connect countries with scarce (but essential) expertise to inform allocation

Most countries (and many global health funders) lack the in-house capacity to apply cost-effectiveness, modeling, and other health economics tools in grant applications and national planning processes. Spread over many agencies, universities, and companies, with few specialized institutions or departments, health economics expertise

is both scarce and diffuse—and thus rarely applied to routine planning for resource allocation and management. Greater partnership is thus needed to connect countries with this expertise. In the interim, recipients and the Global Fund could obtain technical assistance from partners with institutional modeling capacity, such as the World Health Organization, the Joint United Nations Programme on HIV/AIDS, the World Bank, and the U.S. President's Emergency Plan for AIDS Relief. Yet, given competing demands for their time, other sources will be needed in the long run.

Inspired by the work of the HIV Modelling Consortium in marshaling applied health economics research to the fight against HIV, the Working Group thus proposes establishing a dedicated network to connect countries and donors with health economics expertise on HIV, tuberculosis, and malaria. Tentatively called the "Decision Support Network," this nonprofit resource network—based at an existing entity—could mobilize expertise across organizations offering a menu of services to provide demand-based analysis to support evidence-based and efficient resource allocation and management (box 7.2). While the network would not be a formal arm of the Global Fund or any other funding agency, the Global Fund and other financing institutions could help its creation by promising to commission a substantial quantity of its analysis once created.

Once such a network is created, the Global Fund could both contract its services to inform institution-wide priority-setting and policy, and also encourage (or fund) countries to commission its expertise for national planning processes. Over time, uptake of network services would allow countries and donor agencies to overcome barriers to applying health economics to national policy, enabling such analysis to be routinized into both Global Fund grant-making and national strategic plans.

Given the President's Emergency Plan for AIDS Relief's proposed increased contribution to the Global Fund in 2014, a larger amount of technical cooperation funds will be available to support Global Fund operations (box 7.3). This added funding may be an opportunity to design and deploy a Decision Support Network as recommended by the Working Group.

Box 7.2 Indicative menu of services provided by the proposed Decision Support Network

- Economic modeling (ex ante): input into design and adjustment of intervention mixes to realize specific disease goals.
- Country or payer cost-effectiveness and budget impact analysis for specific technologies and commodities, benefits plans, or negative lists.
- Impact evaluation (ex post).
- Financing and sustainability frameworks and analysis.
- Analysis of fiscal and budgetary issues: risk adjustment, federal-state transfers, conditional block grants, performance-based financing, and so on.
- Costing and efficiency analysis.
- Behavioral economic analysis: interventions for adherence, preventive care seeking, and healthy behaviors.
- Expenditure analysis: uses, budgets, benchmarking, benefit incidence, and so on.
- Assessment and provision of data and information needs for the above services.

Box 7.3 Statement by Ambassador Eric Goosby

"With country leadership the new paradigm for the future response entails more joint planning [and] cognizance of shared responsibility to people who need services, to donor countries, and to the U.S. taxpayers to be assured of effective and efficient use of their resources.

—PEPFAR Ambassador Eric Goosby, 2012

Create synergies in data collection and analysis

In chapter 6 the Working Group recommended that the Global Fund commission more rigorous performance-based verification and population-based surveys once per three-year grant cycle. While the Global Fund can independently contract these tools for its grants, it can also achieve substantial efficiencies by coordinating data collection and analysis with countries' statistical agencies and other funders and stakeholders—and then by distributing data to maximize its value and use. Coordinating data collection can reduce the duplication of efforts and facilitate comparability across surveys and funders, helping realize the full potential of data as a global public good and empowering countries to use measurement for program management and planning.

Some progress has been made in harmonizing indicators and data collection across countries and agencies. The Joint United Nations Programme on HIV/AIDS's Monitoring and Evaluation Reference Group, which includes the Global Fund, has defined 30 core progress indicators for global HIV control.[3] Likewise, as part of a broader agenda to harmonize donors and national governments, the International Health Partnership (to which the Global Fund is a signatory[4]) works "to increase the use of shared mechanisms for reporting on progress and reviewing performance."[5]

Building on these efforts, the Working Group recommends that global health funders continue to pursue measures that improve survey coordination and data sharing with each other, with national governments, and with the public. Funders and technical partners could establish a joint database of all funded data collection efforts worldwide, such that Secretariat and headquarters staff could easily assess data sources. They could evaluate the need for further investment. And, where relevant data already exist, they could request access from other agencies to inform planning and grant negotiation.

Assess and share best practices among principal recipients, country coordinating mechanisms, and other partners

Despite many common experiences—and thus many opportunities to learn from each other—principal recipients and country coordinating mechanisms rarely interact with their counterparts in other countries. Such national "silos" are problematic, as they impede assessing and sharing best practices of grant implementation and evaluation. Without greater interaction the two may be unaware of alternative implementation arrangements or more efficient practices.

These silos may also extend to the Secretariat. Fund portfolio managers are knowledgeable about the implementation successes and challenges in countries under their purview. But it is unclear whether their individual assessments are systematically translated into institutional knowledge about "what works" that is then shared with the Global Fund's principal recipients and country coordinating mechanisms.

As a high-level independent review panel noted:

> "The Global Fund acknowledges that it does not make the best use of the vast store of knowledge, evidence, and insights available from the wide range of people and institutions with whom it interacts. . . . [Fund portfolio managers] should be systematically exchanging knowledge with in-country players—not only [with country coordinating mechanisms, local fund agents, and principal recipients], but also with [United Nations] agencies, the World Bank, regional development banks, and bilateral donors, especially those that are providing funding for related fields such as health systems strengthening and the management of pharmaceutical supply chains."[6]

And while this concern about knowledge-sharing may seem lofty, it has many concrete and practical applications for program development. Anecdotal evidence suggests that more successful grants have fewer subrecipients and clearer contractual and accountability relationships between the principal recipient and subgrantees.

The Global Fund should help foster a learning community that could better share best practice in program implementation, and thus cultivate more effective methods to increase efficiency and improve service delivery. Such a culture should start by sharing more information within the Secretariat. This would allow fund portfolio managers to be better appraised of the pros and cons of comparative practices and thus able to communicate those lessons to their country's principal recipients, country coordinating mechanisms, and other partners when appropriate. The Global Fund could also connect principal recipients and country coordinating mechanisms with each other through remote communication (Skype, phone calls, or email), or through short study trips to enable first-hand observation. And where implementation arrangements appear suboptimal and the current recipient shows little interest in addressing the problem, the Global Fund could incubate alternative recipients as a strategy to encourage innovation and find the most efficient channel for its resources.

Wrapping up

Achieving value for money—the greatest health impact with available resources—is the core business of any global health funder. Value for money cannot be an afterthought, a checklist, or an extra obligation—it is the very essence of ethical and responsible global health funding.

From the Global Fund Secretariat in Geneva, to the Office of the U.S. Global AIDS Coordinator in Washington, DC, to the

Department for International Development in London, to the hospital in Nigeria where hundreds are on antiretroviral treatment, to civil society organizations like the Center for Global Development, everyone bears some responsibility for improving value for money. And everyone will benefit from the ensuing gains in efficiency, quality, and health. The Working Group hopes this report can prompt and guide the Global Fund and its partners' ongoing value for money transformation.

Notes

1. www.theglobalfund.org/en/donors/replenishment/fourth/.
2. The Global Fund (2012a).
3. UNAIDS (2011).
4. www.theglobalfund.org/en/about/partnership/development/.
5. www.internationalhealthpartnership.net/en/key-issues/monitoring-evaluation/.
6. The Global Fund (2011l), p. 35.

Appendix 1

Sequencing and division of responsibility for the value for money agenda

DOMAIN	RECOMMENDATION	DIVISION OF RESPONSIBILITY	OUTLOOK
Allocation	Choose from a menu of effective and cost-effective interventions and commodities	Global Fund Secretariat, principal recipients	Short term
	Identify and target key populations with appropriate interventions	Global Fund Secretariat, PEPFAR, partner country governments	Short term
	Improve ex ante budgeting and transparency on spending	Global Fund Secretariat, partner country governments, country coordinating mechanisms	Short to medium term
	Optimize investments for the greatest health impact	Global Fund Secretariat, Technical Review Panel	Medium term
Contracts	Link performance payments to incremental progress against the most important indicators	Global Fund Secretariat	Short term
	Directly connect a portion of funding to incremental progress on performance	Global Fund Secretariat, principal recipients	Medium term
	Support performance incentives between the principal recipient and service providers	Global Fund Secretariat, principal recipients	Medium term
Costs and spending	Continue to improve the scope, completeness, and timeliness of reporting to commodity price tracking systems	Global Fund Secretariat, principal recipients, subrecipients	Short term
	Identify core services for more extensive analysis of service delivery costs and spending	Global Fund Secretariat, Market Dynamics Advisory Group	Short term
	Benchmark and use supply chain costs and outputs	Global Fund Secretariat	Short term
	Develop a strategy to use unit-cost data throughout the new funding model grant cycle	Global Fund Secretariat, PEPFAR	Short term
	Share costing data with partners and the public	Global Fund Secretariat, principal recipients, subrecipients	Long term
Performance verification	Define a subset of core indicators to receive strengthened performance verification	Global Fund Secretariat, technical partners	Short term
	Verify the accuracy and quality of principal recipients' self-reported results using rigorous, representative measurement instruments	Global Fund Secretariat, local performance agents	Medium term
	Complement output verification with population-based measurement and formal impact evaluation for interventions and service delivery strategies of unknown efficacy	Global Fund Secretariat, local performance agents	Medium term

Appendix 2

Innovations in the design of "contract-like" grant agreements

The current practice of the Global Fund and most other health donors is to issue grant agreements that specify the donor's disbursement schedule in terms of the recipient's spending on inputs and conditional mainly on the recipient's timely submission of documents to support this spending. Some grant agreements only allude in passing to the health service processes, outputs, and outcomes to which these inputs are intended to contribute. Others prescribe a target number of processes, outputs, or outcomes, without conditioning payment on a count of any of them. By reimbursing incurred expenses rather than paying a predetermined amount per unit of output, the traditional grant agreement perversely rewards higher expenses per unit of output. Since any cost reduction the recipient achieves saves money only for the Global Fund, this kind of agreement provides no incentive for the recipient to economize. The incentives in the traditional grant design have little power to motivate the recipient either to improve efficiency or to save money for the Global Fund.

More ambitious agreements condition payment on a count of processes, outputs, or outcomes but depend mainly on the grant recipient's own report, with limited or weak third-party verification. Such an agreement violates a principle of efficient contract design first enunciated by the philosopher Charles Babbage in the 1830s:

> "That every person connected with [an enterprise] should derive more advantage from applying any improvement he might discover [to improving the efficiency of the enterprise] than he could by any other course."[1]

Chapter 4 argues that pursuing efficiency in health financing requires that part of each grant agreement be reserved for disbursement within a more contract-like agreement. The first requirement of such a contract or agreement is that a quality-adjusted unit of service output be mutually agreed by the donor and recipient during negotiation and subsequently that the number of produced units of this output be counted during the agreement's implementation and be verified independently by a mutually agreed third party.

This appendix proposes alternative contract designs for that output-contingent part of a grant agreement. "Agreements" and "contracts" are used interchangeably here to refer to these hypothetical "contract-like" agreement structures, which the Global Fund or another donor could choose to issue. The payments for these outputs could be from the Global Fund to the principal recipient or from the principal recipient to a subrecipient. If the principal recipient is a federal government like those of Brazil, India, or Nigeria, the payment could be from the federal government to a subnational government, such as a province, state, or municipality.

Regulatory regimes in Europe and North America are designed to improve the value for money that the public receives for its purchases of critical services from private or parastatal providers. Regulators charged with designing regulatory regimes draw on a large literature on optimal regulation and optimal procurement, which explores many design alternatives.[i] Some alternatives can achieve exemplary value for money under the assumption that the regulator knows the producer's entire cost function, for both the past and the future.[ii] With this knowledge a global health donor could

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i. For textbook treatments, see Laffont and Tirole (1993) and Armstrong, Cowan, and Vickers (1994). The first chapter of Laffont and Martimort (2002) concisely reviews the intellectual history of incentives, contracts, and mechanism design starting with the work of Adam Smith.

ii. A cost function is defined as a function that estimates the total annual cost of an operating facility as a function of how much of each of its outputs it produces, the prices of its factor inputs (like labor, utilities, and capital), and an array of environmental and policy determinants. By making strong assumptions about the interactions among the various outputs, this total cost function can be divided by one of the outputs to construct a function relating average cost to the same variables: quantities of all the outputs, prices paid for all the factors of production, and social and economic determinants. Health economists and health service researchers have been estimating cost functions for various categories of health services for decades. See Meyer-Rath and Over (2012) for a detailed review and

be ensured of paying the recipient the minimal cost for its efficient production of any verified number of quality-adjusted units of output. If the regulator has perfect knowledge of the producer's cost function, technology changes would be routinely absorbed into the payment amounts, so that cost-saving technological improvements would appropriately reduce the donor's average payment per unit of output and quality-enhancing improvements would, if they pass a cost-effectiveness test, appropriately increase the donor's average payment.

But the nascent literature on the determinants of the cost of HIV/AIDS service delivery (see chapter 5) already reveals how difficult it is to know the entire cost function for antiretroviral treatment (ART) delivery. And the way the costs of tuberculosis or malaria services vary across all facility types, ownership types, geographical locations, sizes, and scopes are even less understood. With these technical obstacles to knowing the cost function, it is reasonable to assume that much less than perfect cost information will typically be available to the donor. This appendix therefore groups contract design alternatives into two broad categories, depending on whether the recipient is able to learn and willing to reveal its total cost for producing last year's output. First, consider a contract design that could encourage efficiency improvement if the recipient reveals its previous year's total cost to the donor every year. Second, consider a contract design that could work even without the recipient revealing its previous year's total cost.

Contract designs that assume knowledge of last year's total cost

Suppose that the recipient is able to learn, and willing to reveal to the donor every year the number of quality-adjusted units of output produced the previous year—and the total cost in doing so. Since the ratio of the previous year's total cost to its output is the previous year's average cost (or "unit cost"), the recipient can thus reveal its previous year's average cost to the donor and this cost report can be a condition of contract continuation.

However, in contrast to the perfect information assumption where the entire cost function is known by both the donor and the recipient, let's assume that the recipient is not able to reveal, probably because it does not itself know, how costs would change with any of several variables that might change from one year to the next. For example, assume that no one knows how average cost will change with the number of units produced—that is, with the "scale of production." Since many production processes in the health sector involve a substantial fixed cost (such as the cost of the building and of personnel salaries), these processes benefit from "economies of scale" and can produce at a smaller average cost if they expand their output. Suppose all parties are sure that economies of scale apply but are not sure how much average costs will decline with scale. The uncertainty might be because the managers and their staff will need to experiment with management arrangements to handle the expanded number of clients. Or it might be due to the unknown cost of a proposed quality-enhancing new drug or other technological innovation.

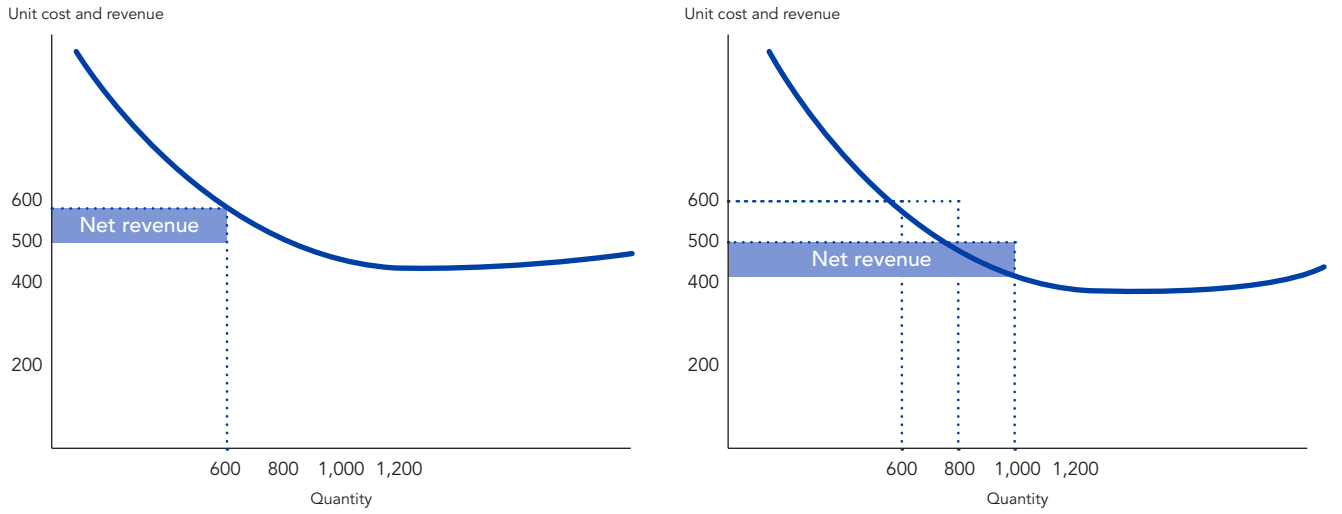
A very simple but surprisingly powerful contract design is the Vogelsang-Finsinger (VF) mechanism.[2] Suppose that the average cost per quality-adjusted unit of output last year was $600 and that 600 units were produced. (This might be the facility-specific cost of ART, for example.) The VF contract design is simply an agreement to pay the recipient $600 for every unit of quality-adjusted output it produces this year, with the understanding that if it is able to produce at a lower average cost than $600 it can retain the difference between its receipts and costs, to be redeployed for investments in building maintenance, new equipment, and so on.[iii] This last provision establishes the recipient as the "residual claimant" on any excess of donor payments over costs. By guaranteeing residual claimant status, the grant agreement creates an incentive to the recipient. Because of economies of scale, the incentive will be for the recipient to expand output (without sacrificing quality). Figure A2.1 shows how such a contract would work with a hypothetical average cost during the first two years it is applied.

Under this contract, as long as the recipient can expand output, it has an incentive to do so until average cost no longer declines, which in figure A2.1 appears to happen at an output level of 1,200 units. At that point, when average costs have flattened out or begun to rise, the recipient will stabilize its output level unless it can discover technology improvements that reduce its quality-adjusted average cost. Should it find such improvements, its entire average cost curve

critique of cost functions used in several papers to model the scale-up of antiretroviral therapy.

iii. In practice the donor would impose an upper bound on the number of units to be paid at this rate.

Figure A2.1 Efficiency-enhancing response of a recipient granted residual claimant status and paid the previous year's average cost for every current year unit of output



Source: Authors (Mead Over).

will shift downward, and it can again benefit from expanding output, year by year, until average costs flatten out.

While endowing the recipient with residual claimant status generates an incentive for the recipient to expand output, by doing so the recipient reveals a new lower average cost to the donor. Now that the donor knows the recipient's lower average cost, it can reduce the amount it pays this recipient for all future units of output. This consequence, if replicated year after year in many grant agreements around the world, has the potential of generating two types of cost-savings for the donor. First, the recipient's revelation of its previous year's average cost provides the donor with an estimated "benchmark unit cost" specific to a country and even to the recipient within the country. Without this information the donor might have to spend millions of dollars to estimate benchmark costs that, because of the time such studies take, would be several years out of date (see chapter 5). Second, and more important, over several years through sequential adjustments the donor's average spending per unit of output falls lower and lower, until the donor is paying no more than the minimum average unit cost achievable.[iv] The donor can then redeploy the resources saved to other program needs in the same country or in different ones.

A recognized weakness of the VF mechanism is that grant recipients may be reluctant to reduce their average cost relative to the previous year because they know that the donor would use this lower average cost in the following year as the basis for a reduced payment per unit.[3] In the Global Fund context the VF mechanism may be less vulnerable to this weakness for three reasons.

First, the regulated natural monopolies to which the VF mechanism was originally applied are accountable only to their purely profit-motivated stockholders. In contrast the government and nongovernmental organizations that are the "principal recipients" of the envisioned agreements are rarely privately owned or accountable to stockholders, but they are always accountable to some degree to constituencies who expect these recipients to pursue the public

iv. To the extent that the recipient can progressively "mainstream" its service delivery within the nations' health care system, it can shift part of its fixed costs to the system. That lowers the recipient's average total cost in the current year and then increases the recipient's net revenue. This incentive encourages the recipient and the recipient government's health system to take full advantage of the cost savings attainable from joint production and the attendant economies of scope. This assumption that the recipient will reveal to the donor its previous year's average cost suggests that the cost-saving benefits of mainstreaming, like those of scaling up, will be shared by the donor over time.

interest. The constituencies include their clients, the recipient country's government and its citizens, and, especially for international nongovernmental organizations, a global constituency of public-spirited supporters. These features of the intended recipients imply that they share many of the donor's nonmaterial objectives. For example, to the extent that the recipients represent the interests of their public stakeholders, they should share the donor's interest in expanding health service delivery in the recipient's country, improving the efficiency and cost-effectiveness of its own operations, and even ensuring the continuing viability of the donor agency, through improvements in the donor's value for money.[v]

Second, since the donor will still be auditing the recipient's spending, the recipient that inflates current year's spending to sustain next year's per unit payment is forgoing the receipt of fungible net revenues this year in favor of inflated expenses next year, all of which must be justified against previously authorized budget lines. Recipients that prefer to receive the fungible net revenue this year instead of receiving payment the following year for higher inflated expenses, will be willing to expand their output this year and reap the gains. The V-F mechanism will thus achieve the anticipated efficiency improvements.

Third, suppose that a substantial part of the recipient's management and staff changes every year. Those who expect to leave before next year have an incentive to earn net revenue this year, because this flexible resource can immediately improve their working conditions. The departing staff will not benefit from the higher future total revenue that would result from inflating current year expenses.[vi]

Thus under a global health donor's agreement with a recipient agency, the VF mechanism may be less vulnerable to the recipient's strategic manipulation than if the mechanism were applied to European and North American regulated monopolies. If a global health donor pilots the mechanism, and discovers that recipients resist revealing their true total cost for the previous year's output, it will be possible to fine-tune the mechanism following suggestions by the original authors. In response to Sappington's critique, the mechanism's authors proposed that the regulator (in this case the donor) sweeten the deal for the recipient by offering a periodic lump-sum payment. Other adjustments envisioned by the authors include expanding the scheme to encompass all the outputs a recipient produces, allowing the recipient to set the payment it receives for each unit of current output subject only to the constraint that its total payment from the donor not exceed the previous year's total cost for all these outputs. With these modifications the mechanism is a plausible contract design for use with any recipient willing to systematically collect and report its cost of production.[vii]

Contract designs that assume knowledge only of a benchmark average cost

Many recipients do not have the capacity to collect and report their operating costs with enough detail to reliably compute the average cost of each output.[viii] For some of these recipients it might nevertheless be feasible for the donor to count and verify the number of units of output they produce in a year and to estimate a "benchmark" average cost for each unit, knowing that the benchmark is only an approximation of the true average total cost of production.

Suppose that in the first year of the application of this agreement, the anticipated total cost will be $400,000 and the target output will be 800 quality-adjusted person-years of treatment. So, the assumed benchmark unit cost is $500 per unit. The donor and recipient both aspire to achieve more than 800 units of output, but they are even more uncertain about the cost of producing more than 800 units than about the cost of the first 800.

A "two-part tariff" or two-part price agreement would establish two prices, the first being at $500 per unit for the first 800 units.[4]

v. This is not to assume that the donor's and recipient's interests are identical. For example, the recipient may attach more importance to fixing its clinic's roof than would the donor, if only because of the cost entailed in documenting the need for the roof repair to the donor's satisfaction.

vi. Rapid staff turnover is a common feature of health service delivery organizations in recipient countries and justifies assuming these recipients are more "present-oriented" than would be the owners of the typical regulated monopoly in Europe or North America.

vii. A contract design that is related to the VF mechanism is called the "shared saving contract." Like the VF mechanism, the shared saving contract confers residual claimant status on the grant recipient and states that any cost savings achieved by the recipient be shared with the donor, with a previously agreed proportion X going to the recipient and the proportion $(1 - X)$ reverting to the donor. Depending on the acceptability of the idea that net revenue be shared with the global donor, this sharing provision could be added to the VF mechanism (Weissman and others 2012).

viii. The audits performed by the Global Fund's local fund agents only verify spending. They do not reveal the true cost of production.

The second would be paid per unit for units produced above the 800-unit threshold. Various types of two-part price mechanisms correspond to various rules to determine the second of the two prices.

Suppose that neither the donor nor the recipient is certain whether the 801st unit of output will cost more or less than $500. For example, the attempt to expand program output sometimes encounters difficulties, meaning higher cost per unit beyond some threshold of output. In this case the incremental or marginal cost of the 801st unit of output might be $550, $600, or more. But if the program, like that depicted in figure A2.1, benefits from economies of scale at 800 units and beyond, the incremental or marginal cost of the 801st unit might be $400, $350, or less.

In a situation where less is known about cost than was assumed above in analyzing the VF mechanism, the second price in the two-part price mechanism can be used both to enhance the recipient's incentive to be efficient and to reveal the recipient's marginal cost to the donor.

To see how this would work, consider the example in table A2.1. Suppose the second part of the two-part price agreement specifies that, in addition to the $400,000 to be paid when the recipient achieves a verified and quality-adjusted output of 800, the amount paid for all verified and quality-adjusted units of output above 800 are given by the entries in table A2.1 and depicted in figure A2.2.

This table reveals that the incentive to the recipient to produce the 801st through the 900th unit averages $550 per unit (given in the second row of column 4), which exceeds the per-unit incentive for producing the first 800. Now suppose that the recipient strives to maximize its current year net revenue and can approximately estimate its incremental or marginal cost of producing a single additional unit of output during the current year. These costs include not only its additional direct operational expenses per unit, but also the cost it incurs in outreach and additional managerial efforts to attract additional patients and increase the demand for its services. As the year progresses and the recipient accumulates verified units of delivered services, two things may occur. The recipient may find that it cannot reach the threshold of 800 units during the year. In this case it is reimbursed $500 per unit for each of the units it has managed to produce and the second part of the contract is inoperative. The count would begin at zero again the following year. Or the recipient may find that expansion is difficult and encounters rising costs, but its marginal cost only exceeds $500 after it has passed the 800-unit threshold. In this case it will expand output into the second part of the two-part contract until it finds the additional cost is no longer worth the additional payment (or until it encounters the upper bound of the grant agreement).

Table A2.1 Worked example of payments for above-threshold output during a single year of a two-part price agreement

UNITS OF OUTPUT ABOVE THE THRESHOLD OF 800 (1)	PAYMENT PER UNIT FOR UNITS ABOVE THE THRESHOLD[A] (2)	AMOUNT OF THE SECOND PART OF THE TWO-PART PAYMENT (THE AMOUNT PAID ABOVE $400,000)[B] (3)	MARGINAL REVENUE PER UNIT OF OUTPUT ABOVE THE THRESHOLD OF 800[C] (4)
1	$600	$600	$600
100	$550	$55,000	$550
200	$500	$100,000	$450
300	$450	$135,000	$350
400	$400	$160,000	$250

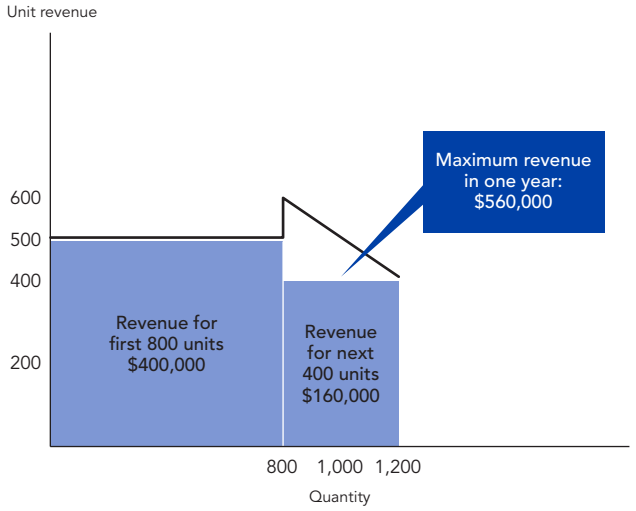
a. Entries in column (2) are calculated from the formula: 600 – $X/2$, where X is the amount of output above the threshold, given in column (1). This formula is designed to be decreasing in above-threshold output. In practice each grant agreement would need its own individually designed and negotiated formula.

b. Entries in column (3) are computed as the product of columns (1) and (2).

c. Entries in column (4) are computed as the increment in above-threshold revenue from column (3) divided by the increment in output from column (1). For example, the last entry in column (4) is calculated as: (160,000 – 135,000) / 100 = $250, which is the average of the marginal revenue over the interval from 300 to 400 units of output.

Source: Authors (Mead Over).

Figure A2.2 Maximum payment of donor to recipient under the two-part payment contract of table A2.1



Source: Authors (Mead Over).

The recipient that expands into the second part of its contract receives additional revenue as its reward. To the extent that it responds to this incentive, it will reveal the incremental or marginal cost of service delivery. For example, if it stops production at 900 units (or 100 above-threshold units) it presumably does so because at that scale of output its marginal cost is above the $550 it receives on average for those the 801st through the 900th unit of output. If it stops production at the upper bound of the contract, which is 1,200 units (or 400 above-threshold units), it does so because its marginal cost at that scale is below the $250 it receives on average for the 1,100th through the 1,200th unit of output.

The information revealed to the donor by the recipient's output under this two-part price contract is valuable—but limited. In particular, even if all the assumptions apply, the recipient has only revealed its marginal cost for the last unit of its annual output, not its average cost for producing all that year's output.[ix] So the observation that the recipient stopped production at 900 units should not be used to justify raising the unit payment for the first part of its subsequent contract from $500 to $550. Conversely, the observation that the recipient stopped production at 1,200 units should not be used to justify lowering unit payment for the first part of its following year's contract from $500 to $250. The first of these mistakes would be likely to overpay the recipient and thus be wasteful, while the second might underpay the recipient and drive it into bankruptcy.

Although the two-part price contract is a less dependable guide to the donor's payment per unit for the following year than the VF mechanism would be, it still provides substantial benefits to both the donor and recipient that would not be available under the traditional grant structure or a flat per-unit price contract. For the recipient, the two-part contract offers the chance to earn additional revenue while serving additional patients and provides the innovative service manager with the incentive to experiment with attracting and providing quality services to incremental patients at lower costs. For the donor, with insufficient resources to fund all demand or to estimate accurately the marginal cost of service in all client countries, the two-part contract offers the chance to expand services in any country at a lower unit cost, thus improving the donor's overall value for money.

Given that the two-part price contract reveals only the marginal cost, and not the average cost, how can the donor and recipient use this information to improve their sequential adjustment toward more efficiency? Over several years of operation under the two-part price contract the donor and recipient will come to understand more about the costs of service delivery, including the cost of attracting additional patients. This improved understanding can lead to gradual adjustment of all the dimensions of the two-part contract. For example, the threshold amount could be gradually reduced from year to year, to give the recipient more leeway for controlling both its output and the price it receives per unit. Or the donor and recipient could negotiate a payment schedule with a steeper downward slope, which would provide the recipient greater rewards for improved efficiency. The entire payment schedule could be shifted to a higher scale of production with a higher threshold and a higher upper bound each year, as scale-up progresses. All these possible adjustments to the design can be considered part of the sequential adjustment process intended to

ix. This is in contrast to the VF mechanism discussed above, which is more costly to administer but has the advantage of revealing the average cost, not just the marginal cost.

continuously improve value for money in donor financing of these health service delivery organizations.

These two ideas, the VF mechanism and the two-part tariff, are intended only as examples to illustrate the potential improvements in a donor's value for money to be gained by exploiting the large existing literature on the optimal regulation of public sector utilities.

Notes

1. Babbage (1835), as quoted in Laffont and Martimort (2002), p. 11.
2. Vogelsang and Finsinger (1979).
3. Sappington (1980).
4. Laffont and Tirole (1993).

Appendix 3

Working Group on Value for Money for Global Health Funding Agencies

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David Barr began working on HIV/AIDS issues in 1985. The scope of David's work has included treatment access and clinical research, addressing stigma and discrimination, HIV prevention policy, HIV funding structures, drug policy, strategic planning, facilitation, and program evaluation. In 2003 David coordinated the creation of the HIV Collaborative Fund, a partnership of the International Treatment Preparedness Coalition and the Tides Foundation, which provides small grants for community-based HIV treatment awareness, literacy, community mobilization, and advocacy projects. He was a founding member of the Treatment Action Group and the ACT UP Treatment and Data Group. He currently consults as part of the Fremont Center. His consulting clients include the Ford Foundation, New York City Department of Health, New York State AIDS Institute, Open Society Institute, UNAIDS, and UNDP.

Joseph Brunet-Jailly is an economist. He has been a teaching assistant at the University of Strasbourg (1962–68), Professor at University of Aix-Marseille (1968–86), and then Senior researcher at Institut de Recherches pour le Développement (French Research Institute for Development Studies), living in Mali and Côte d'Ivoire (West Africa) from 1986 to 2004. After retiring as senior researcher (emeritus), he is now lecturer at Sciences-Po Paris and an independent consultant. His field of specialty is health economics in West African countries.

Kalipso Chalkidou is the founding director of NICE's international program, advising governments overseas on building technical and institutional capacity for using evidence and values to inform health policy. She is interested in how local information, local expertise, and local institutions can drive decisions on scientific and legitimate health care resource allocation. She is involved in the Chinese rural health reforms and also in national health reform projects in Georgia, Turkey, the Middle East, and Latin America. She holds a doctorate on the molecular biology of prostate cancer from the University of Newcastle, and has an MD (Hons) from the University of Athens. She is an honorary lecturer at the London School of Hygiene and Tropical Medicine, a senior advisor on international policy at the Center for Medical Technology Policy, and visiting faculty at the Berman Institute for Bioethics, at Johns Hopkins.

Karl Dehne is the acting Chief of the UNAIDS Economics, Evaluation and Program Effectiveness Division. This is a newly established division that provides leadership on policies and approaches for achieving the High Level Meeting goals on efficiency and financing of HIV responses. Previously Dehne was the Team Leader, System

Integration, UNAIDS. He was also instrumental, together with colleagues in PEPFAR and UNAIDS, in developing the Global Plan for the Elimination of New Child Infection by 2015 and Keeping Their Mothers Alive. He has worked on HIV prevention, treatment care, and support for more than 25 years, in various positions in the WHO, UNAIDS, NGOs, and the government of Zimbabwe. From 1998 to 2000 he was a lecturer at the University of Heidelberg, Germany, where he led the UNAIDS Collaborating Centre on AIDS Strategic Planning and Operational Research. He holds an MD from the University of Heidelberg, and a PhD and MPH from the University of Leeds.

Alan Fairbank is an applied research economist, lecturer, budget/cost analyst, and policy advisor, who has applied his varied expertise on issues of financing the organization and delivery of medical care and health services in diverse settings and conditions around the world. Extensive experience includes assignments as executive director, consultant team leader, principal analyst, program manager, trainer and lecturer, and project design and evaluation specialist. Assignments have involved design and implementation of health systems financing reform efforts in developed, transition, and developing countries. Among consultancies for the World Bank, USAID, and the Inter-American Development Bank, among others, he has costed public, preventive, and primary health programs, estimated National Health Accounts, performed economic modeling for costing alternative health policies and scenarios, and advised on decentralized health management, on reviewing social health insurance plans, and on resource imbalances created by increased and targeted global health funding. In the United States he was a Principal Analyst at the Congressional Budget Office, and later served as Executive Director of the Office of Health Care Access in Connecticut. He has a PhD in economics from Boston University, and a MPA in development economics from Princeton Woodrow Wilson School of Public and International Affairs.

Victoria Fan is a research fellow at the Center for Global Development. Her research focuses on the design and evaluation of health policies and programs, and since joining CGD, development assistance for health and global health aid architecture. Fan joined CGD after completing her doctorate at Harvard School of Public Health where she wrote her dissertation on health systems in India, focused on government-sponsored health insurance, conditional cash transfers, and child health interventions. Fan has worked at various nongovernmental organizations in Asia and different units at Harvard University and has served as a consultant for the World Bank and WHO. She was born and raised in Hawaii.

Kara Hanson is Reader in Health System Economics at the London School of Hygiene and Tropical Medicine. She holds degrees from McGill University, University of Cambridge, and Harvard University. She has nearly 25 years of experience researching health systems in low- and middle-income countries, providing policy advice and input, and teaching health economics and supervising PhD projects. Her interests in the health sector were first developed during her time as a health economist in the Ministry of Health, Swaziland, as a fellow of the Overseas Development Institute (1988–90). At the end of her fellowship she returned to the United Kingdom to a research position at the London School of Hygiene and Tropical Medicine. She completed her doctorate at the Harvard School of Public Health in 1999, and has worked at the London School of Hygiene and Tropical Medicine since then. She has been involved in the management of the Health Economics and Systems Analysis group for a number of years and in 2011 became Head of the Department of Global Health and Development. Her research focus is on the financing and organization of health services, and has included research on scaling up health services, the impact of community-based health insurance, equity consequences of user fees and their removal, and expanding domestic fiscal space. She has worked extensively on the role of the private sector in health systems, identifying the opportunities and limits of the private sector in improving the efficiency, quality, and responsiveness of health systems. She has published widely in health economics and public health journals, and was Editor of Health Policy and Planning from 2001 to 2008.

Iain Jones is an economist for the Development Financing Team at the U.K. Department for International Development.

Jason Lane is a medical doctor with postgraduate qualifications in tropical medicine and international public health. He has worked for DFID for 15 years in a variety of posts including overseas in Bolivia, the Kyrgyz Republic, and Malawi. Following a secondment to the EU in Brussels on health policy work, he is now senior health adviser in DFID's Global Funds Department.

Bruno Meessen is an economist. He is based at the Department of Public Health, at the Institute of Tropical Medicine, Antwerp, Belgium. His main domain of expertise is health sector reform, health care financing, performance-based financing, social health protection, and pro-poor strategies in low- and middle-income countries. His current regions of focus are Sub-Saharan Africa and South-East Asia. He is one of the "fathers" of the Performance-Based Financing strategy, as designer, theorizer, and evaluator of the first experiences in Cambodia (2000–03) and Rwanda (2002–06). He is the lead facilitator of the Performance-Based Financing Community of Practice and an editor of the blog Financing Health in Africa (www.healthfinancingafrica.org/).

Mead Over is a senior fellow at the Center for Global Development, researching economics of efficient, effective, and cost-effective health interventions in developing countries. Much of his work since 1987, first at the World Bank and now at CGD, is on the economics of the AIDS epidemic. After work on the economic impact of the AIDS epidemic and on cost-effective interventions, he co-authored the Bank's first comprehensive treatment of the economics of AIDS in the book, *Confronting AIDS: Public Priorities for a Global Epidemic* (1997). His most recent book is *Achieving an AIDS Transition: Preventing Infections to Sustain Treatment* (2011) in which he offers options, for donors, recipients, activists, and other participants in the fight against HIV, to reverse the trend in the epidemic through better prevention. Recruited to the Bank as a health economist in 1986, Mead Over advanced to the position of Lead Health Economist in the Development Research Group, before leaving the Bank to join CGD in 2006.

Nancy Padian, PhD, MPH, is an internationally recognized leader in the epidemiology and prevention of sexually transmitted infections including HIV. She is a senior technical advisor at the Office of the Global AIDS Coordinator, a consultant for the Bill & Melinda Gates Foundation, and a faculty member at the University of California at Berkeley in the Department of Epidemiology. For more than two decades Padian has developed and directed a range of research and intervention projects on HIV, sexually transmitted infections, and contraception in high-risk populations in the United States and across the world. Her research also addresses the broader context of economic development, empowerment, and gender-based violence. In addition, she has expertise in the rigorous design and evaluation of public health interventions.

Mark Rilling is Chief of the Commodities Security and Logistics Division in the Office of Population and Reproductive Health, Bureau for Global Health, U.S. Agency for International Development. He oversees three USAID programs to improve the availability of essential medicines, diagnostics, and other health supplies in developing countries over the short and long term through improved forecasting and procurement, improved performance of national supply chains, and improved global coordination. Prior to that, he worked in USAID's Office of Education to improve and expand basic education in developing countries, especially for girls. Before joining USAID, he worked in legislative affairs for a small grass-roots educational organization successfully advocating for the creation of the United States Institute of Peace. He graduated from Wheaton College and Cambridge University with degrees in ancient languages and religious and theological studies.

Joshua Salomon is Associate Professor of International Health at the Harvard School of Public Health. His research focuses on priority-setting in global health, within three main substantive areas: measurement and valuation of health outcomes; modeling of patterns and trends in major causes of global mortality and disease burden; and evaluation of health policies and interventions. A recent emphasis in his work has been to combine techniques of simulation modeling with decision analysis to inform policies on using current health interventions and priorities for developing new technologies. Salomon received a PhD from Harvard University in Health Policy and Decision Science.

Nalinee Sangrujee is an economist with the U.S. Centers for Disease Control and Prevention. She is the head of the Health Economics and Finance Team within the Division of Global HIV/AIDS, which conducts economic research on HIV/AIDS programs to inform the development of HIV/AIDS policymaking. She has more than 15 years of experience in conducting international policy development and economics research in the fields of HIV/AIDS, maternal health, vaccine preventable diseases, child survival, and avian influenza. She is a co-chair of PEPFAR's Finance and Economics Technical Working Group. She received her PhD in Agriculture and Resource Economics from the University of California at Berkeley and a Masters in Public Health from the Tulane School of Public Health and Tropical Medicine.

Nina Schwalbe is the Managing Director, Policy and Performance at the GAVI Alliance secretariat. In this capacity she is responsible for policy development, market shaping, performance management, and monitoring and evaluation of Alliance efforts. She has spent more than 20 years in international health. She came to GAVI from the Global Alliance for TB Drug Development where she served as the policy director. Prior to that she spent seven years directing the Soros' Foundations global public health program, which focused on a range of critical issues, including strengthening health systems, tuberculosis, HIV/AIDS, and programs for vulnerable populations. She also worked in maternal and child health, first with the Population Council and then with AVSC International (now Engender Health), focusing on the introduction of new programs and technologies. She holds degrees from Harvard and Columbia universities, is member of the Council on Foreign Relations, and has served on the faculty of the Department of Population and Family Health at Columbia's Mailman School of Public Health.

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