

CONSULTATION DRAFT

# More Health for the Money

A Practical Agenda 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**

**June 2013**





# Contents

- Acknowledgements ..... iii
- Executive Summary ..... 1
  - How to Get More Health for the Money ..... 2
  - Getting More out of the Grant Cycle..... 3
  - More Health for the Money in Action ..... 3
  - Recommendations ..... 5
  - The Challenge Ahead..... 6
- Chapter 1: Introduction..... 7
  - Why This Working Group? Why Now? ..... 9
- Chapter 2: What Is Value for Money? ..... 13
  - Generating Incentives for Value for Money: a Framework for Funders..... 16
  - This Report ..... 20
- Chapter 3: Planning Allocation ..... 21
  - Overview ..... 22
  - Opportunities and Limitations ..... 27
  - Recommendations ..... 30
  - Summary..... 44
- Chapter 4: Designing Contracts ..... 45
  - Overview ..... 45
  - Opportunities and Limitations ..... 49
  - Recommendations ..... 51
  - Summary..... 60
- Chapter 5: Tracking and Using Cost and Spending Data..... 61
  - Overview ..... 62
  - Opportunities and Limitations ..... 70
  - Recommendations ..... 72
  - Summary..... 76
- Chapter 6: Verifying Performance..... 77
  - Overview ..... 78
  - Opportunities and Limitations ..... 83
  - Recommendations ..... 88
  - Summary..... 91

Chapter 7: Summary and Conclusions.....	92
Reflecting Value for Money in Key Performance Indicators .....	94
Building Better Accountability with Technical Partners .....	94
Connecting Countries with Scarce (but Essential) Expertise to Inform Allocation.....	95
Creating Synergies in Data Collection and Analysis.....	96
Assess and Share Best Practices Among Principal Recipients, CCM, and Other Partners .....	97
Summary.....	98
Appendix 1. Sequencing and Division of Responsibility for the VFM Agenda .....	100
Appendix 2. Innovations in the design of “contract-like” grant agreements .....	101
Contract designs which assume knowledge of last year’s total cost: the Vogelsang-Finsinger mechanism .....	103
Contract designs which assume knowledge only of a benchmark average cost: The two-part tariff .....	107
Appendix 3: Working Group on Value for Money for Global Health Funding Agencies .....	112
CGD Staff.....	121

## List of Figures

Figure 1. How Many Life-Years Saved for \$1000 of TB Interventions? .....	8
Figure 2. The New Funding Model (as of April 2013).....	10
Figure 3. Value for Money Domains for Global Health Funders .....	19
Figure 4. Misalignment between MSM Share of Disease Burden and Funding Level .....	24
Figure 5. Grant Performance Does Not Predict Disbursement Levels.....	49
Figure 6. Variation in Reported Cost (USD) per Patient-Year for Ritonavir 100mg, September 2010-April 2013, As Reported by the Global Fund [].....	63
Figure 7. Trend in 25th, 50th and 75th Percentile Per-Patient Unit Prices for Efavirenz 200mg, as Reported to the PQR.....	64
Figure 8. Heterogeneity in the unit cost of antiretroviral treatment across 45 Zambian facilities, c. 2009. (Source: Marseille et al, PLoS, 2012).....	69
Figure 9. PEPFAR Expenditure Analysis Pilot in Mozambique in 2009 and 2011: Mean and Range Non-ARV Unit Expenditure Per Patient-Year.....	70
Figure 10. Variation in Cost Per Patient Year of HIV Treatment in Ethiopia, Malawi, Rwanda, Zambia, and South Africa.....	71
Figure 11. Approaches to Assessing Grant Performance .....	84

## Acknowledgements

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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. All the working and background papers, data and presentations that informed this report can be found on the working group's home page.<sup>1</sup> 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 contributions from individual donors.

Beginning in April 2012, the Center for Global Development (CGD) – an independent think tank that works 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 faced by 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 the acknowledgements 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 the development of this report, many individuals offered comments, critiques and suggestions. We are very appreciative of these contributions.

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

We appreciate individuals from Global Fund who have offered their input to the benefit of the report, including Heike Allendorf, Jacqueline Bataringaya, Daniel Low-Beer, Nicolas Bidault, Matthew Blakley,

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<sup>1</sup> <http://www.cgdev.org/initiative/value-money-agenda-global-health-funding-agencies>

Michael Borowitz, Ruwan DeMel, Carol D’Souza, Tarek Elshimi, David Kim, Ryuichi Komatsu, Osamu Kunii, Martina Niemeyer-Riviere and Susanne Reichelt.

The authors are grateful to the participants who attended the consultation meeting held at the Rockefeller Bellagio Center in April 2013, including Robert Brinckman, Kieran Daly, Mireille Guigaz, Jason Lane, Julia Martin, Susan Nazzaro, Todd Summers, Nertila Tavanxhi, Thomas Teuscher, Rajan Varatharajan, and Monique Vledder. We also thank Rob Garris, Managing Director Bellagio Programs, Nadia Gilardoni for her support in arranging the meeting, and Pilar Palaciá for hosting on behalf of the Rockefeller Foundation.

We thank Rifat Atun, Kanika Bahl, Chandrani Banerjee, Ties Boerma, Jesse Bump, Bradley Chen, David Collins, Kate Condliffe, Wouter Deelder, Christopher Fitzpatrick, Tim Hallett, Vicky Hausman, William Hsiao, Jennifer Kates, Itamar Katz, Judith Kallenberg, Sonali Korde, Eline Korenromp, Steve Kuo, Ben Leo, Geir Lie, Lisbeth Loughran, Robert Marten, John Monahan, Justin O’Hagan, Marjorie Opuni, Liesbet Peeters, Rosalia Rodriguez-Garcia, Oliver Sabot, Catherine Severo, Bakhuti Shengelia, Karin Eva Elisabet Stenberg, Daniel Thornton, Saba Waseem, Paul Wilson, and Debrework Zewdie who were consulted during the process of drafting the report.

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

## Executive Summary

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The Global Fund to Fight AIDS, Tuberculosis and Malaria is one of the world's largest global health funding agencies. From 2002 – 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. Though it's difficult to systematically track the 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.

But while the Global Fund has made important contributions to the fight against AIDS, TB 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 designed to maximize the positive impact on health.

More health for the 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. The recommendations in this report are straightforward. But to say that they are straightforward does not mean that they are easy to implement. If implementation were easy it would have happened already and there would be no need for this report. Nobody knows better than those working within the Global Fund and in governments making day-to-day decisions about how to allocate resources just how difficult this is, and how often they encounter incentives that run counter to getting more health for the money.

It is therefore worth remembering that the same moral imperative that drove the creation of the Global Fund over a decade ago also compels the Fund and its partners to do whatever they can to ensure that the billions of dollars the Fund raises and disburses reduce the disease burden as much as possible. But despite the Fund's work, each year over 3 million people still die from the three diseases the Fund was established to combat. Millions more suffer from extended periods of sickness.

While it is difficult to predict how much of this disease burden could be reduced by increased effectiveness—indeed, the Fund itself does not currently attempt to rigorously evaluate the impact of its work in terms of improved health—the relatively modest process changes recommended in this report could easily save hundreds of millions of dollars that could then be reprogrammed to save even more lives.

The need to ensure more health from 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 are demanding that their investments in health yield higher returns. This report describes practical steps needed to make those demands a reality at the Global Fund.

Among the many agencies that raise and disburse money for global health, the Global Fund is particularly well positioned to lead the more health for the money agenda because of its unique mandate, flexible model and broad range of partners, which includes the Fund's secretariat and Board constituencies, country governments, technical partners, and civil society recipients. The Global Fund's New Funding Model – put in place in 2013 – also offers an opportunity for quick and flexible adoption of value for money principles and practices.

### **How to Get More Health for the Money**

Getting more health for the money involves maximizing health impact, given global disease control goals and a global health funder's resource constraint. The Global Fund will increase health for the money if it creates and applies incentives to allocate resources to an optimal mix of cost-effective interventions – delivered as efficiently as possible – that maximize impact towards a disease control priority within a given budget.

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

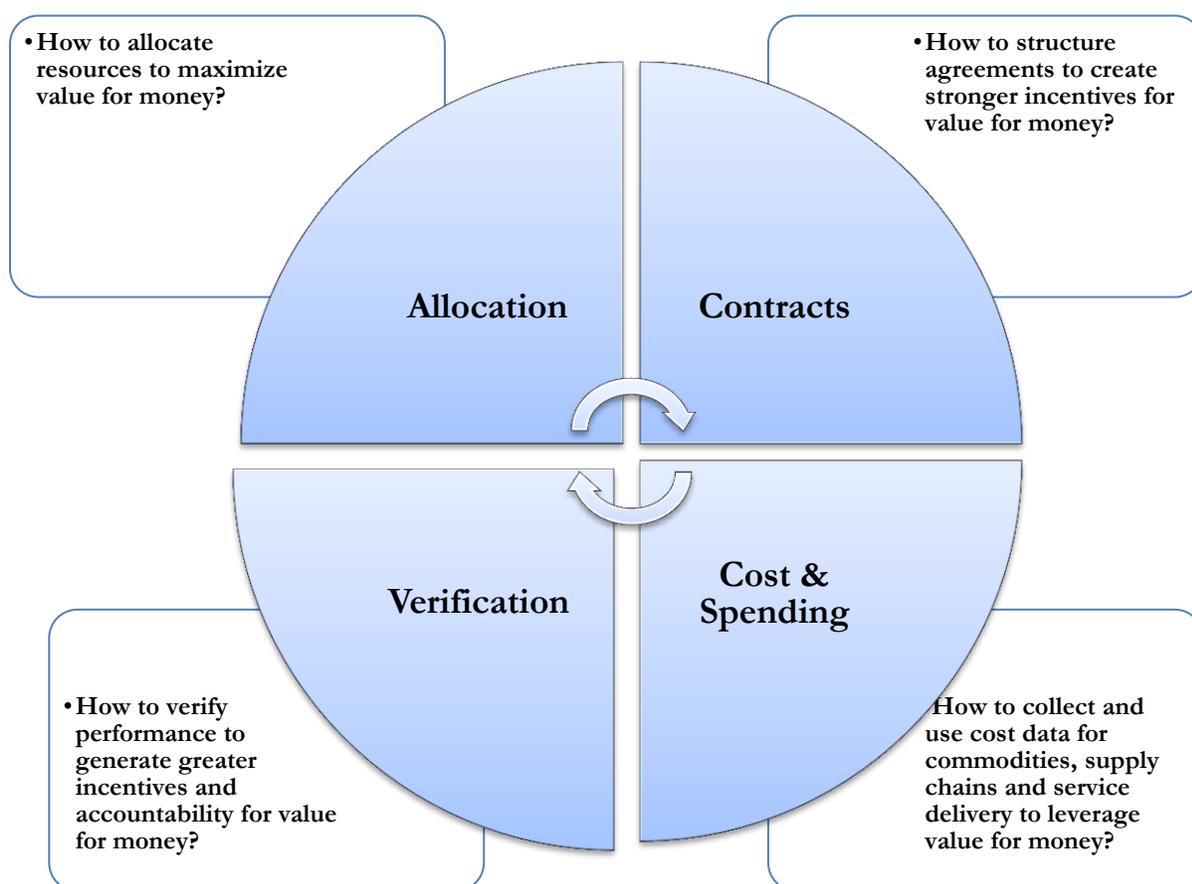
For instance, a standard grant agreement between a donor and a recipient usually contains health goals and objectives; a description of activities; a budget of inputs required to carry out the activities; and requirements for routine reporting and financial audits. This design contains no explicit incentive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

Cumulatively, these forces make up an incentive environment that is unlikely to be aligned with the goal of maximizing health. Getting more health for the money requires a reexamination of explicit and implicit incentives facing funders and recipients, and adjusting these in ways that encourage allocation of funds to highly cost-effective interventions that are executed in a cost-effective manner.

## Getting More out of the Grant Cycle

The working group report identifies four domains within the Global Fund's grant cycle where health for the money can be improved: allocation, contracts, costs and spending, and verification (see figure 1). While these domains may seem abstract, decisions in each domain directly affect the availability and quality of services provided to people at-risk or suffering from disease, and ultimately the Global Fund's ability to reduce suffering and save lives.

**Figure 1. More Health for the Money Domains**



## 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 to solve these problems.

- At the *allocation* stage, funding might go to over 200 different types of bed nets – including those with customized labeling or non-standard sizes – despite a lack of evidence that these specifications improve outcomes. A program may purchase too many or too few nets due to inaccurate demand forecasting, unknown program efficiency or an inability to assess which mix of interventions will have the most impact on disease incidence.

To get more health for the money, the Global Fund should ask countries to choose which bed nets they purchase from a set menu of proven, cost-effective interventions and commodities for malaria control. The Fund could also require that recipients describe the distribution of malaria in their country, and use this assessment 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 impact on disease. 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 non-financial – 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 a portion of funding to incremental progress on a few important indicators – like the number of children sleeping under bed nets – and this progress should be vigorously measured in a simple, objective way to ensure accuracy.

- At the *costs and spending* stage, supply chains may be slow to move a bed net from warehouses to front-line providers, and program managers may not have data or leverage in real time to deal with 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 assure lowest price 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 *verification* stage, neither the Fund nor recipients collect data on the use and distribution of bed nets at the household or facility-level in a rigorous and representative way, and the Global Fund and country programs must rely on self-reports from recipients that are incomplete or inaccurate. Without accurate information on performance, it's 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 be more effective and efficient.

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

As this illustration shows, a number of opportunities exist within each domain for the Global Fund to generate more or less health for the money depending on decisions made and incentives in place throughout.

## Recommendations

The chart below summarizes key problems in each domain, the opportunities for improving incentives and the resulting decisions to generate more health for the money.

Domain	Key Problem	Value for Money Recommendations
<b>Allocation:</b> How can resources be allocated to maximize impact on HIV/AIDS, TB and/or malaria?	National and donor funding is not consistently supporting best practice, despite a substantial evidence base 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 Improve Ex Ante Budgeting and Transparency on Expenditure Optimize investments for greatest health impact
<b>Contracts:</b> 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.	Link performance payments to incremental progress against the most important indicators Directly connect performance to a portion of funding Support performance incentives between the PR and service providers
<b>Cost and Spending:</b> How can costs of and spending on commodities, supply chains and service delivery be better tracked and used?	Cost, price and expenditure on commodities vary widely between countries.	Continue to improve the scope, completeness, and timeliness of reporting to commodity price tracking systems. Identify a core package of services for more extensive analysis of service delivery costs Benchmark and use supply chain costs and outputs Develop a strategy to use unit cost data throughout the NFM grant cycle Share costing data with partners and the public Global Fund Secretariat, principal recipients, sub-recipients

Domain	Key Problem	Value for Money Recommendations
<b>Verification:</b> 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 PRs' self-reported results using rigorous, representative measurement instruments Complement output verification with population-based measurement and formal impact evaluation for interventions of unknown efficacy.

## The Challenge Ahead

More health for the money cannot be an afterthought, a checklist, or “one extra obligation” because 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 relating to market shaping and optimization of commodities. But other areas have attracted less attention, including the need to reform and redesign the performance-based financing system; to strengthen performance verification; and to use cost and spending data to improve the efficiency of procurement, supply chains and healthcare delivery.

The challenges facing the Global Fund are to recognize this systematic more health for the money agenda can influence all aspects of its business; to obtain higher priority for the agenda from the Secretariat, Board, and key strategic partners; to adapt, adopt, and integrate the report’s recommendations into its operations; and to systematically implement and evaluate the more health for the money agenda in the context of the New Funding Model. We hope this report can prompt and guide the Global Fund and its partners to greatly enhance the Fund’s contribution to reduced disease burden and improved human wellbeing that is at the heart of the Fund’s mission.

## Chapter 1: Introduction

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With the same amount of money being 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 common 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* – and where the latter is our ultimate measure of collective success.

We’ve already come a long way: for all those who value the inherent dignity and worth of human life, investing in global health is already fantastic value for money by any objective standard. In the U.S., we spend upwards of \$20,000 per year of life-sustaining ARV treatment<sup>2</sup> – a service provided in low- and middle-income countries for an estimated average of \$768,<sup>3</sup> or *less than 4%* of US treatment costs. Likewise, about \$200 buys enough bed nets to save a child’s life from malaria<sup>4</sup> – or to fund a single routine pediatric doctor’s visit in wealthy countries.

Nonetheless, getting *better* value for money is still imperative, and a moral and human rights issue as well. The least effective intervention in HIV/AIDS produces less than 1/1000<sup>th</sup> of the value generated by the most effective strategies.<sup>5</sup> Tuberculosis interventions may be universally cost-effective when compared to a GDP per capita threshold, yet they range enormously in their cost per DALY (see Figure 1). Even worse, many commonly-funded interventions have never been subject to rigorous evaluation, and may not produce any health benefits at all. Where evaluation has occurred, results are decidedly mixed – 35 of 45 trials evaluating

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<sup>2</sup> <http://www.cdc.gov/hiv/topics/preventionprograms/ce/index.htm>

<sup>3</sup> <http://www.pepfar.gov/documents/organization/188493.pdf>

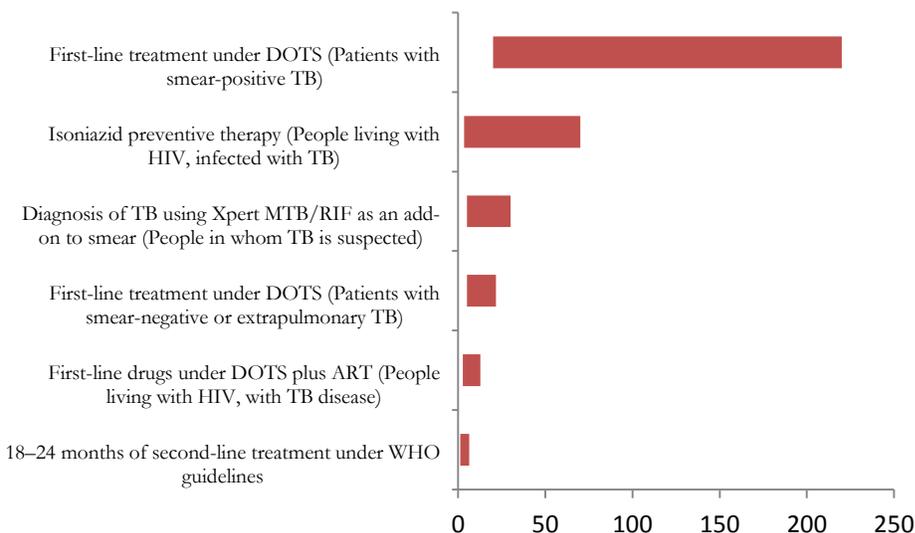
<sup>4</sup> <http://www.who.int/malaria/publications/atoz/itnsospaperfinal.pdf>

<sup>5</sup> Ord, T. The moral imperative towards cost-effectiveness in global health. Washington, DC: Center for Global Development, 2013. Access: <http://www.cgdev.org/publication/moral-imperative-toward-cost-effectiveness-global-health>

HIV/AIDS prevention interventions found no statistically significant effect.<sup>6</sup> Thus ignoring cost-effectiveness in resource allocation can imply large magnitude losses relative to the maximum amount of health that could be achieved. In practical and ethical terms, this translates to hundreds, thousands or millions of avoidable infections and deaths due to a failure to prioritize according to value for money.

This does not mean that all decisions about allocation and spending should be taken on the basis of cost-effectiveness criteria – equity, ethics, feasibility and other factors have played and always will play a role. However, the magnitude of missed opportunities to achieve shared HIV/AIDS, tuberculosis (TB) and malaria goals may be substantial; suggesting that value for money should be among the major factors considered in decision-making.

**Figure 1. How Many Life-Years Saved for \$1000 of TB Interventions? <sup>7</sup>**




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<sup>6</sup> Padian, N. S., S. I. McCoy, et al. (2011). "HIV prevention transformed: the new prevention research agenda." *The Lancet* 378(9787): 269-278.

<sup>7</sup> Source: [http://apps.who.int/iris/bitstream/10665/75938/1/9789241564502\\_eng.pdf](http://apps.who.int/iris/bitstream/10665/75938/1/9789241564502_eng.pdf); estimates of cost-effectiveness shown in the graph do not take positive externalities on other disease conditions into account.

## 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, TB and malaria goals, pledging unprecedented funds to combat the “big 3” diseases. Yet in recent years, budgets have plateaued even as effective new technologies and interventions have become available, requiring tough choices about the use of resources to maximize impact. Second, low- and middle-income country governments are increasing their own health spending in the context of domestic economic growth and stagnating global health funding, suggesting 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 go toward the best possible uses of health sector spending in that particular country. Finally, governments and global health funders alike are increasingly demanding that their investments yield “value for money” returns (Box 1), yet the practical steps needed to make those demands a reality have remained vague up to now.

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### **Box 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 towards the health MDG...”

– Joint Declaration by Ministers of Finance and Ministers of Health of Africa, July 5, 2012

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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.”<sup>8</sup> The Fund is a “financial instrument, not an implementing agency;”<sup>9</sup> as such, it relies on its recipients and its technical partners, particularly the World Health Organization, Roll Back Malaria, Stop TB and UNAIDS,

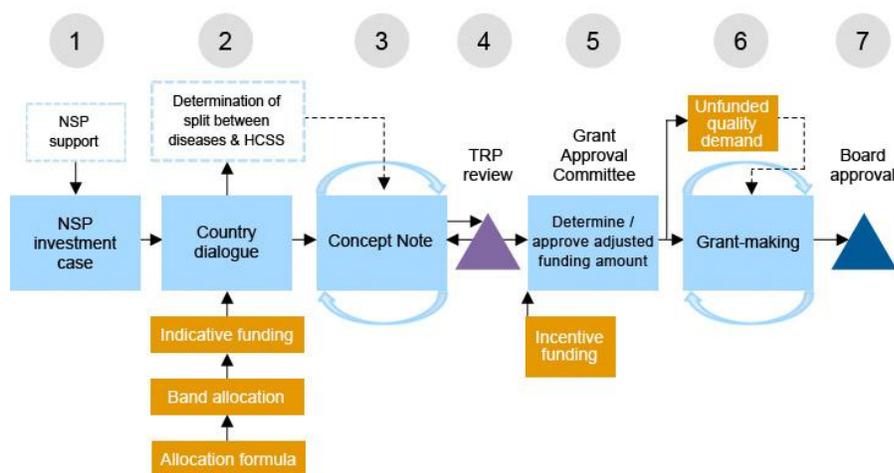
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<sup>8</sup> The Global Fund. Who we are. Accessed 11 October 2012 at <http://www.theglobalfund.org/en/about/whoweare/>

<sup>9</sup> The Global Fund. 2001. Framework Document.

among others, to provide requisite technical guidance and support. The Fund also plays a central role in the complex ecosystem of global health funding agencies, requiring extensive cooperation with the US President’s Emergency Plan for AIDS Relief (PEPFAR), the US President’s Malaria Initiative (PMI), UNITAID, and the World Bank. Having emerged from a period of transition, the Global Fund’s new leadership and New Funding Model (Figure 2) – both put in place in 2013 – offer an opportunity for quick and flexible adoption of the value for money agenda. For these reasons, although the underlying analysis and principles can be extended to other funders and disease control priorities, this report’s primary audience is the Global Fund and its partners – country governments, recipients, secretariat, Board constituencies, and technical partners.

**Figure 2. The New Funding Model (as of April 2013)<sup>10</sup>**



As explicitly recognized by Global Fund leadership (Box 2), recent scientific progress paired with global investments over the past ten years have created a unique moment in global health. Whereas pioneers in the fight against HIV, TB, and malaria had to rely on intuition, trial and error, and their own perseverance to aid afflicted communities, today’s practitioners against these diseases can base their work on an expanding, rigorous toolbox for “what works.” Value in global health can be planned, implemented and documented according to established best practice.

<sup>10</sup> <http://www.theglobalfund.org/en/activities/fundingmodel/process/>

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**Box 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.<sup>11</sup> 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,” among other goals.<sup>12</sup> Yet competing mandates in the global health field and in the governance of the 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 discussed in chapters 4 and 6, the measures used may create perverse incentives and rigorous verification of these measures has been missing. Reliance on partner agencies to assure adequate design and implementation of grants has been problematic. While the New Funding Model is intended to structure partner agency contributions better via national plans and country dialogue, it does not yet to create clear incentives to assure good results. Finally, the Global Fund has been a leader on transparency, but was not able to link its spending with outputs or outcomes, thereby missing opportunities to understand costs and incentivize greater efficiency. This report makes recommendations to help close the gap between the Global Fund’s original intent and the operational challenges of reality.

Amidst 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 AIDS, TB, 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

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<sup>11</sup> Farmer and Garrett 2007

<sup>12</sup> Isenman and Shakow in Low-Beer 2002

money we need for global health, we need to demonstrate to everyone that this money is put to excellent use.”<sup>13</sup>

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### **Box 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<sup>14</sup>

“Value for money is a challenging, but essential and highly collaborative process...There is no other alternative.”<sup>15</sup>

—Incoming Board Vice-Chair Mireille Guigaz

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<sup>13</sup> <http://www.theglobalfund.org/en/blog/31237/>

<sup>14</sup> <http://www.theglobalfund.org/en/blog/31237/>

<sup>15</sup> Personal correspondence

## Chapter 2: What Is Value for Money?

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The phrase “value for money” has different meanings to different people in global health. Some use the term to refer to the cost-effectiveness of a particular health technology, such as a vaccine. Other funders – as described in the Global Fund’s Value for Money Information Note – use the phrase to refer to efficiency as cost minimization. The World Bank defines value for money as efficiency and effectiveness; in contrast, PEPFAR 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 a particular agency’s overall value proposition relative to other agencies, as in the UK’s Multilateral Aid Review.

Our definition of value for money builds on all of these views, but focuses on the broader goal of maximizing health impact, given global disease control goals and a global health funder’s resource constraint. This working group’s definition implies that global 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 – delivered as efficiently as possible – that maximize impact towards a disease control priority within a given budget (Box 4).

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### Box 4. 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 utilization of the health maximizing mix of health 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 in turn can only be achieved by assuring “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 “ARV treatment person-years gained per \$1,000.”

“**Allocative efficiency**” implies the distribution of resources to maximize health or minimize selected diseases across countries, across sub-populations, 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 with respect to the disease prevention and control goals set by the global health community.

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Value for money measures such as cost-effectiveness and efficiency are standard, quantitative indicators used in health economics to compare the health results produced by alternative health spending choices. Cost-effectiveness is measured as the cost per quality-adjusted outcome achieved, and informs both allocative and technical efficiency. Technical efficiency is synonymous with minimizing the cost per quality-adjusted unit of intervention or service, while allocative efficiency is achieved within the health sector when the mix of technically efficient interventions or services produces the maximum health gain given a resource constraint.<sup>16</sup>

In thinking about 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 complex problem, since a low-income country is not a “unitary” decision-maker. In a space where many actors are working within any given country, value for money requires all internal and external actors to coordinate their investments around a single coherent strategy. At the same time, however, global health funding agencies must optimize their investments not only for a given country, but also across a wide range of countries, particularly as infectious diseases can create spillovers and externalities that cross borders. Throughout, global health funding agencies are not unitary decision makers either, but must be simultaneously accountable to many different constituencies, including country governments; beneficiaries; their own governance structures; and a diverse group of donors – each of which has distinct priorities. Likewise, country governments are accountable both to donors and to their own citizens. Thus, a country embarks on planning for its disease-control strategy, potentially conditional on simultaneous decisions from multiple actors with competing interests, and under uncertainty regarding the year-to-year availability of budgetary and donor funds.

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<sup>16</sup> 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 the education sector or the transport sector. In this report, we apply the concept to allocations within the health sector.

Our definition of Value for Money 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, think of 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. In sum, the standard grant agreement thus creates incentives to spend according to the approved budget, and to report activities as specified in the grant agreement. However, resource-constrained governments often have other pressing priorities, and given the fungibility of government resources may reasonably prefer to shift scarce government funds away from the health sector activities already being funded by an external donor. Should government funds be shifted away, the recipient could thus produce less health and services, with a given amount of donor money, 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 a perverse incentive to over-report results in an effort to meet agreed targets.

We refer to these forces, cumulatively, as the “incentive environment,” where the conditions governing grants may create a mix of financial and non-financial incentives that is not necessarily aligned with the ultimate goal of maximum health improvement. An incentive environment can never be perfect, and there is no single best approach. Further, introducing new incentives will affect how existing incentives operate, and therefore requires constant monitoring and continuous adjustment to maintain alignment with overall health objectives. For these reasons, the incentive environment is an important starting point for any discussion of 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. By their nature, measures of cost-effectiveness and efficiency are comparative; our understanding of “maximum” achievable value for money is necessarily based on historical data and comparisons across recipients and providers, controlling for other factors that might affect costs and performance. As a result, data is most useful to funders or program managers when it is comparable across time and context, and when spending is related to outputs and outcomes – yet databases of this scope, detail, and quality remain scarce. In conducting the analyses for this report, we have repeatedly faced challenges in obtaining data on donors’ actual spending and costs, and sometimes even in obtaining *ex ante* budgets. Where available, budgets themselves are of limited utility because they are organized by input type, rather than by interventions, outputs, or outcomes. Our collective inability to link money to outputs and outcomes, thereby

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 our 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 in the context of a plateau in donor spending, this working group focused on value for money from the perspective of a global health funder (Box 5). 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, nor provide health services, all of which must be optimized in order to achieve health goals. Indeed, with few exceptions, external funders usually pay only a small portion of the costs for commodity purchase or service provision in any given country.

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#### **Box 5. 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 (PEPFAR)

President’s Malaria Initiative (PMI)

Bill and Melinda Gates Foundation

UNITAID

European Commission

Every bilateral DAC donor

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Instead, a funder must work within a very limited toolbox to leverage or create value for money incentives among recipient country governments and implementing agencies.<sup>17</sup> Specifically, multilateral global health

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<sup>17</sup> Definitions of “value” will also depend on the type of intervention that a global health funder supports. While we focus in this report on funders that support the Global Fund-related global health goals where value is defined as incidence, prevalence and access

funders can exercise six authorities to achieve their objectives: the authority *to grant money*; the authority *to set standards* for allocating or disbursing their 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; and the authority *to iterate* the exercise of these authorities in a *project cycle*, making adjustments on each iteration in order to improve value for money.<sup>18</sup> This set of authorities derives from the charter or founding documents, from established precedent, and from the consent of an organization's board members. It is important to 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 non-governmental organization or a bilateral donor agency can directly hire and supervise doctors or managers, an organization like the Global Fund must take a more indirect approach. For example, the Global Fund can award grants for the express purpose of attaining 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 (PRs); and, importantly, it can offer or withhold payments, bonuses, rewards, and other incentives based on measured performance.<sup>19</sup> Further, as a consequence of its standards setting authority, the Global Fund has the authority to assure that its Principal Recipient have and exercise analogous authorities vis-à-vis sub-recipients such as facility managers, program managers and sub-contractors.

In this report, keeping the limited authorities in mind, we set out a framework of value for money domains for decision-making. Figure 3 illustrates four domains within the grant or funding cycle where value for money can be improved: allocation, contracts, spending and delivery, and verification. The approach to each domain is necessarily collaborative and starts with country policymakers in partnership with funders.

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to quality services with equity, funders with other goals such as market shaping –as in the case of UNITAID- will define value differently.

<sup>18</sup> 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.

<sup>19</sup> Governance Handbook: Chapter 3 "Funding Model". 2011, The Global Fund.

The first domain – **allocation** – asks: how can resources be allocated *ex ante* to maximize impact on HIV/AIDS, TB and/or malaria? In spite of an explosion in evidence on what works most cost-effectively to reduce disease, national and donor funding is not consistently supporting best practice. Using stronger evidence thresholds for funded interventions via 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.

The second domain – **contracts** – asks: 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 against the most important indicators of quality and impact, and supporting performance incentives between Principal Recipients and service providers are ways forward for getting more value for the money.

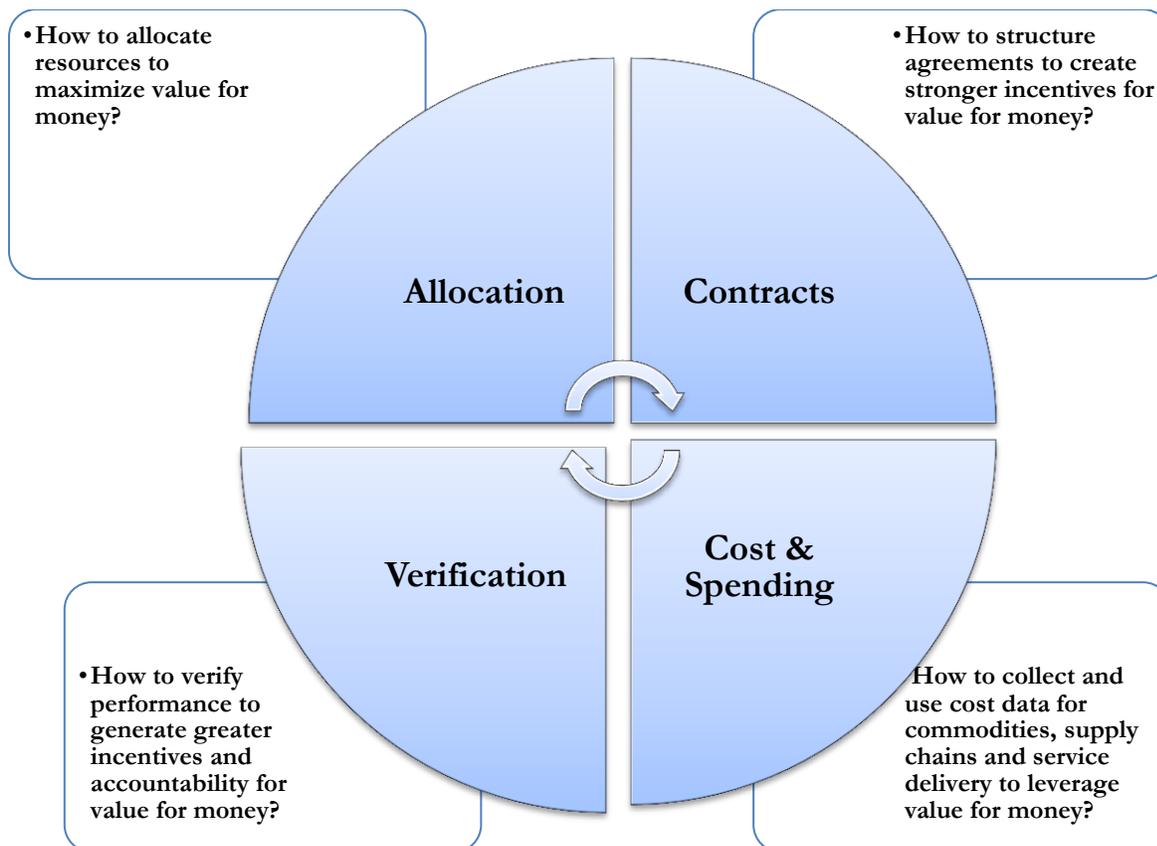
The third domain – **cost and spending** – asks: how can costs of and spending on commodities, supply chains and service delivery be better tracked and used to improve value for money? Improving the scope, completeness and timeliness of reporting to commodity price tracking systems, identifying a core 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.

The fourth, and final, domain – **verification** – asks: how can performance be verified and evaluated rigorously, to generate greater incentives and accountability for value for money? In spite of well-known discrepancies between self-reported administrative data and actual performance, the Global Fund has relied on limited instruments and level of effort 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 PR'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 align incentives and create accountability for impact and value for money.

While these domains may seem abstract and high-level, the reality is that decisions in each domain directly affect the availability and quality of services provided to those at-risk for and suffering from disease, and ultimately our collective impact. To illustrate this idea, think of common reasons why a bed net distribution program might run into trouble in implementation and how better decisions and incentive structures in each domain might help to 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 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 non-financial – will guarantee their availability and use in 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. The cost to distribute each net to the right population is unknown, and money may be wasted. At the verification stage, no household or facility data is collected in a representative way, and the funder and the government program must rely on PR self-reports of unknown accuracy to determine whether to continue funding, to decide on how to adjust the management and delivery strategy to be more effective, or to 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.

**Figure 3. Value for Money Domains for Global Health Funders**



## This Report

Together all four decision-making domains reflect a systematic agenda for value for money that hitherto may not have been interpreted as essential to impact. Each chapter in this report tracks to one of the four domains, analyzing current practices and making 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% or more, amidst long-run financial uncertainty and sustainability. Efficiency is not achieved by reducing budgets without regard to health outcomes or outputs.

While the Global Fund Board has already identified a subset of our recommendations as priorities (particularly relating to market shaping and optimization of commodities), other areas have attracted less attention, including the need to reform and redesign the performance-based financing system; to strengthen performance verification; and to use cost and spending data to improve the efficiency of procurement, supply chains and healthcare delivery.<sup>20</sup> The report identifies actions to take now, and to build into the business model over the next 2-5 years.

The challenge is to recognize that a systematic value for money agenda can influence all aspects of the Global Fund’s business; to obtain higher priority for the agenda from the Secretariat, Board, and key strategic partners; to adapt, adopt and operationalize the report’s recommendations into operations; and to implement and evaluate the value for money agenda in the context of the New Funding Model.

Value for money is not merely a checklist, a principle, or just another task on the to-do list; value for money is the core business of any health funder. We hope that this report can contribute to the effort.

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<sup>20</sup> 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 over the past years. Further, a recent US Institute of Medicine evaluation of PEPFAR highlighted similar issues, reinforcing the universality of the value for money challenge.

## Chapter 3: Planning Allocation

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### Summary of recommendations

- (1) Choose from a Menu of Effective and Cost-Effective Interventions and Commodities
- (2) Identify and Target Key Populations with Appropriate Interventions
- (3) Optimize Investments for Greatest Health Impact
- (4) Improve Ex Ante Budgeting and Transparency on Expenditure

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 funding allocations best achieve its objectives for disease control and health improvement?

These questions lie at the heart of “allocative efficiency,” or, colloquially, “doing the right things.”<sup>21</sup> Stated more formally, allocative efficiency means selecting a set of interventions that achieves maximum health impact within a given budget constraint. Allocative efficiency typically requires careful tailoring of interventions to geographical and epidemiological context, and can be achieved either for a single disease area or for population health more broadly. By definition, any funding agency must allocate its resources according to a set of allocation criteria; such criteria may be explicit, as in PEPFAR's 10% earmark for programs targeting orphans and vulnerable children (OVC), or implicit, as in the Global Fund's historic approach to grant-making, where allocations were based on expressions of country demand.

Yet despite enormous scientific advances in recent years that have vastly expanded the evidence base on intervention effectiveness, both international 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, the Working Group believes that the Global Fund must make good on its commitment to take a more proactive approach to grant allocations, including using stronger evidence thresholds for funded interventions, shifting funds to best value commodities, and encouraging the use of economic evaluation and modeling as part of the proposal process. Together, a deliberate and coordinated approach to resource allocation will enable countries and international funders to drive better value for money from their shared investments.

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<sup>21</sup> Fan, V and Glassman, A. “Value for money: a framework for global health funders.” CGD Policy Paper, forthcoming.

## Overview

Historically, 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,”<sup>22</sup> 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 allocation despite their often limited capacity to do so (i.e. lack of tools and expertise in costing, epidemiologic surveillance, and modeling), and potentially without addressing political or economic conflicts of interest (i.e. 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 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 in any given round – often without consideration of actual need, other funding sources, or a strategic assessment of their most pressing priorities given scarce resources.<sup>23</sup> As the Global Fund never had sufficient resources to meet the full “demand” of all countries for all diseases – and arguably will never have sufficient resources because country “demand” is always increasing and also incorporates a desire to build general health systems and address health challenges outside the Fund’s “big 3” purview – “demand” was insufficient as a mechanism to ensure an effective and efficient response to HIV, TB, 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. In some cases, interventions that could potentially be effective in some contexts were nonetheless proposed in a manner that either disregarded the dynamics and distribution of disease at the national and subnational levels or ignored national implementation capacity.

In the face of overwhelming public health evidence about the importance of tailoring responses to the particular characteristics of an epidemic in a given country, the Global Fund is increasingly recognizing that efficient allocation is an essential component of the Value for Money agenda. With the New Funding Model,

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<sup>22</sup> <http://www.theglobalfund.org/en/about/principles/>

the allocation formula represents a way to distributing global resources across many countries more methodically, but much work remains on optimizing investments within each country. Amidst severe budgetary constraints in a difficult economic climate, any spending on interventions which 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 known high-impact interventions.

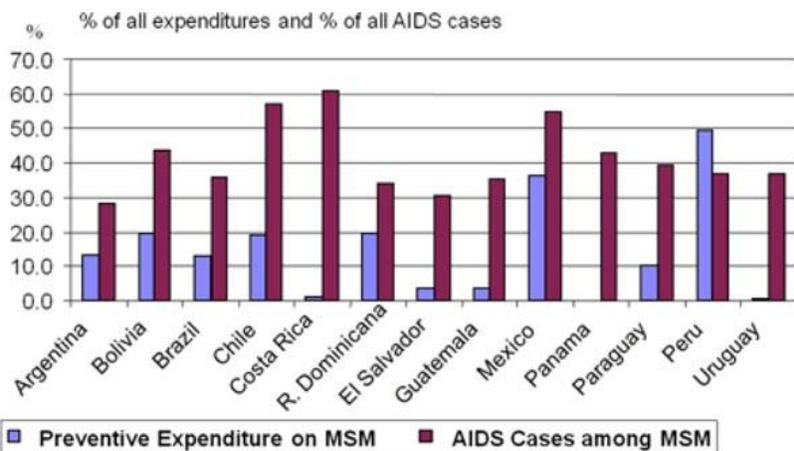
There are credible reasons to believe that a widespread failure to explicitly target and reach populations at greatest risk has had serious consequences, both for stopping transmission of a disease (prevention) and reducing mortality and morbidity from that disease (treatment). This failure has been particularly acute in the case of HIV (and arguably much less so for tuberculosis and malaria) because of the political sensitivity of the relevant populations at risk (i.e. sex workers, injecting drug users, and 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. As documented by Forsythe et al. (2009), MSM in Latin America tend to receive scant resources for HIV prevention relative to their central role in the region's epidemic (Figure 4). In the most extreme case (Costa Rica), an estimated 60% of all infections occur among MSM, yet this apparent high-risk group receives only a tiny fraction (about 1%) of the country's overall expenditure on HIV prevention (Figure 4).<sup>24</sup> A similar misalignment was observed in Ghana, where the vast majority of HIV/AIDS funding (99.2%) failed to specifically reach high-risk populations, despite evidence that the bulk (76%) of HIV transmission in Accra has been driven by the commercial sex industry.<sup>25</sup> 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 most-at-risk populations.

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<sup>24</sup> Forsythe S, Stover J, Bollinger L (2009). The past, present and future of HIV, AIDS and resource allocation. *BMC Public Health* 9(Suppl 1): S4. doi: 10.1186/1471-2458-9-S1-S4

<sup>25</sup> Forsythe S, Stover J, Bollinger L (2009). The past, present and future of HIV, AIDS and resource allocation. *BMC Public Health* 9(Suppl 1): S4. doi: 10.1186/1471-2458-9-S1-S4

**Figure 4. Misalignment between MSM Share of Disease Burden and Funding Level<sup>26</sup>**



Sources: SIDALAC. <http://www.sidalac.org.mx>; PAHO report of AIDS cases.

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 with respect to the mix of interventions and commodities financed by its grants, and the populations to which those interventions are targeted. For each country, an individual donor agency may be aware of its own distribution of funding by intervention mix; however, this information is rarely available to the public, to other donor agencies, and often even to the country itself. Without such information on the distribution of investments – both by intervention type and key 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.”<sup>27</sup> Because allocative efficiency requires information sharing between different actors and donors to optimize a country’s intervention mix, suboptimal allocations are likely to prevail in the absence of full transparency.

This limited information sharing presents a serious constraint both for 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? Nonetheless, some sources suggest a misalignment of donor financing given existing

<sup>26</sup> Forsythe S, Stover J, Bollinger L (2009). The past, present and future of HIV, AIDS and resource allocation. *BMC Public Health* 9(Suppl 1): S4. doi: 10.1186/1471-2458-9-S1-S4

<sup>27</sup> IOM Report, (Ch. 9, p. 10 and 30):

evidence about 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)<sup>28</sup>, and large allocations to prevention interventions of questionable efficacy (i.e. behavior change communication and various training interventions) which typically lack evidence from rigorous evaluations.

Not only is there indication of suboptimal adoption of cost-effective interventions, the chosen interventions (even those determined “cost-effective”) must be determined jointly with their intended key populations. For example, despite the existence of a progressive official policy in place (the Sexual Orientation and Gender Identities Strategy<sup>29</sup>), in practice it is unclear that this policy influences disbursement decisions: “of the \$1.5 billion in funding allocated to these six countries since 2001, only 0.07 percent was for programs specifically targeting GMT. Moreover, the majority of this support is concentrated in just one of these six countries (Namibia).”<sup>30</sup> 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.<sup>31</sup> Moreover, there is evidence of underinvestment in harm reduction in countries where the epidemic is fueled by injecting drug users.<sup>32</sup> HIV interventions are not always clearly or appropriately targeted towards high risk groups; in a sample of grant agreements from five countries with varying epidemiologic profiles (Ethiopia, Nigeria, South Africa, India, and the Philippines), the majority funding over 2002-2012 was either earmarked for the general population, or did not indicate a specified target group.<sup>33</sup> While this finding does not necessarily imply that the Global Fund itself did not tailor interventions to specific populations (and indeed the Fund Portfolio Manager responsible for each country should know whether such tailoring occurred), it suggests that other funders e.g. PEPFAR are unlikely to know what populations are reached by Global Fund grants, 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

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<sup>28</sup> <http://allafrica.com/stories/201207130100.html>

<sup>29</sup> The Global Fund, 2007. The Global Fund Strategy in Relation to Sexual Orientation and Gender Identities.

<sup>30</sup> amFAR, 2013. Achieving an AIDS-Free Generation for Gay Men and Other MSM in Southern Africa

<sup>31</sup> amFAR, 2013. Achieving an AIDS-Free Generation for Gay Men and Other MSM in Southern Africa

<sup>32</sup> Bridge J, Hunter BM, Atun R, and Lazarus JV (2012). Global Fund investments in harm reduction from 2002 to 2009. *International Journal of Drug Policy* doi:10.1016/j.drugpo.2012.01.013.

<sup>33</sup> Fan, V. et al, forthcoming. Getting Value for Money in the Global Fund's Portfolio of HIV/AIDS Interventions

regimens; in countries which have not fully scaled up first-line treatment, investing in second- and third-line is not likely to represent the most cost-effective intervention choice.<sup>34</sup> However, the Global Fund currently subsidizes second- and third-line ARV and TB medications in a number of low-income countries where first-line coverage remains low (and is largely supported by countries). In the last round of commodity spending reported to the PQR, spending on second- and third-line ARV and TB medications represented the majority of ARV and TB medication spending.<sup>35</sup> Spending on second- and third-line is likely to increase further as more patients fail first-line treatment, which may imply trade-offs, on the one hand in reaching the Global Fund's expressed disease goals and on the other hand in achieving equitable access or achieving (still implicit) disease goals specific to drug-resistant strains.<sup>36</sup> The Global Fund likely offers second- and third-line regimes for reasons of 'gap-filling' role as countries take on (albeit incompletely) the task of raising coverage of first-line treatment or for reasons of the ethics of continuing treatment for those already on treatment<sup>37</sup>, although there are also ethical reasons for doing otherwise e.g. based on "fair innings" principle.<sup>38</sup> 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.

Even within the same categories of medication, shifting resources to more cost-effective formulations can potentially 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

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<sup>34</sup> Resch SC, Salomon JA, Murray M, Weinstein MC. Cost-effectiveness of treating multidrug-resistant tuberculosis. *PLoS Med.* 2006 Jul;3(7):e241.

<sup>35</sup> Analysis of the PQR indicates that the majority of TB commodity funding in the last available round (9) went to second line drugs (85%), although in 6 out of 9 rounds the majority of TB commodity funding went to first line drugs. For HIV commodity purchases, spending on first-line drugs constituted the majority of purchases until the last round, where second-line spending was higher (88%). However, it is important to note 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.

<sup>36</sup> 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. However, 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 are around 70% (see <http://www.healthqual.org/sites/default/files/Zimbabwe%20Country%20Presentation.pdf>). Similarly, in 2011 Zambia announced that it would be providing free third-line ARVs to over 200 people that need them. Uganda similarly has been offering second- and third-line ARVs on a limited basis since 2010.

<sup>37</sup> The Global Fund to Fight AIDS, Tuberculosis and Malaria. Continuity of Services. Operational Policy Note. 11 July 2011.

<sup>38</sup> Williams (1997) A. Williams Intergenerational equity An exploration of the "fair innings" argument *Health Economics*, 6 (1997), pp. 117–132

cost-effective and efficacious.<sup>39</sup> Shifting to another WHO-approved first-line regimen would thus be a win-win, both in improving patient outcomes and saving money. The magnitudes of these potential gains will likely rise in the coming years due to growing need for second-line treatment.<sup>40</sup>

Among non-medical 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 President's Malaria Initiative have played an important role as the major purchaser of insecticide-treated bed nets (ITNs), standardizing to some extent ITN purchases through better reporting of ITN prices and specifications (e.g. price, durability, acceptability, usability, etc.). However, countries currently receive funding for over 200 different types of ITNs – including requests for customized labeling or non-standard sizes. Some have hypothesized that diverse ITN specifications could be critical for uptake; however, to date, no evidence exists to support or refute this hypothesis and choosing to fund different kinds of ITN comes at higher cost with no evidence of marginal benefit. Under certain assumptions on ITN uptake conditional on observed ITN specifications, the magnitude of this inefficiency appears substantial; Bahl and Shaw (2012) find that more than \$340 million globally could be saved by purchasing more cost-effective long-lasting ITNs over the next five years.<sup>41</sup> In short, the evidence suggests that better incorporation of cost-effectiveness criteria for procurement decisions could produce effectiveness and efficiency gains – though cost-effectiveness must be balanced by considerations of acceptability, usability, timeliness, market stability, quality, and other local considerations.

## Opportunities and Limitations

Within a context of stagnating support for global health funding, there is a moral imperative to spend Global Fund money on interventions and commodities that are known to be effective and cost-effective, to reach those at highest risk, and to ensure that interventions are optimized to achieve disease control objectives. In the ten-plus years since the launch of the Global Fund, the epidemiological knowledge base for prevention

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<sup>39</sup> Eran Bendavid, Philip Grant, Annie Talbot, Douglas K. Owens, Andrew Zolopa. Cost-effectiveness of antiretroviral regimens in the World Health Organization's treatment guidelines: a South African analysis. *AIDS*. 2011; 25: 211-220

<sup>40</sup> Stover J, Korenromp EL, Blakley M, Komatsu R, et al. (2011) Long-Term Costs and Health Impact of Continued Global Fund Support for Antiretroviral Therapy. *PLoS ONE* 6(6): e21048. doi:10.1371/journal.pone.0021048  
<http://www.plosone.org/article/info:doi/10.1371/journal.pone.0021048>

<sup>41</sup> Bahl, K. and P. Shaw, *Expanding Access to LLINs: A Global Market Dynamics Approach*. 2012, Results for Development Institute: Washington DC.

and treatment of HIV, TB and malaria has expanded. We are now fortunate to have access to a set of systematic reviews evaluating the effectiveness of prevention, diagnostic and treatment interventions, and we can use epidemiological and economic models and available data to estimate the *ex-ante* optimal mix of interventions and priority target populations to prevent disease or reduce mortality. In this context, 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, the Group recognizes that cost-effectiveness, particularly in a clinical setting, is but one factor in decision-making. Other considerations are the overall efficiency and effectiveness of the delivery and implementation channel, and the context in which a commodity or intervention is purchased, e.g. the supply, acceptability, durability, or user-friendliness of a particular cost-effective product, which in turn could influence its *ex post* cost-effectiveness. Moreover, slavish devotion to static cost-effectiveness can miss relevant long-run dynamics. For example, standardization in procurement could in turn reduce prices (see Chapter 5) and lead to reduced competition, which may affect the long-run entrance of competitors and hence the long-run value for money of products.

It is also important to recognize that the Global Fund and PEPFAR each have distinct goals and objectives, but in some cases clarification on the goals and objectives is needed. For example, both the Global Fund and PEPFAR fund programs to mitigate the adverse effects of AIDS on orphans and vulnerable children (OVC). However, the relative cost-effectiveness of different OVC interventions should not be judged on their ability to prevent HIV/AIDS per dollar of investment, but on their ability to improve OVC well-being per dollar. Cost-effectiveness as a criterion still applies, but the measure of effectiveness will be different. With the lack of clarity in the objectives and intended outcomes of OVC programs, there has been a consequent lack of consensus on indicators used to measure the effectiveness of OVC programs. However, recent work in Kenya and South Africa – supported by UNICEF – illustrates that rigorous measurement and evaluation of OVC interventions is eminently feasible,<sup>42,43</sup> while recent efforts by PEPFAR to better define OVC program outputs and outcomes can also be adapted by Global Fund-supported efforts.<sup>44,45</sup>

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<sup>42</sup> Handa S, Halpern C, Pettifor A, Thirumurthy H (2012). Impact of the Kenya cash transfer for orphans and vulnerable children program on HIV risk behavior. Presentation at IAC 2012, Washington D.C. Accessed 29 April 2013 at <http://www.cpc.unc.edu/projects/transfer/countries/kenya/kenya-ct-ovc-aids-2012-v2.pdf>

Another area in which the goals and objectives need clarification are health systems strengthening (HSS) investments by the Global Fund.<sup>46</sup> HSS investments require clarity on and linkage to the expected outcomes, e.g. increased access, quality of care, efficiency, in addition to health outcomes, financial risk protection, responsiveness and/or patient satisfaction. The goals of HSS investment are not mutually exclusive from that of disease-specific investments; that is, 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, it is not surprising that many HSS investments focus on the WHO building blocks, which emphasizes system inputs (namely service delivery, health workforce, health information system, drugs, financing, and leadership and governance), with much less emphasis on their linkage to outcomes, however defined, as well as existing incentives affecting each input. Indeed, in the area of 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 – GAVI, the Global Fund, and the World Bank.<sup>47</sup> This study found that, although the majority of GAVI and Global Fund grants finance health worker remuneration, largely through supplemental allowances, with little information available on how payment rates are determined, how the potential negative consequences are mitigated, and how payments are to be sustained at the end of the grant period. They also found that only a third of GAVI proposals and less than 10% 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. Certainly, the approaches proposed by countries should, for the most part, exclude interventions not shown to be effective in some dimension of the disease response. However, there are examples of non-biomedical, i.e. social or behavioral interventions that have been rigorously evaluated and can potentially be cost-effective, albeit not against impact measures of HIV incidence; for example, peer support for ARV adherence and nutrition was found to increase the timeliness

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<sup>43</sup> Heinrich C, Hoddinott J, Samson M, MacQuene K, Niekerk I, Renaud B (2012). The South African Child Support Grant impact assessment: evidence from a survey of children, adolescents, and their households. Pretoria: UNICEF South Africa.

<sup>44</sup> PEPFAR (2012). Guidance for orphans and vulnerable children programming.

<sup>45</sup> MEASURE Evaluation. Child status index. Accessed 29 April 2013 at <http://www.cpc.unc.edu/measure/tools/child-health/child-status-index>

<sup>46</sup> Fan, V and Glassman, A. “Value for money: a framework for global health funders.” CGD Policy Paper, forthcoming.

<sup>47</sup> Vujicic M, et al. An analysis of GAVI, the Global Fund, and World Bank support for human resources in developing countries. *Health Policy & Planning*, 2012; 1-9.

of clinic and hospital visits in South Africa, and peer mentoring for HIV counseling and testing has been found to be effective for increased testing of a HIV+ partner in Senegal.<sup>48</sup> Despite the lack of evidence on many social and behavioral interventions on health outcomes, conditional cash transfers represent an important and unique category of non-biomedical intervention for which there have been statistically significant reductions detected in the incidence or prevalence of sexually transmitted infections (including HIV) or pregnancy.<sup>49</sup>

## Recommendations

A country's National Strategic Plan (NSP) is the starting point for the Global Fund's New Funding Model, and 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 in reference to the total amount of spending dedicated towards disease control in a country.

The NFM – and the Working Group – envision NSP as a foundational document and the first location in which value for money recommendations related to “doing the right things” should be addressed. However, given our focus on the Global Fund and some of the challenges around existing NSP,<sup>50</sup> our recommendations are more closely linked to subsequent steps in the NFM: the country dialogue, concept note, and TRP review.

### ***(1) Choose from a Menu of Effective and Cost-Effective Interventions and Commodities***

The Global Fund's country dialogue and TRP review of concept notes represents an important opportunity to shape allocation in accordance with evidence-based funding criteria. The TRP review has included an

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<sup>48</sup> Rodriguez-Garcia R, Bonnel R, Wilson D, N'jie N. Investing in communities achieves results: findings from an evaluation of community responses to HIV and AIDS. Washington, DC: World Bank, 2013.

<sup>49</sup> As reviewed in Over, M. *Achieving an AIDS transition: Preventing infections to sustain treatment*, Center for Global Development: Washington, DC., 2011, pp. 33-58.

<sup>50</sup> A cursory review of existing NSP finds that most do not include any significant analysis of choice or mix of intervention given disease dynamics, lack accurate and updated information on and scenarios of budgets and spending from different revenue sources, and follow different time periods (5-6 years) than the Global Fund 3-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.” ([http://www.who.int/alliance-hpsr/researchsynthesis/AllianceHPSR\\_GHIN\\_ChallengeCoordination\\_BS3.pdf](http://www.who.int/alliance-hpsr/researchsynthesis/AllianceHPSR_GHIN_ChallengeCoordination_BS3.pdf))

explicit “value for money” component since 2011,<sup>51</sup> and the TRP is now empowered to rank individual components within the grant proposal according to its value for money review criteria.<sup>52</sup> While important, these changes will not be sufficient without explicit recognition of the importance of cost-effectiveness, and not only effectiveness and efficiency.

A key recommendation of this Report is to invest only in effective *and* cost-effective interventions and commodities, provided 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 interventions or an apparent failure to alter slow disease transmission in a country.

If the menu lacks proven interventions, if recipients prefer to invest in interventions not included on this list, or if recipients recognize a need to innovate and experiment, recipients should plausibly justify that their proposed intervention is better value for money than the listed interventions; that is, recipients must “opt out” of the intervention and commodity list. To do so, countries should provide local analysis showing that the proposed product or intervention would be more cost-effective within the specific local context in order 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, in the spirit of innovation and experimentation, recipients that elect to deploy other interventions should be required to assess their effectiveness and cost-effectiveness through rigorous evaluation (see Chapter 6).

For existing grants seeking renewal, the Global Fund should assess the cost-effectiveness of each grant’s intervention and commodity mix. To expedite reprogramming of existing 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 treatment and prevention for the 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.<sup>53</sup><sup>54</sup> Hence interventions in these areas will

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<sup>51</sup> [http://www.theglobalfund.org/documents/trp/TRP\\_TechnicalReviewPanel\\_ToR\\_en/](http://www.theglobalfund.org/documents/trp/TRP_TechnicalReviewPanel_ToR_en/)

<sup>52</sup> The Global Fund, 2013. New Funding Model Transition Manual

[http://www.theglobalfund.org/Documents/core/newfundingmodel/Core\\_NewFundingModelTransition\\_Manual\\_en-4294930165/](http://www.theglobalfund.org/Documents/core/newfundingmodel/Core_NewFundingModelTransition_Manual_en-4294930165/)

<sup>53</sup> [http://apps.who.int/iris/bitstream/10665/77745/1/9789241504744\\_eng.pdf](http://apps.who.int/iris/bitstream/10665/77745/1/9789241504744_eng.pdf)

likely often 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 interventions proven to be effective.

To encourage countries to pursue the most efficient and equitable strategy, the Global Fund needs to develop a systematic policy on the prioritization of high-quality first-line treatment of AIDS and TB in countries which are still scaling up first-line services and/or have poor results on retention and completion of treatment. Specifically, the Global Fund needs to articulate a clearer vision to achieve goals on disease-control as well as equitable access and to articulate a policy on how to respond to drug-resistant disease transmission. While recognizing that there is little political appetite to address this issue directly, some members of the Working Group strongly agree that the Global Fund should only offer funding for second- and third-line treatment if countries have fully scaled up or quality-assured first-line treatment or if the country demonstrates that second-line treatment is equitable, affordable, and/or critical for achieving certain disease control goals. For example, one potential justification for expanding to second- and third-line is that adding such patients can be a small marginal cost, whereas expanding first-line treatment may involve larger capital investments such as in infrastructure and outreach; the costs 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)<sup>55</sup>, and the Working Group recommends that the Global Fund fully implement this strategy. The Global Fund's Market Dynamics Committee (MDC) 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 achieved as soon as possible. Specifically, the Global Fund Secretariat should take immediate efforts to implement the following recommendations as suggested by the MDC and approved by the Board in May 2011:

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<sup>54</sup> [http://whqlibdoc.who.int/publications/2011/9789241501750\\_eng.pdf](http://whqlibdoc.who.int/publications/2011/9789241501750_eng.pdf)

<sup>55</sup> Global Fund Market-Shaping strategy and Market-Shaping Interventions for ARVs: Decision Point GF/B23/DP21: Twenty Third Board Meeting, Geneva Switzerland, May 11-12 2011.

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

These recommendations also create financial incentives by permitting PRs who switch to lower-cost commodities of comparable quality to be entitled to a “right of first use” and the opportunity to reinvest freed resources.<sup>56</sup> Similarly, shared savings programs, currently being piloted in the United States, reward health care providers for keeping per-unit spending below certain targets (i.e. benchmarks) while maintaining quality.<sup>57</sup> A proportion of those cost savings are then allocated back to successful programs. Within the context of the US health care system, this tool is used to encourage increased coordination and to reduce unnecessary or high-cost care. Similarly, the Global Fund could create incentives to reduce costs while improving value for money. Savings from improved efficiency could be returned to PRs, the CCM, or other implementers as appropriate (and as agreed upon prior to the start of program implementation).

A critical issue for this recommendation is how the Global Fund will obtain a menu or list of eligible interventions and commodities in each disease area. The Working Group recognizes that the Global Fund is currently constrained by a dearth of appropriately helpful technical guidance on the cost-effectiveness of commodity purchases. While the World Health Organization (WHO) has historically helped to inform medicine purchases through its treatment guidelines, WHO guidance tends to focus on quality assurance rather than cost-effectiveness<sup>58</sup> (with exceptions for specific categories, e.g. MDR-TB<sup>59</sup>), and on clinical treatment rather than prevention or population interventions, e.g. bed nets and condoms. Moreover, WHO guidance on cost-effectiveness is often deemed “weak” under the GRADE methodology for not relying

<sup>56</sup> Report of the market dynamics and commodities ad-hoc committee the global fund. May 2011.

<sup>57</sup>wood), 2012. **31**(9): p. 1959-1968.

<sup>58</sup> See, for example, the WHO Prequalification program (<http://www.who.int/mediacentre/factsheets/fs278/en/>) and the WHO Pesticide Evaluation Scheme (WHOPES) that primarily aims to “[study] the safety, efficacy and operational acceptability of public health pesticides and developing specifications for quality control and international trade (<http://www.who.int/whopes/en/>).

<sup>59</sup>[http://whqlibdoc.who.int/publications/2011/9789241501583\\_eng.pdf](http://whqlibdoc.who.int/publications/2011/9789241501583_eng.pdf)

predominantly on randomized controlled trials.<sup>60</sup> Because there is limited guidance and quality assurance for non-clinical commodities, and because existing guidance rarely incorporates affordability, the Global Fund often lacks requisite 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 though not all members of the Working Group recommend that the Global Fund formally request such a list from its key technical partners such as the WHO. If the technical partners are unable to provide such a list, the Global Fund must commission it from an independent expert body. A 2011 Results for Development report prepared for the MDC also suggested that the Global Fund commission expert guidance for key commodities, e.g. from UK National Institute for Health and Clinical Excellence (NICE), “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.”<sup>61</sup> Further, this is an area of growing interest to recipient country governments; in South Africa, for example, 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.”<sup>62</sup> Similarly, in the context of 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, countries are increasingly willing to address financial sustainability of HIV programs through strategies that prioritize interventions and improve efficiency of service delivery.<sup>63</sup>

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 UK National Institute for Health and Care Excellence (NICE) published the 2013 edition of the Guide to Methods of Technology Appraisal, which provides an overview of the principles and methods of health technology assessment and appraisal within the

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<sup>60</sup>Christopher Fitzpatrick and Katherine Floyd. A Systematic Review of the Cost and Cost Effectiveness of Treatment for Multidrug-Resistant Tuberculosis. *Pharmacoeconomics* 2012; 30 (1): 63-80

<sup>61</sup> Market Dynamics Study: Phase II Report for the Global Fund Market Dynamics Committee (MDC). 2011, Results for Development Institute, The Global Fund.

<sup>62</sup> [http://www.hst.org.za/sites/default/files/Chapter2\\_National%20Health%20Insurance-The%20first%2018%20months.pdf](http://www.hst.org.za/sites/default/files/Chapter2_National%20Health%20Insurance-The%20first%2018%20months.pdf)

<sup>63</sup> <http://heapol.oxfordjournals.org/content/early/2013/04/23/heapol.czt024.abstract>

context of the NICE appraisal process.<sup>64</sup> The list 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 assessment (HTA) research to CCMs and PRs, who 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 GF and independent research) as an indicator for well-designed and actionable NSPs. The TRP should take a more active role in housing and disseminating relevant cost-effectiveness research, which should be consulted and used in all parts of program design, and during the country dialogue phase in particular.

The Global Fund's new release of guidance in the form of 'strategic investment guidance & 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.<sup>65</sup> At a minimum, each note needs to better reflect value for money and cost-effectiveness criteria. For example, the recently released 'Strategic Investments for HIV Programs' describes a number of '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.

Countries have and will continue to innovate in a dynamic epidemiologic and economic context with Global Fund support. This recommendation ensures value for money of investments through largely investing in proven interventions that are already effective and cost-effective. Countries should nevertheless continue to be encouraged to experiment, innovate and learn, particularly when the evidence base is still developing.<sup>66</sup> Indeed, the Global Fund's Affordable Medicines Facility for Malaria represented a unique and large-scale experimentation that contributed to the evidence base on malaria treatment and to which countries will now draw on when developing their proposals.<sup>67</sup>

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<sup>64</sup> <http://www.nice.org.uk/aboutnice/howwework/devnicetech/guidetothemethodsoftechnologyappraisal.jsp>

<sup>65</sup> <http://www.theglobalfund.org/en/accesstofunding/notes/>

<sup>66</sup> <http://www.cgdev.org/blog/experimentation-better-health-lessons-us-global-health>

<sup>67</sup> [http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(12\)62123-0/fulltext](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(12)62123-0/fulltext)

## ***(2) Identify and Target Key Populations with Appropriate Interventions***

The investment case presented in each concept note should reflect an understanding of the key populations driving new infections, and address the country’s strategy to better reach these populations and target “hot spots” of disease transmission with appropriate interventions. Appropriate targeting of this kind is essential, as a nominally cost-effective intervention package may not be effective or cost-effective in practice if it is not appropriately tailored to reach key populations. In its most recent replenishment, better targeting has emerged as a key Global Fund priority, particularly with respect to utilization of 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 work towards AIDS, TB, and malaria-free generation, it is increasingly important to optimize interventions within a country to reflect the subnational diversity of disease transmission, and new concept notes should reflect tailored subnational approaches (see Box 6). For example, in a forthcoming study with minimal data inputs by Barnighausen, Bloom, and Humair, the optimal HIV intervention mix in two different provinces of South Africa (Western Cape and Kwazulu-Natal) vastly differed.<sup>68</sup>

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 Thailand and Cambodia, and focused on 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 (SARA), which are in-depth reports measuring facility capacity with respect to stock-outs, diagnosis, and service readiness. As necessary components to the micro-targeting approach endorsed by Executive Director Mark Dybul, these reviews should be systematized, scaled up, and integrated into the grant-making process as crucial tools 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 measurement and survey methods 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

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<sup>68</sup> Barnighausen T, Bloom DE, Humair S. A Model for Optimizing Intervention Mix for HIV. Interim report to assist The Center for Global Development’s Working Group on Value for Money for Global Health Funding Agencies, April 17, 2013.

MSMs, sex workers and IDUs, but also key epidemiologic parameters of gender, age, place of residence, and geographic regions (e.g. province or district) – that represent the main sources of transmission and infection.

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**Box 6. The importance of 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 hotspots – amid a sea of much lower levels of infection... In fact, there are hotspots within hotspots. Within the highest prevalence corner of South Africa, a study has found that up to a third of infections may occur within just 6% 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%, just by redirecting the same resources to the populations at greatest risk of infection and transmission.”

– Tim Hallett, The Global Fund Blog<sup>69</sup>

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When requisite data is not available, the Global Fund should require applicants to collect such data collection and submit evidence for geographical locations and establishments that can be identified as “hot spots”, potentially in conjunction with technical partners. Moreover, the Global Fund can encourage applicants to designate a part of the grant for such data collection of key populations that can help to shape future investments. Innovation is needed in identifying and characterizing hot spots, particularly in countries which have historically neglected to survey key populations because of political reasons, or where the quality and rigor of data collection has been weak. Such information on the numbers of key populations in aggregate terms should be regularly shared and reported to the UNAIDS database as a public good, which in turn will further drive value for money among all donors and not only the Global Fund.<sup>70</sup>

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<sup>69</sup> <http://www.theglobalfund.org/en/blog/32206/>

<sup>70</sup> Fan, V and Glassman, A. “Value for money: a framework for global health funders.” CGD Policy Paper, forthcoming

### ***(3) Optimize Investments for Greatest Health Impact***

Beyond ensuring that funded interventions are nominally effective and cost-effective (Recommendation 1), and with an eye toward the key populations driving incidence of the three diseases (Recommendation 2), the Working Group urges the Global Fund to ensure that the funded intervention *mix* is tailored to *local* disease epidemiologic dynamics and implementation capacity. In order to align incentives in favor of disease control goals, the Global Fund should clarify its institutional objectives, i.e. the outcomes it hopes to achieve through its grant-making, and the time horizons for those objectives. Currently, the Global Fund has expressed in its strategy framework a vision of a “world free of the burden of AIDS, tuberculosis, and malaria”, and targets of saving 10 million lives and 140-180 million new infections by 2016.<sup>71</sup> But an optimization focused on the prevention of new infections will yield a very different intervention mix than a portfolio optimizing for persons enrolled in treatment within the next five years. For example, whether the Global Fund optimizes for person years on ART, lives saved (within one year or twenty), or number of HIV infections averted, will result in dramatically different optimal portfolios (see recent work<sup>72</sup> for example).

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#### **Box 7. Data Requirements to Optimize for Impact (Barnighausen et al, forthcoming)**

- 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, MSMs, SWs, IDUs, and other key populations

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While reaching those targets would greatly improve the health and welfare of millions of people worldwide, achievement of those targets will not by itself be sufficient to achieve a world free from AIDS, TB, and malaria — that is, a world with zero cases. For example achieving a world free of AIDS will require targets on

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<sup>71</sup> <http://www.theglobalfund.org/en/about/strategy/>

<sup>72</sup> Barnighausen, Bloom and Humair, 2012.

infections averted, which are not yet established by the Global Fund. To achieve both the vision and the targets outlined in the Strategy Framework, 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 a set of 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 all concept notes and proposals to justify their program design based on a comprehensive assessment of epidemiological and cost-effectiveness data, with particular focus 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, and is discussed at length below (Recommendation 3). While the Working Group recognizes the importance of models and tools to optimize investments, these tools can range in their simplicity and complexity, and the technical expertise required to conduct such analyses will also vary. While the adoption of increasing sophistication should be encouraged by the Global Fund, there will be a need for technical assistance, e.g. supported through multilateral partners e.g. WHO or bilateral assistance, e.g. PEPFAR or other Global Fund monies allocated specifically for this purpose which can be used by countries.

Encouragingly, UNAIDS and World Bank are working jointly to develop 15 to 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 (i.e. TB and malaria) which will not participate in this process, the Global Fund should request that such analyses be conducted from technical partners accordingly. These analyses will build on WHO's standardized CEA model, "CHOosing Interventions that are Cost Effective" (WHO-CHOICE), which reports costs and effects of a wide range of health interventions in 14 epidemiologic sub-regions using a generalized cost-effectiveness analysis method.<sup>73</sup> However, as the results from WHO-CHOICE are standardized and not updated regularly, within country variation and flexible

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<sup>73</sup> Tan-Torres Edejer T, Baltussen R, Adam T, Hutubessy R, Acharya A, Evans DB, Murray CJL. Making choices in health: WHO guide to cost-effectiveness analysis. Geneva: World Health Organization, 2003. [http://www.who.int/choice/publications/p\\_2003\\_generalised\\_cea.pdf](http://www.who.int/choice/publications/p_2003_generalised_cea.pdf)

parameters specific to a country are not accounted for.<sup>74</sup> Hence, the Global Fund could commission key technical partners for each disease to adapt WHO-CHOICE to be used as core platform which countries can then use 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 for countries to conduct such modeling work that can be reflected in the Concept Note. Such modeling is dually beneficial in (1) simulating the impact of different intervention mixes and targeted populations to triangulate an optimal investment portfolio in the context of local institutional and resource constraints; and (2) generating an *ex ante* model of feasible performance targets and program impacts. Here 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 involves identifying the key populations that represent the major source of infections or new cases and consequently shifting resources to reduce transmission in at least these populations. Such simple optimization is suggested through Recommendations 1 and 2. Yet in going beyond such crude decisions, the Global Fund should encourage applicants to use a range of 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 pre-fabricated modeling tools to offer basic and simple allocative guidance at low cost. Most have been tested and applied in a variety of settings, though not usually used for resource allocation planning in the context of National Strategic Plans or specific grants. For example Maude et al. offer a “free, internet-based, user-friendly, and interactive model of malaria elimination” to guide short and medium-term decision-making – though they caution that the model’s “simple” calculations should be supplemented by “more complex and detailed models” to inform long-term strategies.<sup>75</sup> 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 existing intervention coverage, parasite prevalence, and seasonality, among other

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<sup>74</sup> In recent years, WHO-CHOICE, however, has been adapted to develop country-specific estimates for 3-4 countries each year depending on country interest.

<sup>75</sup> Maude RJ, Saralamba S, Lewis A, Sherwood D, White NJ, Dondorp M, White LJ. Online Malaria Elimination Modelling Project. <http://www.tropmedres.ac/departments-units/mathematical-modelling/malaria-elimination>

factors.<sup>76</sup> Futures Institute has also developed a suite of modeling tools for needs assessment and the costing and planning of HIV interventions, all of which are offered for free download on its website.<sup>77</sup> Similarly, the US government has recently piloted the use of an HIV prevention resource allocation modeling pilot (HIV RAMP) in order to achieve the US 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.”<sup>78</sup> The project will develop a model that will support jurisdictions in making decisions about how to best invest in HIV prevention.

For selected applicants who wish to go beyond what can be gleaned from existing data and information (Recommendations 1 and 2) or the use of prefabricated tools or models supported by technical partners (as described above), applicants may wish to 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.<sup>79</sup> As suggested by the forthcoming study by Barnighausen et al., the data requirements, however, need not be more onerous than due diligence required to understand the geography and epidemiology of a disease and the costs of prevention and treatment in the country (see Box 7).<sup>80</sup> Of course, applicants would not be required to plan their programs exclusively on the basis of results from economic evaluation and modeling; however, they would be expected to articulate their application of the optimization analysis and modeling to program design, and to explain any major deviations (potentially related to cultural, legal, or 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 of situations are so dynamic and

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<sup>76</sup> [http://www1.imperial.ac.uk/publichealth/departments/ide/research\\_groups/malaria/malariatools/](http://www1.imperial.ac.uk/publichealth/departments/ide/research_groups/malaria/malariatools/)

<sup>77</sup> [http://futuresgroup.com/resources/software\\_models](http://futuresgroup.com/resources/software_models)

<sup>78</sup> <http://blog.aids.gov/2013/04/hiv-prevention-resource-allocation-modeling-pilot-hiv-ramp.html>

<sup>79</sup> <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2779510/>

<sup>80</sup> Barnighausen T, Bloom D, Humair S. A model for optimizing intervention mix for HIV. Interim report for the Center for Global Development, April 17, 2013.

complex that models can further help to inform the reasonableness of allocations in broad measure to drive value for money or whether significant shifts in investments and strategies need to be considered to slow disease transmission. As an epidemic changes, so too must strategies be altered. Indeed, recent modeling helped to highlight the importance of targeting hot spots in achieving greater impact, a general strategy that had hitherto received relatively little traction until the new leadership of the current executive director (see Box 5 above). With more data and evidence on the effectiveness of different interventions as well as strategies to deliver those interventions, models can be updated and adapted accordingly.

#### ***(4) Improve Ex Ante Budgeting and Transparency on Expenditure***

The universal lack of transparency on both planned and actual expenditures by intervention mix and target population represents a major challenge to achieving overall value for money because it prevents coordinated investment across donors and national governments. The Working Group urges the Global Fund and other donors to increase transparency at least to each other, if not to the public, on the detailed planned and actual distribution of funds through improved budgeting and expenditure reporting. Such information sharing is a prerequisite to maximize health gains; sharing will make it possible to (i) analyze the consistency of actual expenditures with a value for money knowledge base and (ii) allow for decisions by any single actor to be made with full knowledge of what other actors are doing.

Pre-existing budgeting and resource allocation platforms as well as existing 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 such platforms. As greater emphasis is given to the International Health Partnership and its potential to harmonize reporting to multiple donors, use of the IHP+-supported tools will be increasingly important. For example, the OneHealth Tool, a joint UN tool developed by multiple partners for IHP+, is designed to support strategic “planning, cost analysis, impact analysis, budgeting and financing of strategies” for a National Health Plan, including all major diseases and health system components.<sup>81</sup> The software uses recent available data and epidemiologic and health systems models, to support countries priority-setting within a national budget envelope. The OneHealth Tool’s cost estimation approach expands upon previous costing tools, such as the RBM Malaria costing tool, the Resource Needs Model and the Excel-based Marginal Budgeting for Bottlenecks (MBB) costing tool, which

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<sup>81</sup> <http://www.internationalhealthpartnership.net/en/tools/one-health-tool/>

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).<sup>82</sup>

As noted above, the overall value for money in a country is contingent upon knowing the full portfolio of investments within a country, e.g. through national health accounts (NHAs). Indeed, the Global Fund has supported national health accounts through WHO since 2012. To date there are 47 funded NHAs, and the Global Fund continues to work on extending guidance on disease sub-accounts. To complement disclosure of existing budget data, several countries have begun moving towards fully institutionalizing the System of Health Accounts framework (SHA 2011), an internationally comparable methodology for comprehensive tracking of spending in the health sector as the standard platform facilitated through the Health Account Production Tool (HAPT). To date the Global Fund has adopted a concern for HAPT at the aggregate national level and counterpart financing largely because of concerns of additionality and fungibility, but this neglects the multiple benefits of HAPT when disaggregated, although these other potential functions of 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, HAPT when disaggregated can also help to understand costs of service delivery of different delivery models and channels, including integrated compared to vertical programs, community compared to hospital based programs, etc.

Encouragingly, the Global Fund has signed a memorandum of understanding with the WHO to use NHAPT to assess aggregate counterpart financing for a given disease. The HAPT will be conducted in the 75 priority countries of the UN Commission on Information and Accountability (COIA) for Women’s and Children’s Health. The Working Group recommends that this work be prioritized for the Global Fund’s priority ‘high impact’ countries.

The OneHealth Tool and HAPT should be tested and used for assessing both aggregate and detailed counterpart spending as well as understanding the distribution of spending by intervention mix and key populations. These tools can be increasingly useful to countries seeking better value for their money in the context of sustainability and increasing national ownership of programs. Both the OneHealth Tool and the HAPT, when combined with development of the National Strategy Plans (NSP) and the Joint Assessment of

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<sup>82</sup> [http://www.who.int/pmnch/topics/economics/costing\\_tools/en/index12.html](http://www.who.int/pmnch/topics/economics/costing_tools/en/index12.html)

National Health Strategies (JANS) tool,<sup>83</sup> could potentially reduce duplication in planning and reporting in most countries. If explicit about the interventions used and targeted toward key populations, these exercises could ultimately enhance the value for money of investments.

While the OneHealth tool has the potential to inform strategic planning for a National Health Plan as well as improve the transparency of spending to countries and donors, its effectiveness and appropriateness within the New Funding Model needs to be tested by countries. These tools represent particular approaches to budgeting or costing supported, but there are also a variety of other tools that have been developed in the process of developing the OneHealth Tool<sup>84</sup> along with by organizations such as Management Sciences for Health or Abt Associates that may be as or more adaptable and flexible to specific needs.<sup>85, 86</sup>

As is the case for the recommendation to optimize investments for greatest health impact (Recommendation 3), this recommendation to improve budgeting and expenditure transparency (Recommendation 4) will also require technical assistance e.g. through technical partners or bilateral assistance or Global Fund monies allocated specifically to countries for this purpose.

## Summary

In recognition of sub-optimal portfolio allocations arising from its past demand-driven approach, the Global Fund is embracing a more proactive role in directing its resources towards the highest-impact interventions. The Working Group is optimistic about this new direction and urges the Global Fund to proceed further along this reform path by defining a set of effective and cost-effective interventions that are eligible for funding; clearly articulating its own institutional objectives; demanding high-quality, strategic proposals that justify the selected intervention mix within the larger context of the national program, and with respect to cost-effectiveness; and disclosing a detailed profile of its own investments to enable a coordinated, efficient joint response.

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<sup>83</sup> <http://www.internationalhealthpartnership.net/en/key-issues/national-health-planning-jans/>

<sup>84</sup> [http://www.who.int/pmnch/topics/economics/costing\\_tools/en/index2.html](http://www.who.int/pmnch/topics/economics/costing_tools/en/index2.html)

<sup>85</sup> MSH Costing of Health Services Tools. May 2, 2013 <http://www.msh.org/health-care-financing/costing-of-health-services>

<sup>86</sup> <http://www.healthsystems2020.org/section/topics/hiv/hapsat>

## Chapter 4: Designing Contracts

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### Summary of recommendations

- (1) Directly Connect Performance to a Portion of Funding
- (2) Link Performance Payments to Incremental Progress against the Most Important Indicators
- (3) Support Performance Incentives between the Principal Recipient and Service Providers

The challenge of ensuring accountability for performance is universal to health systems all around the world, regardless of disease burden or income level. Among high income countries, for example, the US is often noted for its combination of sky-high health spending paired with unimpressive health outcomes – a dynamic created at least in part by its long-standing failure to align provider and patient incentives for better health at lower cost. With economic growth, health spending will inevitably increase, yet there is no guarantee that greater spending will automatically lead to improved health or health system efficiency.

To increase the health impact for each dollar invested, careful attention to the incentive environment is essential. One key tool used to align incentives and promote accountability is performance-based financing (PBF). Under such a system, an agency structures its payments to countries such that they are at least partly conditional upon demonstrable improvements in health-care coverage and health outcomes. Through performance-based financing, country recipients are incentivized to achieve maximum health impact; while donor agencies are assured that their investments contribute to genuine improvements in health. In its essence, performance-based financing is thus a mutually agreed contract between two parties, with explicit expectations of progress that ensure accountability for results.

Since its creation in 2003, the Global Fund has been at the vanguard of innovation in performance-based funding. Yet despite its long-standing leadership and commitment in this area, the details of its contracts and grant agreements dilute performance incentives, representing a missed opportunity to motivate better results and improve health outcomes among its recipients. In this chapter, we describe the limitations of the Fund's current approach, and suggest modifications to unite funders, implementers, and national governments around shared health goals.

### Overview

At the international level, several aid agencies have deployed innovations in the use of performance-based financing as part of contracts with countries over the past decade. While these agencies are all self-described practitioners of performance-based financing, there is great variation in the design, structure and

implementation of their PBF systems. For example, the World Bank’s Health Results Innovation Trust Fund (HRITF) supports a portfolio of PBF projects *within* country health systems, where payments are made to facilities and providers conditional upon coverage and quality of certain health services.<sup>87</sup> Similarly, the Inter-American Development Bank’s *Salud Mesoamerica 2015* initiative seeks to close the health equity gap in Central America by conditioning funding on independently measured progress towards a pre-defined set of coverage goals, health status gains, and policy changes.

Among health funders, both the GAVI Alliance and the Global Fund have applied variants of performance-based financing. Between 2002 and 2007, the GAVI Alliance’s Immunization Services Support program paid countries US\$20 for each additional child vaccinated with three doses of DTP3 vaccine, as reported by the WHO/UNICEF’s Joint Reporting System.<sup>88</sup> Likewise, the Global Fund establishes performance-based financing as a guiding principle in its current Strategy Framework.<sup>89</sup> Historically, the Global Fund has given performance ratings to its grants throughout the grant period, wherein ratings are constructed from “country owned objectives and targets;”<sup>90</sup> countries choose their own performance indicators and target goals; and PRs are responsible for reporting on their own progress, subject to external verification by LFAs.

Nevertheless, many donor agencies – including the Global Fund – have yet to realize the full potential of performance-based financing.<sup>91,92</sup> Contracts with performance-based financing work best when there is a direct and clear linkage between payment and 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 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 allocation can cause countries to suffer from unpredictable and subjective funding decisions. The complexity of the Global Fund’s current performance-based financing system has been well-

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<sup>87</sup> Results-Based Financing for health: About Us” <http://www.rbhealth.org/rbhealth/about> Last accessed February 1, 2013

<sup>88</sup> GAVI Alliance: Immunization services support evaluation. <http://www.gavialliance.org/results/evaluations/iss/>

<sup>89</sup> Global Fund Strategy Framework

<sup>90</sup> The Global Fund, Performance-Based Funding. <http://www.theglobalfund.org/en/performancebasedfunding/> Last accessed February 1, 2013

<sup>91</sup> Birdsall and Savedoff, 2010

<sup>92</sup> Eichler R, Levine R, et al. Performance incentives for global health: potential and pitfalls. Washington: Center for Global Development; 2009.

documented and described in previous work.<sup>93,94</sup> The Global Fund relies on Local Fund Agents (LFA), who adhere to a complex, multi-step rating process at each disbursement request. Each grant includes several indicators – primarily inputs and outputs<sup>95</sup> – which the PR reports as a percentage achieved of a pre-chosen target. LFAs carry out some checks on PR results, aggregate them into overall numeric progress scores, and convert the aggregate scores into an alphabetic performance rating. This rating may be upgraded or downgraded for a number of reasons, such as poor financial management or data quality issues.<sup>96</sup> The final grant rating informs an “indicative disbursement range” for the next period, which may receive further adjustment based on contextual factors at the discretion of Secretariat staff.

Several studies have identified challenges arising from this complex, multi-step 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.<sup>97</sup> More issues emerged with the Technical Evaluation Review Group’s 2009 report (see box 8), with particular focus on input-based indicators that provided a poor metric of performance.<sup>98</sup> 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 to the need to “hold PRs accountable against measurable results previously agreed through clearly defined long-term roadmaps for each disease, and provide incentives for good performance.”<sup>99</sup>

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<sup>93</sup> Global Fund Technical Evaluation Reference Group Five Year Evaluation Study Area 2 Results: Global Fund Partner Environment. <http://www.theglobalfund.org/en/terg/evaluations/5year/sa2/>

<sup>94</sup> Global Fund High Level Independent Review Panel Report. <http://www.theglobalfund.org/en/highlevelpanel/report/>

<sup>95</sup> See chapter on performance verification for a more detailed discussion of indicators

<sup>96</sup> Global Fund LFA Manual, pages 157-159

<sup>97</sup> The Global Fund Working Group of the Center for Global Development, 2006. “Challenges and Opportunities for the New Executive Director of the Global Fund: Seven Essential Tasks” [http://www.cgdev.org/files/10948\\_file\\_CGD\\_Report\\_sprd\\_ENG.pdf](http://www.cgdev.org/files/10948_file_CGD_Report_sprd_ENG.pdf)

<sup>98</sup> The Global Fund, Technical Evaluation Reference Group: Five Year Evaluation Synthesis Group. 2009 <http://www.theglobalfund.org/en/terg/evaluations/>

<sup>99</sup> High-Level Independent Review Panel on Fiduciary Controls and Oversight Mechanisms of the Global Fund to Fight AIDS, Tuberculosis and Malaria, 2011. “Turning the Page from Emergency to Sustainability”

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**Box 8. 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...many countries found the system burdensome, rigid, and fixed exclusively on short-term outputs rather than on longer-term outcomes, results, and capacity building.”

-- The Global Fund’s Five Year Evaluation by the Technical Evaluation Reference Group

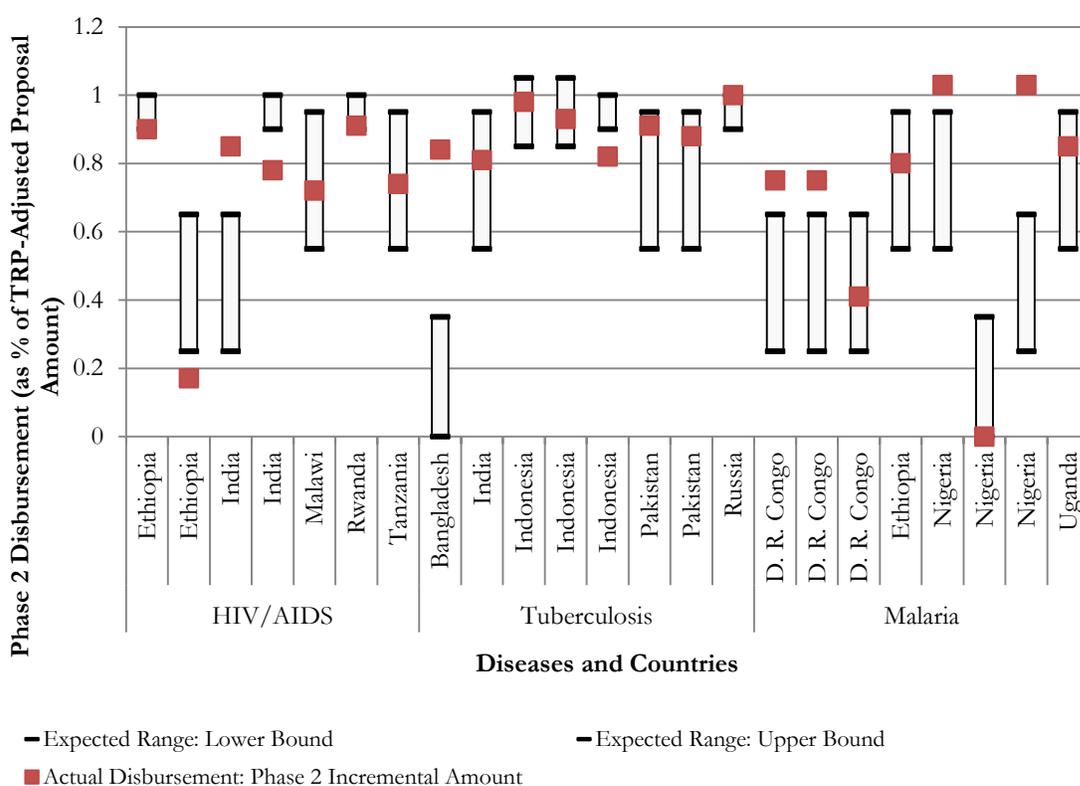
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Recent analysis by Fan et al. (2013) reveals further challenges in the existing system.<sup>100</sup> In an attempt to understand and replicate the Fund’s PBF process across 1023 grants, they find little statistical relationship between Phase 1 performance 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 5). Finally, grant 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.

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<sup>100</sup> For a detailed description of our datasets, methodology and caveats, see Fan et al (2013).

Figure 5. Grant Performance Does Not Predict Disbursement Levels<sup>101</sup>



Perhaps most importantly, PR perceptions appear to confirm the results of statistical analyses. According to a 2013 Aidsplan survey, only 34% of PRs feel that “the grant rating system accurately reflects performance.”<sup>102</sup> If PRs do not feel that performance is accurately measured or tied to future disbursements, PBF incentives will not have the desired effect in motivating better health outcomes.

### 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. In contrast, the Global Fund’s core “suppliers” – the CCMs and their PRs – bear little risk of losing

<sup>101</sup> Fan et al, 2013

<sup>102</sup> Wafula F, Marwa C, McCoy D. (2013). Global Fund principal recipient survey: an assessment of opinions and experiences of principal recipients. Aidsplan Working Paper 01/2013.

their privileged positions (with rare exceptions – see Box 9). Within the constraints of this single buyer, single seller relationship, performance incentives are one way to restore the most important characteristics of free markets in an attempt to ensure similar efficiencies. Throughout this chapter, we suggest feasible improvements to the PBF mechanism, while also assuming that the basic CCM and PR structures will remain in place. Nonetheless, it is important to recognize the limitations of the CCM model, and perhaps, in the long term, to consider other options to promote competition.

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**Box 9. Comment on Current CCM Incentive Structure by Working Group Member**

“Current incentives don’t encourage CCMs to actively look for the most cost-effective recipients/providers, and in some cases CCM 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

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The Working Group recommends that the Global Fund redesign performance-based financing in accordance with three fundamental design principles, discussed at length below. *First, it should drastically reduce the number of key performance indicators by excluding input and output indicators (e.g. such as number of bed nets distributed), while refocusing measurement on key outcomes and coverage. Second, it should set aside a tranche of funding for which payments are directly connected to performance, without deference to discretionary or contextual factors. Third, the Global Fund should use independent third-party measurement to verify self-reported results (discussed in Chapter 6).* These three principles are critical, regardless of the precise operationalization and redesign of the PBF system.

In embarking on these reforms, however, the Global Fund faces an uphill battle. The perspective of risk management, driven by an accounting/audit perspective, is dominant at the Global Fund and been further emphasized in recent years. Further, the Global Fund has defined performance quite widely, making it a catch all term for many things, including processes, inputs, outputs, and outcomes. At various points, the term PBF has been applied to any number of core Global Fund functions, including grant monitoring and disbursement; management of the Global Fund’s 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<sup>103</sup> in a “risk-mitigating environment;”<sup>104</sup> and support for “fraud identification”<sup>105</sup> via a “bottom-up audit trail[s].”<sup>106</sup> Indeed, the word “risk” appears 376 times in the Global Fund LFA Manual, and “audit” makes 279 appearances. While the accounting, financial management, and fiduciary control work done by the LFA is important, and understandable given recent media attention to charges of fraud, the conflation of performance with avoiding risk challenges the Global Fund’s ability to ensure that its programs achieve impact.

However, although available documents on the New Funding Model do not mention performance-based financing, the Global Fund has already moved towards greater emphasis on downstream indicators in its use of performance-based financing. Specifically, Phase 2 grant renewals now include “impact assessments,” through which an “impact rating” is assigned – a process which essentially reflects country-level trends in disease prevalence.<sup>107</sup> This shift is applauded by the Working Group. However, the Global Fund can go further as this adaptation to the existing performance-based financing system does not represent a significant redesign, nor does it address any of the three fundamental principles described above.

## Recommendations

To create stronger incentives for coverage, quality and impact, the Global Fund should redesign its performance-based financing 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 underway at the Global Fund on the potential use of social impact bonds, e.g. for malaria as suggested by the Roll Back Malaria Partnership.<sup>108</sup> Such a bond represents an

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<sup>103</sup> LFA Manual, p 75

<sup>104</sup> LFA Manual p 112

<sup>105</sup> LFA Manual p 115

<sup>106</sup> LFA Manual p 119

<sup>107</sup> Global Fund Operational Policy Manual, page 270, Impact/Outcome Assessment Framework. 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 age 15 to 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 be used to reliably estimate HIV incidence in older age cohorts (Incidence Assay Critical Path Working Group, 2011; Duong et al, 2012). See Over (2011) for a discussion of how such an assay could be used to incentivize HIV prevention.

<sup>108</sup> [http://leadinggroup.org/IMG/pdf/Review\\_on\\_innovative\\_financing\\_for\\_health\\_final.pdf](http://leadinggroup.org/IMG/pdf/Review_on_innovative_financing_for_health_final.pdf)

<http://www.rbm.who.int/gmap/GMAPFinancialStrategy.pdf>

<http://www.fightingmalaria.org/pdfs/taskforceinnovativefinancingreport.pdf>

<http://www.fightingmalaria.org/pdfs/malariabondbusinessplan.pdf>

example of performance-based financing that can potentially exemplify the recommendations that follow in this chapter – with the aim of aligning incentives to improve performance in health. The Working Group recommends that at a minimum the Global Fund should:

### ***(1) Directly Connect Performance to a Portion of Funding***

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 upon 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 directly linked 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 directly linked to performance could increase; high achieving countries could also elect 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 to 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 level, whereas “Incentive Funding” represents additional funds for “ambitious” proposals. The Working Group recommends that the Global Fund deploy the “Incentive Funding” tranche to reward ambitious and *successful* programs that aggressively pursue core objectives for disease control and health improvement.

### ***(2) 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 indicators that closely relate to health-care coverage and outcomes (e.g. coverage and retention of ART), while eliminating the consideration of most input and output indicators in making payments (e.g. condoms distributed; see Box 10). 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 core performance indicators that will be linked to performance-based disbursements. The Global Fund, LFAs, and PRs can continue to monitor financial management and implementation progress through input and output indicators, but they should *not* be used as the basis for performance-based financing. The Global Fund should use independent third-party verification and measurement to complement self-reported progress (see Chapter 6 which makes the case for this important feature).

In some settings, the core indicator could measure lasting achievements in disease control, prevention, or even elimination. This will be particularly useful in countries or regions where, for example, malaria has been eliminated, but a constant budgetary and programmatic effort must be maintained; or in specific geographic “hot zones” 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.<sup>109,110</sup>

In most cases, the Global Fund should link PBF payments to incremental progress in achieving high-quality service coverage or health outcomes, for example a fixed amount for each additional person initiated and retained on ART. The Global Fund’s complex architecture stands in stark contrast to GAVI’s streamlined (and now eliminated) ISS, which paid \$20 per additional child covered (ISS is currently being phased out in favor of a graduated approach based on pre-existing coverage levels).<sup>111</sup> By paying based on marginal progress, the Global Fund could also help to mitigate countries’ perverse incentives to set easily achievable targets rather than ambitious goals.

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<sup>109</sup> [http://www.cgdev.org/files/1424161\\_file\\_AIDS\\_Transition\\_Essay\\_2\\_clean\\_final.pdf](http://www.cgdev.org/files/1424161_file_AIDS_Transition_Essay_2_clean_final.pdf)

<sup>110</sup> CHAI Zanzibar Proposal

<sup>111</sup> [www.gavialliance.org/about/governance/gavi-board/minutes/2011/16-nov/minutes/performance-based-funding/](http://www.gavialliance.org/about/governance/gavi-board/minutes/2011/16-nov/minutes/performance-based-funding/)

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**Box 10. A Selection of Suggested Core Indicators for Performance-Based Financing**

Good indicators are those that 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. Latest UNAIDS data dates to 2010; more frequent monitoring and evaluation is needed.
- **ART retention rate** is a principal determinant of the effectiveness of treatment, and should be measured instead of the simple number of people on treatment. As average ART retention is only 80% in the first 6 months and 75% in the next 18, it is crucial to carefully monitor this indicator.<sup>1</sup>
- **Tuberculosis case detection rate and treatment completion rate**, as completion can be measured easily and cheaply with a sputum test.
- **Facility stockouts** is a crucial indicator already included in many TB grants, and could be expanded for ACT availability to treat malaria. The problem is particularly acute in TB, with 45% of central facilities in high-burden countries reporting stockouts.<sup>1</sup> While there are no studies that aggregate the impact of stock-outs for antiretroviral drugs, many studies point to an effect of stock-outs on retention and deaths in certain high-burden contexts. Further, earlier work has shown a direct connection between ACT stock-outs and child mortality from malaria in Kenya.<sup>3</sup>

<sup>1</sup>[http://www.stoptb.org/assets/documents/resources/publications/technical/Falling\\_Short.pdf](http://www.stoptb.org/assets/documents/resources/publications/technical/Falling_Short.pdf)

<sup>2</sup>Hamel M, Adazu K, Obuur D, Sewe M, Vulule J, Williamson JM, Slutsker L, Feikin DR, Laserson KF: Reversal in reductions in child mortality in Western Kenya, 2003-2009. *Am J Trop Med Hyg* 2011, 85:597-605.

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**Box 11. Innovations in grant design can improve recipient efficiency and enhance the donor's cost-effectiveness while economizing on information**

Two specific designs for an efficiency-enhancing, “contract-like” grant agreement differ on the amount of information they require about the recipient’s cost of operation. One design, referred to in the literature as the Vogelsang-Finsinger (VF) mechanism (1979), could encourage efficiency improvement if the recipient submits its previous year’s total cost to the donor every year. The other design, known as the two-part tariff or the two-part price contract, could work even without such information<sup>112</sup>.

Suppose that, for at least a portion of the activities funded in a given agreement, a quality-adjusted unit of service output is accepted during the initial negotiation between the donor and recipient and is subsequently counted and, in the spirit of Chapter 6, independently verified during each year of program implementation. Two suggested mechanisms can be briefly described as:

1. VF Mechanism. For each unit of output during the current year, pay the recipient an amount equal to its average cost the previous year, up to a maximum number of units per year.
2. Two-part tariff. First part: Pay a constant amount for every unit of output up to a threshold amount. Second part: Then pay an amount per unit of output that starts higher than this benchmark unit payment and then descends lower, up to a maximum number of units per year.

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

The VF mechanism requires more information on the recipient’s cost of production, but offers substantial efficiency improvements because it reveals the recipient’s average cost of service production and leverages that information to reduce the donor’s average cost over successive years. Though the two-part tariff requires less recipient-specific cost information, it too can achieve substantial efficiency

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<sup>112</sup> Laffont and Tirole, 1993, pp. 145-149

improvements over time as it motivates recipients to explore ways to expand at lower incremental cost and passes a portion of this cost savings on to the donor.

Appendix 2 provides details and worked examples of each of these two contracting ideas. These specific ideas 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.

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In practice, the Global Fund would need to clarify and pilot a number of more specific design features before settling on a particular approach. For example, the payment scheme within the incentive funding stream could take several different forms, such as a fixed price per unit (e.g. \$400 per additional ART person-year above a threshold), or varying price depending on the degree of success (e.g. a scale of payment based on the total number of additional ART person years). Box 11 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 public's value for money achieved by regulated private or parastatal providers of critical public services. Moreover, the price offered is expected to vary by country given the variation in costs of service delivery (see Chapter 5) in addition to the ability to pay by countries. Where the PR is not part of the national government, it may also make sense to split performance payments between the PR and either the CCM (which nominates the PR) or a government ministry (which can provide a key source of support and facilitation for PR 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.

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**Box 12. Frequently Asked Questions about PBF<sup>113</sup>*****What if the country doesn't meet the performance targets?***

The best designed programs do not set targets at all. Rather, payments are set proportional to the degree of success, e.g., a certain amount is given for each additional course of TB treatment that is successfully completed. As a result, 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 a portion 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?***

In order to mitigate over-reporting, grants should incorporate regular independent verification of key performance measures. Experiences elsewhere suggest that independent verification is not prohibitively expensive, and has substantial spillover benefits for improving routine data collection and service quality (see Chapter 6 on performance verification).

***Has funding ever been conditioned to performance before?***

Yes, both by donors and by governments themselves. Rwanda and Liberia have both structured their post-conflict health systems to include results-based financing . They are joined by many other countries which 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 IDB's *Salud Mesoamerica 2015*, are financing projects that condition funding on health outcomes. Most of these programs are being tracked and evaluated; many of the impact evaluations are finding a positive effect on health coverage rates<sup>114</sup>

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<sup>113</sup> For more, see Birdsall, N., Savedoff, W. and Mahgoub, A. Cash on Delivery: A New Approach to Foreign Aid. Center for Global Development, 2010.

<sup>114</sup> Norad Evaluation Department, 2012. “Evaluation of the Health Results Innovation Trust Fund.” ; Basinga P, Gertler PJ, Binagwaho A *et al.* 2011. Effect on maternal and child health services in Rwanda of payment to primary health-care providers for performance: an impact evaluation. *The Lancet***377**: 1421–8.

***Who receives the incentive, and why should this work differently compared to traditional funding mechanisms?***

The incentive could be received either by the principal recipient, who is the chief implementer of Global Fund grants, and 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 for this purpose. Instead, the performance-based funding can be viewed as an incentive for the program as a whole to reach its goal, thereby aligning multiple sources of funding around a common objective.

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***(3) 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 financing initiatives. In particular, the World Bank’s Health Results Innovation Trust Fund (HRITF)<sup>115</sup> has been a pioneer in “support[ing] the design, implementation, monitoring and evaluation of RBF mechanisms” at the country level.<sup>116</sup> Fledgling collaboration between HRITF and the Global Fund appears promising. In 2012, for example, a Global Fund PR and GAVI 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 within a single basket. Already, the experiment has produced promising results: increased utilization of some services has

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<sup>115</sup> Financed by Norway and the United Kingdom

<sup>116</sup> <http://www.rbhealth.org/rbhealth/about>

been observed, and the project has helped to incentivize more responsive and proactive behavior among health workers, including reduced absenteeism.<sup>117</sup> An impact evaluation will report findings in 2014.

Given this apparent success (and particularly if these preliminary findings are confirmed by the upcoming impact evaluation), the Working Group recommends continued multi-donor collaboration with HRITF initiatives, with emphasis on the four Global Fund’s ‘High Impact’ countries which also receive Trust Fund support (the Democratic Republic of the Congo, Nigeria, Zambia, and Zimbabwe; see Box 13). Where appropriate, the Global Fund should encourage these countries to prepare grant applications which incorporate HRITF collaboration, and to support joint fiduciary or other implementation arrangements between the PR and partner organizations.

**Box 13. HRITF Participating Countries and Global Fund High-Impact Countries<sup>118</sup>**

HRITF Participating Countries	Opportunities for Collaboration	Global Fund High-Impact Countries
Afghanistan, Benin, Burkina Faso, Burundi, Central African Republic, India, Lao PDR, Rwanda, Armenia*, Ethiopia*, Haiti*, Kenya*, Kyrgyzstan*, Lesotho*, Liberia*, Tajikistan*, Vietnam*	Democratic Republic of the Congo, Nigeria, Tanzania, Zambia, Zimbabwe	Cote d'Ivoire, South Africa, North Sudan, Ghana, Ethiopia, Kenya, Tanzania, Uganda, Mozambique, India, China, Indonesia, Myanmar, Pakistan, Bangladesh, Philippines

\*Pilot under preparation

<sup>117</sup> [http://www.rbhealth.org/rbhealth/system/files/event\\_doc/Lessons%20RBF%20Benin%20Senegal.pdf](http://www.rbhealth.org/rbhealth/system/files/event_doc/Lessons%20RBF%20Benin%20Senegal.pdf)

<sup>118</sup> <http://www.rbhealth.org/rbhealth/project/our-projects> , *Strategic Investments for Impact: Global Fund Results Report 2012*

## Summary

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

## Chapter 5: Tracking and Using Cost and Spending Data

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### Summary of recommendations

- (1) Continue to Improve the Scope, Completeness, and Timeliness of Reporting to Commodity Price Tracking Systems
- (2) Benchmark and Use Supply Chain Costs and Outputs
- (3) Identify Core Services for More Extensive Analysis and Use of Service Delivery Costs
- (4) Share Costing Data with Partners and the Public
- (5) Develop a Strategy to Use Unit Cost Data throughout the NFM Grant Cycle

In previous chapters, we have discussed how decisions made during the allocation planning phase (chapter 3) and contract/grant agreement negotiation (chapter 4) can leverage stronger health impact throughout the new funding cycle. In this section, we turn our attention to opportunities for efficiency gains during the course of grant implementation – particularly the collection, analysis, and use of cost and expenditure data to drive improvements in procurement, supply chains, and service delivery.

All health funders require information on costs, spending, utilization, 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 the utilization of the data for performance management and improvement that is important. High priority uses of data for policy at the Global Fund might include identifying high-cost outliers for further investigation; adjusting incentives embedded in grant agreements (chapter 4); providing feedback to program managers that could be used to adjust cost structures and implementation strategies; and informing the country dialogue and requests for technical partner support. PEPFAR, for example, has used expenditure analysis “to better understand cost structures within their programs and to identify program outliers, to provide decision-makers 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.”<sup>119</sup> In some cases, the mere disclosure of average unit costs has resulted in cost savings, although the mechanisms of such changes are still being understood.

Thus, a key recommendation made by the Working Group is the measurement and use of cost, price and expenditure data on commodities, supply chain and service delivery as a strategy to improve efficiency.

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<sup>119</sup> <http://www.pepfar.gov/documents/organization/195700.pdf>

## Overview

**Commodities.** The Global Fund records and tracks the prices paid for commodities via the Price Quality Reporting (PQR) system (see Box 14). The Global Fund has complemented the PQR with a voluntary pooled procurement (VPP) mechanism, which aims to reduce the cost of inputs through bulk purchasing and streamlined procurement.<sup>120</sup> The Global Fund currently offers VPP for most core health commodities, including ARVs, rapid diagnostic tests (RDTs), and ACTs, which has resulted in lower purchasing costs and more efficient procurement among participating grants.<sup>121</sup>

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### Box 14. The Price & Quality Reporting (PQR) System

Set up with the intent to communicate market information to PR, improve transparency and enable the Global Fund and its partners to better understand and influence the market for pharmaceutical products, the PQR is “a web-based system used by the Global Fund to collect transaction level procurement information from PR on key health products.” First called for by Vasan et al in 2006<sup>122</sup>, the system now contains almost six billion USD in transactions and covers bed nets, condoms, HIV/malaria tests, anti-TB/anti-malaria medicines, and ARVs. The disclosure of this information is likely one of several drivers of decreasing ARV prices in recent years – the PQR reports that the median price of common-first line ARVs is now \$127, representing a steady decline since 2007.<sup>123</sup> Similarly, the average unit cost for long-lasting insecticide-treated bed nets (LLIN) purchased by Global Fund-supported programs decreased from US\$5.10 in 2009 to US\$3.03 in 2012.<sup>124</sup>

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Despite substantial progress in improving price transparency, standardizing procurement costs and reducing the average price paid for core health commodities, the limited available data suggests persistent variability remains in the cost of some inputs – though strong convergence is apparent over time for others. For example, Figure 6 depicts variation in the price paid for Ritonavir 100mg (a second-line ARV) as reported through the PQR’s online database. For this drug, South Africa paid \$66.83 per person-year in November 2010. Less than a month later, the West Bank/Gaza paid \$1,216.62 for the same commodity – almost *18 times*

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<sup>120</sup> *Procurement Support Services*. [cited 2013 Jan 25]; Available from: <http://www.theglobalfund.org/en/procurement/vpp/>.

<sup>121</sup> *Procurement Support Services*. [cited 2013 Jan 25]; Available from: <http://www.theglobalfund.org/en/procurement/vpp/>.

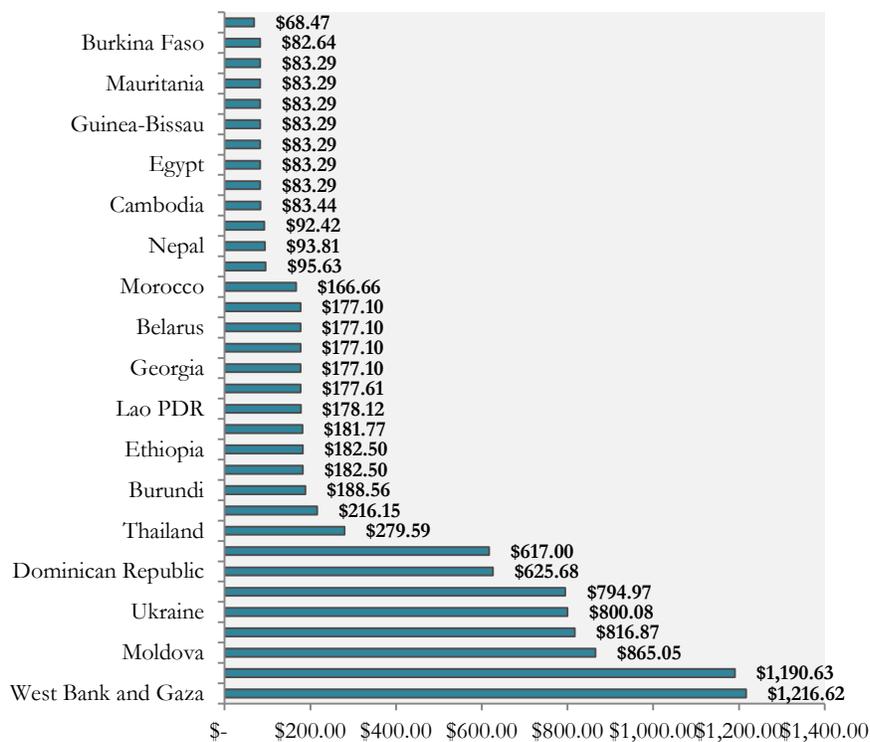
<sup>122</sup> <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2627346/pdf/16710550.pdf>

<sup>123</sup> <http://www.theglobalfund.org/assets/0/495/577/1660/3d70a54c-6f2f-4e43-a0ed-b5ac43755c6d.pdf>

<sup>124</sup> <http://www.theglobalfund.org/assets/0/495/577/1660/3d70a54c-6f2f-4e43-a0ed-b5ac43755c6d.pdf>

more than the price achieved by South Africa. Nor have prices for this drug converged over time; PQR reporting suggests a relatively constant 25<sup>th</sup>-75<sup>th</sup> percentile range between 2009 and 2011 (approximately \$80-370), and a 325% price increase from year to year.<sup>125</sup>

**Figure 6. Variation in Reported Cost (USD) per Patient-Year for Ritonavir 100mg, September 2010-April 2013, As Reported by the Global Fund [126]**



<sup>125</sup> PQR Price Reference Report.

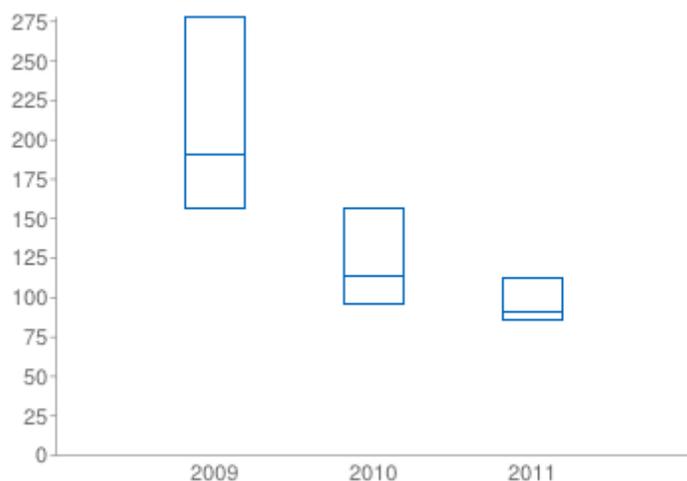
[http://bi.theglobalfund.org/analytics/saw.dll?Dashboard&nqUser=PQRExternalUser&PQRLANGUAGE=en&PortalPath=/shared/PQR%20External%20Users/\\_portal/PQR%20Public&Page=Price%20list](http://bi.theglobalfund.org/analytics/saw.dll?Dashboard&nqUser=PQRExternalUser&PQRLANGUAGE=en&PortalPath=/shared/PQR%20External%20Users/_portal/PQR%20Public&Page=Price%20list) Last accessed May 2013.

<sup>126</sup> Adapted from 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](http://bi.theglobalfund.org/analytics/saw.dll?Dashboard&nqUser=PQRExternalUser&PQRLANGUAGE=en&PortalPath=/shared/PQR%20External%20Users/_portal/PQR%20Public&Page=Price%20list) Last accessed May 2013.

Note: This graph was replicated from information provided in the price reference report, but could not be fully replicated using data from the public version PQR. In addition, the time frame of 2010-2013 may not reflect differences in lower prices achieved over time or for differences in price due to volume of procurement, 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.

**Figure 7. Trend in 25th, 50th and 75th Percentile Per-Patient Unit Prices for Efavirenz 200mg, as Reported to the PQR<sup>127</sup>**



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. For example, Figure 7 shows the trend in purchase price for Efavirenz 200mg (a common first-line ARV) among transactions reported to the PQR. In only two years, the median purchase price was roughly halved, while the space between the 25<sup>th</sup> and 75<sup>th</sup> percentile shrank to about a quarter of its original size. Nonetheless, outliers persist even where overall convergence has occurred; for example, Kazakhstan paid \$1,636.48 per patient-year for Efavirenz (including freight costs) during a February 2012 transaction.<sup>128</sup> In an attempt to analyze the driving force behind such outliers, we conduct an analysis of the PQR dataset and explore factors correlated with unit costs of one ARV, but face data limitations (see Box 15).

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<sup>127</sup>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](http://bi.theglobalfund.org/analytics/saw.dll?Dashboard&nqUser=PQRExternalUser&PQRLANGUAGE=en&PortalPath=/shared/PQR%20External%20Users/_portal/PQR%20Public&Page=Price%20list) Last accessed May 2013.

<sup>128</sup> 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](http://bi.theglobalfund.org/analytics/saw.dll?Dashboard&nqUser=PQRExternalUser&PQRLANGUAGE=en&PortalPath=/shared/PQR%20External%20Users/_portal/PQR%20Public&Page=Price%20list) Last accessed May 2013.

Finally, Global Fund grants finance the purchase of many other commodities beyond medications and bed nets, such as vehicles, computers and office supplies. The Enhanced Financial Reporting (EFR) system, introduced in 2008, is intended to include such commodities and LFA are required to report to EFR; however, these costs are grouped into general expenditure categories, and its various limitations have led to its disuse.<sup>129</sup>

**Supply chain.** Once purchased, the Global Fund and its partners must ensure that the right medicines and products reach the target population at the right places, in the right amounts, and at the right price.<sup>130</sup> Procurement processes do not end after purchasing, and the logistical challenges of placing these commodities in the hands of front-line providers remains a challenge. For example, despite bulk purchasing contracts in Kenya for malaria treatment, stock-outs and drug shortages remain due to production and distribution issues<sup>131</sup>. It has been estimated that the average availability of drugs at public health facilities in low- and middle-income countries is less than 25%<sup>132</sup>. Stock-outs have important health consequences, and stock-outs for essential antimalarial drugs have been associated with increased transmission and disruption of services.<sup>133</sup> A review of 16 supply chains in seven PEPFAR partner countries also found insufficient controls for monitoring drug supply and poor record keeping<sup>134</sup>. In Zambia, as much as 9% of all ARVs in one drug facility, totaling \$265,000, could not be located, in part due to inadequate inventory controls.<sup>135</sup>

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 and a lack of transparency of shipment data; during storage and distribution, there can be inefficient management of inventories, poor equipment repair and maintenance, 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

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<sup>129</sup> Guidance for completion of the Enhanced Financial Reporting Template, 2007. The Global Fund.

<sup>130</sup> <http://wdi.umich.edu/research/healthcare/resources/poms1315.pdf>

<sup>131</sup> Tren, R., K. Hess, and R. Bate, Drug procurement, the Global Fund and misguided competition policies. *Malaria Journal* 2009. **8**(305).

<sup>132</sup> Kraiselburd and Yadav: Supply Chains and Global Health. *Production and Operations Management* 0(0), pp. 1–5, 2012  
Production and Operations Management Society

<sup>133</sup> Hamel et al. A Reversal in Reductions of Child Mortality in Western Kenya, 2003–2009 *Am J Trop Med Hyg.* 2011 October 1; **85**(4): 597–605. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3183762/>  
doi: 10.4269/ajtmh.2011.10-0678

<sup>134</sup> <http://www.gao.gov/assets/660/654247.pdf>

<sup>135</sup> *ibid*

information on the frequency, size and location of demand/utilization that in turn limits the efficiency of demand forecasting and procurement upstream. In general, the limited incentives for efficiency described

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**Box 15. What determines the unit cost of a first-line ARV?**

Many factors can contribute to the cost of a first-line ARV drug. Using the Global Fund's publicly available PQR dataset, we chose to analyze one first-line fixed-dose combination ARV -- Lamivudine, Nevirapine, Zidovudine (LNZ), the most frequently purchased drug in this dataset, for a 150+200+300mg tablet dosage. LNZ purchases totaled \$380 million for 839 total transactions for 57 countries over 2007-2012. Most countries purchased this drug directly from a manufacturer, and paid an average cost of \$11 per pack; those who purchased it from the Global Fund's voluntary pooled procurement mechanism paid \$9 per pack. We analyzed the relationship of pack cost and several other factors including the number of people on ART, 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 are categorized in one of three ways: in 42% of transactions, freight cost is included in pack cost, in 25% it is excluded, and in 33% of transactions it is unknown whether it is included or excluded. Our results suggest that the more people who are on ART or the more people with HIV/AIDS in a country (i.e. 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. Our results on the concentration of markets and pack cost are sensitive to whether the freight cost is unknown, included, or excluded. 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 make the case that better cost data is imperative to understand the factors behind costs of drugs. 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 are paid by countries. While the PQR dataset is a good start, it should be improved in order to make in-depth analyses possible.

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**Box 16. The United States Government Accountability Office (GAO) on 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.”

--US GAO, 2012

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in terms of service delivery also apply to supply chains. Analyses from the US Government demonstrates that supply chains are only as effective as the systems that mobilize them; a recent GAO report found that PEPFAR’s emergency procurement mechanism was used in five countries to procure emergency ARV due to Global Fund disruptions, and six countries almost experienced shortages following Global Fund delays<sup>136</sup> (see Box 16). Effective grant management and forecasting efforts are needed to minimize stock outs, and emergency mechanisms should be established for emergency procurement (see Box 17).

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 percentage of total stock value were found to range from 4.8% for ARVs in Nigeria to 44% for bed nets in Liberia.<sup>137</sup> Performance evaluation and benchmarking analysis<sup>138</sup> of the relative efficiency of supply chains for contraceptive orders and shipments finds that only seven of 37 sub-Saharan African countries are on the efficient frontier; in the rest of the countries there is a large excess of spending given its actual supply chain output levels.<sup>139</sup>

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<sup>136</sup> <http://www.gao.gov/assets/660/654247.pdf>

<sup>137</sup> Yadav, Magali & Tata 2012 and Sarley et al 2010

<sup>138</sup> We will use the definition of benchmarking described in Balm (1995) 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...”

<http://dl.wecouncil.com/Octal/db/Files/Benchmarking%20and%20gap%20analysis.pdf>

<sup>139</sup> Berenguer G, Iyer A, Yadav P. A benchmarking methodology for sustaining efficiencies of global health supply chains. Unpublished note for CGD, April 2013.

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**Box 17. Strengthening supply chains: a new initiative at GAVI Alliance**

Powerful new vaccines have been introduced which 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 the point of manufacture to the point of immunization. The strategy will encompass a number of approaches, but one strategy – the use of barcodes to capture the data necessary 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. Bar code technology is a robust, scalable technology used in many industries. A supermarket can track a banana across the world, but at present vaccines cannot be tracked. The use of bar codes on vaccine packaging can help by improving:

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

GAVI and WHO are together considering requiring bar codes on packaging, by the end of 2014, and bar codes on vaccine vials at a later date. A pathway program in Tanzania is beginning, and once the standard is established, other countries will be able to invest in systems to better capture data and strengthen vaccine supply chains.

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**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 many aspects of the environment and contractual relationships. For example, data collected from a sample of 45 Zambian facilities<sup>140</sup> (Figure 8) shows 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

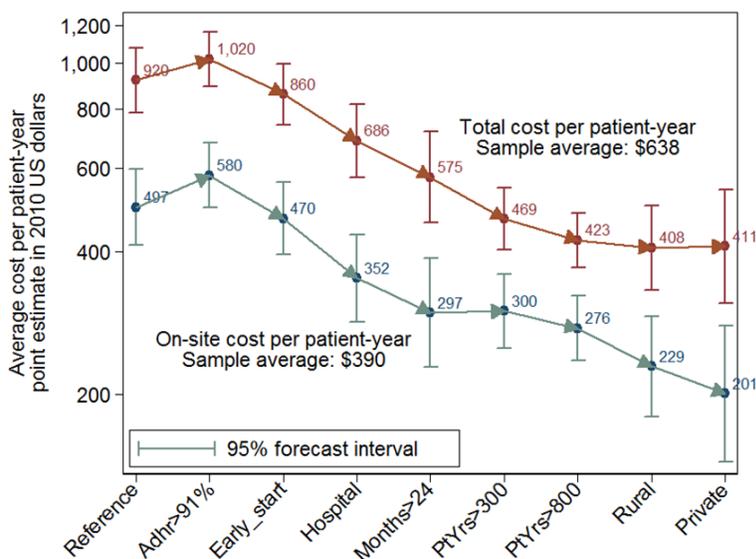
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<sup>140</sup> 45 Zambian ART treatment facilities operated by the Centre for Infectious Disease Research in Zambia (CIDRZ)

of operation. The vertical axis measures the (log) average cost per person-year, while the horizontal axis lists nine factors correlated with treatment cost.

The reference facility (displayed on the far left) represents a relatively costly type of service delivery – a public primary-care facility in an urban setting, which began offering ART services only within the past 24 months and has fewer than 300 enrollees per year – but which has a track record of poor adherence. Here, a person-year of treatment, including \$497 of facility-level expenditure and \$423 of “above facility” expenditure, 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 related to management, oversight, and procurement).

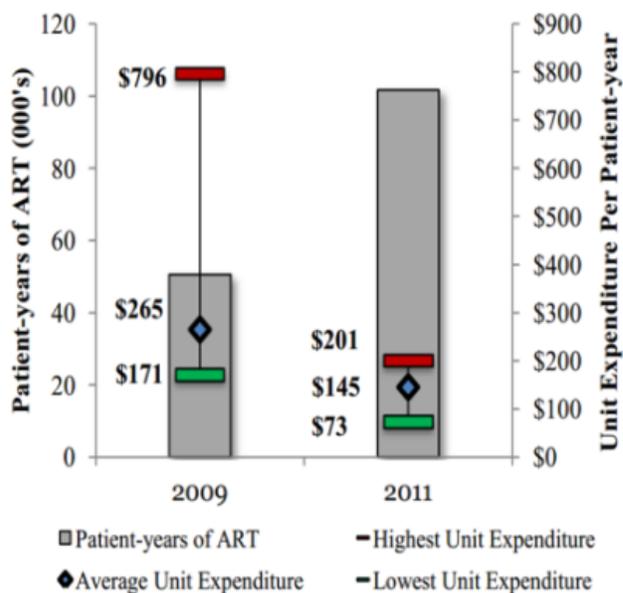
**Figure 8. Heterogeneity in the unit cost of antiretroviral treatment across 45 Zambian facilities, c. 2009. (Source: Marseille et al, PLoS, 2012)**



To better understand the sources of such variation in cost, several global-health funding agencies have embarked on exercises to better measure service delivery unit costs, e.g. PEPFAR’s expenditure analysis, unit costing by CHAI, and the measurement of the costs of integration of sexual & reproductive health services

with HIV/AIDS<sup>141</sup>. Findings from such exercises show that the savings from reducing variation in service delivery costs could be substantial. For example, a PEPFAR expenditure analysis study found that sharing variation in unit costs with facility managers and operational staff from ART facilities in Mozambique was associated with reduced costs by as much 45% (Figure 9).

**Figure 9. PEPFAR Expenditure Analysis Pilot in Mozambique in 2009 and 2011: Mean and Range Non-ARV Unit Expenditure Per Patient-Year<sup>142</sup>**



### Opportunities and Limitations

Processes to better measure, analyze, and incorporate cost and expenditure analysis into budgeting and management processes could offer substantial opportunities to improve value for money, particularly among commodity purchases or supply chain processes that are readily comparable across country and sub-national contexts. However, costing of *service delivery* can be challenging and resource-intensive, and a naïve approach

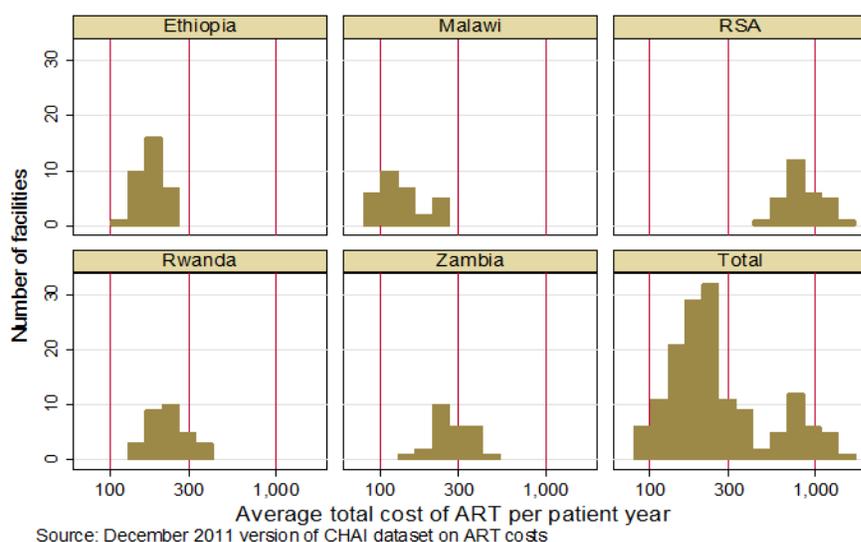
<sup>141</sup> PEPFAR, 2012: <http://www.pepfar.gov/documents/organization/195700.pdf>; CHAI Unit Costing Study (forthcoming); <http://clinicaltrials.gov/show/NCT01694862>

<sup>142</sup> The U.S. President’s Emergency Plan for AIDS Relief Report on Pilot Expenditure Analysis of PEPFAR Programs in Six Countries, in PEPFAR Finance and Economics Work Group. 2012, U.S. President’s Emergency Plan for AIDS Relief: Washington DC

to costing and benchmarking could lead to perverse incentives that ultimately detract from public health objectives.

First, it is important to recognize that benchmarking of service delivery costs is a challenging endeavor, and highly sensitive to any number of methodological choices. Such costing exercises—in order to be comparable—require standard use of expenditure categories, as well as clear definitions of activities and related costs. In Figure 8 (above), we presented results from one costing exercise in a sample of Zambian facilities. Figure 10, likewise, is drawn from a random sample of facilities in five countries (including Zambia).<sup>143</sup> But within this sample, the average facility-level cost in Zambia is about one-third smaller than it appeared in the data used to prepare Figure 8 – that is, data from the same country. There could be any number of reasons for the observed discrepancy, including changes in input costs over time, measurement error, or that Figure 8 was based on a convenience sample that may not be nationally representative. Yet regardless of the explanation, these two figures prove that even expensive and time-consuming efforts to collect cost data are by their very nature imprecise, even when merely attempting to assess the unit cost of a single service in a single country.

**Figure 10. Variation in Cost Per Patient Year of HIV Treatment in Ethiopia, Malawi, Rwanda, Zambia, and South Africa**



<sup>143</sup> 45 Zambian ART treatment facilities operated by the Centre for Infectious Disease Research in Zambia (CIDRZ)

Second, as discussed above, 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 cost structure stems from immutable characteristics of the facility or catchment population, or whether it can be attributed to relative inefficiencies in service delivery. There are many valid reasons why service delivery would entail higher unit costs – for example a rural vs. urban location; a new facility (with attendant capital costs) vs. an established clinic; or a sicker group of patients at treatment initiation vs. a relatively healthy pool of patients. Thus, to pressure all such facilities to abide by a standardized cost structure may be extremely inefficient in some cases; for example 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 – that is, assuming that all facilities should have the same cost structure as measured across multiple costing exercises – is inadequate and potentially harmful. Still, as described above, a more nuanced approach can help all stakeholders to understand their respective costs structures and cost drivers, and thus squeeze substantial efficiencies throughout implementation, including for procurement, supply chains, and service delivery. Our recommendations in this area thus provide broad guidance on the collection and uses of cost and expenditure data, while leaving space for the Global Fund partnership to craft and iterate an appropriate management response to the findings of such exercises.

## **Recommendations**

### ***(1) 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 needed to help drive down the costs of commonly funded health commodities. Even so, this dataset remains incomplete and the PQR database currently only offers partial coverage, despite previous goals to achieve 100% coverage of grants.<sup>144</sup> The Global Fund might consider increasing 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 EFR to cover other

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<sup>144</sup> Improving Value for Money in Global Fund-Supported Programs. Third Replenishment (2011-2013). The Global Fund to Fight AIDS, Tuberculosis and Malaria . March 2010

commonly purchased high-cost items, such as computers and vehicles. Benchmarking unit costs for these items could be used to leverage better pricing, as well as identify comparable products that are being purchased at higher cost.

In the medium-term, procurement reporting should be extended beyond commodity purchases to encompass the supply chains, extending to the product's ultimate point of use. Incorporating the costs through supply chain benchmarks could ensure that countries get best value both for commodities themselves and for the systems used to deliver those commodities to facilities and patients.

### ***(2) Use Data on Supply Chain Costs and Outputs to Improve Efficiency***

Comparing relative costs per output can be used to characterize performance and improve efficiency in the supply chain. For example, PEPFAR saved an estimated \$38.9 million over four years through tweaks to its supply chain design and management, including more efficient utilization of ground and sea routes in lieu of pricey air freight.<sup>145</sup> Comparing cost/performance ratios among peer organizations facing 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 country, to in-country delivery. Data Envelopment Analysis (DEA) tools, which can be used to determine an efficient frontier of performance, could be better applied to determine the maximum 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 is still underutilized in Global Fund countries. Findings from these efforts can also feed back into the performance-based funding approach, to align incentives throughout the system.<sup>146</sup>

### ***(3) Identify Core Services for More Extensive Analysis and Use of Service Delivery Costs and Spending***

A significant portion of Global Fund resources are spent on the delivery of a few core services. The Global Fund should identify a package of the most frequent and/or costly health interventions financed with its

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<sup>145</sup> The U.S. President's Emergency Plan for AIDS Relief Report on Pilot Expenditure Analysis of PEPFAR Programs in Six Countries, in PEPFAR Finance and Economics Work Group. 2012, U.S. President's Emergency Plan for AIDS Relief: Washington DC.

<sup>146</sup> [http://deliver.jsi.com/dlvr\\_content/resources/allpubs/guidelines/PBFComSec.pdf](http://deliver.jsi.com/dlvr_content/resources/allpubs/guidelines/PBFComSec.pdf)

resources that would be good candidates for collection, analysis and use of cost data. The Global Fund has already reported estimated service delivery unit costs for first- and second-line ARV therapy at the national program level.<sup>147</sup> Building off its previous experience in costing ART per person-year or contracting out to a specialized organization, the Global Fund can expand its costing exercises to other services in the core package such as tuberculosis and malaria treatment, using rigorous methods that relate a unit of service delivery to its quality to ensure that lower costs do not reflect (or incentivize) poor quality care. Initially, unit costs could be disclosed to recipients and sub-recipients as feedback, as in PEPFAR's Mozambique expenditure analysis. In a subsequent stage, managers could be supported to analyze the data and define and implement strategies to improve efficiency.

While better expenditure tracking is a goal, it can be a challenge where health services and finances are devolved.<sup>148</sup> Only the vertical program elements may be tracked separately, and most of the diagnosis and treatment costs (depending on how drugs are bought) are included in the facility costs, which may be unknown. Indonesia for example has 498 autonomous local government units that do not currently report health program expenditures. While these subnational entities are asked to submit reports on TB expenditures once a year, less than half actually report and most of these figures are inaccurate. In such a system, it is infeasible to track expenditures accurately in the short-term except in the context of special studies. Even in countries that are not decentralized, the inaccuracies can be large. While building better expenditure tracking, simple and rough estimations can still be useful for decision-making. For example, 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.

#### ***(4) Share Cost and Spending Data with Partners and the Public***

As a member an information-sharing network, called the Coordinated Procurement Initiative, the Global Fund currently participates in support procurement practices with OGAC, the World Bank, USAID, UN entities, and NGOs<sup>149</sup>. In addition, as a signatory to the International Aid Transparency Initiative (IATI), the Global Fund has pledged to share financial and programmatic data with external stakeholders, particularly

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<sup>147</sup> Financial and Health Impacts of Continued Support to the Three Diseases: Long-term estimates, the Global Fund 2010.

<sup>148</sup> This paragraph is based on comments to the report provided by David Collins, Management Sciences for Health.

<sup>149</sup> <http://www.gao.gov/assets/660/654247.pdf>

recipients, LFA and other external funders.<sup>150</sup> Building on this commitment, relevant information derived from costing and commodity price tracking systems should be distributed amongst partner organizations to build knowledge on the costs of program implementation; to reduce duplication; and to strengthen and standardize costing methods where feasible. The thoughtful expansion of such costing exercises represents additional costs, but its potential benefits to further decreasing costs and increasing efficiencies cannot be underestimated. As global health organizations increasingly 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 merely 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<sup>151</sup>—and such collaborations, if found to be effective, should be continued and expanded. Understanding the nuances that inhibit organizations and programs from utilizing the same benchmarks, the Global Fund and its partners should strive for comparability on at least the most commonly measured items.

### ***(5) Develop a Strategy to Use Cost and Expenditure Data throughout the NFM Grant Cycle***

In the long run, the Global Fund’s new funding model provides an opportunity to better integrate and use supply chain / service delivery output data matched with cost and expenditure data. The strategy can clarify which data are required by whom to drive real-time improvement in the performance of programs. Aside from continuing to benchmark commodity costs via data from the PQR, the Global Fund should encourage proposals to include unit costs from previous grants to inform subsequent budgeting exercises (Chapter 3). The Global Fund should support the calculation of unit costs, which could 1) inform future budgeting; 2) help to benchmark PR or sub-PR performance; 3) provide feedback to PR/sub-PR management on benchmarking results and inform PR/sub-PR implementation strategies; and 4) feed into evaluation. Unit

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<sup>150</sup> [http://www.theglobalfund.org/en/mediacenter/announcements/2011-06-23\\_Global\\_Fund\\_signs\\_International\\_Aid\\_Transparency\\_Initiative/](http://www.theglobalfund.org/en/mediacenter/announcements/2011-06-23_Global_Fund_signs_International_Aid_Transparency_Initiative/)

<sup>151</sup> New PEPFAR Blueprint Outlines Areas of Collaboration with the Global Fund [http://www.aidspace.org/gfo\\_article/new-pepfar-blueprint-outlines-areas-collaboration-global-fund](http://www.aidspace.org/gfo_article/new-pepfar-blueprint-outlines-areas-collaboration-global-fund)

costs from previous grants should be used to determine costing estimates for countries' NSPs and to justify budgets in the concept note. In addition, a concomitant strategy to strengthen the capacity of program managers (down to the level of facility and program) to use the data to drive performance can be undertaken. For example, recipients can be encouraged to incorporate unit costs into their own domestic program management systems, using information to drive efficiency gains and reprogramming if necessary. The Fund could also potentially reward, either financially or via visibility, those PRs and LFA partners that use their cost and expenditure data matched to outputs to generate efficiencies, bringing down input costs (as is suggested by current Fund guidance on value for money) and/or reducing output unit costs whilst maintaining quality.

In moving forward, the Global Fund could better utilize cost and expenditure data to explore alternate grant management styles over the coming years. It is understood that programs that pay on a fixed cost per input unit are not desirable due to their limited incentives for efficiency. However, the problems with a simplistic input- or output-based approach to use of costs/spend data do not invalidate the utility of benchmarking as a tool for management at the project level. As argued in Chapter 4, the Working Group believes that the 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 necessarily time-consuming (as is input tracking), it can only be conducted infrequently; in the interim and planning stages, PRs and LFAs 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, PR program managers can use benchmarking to continually improve their efficiency, and the Secretariat should support them in this endeavor.

## Summary

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

## Chapter 6: Verifying Performance

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### Summary of recommendations

- (1) Define a Subset of Core Indicators to Receive Strengthened Performance Verification
- (2) Independently Verify the Accuracy and Quality of PRs' Self-Reported Results Using Rigorous, Representative Measurement Instruments
- (3) Complement Output Verification with Population-Based Measurement and Formal Impact Evaluation Interventions of Unknown Efficacy

The previous chapter on implementation highlighted the importance of efficiency and the incentive environment for realizing cost savings and stretching limited resources – that is, for minimizing the costs associated with any given program. Such measures, however, are fundamentally incomplete without a strong and perceptive enforcement mechanism to verify the value created by programs and thus ensure that value for money is achieved.

To illustrate, consider a program intended to treat malaria with ACTs. Through benchmarking, proactive allocation, and efficient supply chain management (as described in previous chapters), the Global Fund could ensure that the “right” amount of ACTs are purchased at the lowest possible cost, and delivered to the country in an efficient manner. Yet these efforts would all be for naught if the pills sat unused in warehouses 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 already taken aggressive steps to verify fiscal performance through strengthened fiduciary controls and financial oversight of PRs. These necessary reforms have helped to win back donor confidence and may deter financial misconduct, two essential elements for the Global Fund’s long-term stability and funding outlook. Yet this approach addresses only the first half of the Global Fund’s core mission – to “[invest] the world’s money to save lives”<sup>152</sup> – without the necessary rigor in documenting the

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<sup>152</sup> <http://www.theglobalfund.org/en/about/howweare/>

health returns to those global investments. Accordingly, the Working Group recommends that the Global Fund adopt a more robust and rigorous approach to performance verification, measurement, and evaluation.

## Overview

The Global Fund need not be convinced to value measurement – indeed, existing policies and recent statements suggest four key realms in which the Global Fund already prioritizes data and information systems as central components of its model. The first realm relates to sustainability and efficiency at the program level, i.e. strengthening of national health information systems and other data collection to improve program management by the PR and contribute to sustainable health systems strengthening. To this end, the Global Fund generally recommends that PRs allocate 5-10% of their budgets for monitoring and evaluation activities.<sup>153</sup>

The second realm deals with *resource allocation*, both within and across countries (discussed more extensively in earlier chapters), and both for Global Fund grants specifically and for the National Strategy Plans that are to 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.”<sup>154</sup> This can only be achieved in the presence of robust data on (1) the efficacy of interventions (including efficacy for particular subgroups); and (2) the size and characteristics of each country’s epidemics, including high-risk groups and geographic “hot spots” of transmission.

The third realm of measurement 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. In previous chapters, we discussed how performance data is intended to play a central role in determining later disbursement amounts, and suggest strengthening the direct connection between grant performance and funding decisions. Yet this is only one aspect of Global Fund reliance on data for grant management purposes; beyond 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

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<sup>153</sup> The Global Fund, 2011. Monitoring and Evaluation Toolkit. <http://www.theglobalfund.org/en/me/documents/toolkit/>

<sup>154</sup> The Global Fund, 2012. “Strategy, 2012-2016: Investing for Impact.” [http://theglobalfund.org/Documents/core/strategies/Core\\_GlobalFund\\_Strategy\\_en-4294929871/](http://theglobalfund.org/Documents/core/strategies/Core_GlobalFund_Strategy_en-4294929871/)

and the national government. All of these functions are impossible without real-time measurement of financial flows, implementation progress, and other aspects of grant performance.

The fourth realm is *accountability* – between PRs and the Secretariat; between the Secretariat and the Board; and between the Board and donor governments. Just as the Global Fund takes responsibility for preventing misuse of its funds, the Fund also provides implicit promises to its stakeholders about what it will achieve with those resources, i.e. to “[save] 10 million lives and [prevent] 140-180 million new infections from HIV/AIDS, tuberculosis and malaria between 2012 and 2016.”<sup>155</sup> To be accountable to its Board and donors (and to mobilize additional resources in future replenishments), the Global Fund must convincingly track progress toward 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 comes from PRs themselves – it is not surprising that “data quality” is a recurrent concern addressed in Global Fund policies. The Fund has responded to this challenge with a range of procedures intended 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 (DQAs) among its grants; these exercises aim to “provide an in-depth assessment of data quality and M&E systems” for grant recipients.<sup>156</sup> Elsewhere, the Fund has planned a series of “Country Reviews” for recipients of its largest grants, which are designed to “evaluate disease outcome and impact, review program progress, and provide practical recommendations on where to achieve the greatest impact,” and are expected to inform program design under the New Funding Model.<sup>157</sup>

Beyond these initiatives, routine performance validation by Local Fund Agents (LFAs) has long been a component of Global Fund oversight practice. Currently, PRs provide the Global Fund with periodic reports on grant implementation, including progress towards a range of country-chosen indicators and targets. These indicators generally emphasize easily documented inputs and outputs (i.e. people trained, condoms distributed, etc.)<sup>158</sup> rather than downstream health effects (outcomes or impact). Once submitted, these

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<sup>155</sup> The Global Fund, 2012. “Strategy, 2012-2016: Investing for Impact.”

[http://theglobalfund.org/Documents/core/strategies/Core\\_GlobalFund\\_Strategy\\_en-4294929871/](http://theglobalfund.org/Documents/core/strategies/Core_GlobalFund_Strategy_en-4294929871/)

<sup>156</sup> The Global Fund, Data Quality Tools and Mechanisms. <http://www.theglobalfund.org/en/me/documents/dataquality/>

<sup>157</sup> New Funding Model Transition Manual

<sup>158</sup> See Global Fund (2012). Strategic investments for impact. Global Fund Results Report 2012. Page 15.

reports are forwarded to the Global Fund's designated LFA, typically an audit or consulting firm, which is retained on a Global Fund contract to "independently oversee program performance" and "verify results," among other responsibilities.<sup>159</sup> For most periodic reports, LFA "verification" is conducted through a desk review of data sources, in which aggregate results figures are compared with the underlying documentation from a selection of facilities and program managers.<sup>160</sup> LFAs also conduct annual site visits for each disease area and PR to verify data sources and to assess the quality of health services, both as codified in official policy (typically at the Ministry of Health) and as realized in practice (at health facilities).<sup>161</sup>

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 and to collect the necessary data to inform its core functions and activities. Nonetheless, the Working Group recognizes several limitations of the current verification and measurement regime in the absence of more robust methods. Given the essential nature of reliable data as an input to the value for money agenda, these weaknesses require urgent attention by the Global Fund's leadership.

First, there are several inherent reasons to question whether PR self-reporting reflects genuine improvements in population health, including general capacity constraints and data quality concerns as described above. Yet, as noted in a recent World Bank brief, the "credibility and rigor" of self-reported data is of particular concern "when information is used to reward performance or quality."<sup>162</sup> In such cases, administrative data may be distorted by PRs' (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, an OIG audit report for a malaria grant in Madagascar found that "net results reported to the Global Fund included UNITAID LLINs (and yet the indicator results were tied to funding)."<sup>163</sup> This challenge is certainly not unique to the Global Fund; for example, Lim et. al (2008) found "clear evidence" that GAVI's results-based immunization

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<sup>159</sup> The Global Fund, Local Fund Agents. <http://www.theglobalfund.org/en/lfa/>

<sup>160</sup> The Global Fund, PUDR Guidelines. [http://www.theglobalfund.org/documents/core/guidelines/Core\\_PUDR\\_Guidelines\\_en/](http://www.theglobalfund.org/documents/core/guidelines/Core_PUDR_Guidelines_en/)

<sup>161</sup> Global Fund (2011). LFA guidelines for on-site data verification (OSDV) and rapid services quality assessment (RSQA) implementation.

<sup>162</sup> World Bank (2013). Information to improve value for money in health. Africa Health Forum: Finance and Capacity for Results. Accessed 22 April 2013 at <http://siteresources.worldbank.org/INTAFRICA/Resources/AHF-information-to-improve-value-for-money-in-health.pdf>

<sup>163</sup> The Global Fund (2011). Audit of Global Fund grants to Population Services International Madagascar. Audit & investigation reports issued by the Global Fund's Office of the Inspector General on 1 November 2011.

services support (ISS) program (which is currently being phased out) caused countries, on average, to inflate their official immunization statistics – an effect which was neither prevented nor predicted by GAVI’s use of DQAs.<sup>164,165</sup> Similarly, a greater quantity of health services does not necessarily equal better health; for example, there is evidence that the “fee for service” model common in the United States healthcare system incentivizes providers to perform unnecessary but costly procedures with little or no health benefit (and potentially net harm).<sup>166</sup> Such perverse incentives, when unchecked, undermine three of the four “realms” of measurement described above. First, 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 (see earlier chapters). Second, they undermine accountability of PRs for their use of funds and responsibility to improve the health of populations served. Third, they can lead to degradation of national health information systems – with negative spillovers for the entire health sector.

Because of these well-documented dynamics, self-reported data should be treated with appropriate caution and subjected to robust verification to manage and mitigate perverse incentives. However, despite their long history of validating CCM and PR financial performance, it is the Working Group’s assessment that LFAs lack the mandate, resources, and staff capacity to ensure representative, credible and rigorous verification of PRs’ self-reported results, mostly due to constrained resources and, generally speaking, a lack of health- or disease-specific technical expertise.<sup>167</sup> Beyond regular desk review of program and financial documents, LFAs’ annual On-Site Data Verification (OSDV) and Rapid Services Quality Assessment (RSQA) provide the only routine on-the-ground spot checks on program performance. Yet these two procedures, while helpful in spotting or signaling egregious problems, are themselves mostly limited to documentation review rather than independent, observational verification of intervention coverage or quality. Given their limited scope (i.e. 8 or more site visits by one staff member over about 6 to 12 days for at least 3 indicators), they are also inherently unable to offer a representative sample for all but the smallest programs, even if sites are selected through

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<sup>164</sup> Lim SS, Stein DB, Charrow A, Murray CJL (2008). Tracking progress towards universal childhood immunisation and the impact of global initiatives: a systematic analysis of three-dose diphtheria, tetanus, and pertussis immunisation coverage. *Lancet* 372: 2031-2046.

<sup>165</sup> According to personal communications with GAVI staff, GAVI was aware of the likelihood of discrepancies between administrative and survey data at the time the ISS was launched. However, the initial design of the ISS was borne from a conscious decision to endow countries with responsibility for measurement in line with principals of country ownership and health system strengthening, and as an effort to avoid the creation of new parallel systems.

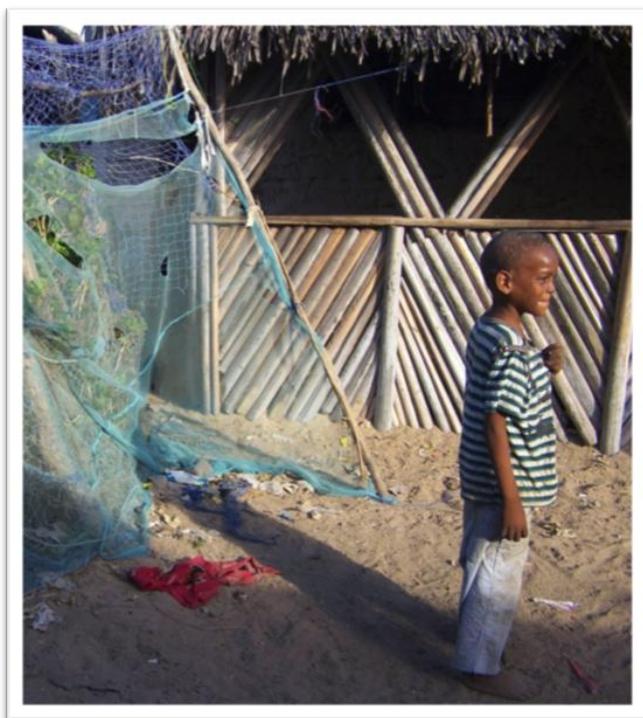
<sup>166</sup> See [http://www.nytimes.com/2012/08/07/business/hospital-chain-internal-reports-found-dubious-cardiac-work.html?hp&\\_r=0](http://www.nytimes.com/2012/08/07/business/hospital-chain-internal-reports-found-dubious-cardiac-work.html?hp&_r=0), for example

<sup>167</sup> Glassman and Silverman, forthcoming. Measurement and evaluation at the Global Fund.

randomized sampling (as recommended in Global Fund guidance though not commonly implemented). Further, selected sites are notified of the LFA visit a week prior, giving time to prepare data sources.<sup>168</sup> In contrast, Rwanda’s highly successful PBF scheme also utilizes an audit approach; however, auditors in the Rwandan scheme verify results at *all* facilities once each quarter.<sup>169</sup>

Second, because of the portfolio-wide emphasis on documentation review and verification, these procedures are unable to assess intervention coverage and outcomes at the population level – and thus to ensure that PR outputs translate into better health services and population health. For example, a PR could accurately report (and thus be verified) as having distributed a given quantity of ITNs to households in high-transmission areas, yet omit (or be unaware) that nets had been misappropriated as fishing equipment<sup>170</sup> or soccer nets (Image 1).

**Image 1. Boy Stands in front of ITN used as soccer net in Wassini Island, Kenya. (Photo credit Jessica Brinton).**



<sup>168</sup> Global Fund (2011). LFA guidelines for on-site data verification (OSDV) and rapid services quality assessment (RSQA).

<sup>169</sup> Basinga P, Gertler PJ, Binagwaho A, Soucat ALB, Sturdy JR, Vermeersch CMJ (2010). Paying primary health care centers for performance in Rwanda. World Bank Policy Research Working Paper 5190. Human Development Network. Chief Economist’s Office.

<sup>170</sup> <http://www.malariajournal.com/content/11/1/237#B17>

A third concern relates to innovative programs or interventions of unknown efficacy. With ITN distribution (a well-established intervention), more robust verification of household-level utilization would likely provide sufficient documentation of program effectiveness for two reasons. First, the outcome of interest (correct ITN usage) can be easily observed<sup>171</sup> by an independent evaluator – bed nets are clearly visible in households, and the target population is not stigmatized or hard to reach. Second, an extensive biomedical literature demonstrates a clear relationship between the outcome (correct ITN use) and the impact (prevention of malaria transmission). Yet many other interventions supported by the Global Fund will face difficulties on both dimensions, i.e. in implementing behavioral interventions to prevent HIV among high-risk groups such as commercial sex workers or MSM, 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.

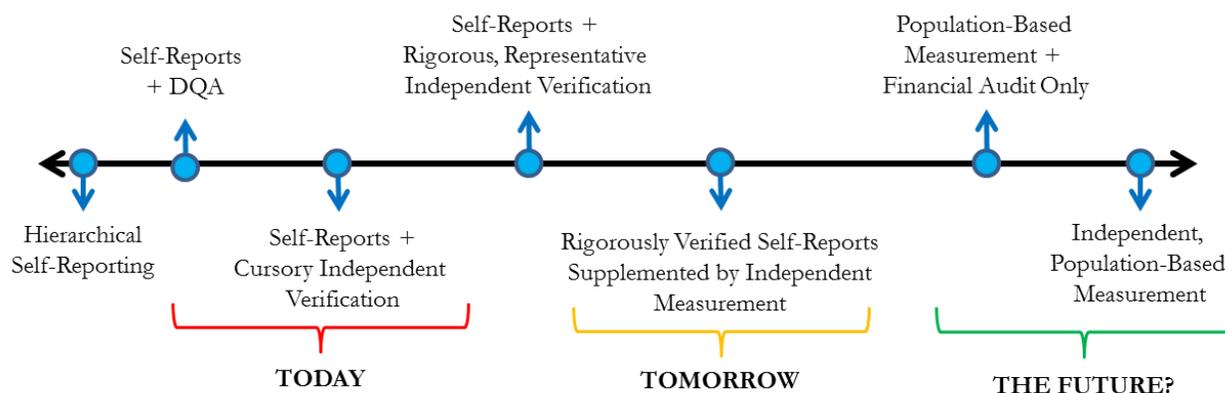
### Opportunities and Limitations

Conceptually, different approaches to assessing grant performance can be represented as a continuum between hierarchical self-reporting and purely independent measurement (Figure 11). At one extreme, all measurement is done by the grant recipient itself, without any external checks to verify the accuracy of those reports. At the other end of the spectrum, recipient self-reporting is required; instead the global health would assess grant performance exclusively on the basis of independently conducted population-based measurement. In practice, few funding agencies adopt either of these approaches; instead, they choose between a broad range of hybrid approaches in the middle of the spectrum, where self-reported results are subject to increasingly rigorous *verification* of self-reported results and supplemented by population-based *measurement* to assess the resulting outputs, coverage, and impact of supported programs.

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<sup>171</sup> 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 (i.e. a lack of holes or tears) and correct usage, 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 (i.e. LLIN or traditional bed net) and the time passed since its distribution or manufacture.

**Figure 11. Approaches to Assessing Grant Performance**



As represented in Figure 11 and described at length above, the Global Fund’s current verification regime lies toward the left end of the spectrum, where PRs’ self-reports are supplemented with cursory checks for accuracy and data quality. While recognizing that there is no “right” approach to performance verification, the Working Group recommends that the Global Fund move “rightwards” along the spectrum. In the short term, that entails a more rigorous and representative approach to verification of PRs’ self-reported results. In the long term, the Global Fund could consider shifting away from “verification” towards payment based on independently measured outcomes and impact.

The Global Fund should thus immediately strengthen its verification of PR performance through a more robust approach to the measurement of the quantity and – where feasible – quality of health services delivered with Global Fund 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. Nonetheless, to ensure that the Global Fund makes decisions based on accurate and reliable information, *robust* independent verification and measurement must be an essential complement to PRs self-reported data and domestic verification efforts. Independent verification and measurement could potentially be undertaken by a polling or consulting firm, national statistics office if autonomous, UN agency, research group, or NGO, among others.

The benefits of robust, independently verified data are many:

- First, as noted in a recent World Bank report, “the very existence of the verification process is a key improvement in the governance of the health system” via its ability to both promote health system accountability and to encourage national dialogue on health service results.<sup>172</sup>
- Second, independent data sources and rigorous verification help to improve the quality of administrative data, which is key to promoting sustainable M&E systems in recipient countries 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 substantial time and investment in reporting systems begins to pay off. Indeed, when programs financed by the performance-based HRITF implemented verification in participating facilities (at times alongside penalties for over-reporting), the World Bank observed a clear and relatively rapid jump in the accuracy of self-reported data on quantity of services delivered.<sup>173</sup> In Cameroon, for example, independent verification helped reduce over-reporting of outpatient consultations by over 90% in less than a year.<sup>174</sup> Still, there remains much to learn about the optimal strategy for measuring and verifying service quality.
- Third, robust performance verification is a key input to informed program management by the Geneva-based Secretariat. In the absence of on-the-ground staff who can regularly interact with beneficiaries and observe program implementation, independent data is crucial for ensuring that the Secretariat has an accurate assessment of the returns to its financial investments. In turn, accurate data assures 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 Global Fund Secretariat, likely equaling or exceeding the amounts currently spent on LFAs.
- Finally, high-quality data is a global public good that can be coordinated with other stakeholders and subsequently inform the work of country governments, other donors, and independent researchers. For example, in the context of improving accountability around the Family Planning 2020 commitments, the Gates Institute and others will be supporting direct data collection in 69 countries

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<sup>172</sup> Health Results Innovation Trust Fund (2013). Using Results-Based Financing to Achieve Maternal and Child Health - Progress Report 2013.

<sup>173</sup> Study by World Bank on Verification in Results-Based Financing- Vergeer et al. (forthcoming)

<sup>174</sup> Sorgho, Gaston. Presentation at HD Learning Week.

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 a number of concerns about adopting a greater focus on independent verification and measurement. Some have 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, we believe that the value proposition for independent verification is largely derived from its ability to validate and strengthen the country-owned measurement architecture, as occurred in Cameroon (discussed above). Further, it is important to stress that independent verification need not be conducted by foreign entities. Local NGOs or research groups are often well-equipped to serve this role; in some countries, there may even be independent government agencies with a mandate and demonstrated ability to fulfill these responsibilities (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, which is 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 “proper use of funds” without convincingly demonstrating improvements in the results established by its Strategy Framework?

A separate but related consideration is around “attribution” – i.e. whether it is necessary for specific results to be assigned to an individual funder or program, rather than to the joint efforts of all stakeholders. The Working Group repeatedly heard Global Fund staff describe the organization’s current momentum away from “project-based aid” towards “investment in the national program” – implying that the Global Fund was moving away from attribution of outputs or impact. Nonetheless, the Global Fund is committed to proper use of its funds from an audit perspective, meaning that, at the very least, it will continue to require attribution of inputs. This speaks to the several different purposes that can be served by attribution – and which are closely related to the “realms” of measurement described above, particularly resource allocation, program management, and accountability.

For example, attribution is important within the context of determining what does and doesn’t work, i.e. whether a specific intervention is effective. Even if the overall national program is achieving strong epidemiological progress, it is still wasteful to invest scarce resource in an ineffective component. This is the core premise of impact evaluation, which seeks to isolate the causal effect of a specific intervention from

overall trends and other confounding factors, i.e. to “measure the net change in outcomes for a particular group of people that can be attributed to a specific program.”<sup>175</sup> Impact evaluation, as defined by 3iE, is thus quite distinct from the Global Fund’s TERG definition, which emphasizes “the importance of contribution and assessing causation and competing explanations rather than narrow attribution to one source of financing and single intervention.”<sup>176</sup> The core question, however, remains quite difficult – at what level is attribution required to ensure accountability of funds, identify effective and ineffective program components, and enable active grant management, including PBF? 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 purposes. Where the Global Fund finances only one portion of the health production function, it can assess its contribution to 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, we advocate for an explicit link between funding and incremental progress against a subset of the most important indicators. Yet without knowing the current level of coverage or retention, 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 NFM can serve as the baseline for the second three-year grant cycle, at which point full implementation of PBF recommendations can occur.

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<sup>175</sup> <http://www.3iimpact.org/media/filer/2012/05/17/3iefoundingdocument30june2008.pdf>

<sup>176</sup> The Global Fund Technical Evaluation Reference Group Terms of Reference, 2013-2014.

[https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&ved=0CC0QFjAA&url=http%3A%2F%2Fwww.theglobalfund.org%2Fdocuments%2Fterg%2Fterg\\_terg\\_tor\\_en%2F&ei=c6-vUbnCF9Wz4AOI5YH4Aw&usq=AFQjCNE5F0ZSS5vq75QMUIZF4vGcUiAdKQ&sig2=91fypBH-bZDJ\\_4chDla8ag&bvm=bv.47380653,d.dmg](https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&ved=0CC0QFjAA&url=http%3A%2F%2Fwww.theglobalfund.org%2Fdocuments%2Fterg%2Fterg_terg_tor_en%2F&ei=c6-vUbnCF9Wz4AOI5YH4Aw&usq=AFQjCNE5F0ZSS5vq75QMUIZF4vGcUiAdKQ&sig2=91fypBH-bZDJ_4chDla8ag&bvm=bv.47380653,d.dmg)

## Recommendations

### *(1) Define a Minimum Set of Core Indicators to Receive Strengthened Performance Verification*

As outlined in Chapter 4, the Global Fund should reduce the set of M&E/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 in this space. Ideally, these core indicators will be linked and aligned closely with country data systems, PEPFAR, PMI and other significant external funders. Preferably, these indicators should be based on existing scientific evidence that shows a clear relationship between the intervention measured by the indicator and health impact, incorporating dimensions of quality of care. Progress against these indicators should be regularly verified across all relevant grants.

### *(2) Verify the Accuracy and Quality of PRs' Self-Reported Results Using Rigorous, Representative Measurement Instruments*

The Global Fund should design efficient mechanisms for rigorously verifying a few of the most essential self-reported program indicators. To serve this function, the Fund should create terms of reference for a “Local Performance Agent” (LPA) in each country, an independent entity distinct from the LFA but conceived as the LFA analogue for grant performance. LFA non-fiduciary responsibilities (i.e., OSDV, RSQA) should be gradually scaled back; in their place, LPAs would provide independent verification of PRs' self-reported results. Verification should occur at least annually, to align with the Global Fund's annual disbursement cycle under the New Funding Model. While the details of verification would vary by country and program type, all verification should abide by the following minimum requirements:

1. Verification methods used must be technically sound and produce robust<sup>177</sup>, representative results of the facilities and populations involved or targeted in a given Global Fund-sponsored intervention;
2. Verification visits must be unannounced;
3. Verification should cover all relevant indicators selected under Recommendation 1, i.e. all indicators that are potentially tied to performance disbursements; and,
4. Verification must be conducted by an independent third party (the LPA).

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<sup>177</sup> A robust statistic is resistant to errors in the results; a robust estimator will be reasonably efficient, with reasonably small bias.

Verification will fall into two broad categories depending on the type of program: clinic-based services and community/population-based services. For clinic-based services, verification should generally entail a mix of unannounced on-site data audits at a representative sample of facilities, assessments of service readiness (i.e. stock-outs and absenteeism) and quality, and interviews with (or serological assessments of) a significant sample of reported program beneficiaries. Where possible, the Global Fund should “piggy-back” on existing verification efforts, particularly the PMI’s deployment of end-use verification in facilities that receive joint support, or the HRITF in participating countries.

For community-based programs (including bed net or condom distribution, behavior change, and OVC), verification should require a representative annual “mini-survey” within the target population to assess service coverage and effects, i.e. whether distributed bed nets were indeed being correctly utilized in the targeted community. “Mini-surveys” – potentially employing emerging mobile phone survey techniques,<sup>178</sup> where appropriate – would have relatively low precision but nonetheless be representative and document the extent of program implementation and effectiveness. However, measurement of community-based programs will require greater consensus about their core objectives and corresponding indicators of output and outcome. 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 (i.e. an activity costing at least \$250,000, or some other threshold to be set by the Global Fund Secretariat).

An important advantage of independent verification, particularly at the facility level, is that it creates incentives for investment in accurate and complete routine monitoring systems. These 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.<sup>179</sup> Many other design features of verification are currently under evaluation by the World Bank’s HRITF, and the Global Fund should incorporate evolving evidence into its terms of reference for LPAs. A fuller discussion of different approaches to performance verification in performance-based incentive schemes is available on the World Bank RBF Health website ([www.rbfhealth.org](http://www.rbfhealth.org)) and in a forthcoming cross-country analysis on verification.

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<sup>178</sup> Croke K, Dabalen A, Demombyes G, Giugale M, Hoogeveen J (2012). Collecting high frequency panel data in Africa using mobile phone interviews. The World Bank Policy Research Working Paper 6097. Africa Region. Poverty Reduction and Economic Management Unit.

<sup>179</sup> <http://siteresources.worldbank.org/INTHSD/Resources/topics/415176-1216235459918/ContractingEbookAppC.pdf> page 141

Performance verification should be implemented across the entire Global Fund grant portfolio. Such additional checks would have financial implications, though they would be mediated by scaling back LFA responsibilities, eliminating the current RSQA, DQA, and OSDV procedures, and by coordinating measurement with other donors. Because of the fundamental importance of ensuring that recipient and Global Fund investments achieve a strong return in terms of 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 performance verification at the grant level. Over time, the Fund could also work to simultaneously cut costs and increase the frequency of verification through uptake of new monitoring and survey technologies. For example, recent analysis by Croke et al. (2012) suggests that high-quality, representative panel data could be collected via mobile phone interviews in several African countries, at a cost of about \$2,500 per survey round.<sup>180</sup>

### ***(3) Complement Verification with Population-Based Measurement and Formal Impact Evaluation for Interventions 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. Where possible, the Global Fund should take advantage of existing population-based measurement exercises, e.g. the DHS and MICS; however, at times the Fund will need to commission tailored surveys to meet verification needs. In either case, the goal of this exercise would be to measure coverage of key health services among the targeted population and to assess trends in population health that can plausibly be connected to Global Fund investments. The “target” population may be defined by geographic boundaries, age, gender, other high-risk behaviors, or some combination of all four – for example, key populations within geographically defined “hot spots.” In the long run, the Global Fund may consider moving towards more frequent population-based measurement, where coverage and outcomes are linked to payment, in lieu of output verification (that is, further to the right end of the performance assessment continuum (Figure 11)).

In cases where a country “opts out” of the eligible intervention list provided by the Global Fund (Chapter 3) – that is, where it funds interventions of unknown efficacy or cost-effectiveness – the end-of-cycle

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<sup>180</sup> Croke K, Dabalen A, Demombyes G, Giugale M, Hoogeveen J (2012). Collecting high frequency panel data in Africa using mobile phone interviews. The World Bank Policy Research Working Paper 6097. Africa Region. Poverty Reduction and Economic Management Unit.

measurement should be part of a broader strategy to facilitate causally attributable impact evaluation that links impact to specific interventions, and which 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 so doing, the Global Fund can both support new ideas and innovative delivery strategies, while also ensuring that its resources primarily 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 receipt of accurate and reliable data for the programs it is funding. While LFAs have a long history of validating grant performance, which have been supplemented by other exercises such as DQAs, program reviews, and impact assessments, it is the opinion of the Working Group that existing checks on data accuracy are insufficient and often of relatively low rigor. 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 is unreliable and subject to distortion by perverse incentives – the Working Group recommends that the Global Fund adopt a systematic framework for the use of independent, representative sampling and rigorous measurement instruments, both for performance verification and impact evaluation (when appropriate). Verification must go beyond document review to include first-hand observation at the facility and beneficiary levels. Such measures will require sustained Global Fund investment and potentially the creation of a new dedicated entity, but should nonetheless be a core element of the Global Fund's Value for Money agenda.

## Chapter 7: Summary and Conclusions

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In April 2013, the Global Fund released four documents to motivate its upcoming replenishment, which aims to raise \$15 billion from 2014-2016.<sup>181</sup> These documents highlight the Global Fund's achievements thus far, including its contribution to lowering disease burden from HIV/AIDS, TB and malaria in over 100 countries. The documents further showcase the advantages of the New Funding Model, such as flexibility, simplicity, and a more proactive approach to between-country allocation and engagement. However, despite references to themes in our report, there is no explicit mention of *value for money* as a core Global Fund objective in the context of the replenishment.

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### Box 18. Excerpt from New Funding Model

“In order 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.”

–The Global Fund's New Funding Model, 2013

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Since its inception in 2001, the Global Fund has undergone multiple comprehensive review processes, generating a plethora of recommendations. The Fund has proven dynamic and agile in its response, undergoing comprehensive transformation in an effort to manage risk, maintain donor confidence, and increase its health impact. However, the Fund itself acknowledges that there is still work to be done in transitioning to sustainable results.

This report seeks to complement the Global Fund's progress to date with a practical value for money agenda. We target four value for money domains: allocation, contracts, costs, and performance verification. As we discuss in previous chapters, our recommendations vary in their urgency and immediate feasibility. Some are more pressing and require immediate action, such as defining an eligible intervention and commodity list. Others necessitate long-term attention – for example, strategic use of unit costs and development of a more robust regime for performance verification. We summarize our recommendations in table 1 below and in

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<sup>181</sup> The Global Fund: Fourth Replenishment. <http://www.theglobalfund.org/en/donors/replenishment/fourth/>

Appendix 1, we offer a more detailed implementation plan for our recommendations, including the sequencing and division of responsibility within the partnership.<sup>182</sup> In addition to the recommendations made in each substantive area, we offer four final “how” recommendations – thoughts on how the Global Fund can move forward in adopting this agenda.

**Table 1. A summary of Value for Money domains, problems and recommendations**

Domain	Key Problem	Value for Money Recommendations
<b>Allocation:</b> How can resources be allocated to maximize impact on HIV/AIDS, TB and/or malaria?	National and donor funding is not consistently supporting best practice, despite a substantial evidence base 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 Improve Ex Ante Budgeting and Transparency on Expenditure Optimize investments for greatest health impact
<b>Contracts:</b> 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.	Link performance payments to incremental progress against the most important indicators Directly connect performance to a portion of funding Support performance incentives between the PR and service providers
<b>Cost and Spending:</b> How can costs of and spending on commodities, supply chains and service delivery be better tracked and used?	Cost, price and expenditure on commodities vary widely between countries.	Continue to improve the scope, completeness, and timeliness of reporting to commodity price tracking systems. Identify a core package of services for more extensive analysis of service delivery costs Benchmark and use supply chain costs and outputs Develop a strategy to use unit cost data throughout the NFM grant cycle Share costing data with partners and the public Global Fund Secretariat, principal recipients, sub-recipients
<b>Verification:</b> 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 PRs’ self-reported results using rigorous, representative measurement instruments Complement output verification with population-based measurement and formal impact evaluation for interventions of unknown efficacy.

<sup>182</sup> Short term recommendations refer to those that the Global Fund can implement with relatively few staffing and capacity needs, within the next year. Medium and long term recommendations refer to those that will need new institutions and staffing, and could be implemented within the next three years.

## Reflecting Value for Money in Key Performance Indicators

The Global Fund's Key Performance Indicators (KPI) orient the action of the Secretariat, and should ideally provide a benchmark to assess Secretariat performance and the success of Global Fund leadership. However, the Global Fund's KPI have historically been primarily 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." While the KPI included a value for money indicator, it was extremely narrow in scope, low in rigor, and an amalgamation of three non-comparable indicators i.e. a simple arithmetic average of percent change in 1) the median price paid for ARV drugs per patient year; 2) the median price paid for ITNs; and 3) the "proportion of countries with a DOTS unit cost per patient successfully treated within reference range."<sup>183</sup> The extent to which the Board judged Secretariat performance against the KPI is also unknown; it is not clear that the KPI represented an explicit standard for Secretariat accountability.

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

## Building Better Accountability with Technical Partners

While the implementation of many recommendations will fall on the Global Fund's Secretariat, Board committees and Board, value for money must be a shared agenda among the entire Global Fund partnership. In the past, the accountability relationships between the Global Fund and its technical partners have been loose and have sometimes failed to deliver key inputs to grant proposals and implementation that would enhance value for money. It may be that the Global Fund will require more formal contracts with technical partners to obtain needed data, skills and support; for example, in lieu of a memorandum of understanding, the Global Fund Secretariat can contract with partner agencies for specified deliverables, following the example of the GAVI Alliance and its relationships with UNICEF and WHO. Alternatively, the Fund can seek external support when needed, as it did when it contracted for the impact evaluation of the Affordable Medicines Facility for Malaria (AMFm) with the London School of Hygiene and Tropical Medicine.

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<sup>183</sup> The Global Fund (2012). Key Performance Indicators: End-Year Results for 2011.

## Connecting Countries with Scarce (but Essential) Expertise to Inform Allocation

The Working Group recognizes that 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 scarce but essential expertise. As an interim measure, recipients and the Global Fund could obtain technical assistance from the existing technical partners with institutional modeling capacity, i.e. the WHO, UNAIDS, World Bank, and PEPFAR. Yet, given the competing demands on their time (i.e. producing global estimates, managing their own programs, etc.), other sources will be needed in the long term.

Inspired by the work of the HIV Modeling Consortium (<http://www.hivmodelling.org/>) in marshaling applied health economics research to the fight against HIV, the Working Group thus proposes the establishment of a dedicated network to connect countries and donors with scarce but essential expertise in health economics applied to HIV, TB and malaria initially. Tentatively called the “Decision Support Network” (DSN), this non-profit resource network – based at an existing entity – could mobilize expertise across organizations offering a menu of services (see Box 19) aimed at providing demand-based analysis to support evidence-based and efficient resource allocation and management. While the DSN would not be a formal arm of the Global Fund or any other funding agency, the Global Fund and other financing institutions could help build critical mass for its creation through a promise to commission a substantial quantity of its analysis once created.

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

Given PEPFAR’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, as stipulated by PEPFAR’s governing legislation. This additional funding may be an opportunity to design and deploy a DSN as recommended by the Working Group.

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**Box 19. Indicative Menu of Services Provided by the Proposed Decision Support Network**

- Economic modeling (*ex ante*), i.e. input into design and adjustment of intervention mixes to achieve specific disease goals;
- Country- or payer-specific 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, i.e. risk adjustment, federal-state transfers, conditional block grants, PBF, etc.;
- Costing and efficiency analysis;
- Behavioral economic analysis, i.e. interventions for adherence, preventive care seeking, healthy behaviors;
- Expenditure analysis: uses, budgets and benchmarking, benefit incidence, etc.; and
- Assessment and/or provision of data and information needs for aforementioned services.

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**Creating Synergies in Data Collection and Analysis**

Previously (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 in support of its own grants, it can also achieve significant efficiencies by coordinating data collection and analysis with countries' statistical agencies as well as with other funders and stakeholders – and then by distributing data to all interested parties to maximize its value and utility. Coordination of data collection can reduce inefficient duplication of efforts and facilitate comparability across surveys and funders, helping realize the full potential of data as global public good and empowering countries to use measurement for program management and planning.

Already, some progress has been made in harmonizing indicators and data collection across countries and agencies. The UNAIDS Monitoring and Evaluation Reference Group, for example, includes participation

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**Box 20. Statement by Ambassador Eric Goosby**

With country leadership, the new paradigm for the future response entails more joint planning, 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.

– Ambassador Eric Goosby, 2012

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from the Global Fund and has defined 30 core progress indicators for global HIV control;<sup>184</sup> likewise, as part of its broader agenda to increase donor and national government harmonization at the country level, the International Health Partnership (IHP+) (to which the Global Fund is a signatory<sup>185</sup>) works “to increase the use of shared mechanisms for reporting on progress and reviewing performance.”<sup>186</sup> Building on these earlier and ongoing efforts, the Working Group recommends that the global health funders continue to pursue a broad range of measures to improve survey coordination and data sharing with each other, with national governments, and with the greater public. One option is for funders and technical partners to establish a joint database of all funded data collection efforts worldwide, such that Secretariat/headquarters staff would be able to easily assess existing data sources; to evaluate the need for further investment; and, where relevant data already exists, to request access from other agencies to inform planning and grant negotiation.

### **Assess and Share Best Practices Among Principal Recipients, CCM, and Other Partners**

Despite their many common experiences – and thus many potential opportunities to learn from each other – PRs and CCMs rarely have occasion to interact with their counterparts in other countries. Such PR and CCM national “silos” are problematic, as they present a barrier to assessing and sharing best practices related to grant implementation and evaluation. Without greater interaction, PR and CCM may not even be aware of alternative implementation arrangements, nor are they able to assess the relative efficiency of their own status quo relative to other potential practices. These “silos” may also extend to the Secretariat; Fund Portfolio Managers (FPMs) are (unsurprisingly) quite knowledgeable about the implementation success stories and

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<sup>184</sup> UNAIDS (2012). Global AIDS response progress reporting 2012. Guidelines: construction of core indicators for monitoring the 2011 political declaration on HIV/AIDS.

<sup>185</sup> <http://www.theglobalfund.org/en/about/partnership/development/>

<sup>186</sup> <http://www.internationalhealthpartnership.net/en/key-issues/monitoring-evaluation/>

challenges in countries under their purview, but it's unclear that their individual assessments are systematically translated into institutional knowledge about “what works” that is then shared with the Fund’s entire universe of PRs and CCM.

As noted by the High Level Panel Report, “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...[FPM] should be systematically exchanging knowledge with in-country players, not only CCM, LFA, and PR, but also with UN agencies, the World Bank, the 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.”<sup>187</sup> And while this concern about “knowledge-sharing” may seem lofty, it has many concrete and practical applications for program development. For example, anecdotal evidence suggests that more successful grants have fewer sub-recipients and clearer contractual/accountability relationships between the PR and sub-grantees.

The Global Fund should help to 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 greater information-sharing within the Secretariat, such that FPMs would be better apprised of the pros and cons of comparative practices and thus able to communicate those lessons to their country’s PRs, CCMs and other partners when appropriate. As relevant, the Global Fund could also connect PRs and CCMs with each other through remote communication (i.e. Skype, phone calls, or email), or through short study trips to enable first-hand observation (potentially facilitated by the FPM). At the same time, where implementation arrangements appear sub-optimal and the existing PR shows little interest in addressing the problem, the Global Fund could take the initiative to incubate alternative PRs as a strategy to encourage innovation and find the most efficient channel for its resources.

## Summary

Achieving value for money – 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 “one extra obligation” because it is the very essence of ethical and responsible global health funding.

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<sup>187</sup> High Level Panel Report

From the Global Fund secretariat in Geneva, to the Office of the US 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 ensuing gains in efficiency, quality and health. We hope this report can prompt and guide the Global Fund and its partners’ ongoing value for money transformation.

## Appendix 1. Sequencing and Division of Responsibility for the VFM Agenda

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 Expenditure	Global Fund Secretariat, partner country governments, CCMs	Short/Medium-term
	Optimize investments for 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 performance to a portion of funding	Global Fund Secretariat, principal recipients	Medium-term
	Support performance incentives between the PR 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, sub-recipients	Short-term
	Identify a core package of services for more extensive analysis of service delivery costs	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 NFM grant cycle	Global Fund Secretariat, PEPFAR	Short-term
	Share costing data with partners and the public		
	Global Fund Secretariat, principal recipients, sub-recipients	Long-term	
PERFORMANCE VERIFICATION	Define a subset of core indicators to receive strengthened performance verification	Global Fund Secretariat, Global Fund Technical Partners	Short-term
	Independently verify the accuracy and quality of PRs' 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 of unknown efficacy	Global Fund Secretariat, Local Performance Agents	Medium-term

## Appendix 2. Innovations in the design of “contract-like” grant agreements

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The existing practice of the Global Fund and of most other health donors is to issue grant agreements which specify the donor’s disbursement schedule in terms of the recipient’s expenditures on inputs and conditional primarily on the recipient’s timely submission of documents to support those expenditures. Some grant agreements only allude in passing to the health service processes and outputs and health 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 pre-determined amount per unit of output, the traditional grant agreement perversely rewards higher expenses per unit of output. Since efficiency improvements save money only for the Global Fund, the agreement provides no incentive for the recipient to improve efficiency. Therefore, the incentives in the traditional grant design have little power to motivate either improved efficiency or savings for the Global Fund.

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

“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.” (1835, as quoted in Laffont and Martimort, 2002, p.11)

Chapter 4 of this report argues that the pursuit of efficiency in health financing requires that a portion, initially small, 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 be counted during the course of the agreement’s implementation and, in the spirit of Chapter 6, independently verified by a mutually agreed independent third-party.

This appendix proposes alternative contract designs for that portion of a grant agreement to be paid to a recipient based on the verified number of quality-adjusted outputs (or processes or, ideally, health outcomes) produced during implementation. In the following paragraphs references to “agreements” or to “contracts” are used interchangeably to refer to these hypothetical “contract-like” agreement structures, which the Global Fund or another donor could choose to issue. In the Global Fund context, the payments for these outputs

could be from the Fund to the Principal Recipient or they could be from the Principal Recipient to a Sub-Recipient. If the PR is a federal government like those of Nigeria, India or Brazil, the payment could be from the federal government to a sub-national governmental level, such as a state, a province or a municipality.

Existing regulatory regimes in North America and Europe are designed to improve the value-for-money that the public receives for its purchases of critical public services from private or parastatal providers. Regulators charged with the prudent and diligent design of regulatory regimes draw on a large literature on optimal regulation and optimal procurement, which explores many design alternatives.<sup>188</sup> Some of these alternatives can achieve exemplary value-for-money under the assumption that the regulator knows with substantial precision the producer's entire cost function, for both the past and the future.<sup>189</sup> With this degree of knowledge, a global health donor could be assured of paying the recipient the minimal cost for its efficient production of any verified number of quality-adjusted units of output. 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.

However, the nascent literature on the determinants of the cost of HIV/AIDS service delivery, as briefly reviewed in Chapter 5, already reveals how difficult it is to know precisely the complete cost function for antiretroviral treatment (ART) delivery. And the way the costs of other types of health service vary across all the permutations of facility type, ownership type, geographical location, size, scope, etc., are even less understood for other health services, such as HIV prevention, indoor residual spraying for malaria, or TB case-finding and treatment. In view of these technical obstacles to knowing the full cost function, we assume that much less information will typically be available to the donor. For present purposes, we therefore group contract design alternatives into two broad categories depending on whether, in the spirit of this report's Chapter 5, the recipient is able to learn and willing to reveal its total cost for producing last year's output.

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<sup>188</sup> For textbook treatments, see Laffont and Tirole (1993) and Armstrong, Cowan and Vickers (1994). The first chapter of Laffont and Martimort (2002) provides a concise review of the intellectual history of incentives, contracts and mechanism design starting with the work of the moral philosopher, Adam Smith.

<sup>189</sup> 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 critique of cost functions used in a number of papers to model the scale-up of antiretroviral therapy

First we consider one among several contract designs that could encourage efficiency improvement if the recipient reveals its previous year's total cost to the donor every year. Next we consider a contract design that could work even without such a revelation.

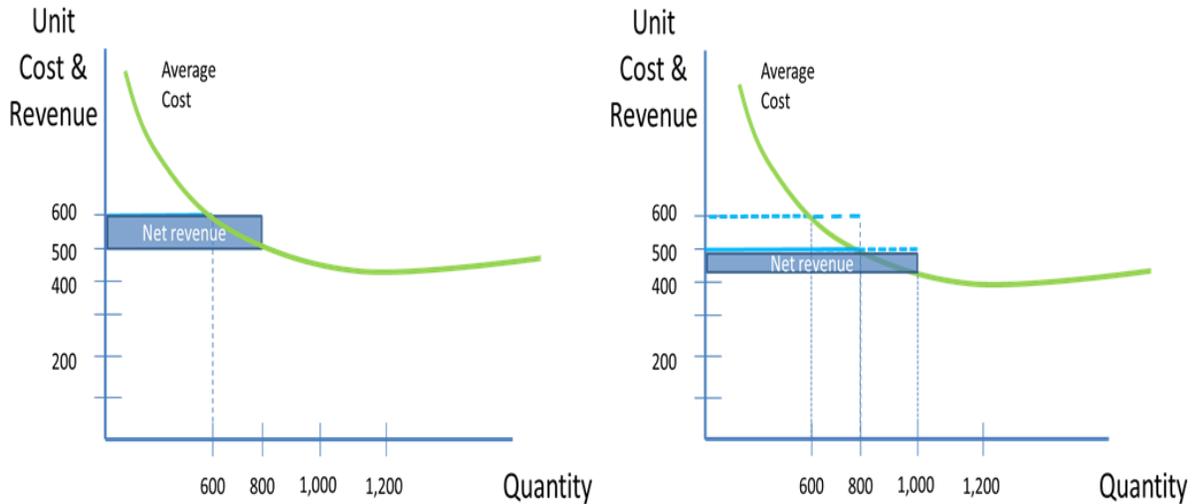
### **Contract designs which assume knowledge of last year's total cost: the Vogelsang-Finsinger mechanism**

Suppose that the recipient is able to learn, and willing to reveal truthfully to the donor every year, not only the number of quality-adjusted units of output produced the previous year, but also the total cost incurred 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"), we are assuming that the recipient can reveal its previous year's average cost to the donor every year and that this revelation can be a condition of contract continuation.

However, unlike the situation 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 a number of variables that might change from one year to the next. In particular, we assume that no one knows how average cost will change with the number of units produced (i.e. 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 the 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 pretty 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 novel 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 (Vogelsang and Finsinger, 1979). Suppose that the average cost per quality-adjusted unit of output last year was \$600 and 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

**Figure 1. Illustration of the 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**



Panel a. Year 1. Net revenue earned by the recipient if paid \$600 per unit and by expanding output to 800 units, it can reduce costs to \$500 per unit:  $800 \times (\$600 - \$500) = \$80,000$ .

Panel b. Year 2. Net revenue earned by the recipient if paid \$500 per unit and by expanding output to 1,000 units, it can reduce costs to \$425 per unit:  $1,000 \times (\$500 - \$425) = \$75,000$ .

maintenance, new equipment, etc..<sup>190</sup> This last provision establishes the recipient as the “residual claimant” on any excess of donor payments over costs. By guaranteeing its 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 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 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

<sup>190</sup> In practice the donor would impose an upper bound on the number of units to be paid at this rate.

discover technology improvements that reduce its quality-adjusted average cost. Should it find such improvements, its entire average cost curve will shift downwards and it can again benefit from expanding output, year by year, until average costs again flatten out.

While endowing the recipient with residual claimant status generates an incentive for the recipient to expand output, by doing so it provides a new lower average cost to the donor, which therefore is able to lower the amount it pays this recipient for all future units of output. This consequence, if replicated year after year in many grant agreements, has the potential of generating two types of cost-savings for the donor. First, the truthful revelation by the recipient of its previous year's average cost provides the donor with an estimated "benchmark unit cost" that is specific to a country and even to the recipient within the country. Without receiving this information, the donor might have to spend the millions of dollars that have been consumed by the costing studies cited in Chapter 5 to estimate benchmark costs which, because of the time such studies take, would be several years out of date. Second, and more important, over a sequence of years, through a process of sequential adjustments, the donor's average expenditure per unit of output falls lower and lower. As the technology of this service delivery matures, the recipient has an incentive to increase production, in the process revealing ever lower costs until the donor is paying no more than the minimum average unit cost that is technically achievable.<sup>191</sup> The donor can then redeploy the resources saved to other program needs inside the same country or in different countries.

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 in the following year the donor would use this lower average cost as the basis for a reduced payment per unit (Sappington, 1980). In the present 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 non-government organizations which are the recipients of the envisioned agreements are rarely privately owned or accountable to stockholders, but always accountable to some degree to constituencies which expect these recipients to

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<sup>191</sup> To the extent that the recipient can progressively "mainstream" its service delivery within the nation's health care system, it can shift a portion of its fixed costs to the system which lowers the recipient's average total cost in the current year and consequently 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. Our 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.

pursue the public interest. These constituencies include their clients, the recipient country's government and its citizens and, especially for international NGOs, a global constituency of public spirited contributors. These features of the intended recipients imply that they share many of the donor's non-material 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, in improving the efficiency and cost-effectiveness of its own operations and even in assuring the continuing viability of the donor agency, through demonstrated improvements in the donor's value for money.

This is not to assume that the donor's and recipient's interests are identical. The recipient can be expected to derive much more utility from being able to flexibly redeploy any net revenue towards its most pressing needs, than the donor would derive from that same redeployment, if only because of the trouble and cost entailed in documenting the "most pressing needs" to the donor's satisfaction.

Second, since the donor will still be auditing the recipient's expenditures, the recipient which inflates current year's expenditure in order 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. Many recipients would prefer to receive the fungible net revenue this year instead of receiving payment the following year for higher inflated expenses.

Third, suppose that a substantial proportion of the management and staff of the recipient change every year. Those who will be leaving have an incentive to earn net revenue this year, because this flexible resource can immediately improve their working conditions. These departing staff will not benefit from the higher future total revenue that would result from inflating current year expenses.<sup>192</sup>

Thus in the context of a global health donor's agreement with a recipient agency, the VF mechanism may be less vulnerable to strategic manipulation by the recipient than if it were applied to European and North American regulated monopolies. If a global health donor pilots the VF 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 subsequent suggestions by the original inventors. In response to Sappington's critique, the mechanism's authors proposed that the regulator (in this case the donor) sweeten the deal for the

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<sup>192</sup> 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.

recipient by offering a periodic lump-sum payment. Other adjustments envisioned by the authors include expanding the scheme to encompass all of 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 VF mechanism is a plausible contract design for use with any recipient willing to systematically collect and report its cost of production.<sup>193</sup>

### **Contract designs which assume knowledge only of a benchmark average cost: The two-part tariff**

Many recipients do not yet have the capacity to collect and report their operating costs with sufficient detail to permit a reliable computation of the average cost of each of their outputs.<sup>194</sup> 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. Thus, the assumed benchmark unit cost is \$500 per unit. The donor and the recipient both aspire to achieve more than 800 units of output, but are even more uncertain about the cost of producing more than 800 units than they are 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.<sup>195</sup> The second price 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.

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<sup>193</sup> 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 will 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.

<sup>194</sup> The audits performed by the Global Fund's LFAs only verify expenditures. They do not reveal the true cost of production.

<sup>195</sup> Laffont and Tirole, 1993, pp. 145-149.

Suppose that neither the donor nor the recipient is certain whether the 801<sup>st</sup> 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 level of output. In this case the incremental or marginal cost of the 801<sup>st</sup> unit of output might be \$550, \$600 or even more. On the other hand, if the program is like that depicted in Figure MO1 and benefits from economies of scale at 800 units and beyond, the incremental or marginal cost of the 801<sup>st</sup> unit might be \$350, \$400 or even less.

In this situation, where less is known about cost than we assumed in analyzing the VF mechanism above, the second price in the two-part price mechanism can be used to improve the donor and the recipient's value-for-money. This mechanism can potentially (a) provide adaptive motivation to the recipient to expand output above the threshold of 800 units and (b) elicit information from the recipient regarding its marginal cost of producing quality-adjusted units of output beyond the 800<sup>th</sup> unit.

To see how this would work, consider the following example. Suppose the second of the two parts 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 MO1 and depicted in Figure MO2.

Examination of this table reveals that the incentive to the recipient to produce the 801<sup>st</sup> through the 900<sup>th</sup> unit averages \$550 per unit, which exceeds the 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 direct operational expenses, but also the cost it incurs in outreach and additional managerial effort in order 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 might occur. First, 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 again the following year. Second, 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, which we here assume to be 1,200).

The recipient which 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 to itself and to the donor its 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 801<sup>st</sup> through the 900<sup>th</sup> unit of output. (The second entry in column (4) of Table 1 is \$550.) 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 1,100<sup>th</sup> through the 1,200<sup>th</sup> unit of output.

**Table 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 <sup>a</sup> (2)	Amount of the second part of the two-part payment (i.e. the amount paid above \$400,000) <sup>b</sup> (3)	Marginal revenue per unit of output above the threshold of 800 (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*

<sup>a</sup>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.

<sup>b</sup>Entries in column (3) are computed as the product of columns (1) and (2)

<sup>c</sup>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.

The information revealed 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 of that year's output.<sup>196</sup> So the observation that the recipient stopped production at 900 units should NOT be used as a justification to raise the unit payment for the first part of its subsequent year's contract from \$500 to \$550. Conversely the observation that the recipient stopped production at 1,200 units should NOT be used as a justification to lower unit payment for the first part of its subsequent year contract from \$500 to \$250. The first of these mistakes would be likely to

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<sup>196</sup> 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.

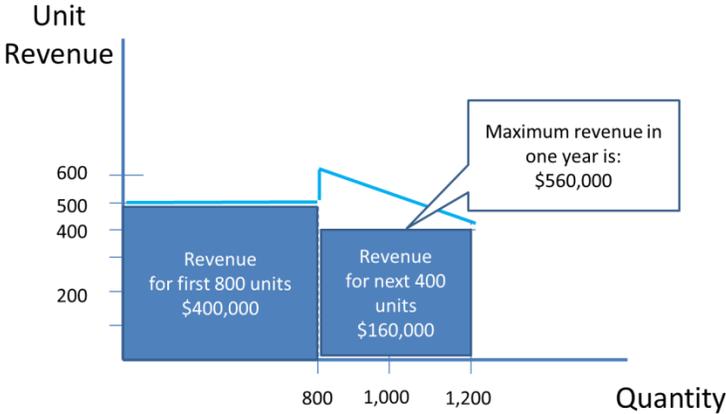
overpay the recipient and thus be wasteful. The second mistake is likely to underpay the recipient and drive it into bankruptcy.

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 nevertheless provides substantial benefits to both the donor and the recipient that would not be available under the traditional grant structure or under a flat per-unit price contract. For the recipient, the two-part contract offers the possibility to earn additional revenue while serving additional patients and provides the innovative service manager with the incentive to experiment with lower cost ways to attract and provide quality services to incremental patients. 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 possibility to expand services in any individual 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 (or "tâtonnement") towards improved 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. Alternatively the donor and recipient could negotiate a payment schedule with a steeper downward slope, which would provide greater recipient rewards for its improved efficiency. The entire payment schedule could be shifted to a higher scale of production with a higher threshold level and a higher upper bound each year, as scale up progresses. All of these possible adjustments to the design can be considered part of the sequential adjustment process intended to continually improve value for money in donor financing of these health service delivery organizations.

These specific 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.

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



### Appendix 3: Working Group on Value for Money for Global Health Funding Agencies

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**Amanda Glassman** is the Director of Global Health Policy and a research fellow at the Center for Global Development. She has 20 years of experience working on health and social protection policy and programs in Latin America and elsewhere in the developing world. Prior to her current position, Glassman was principal technical lead for health at the Inter-American Development Bank, where she led health economics and financing knowledge products and policy dialogue with member countries. From 2005-2007, Glassman was deputy director of the Global Health Financing Initiative at Brookings and carried out policy research on aid effectiveness and domestic financing issues in the health sector in low-income countries. Before joining the Brookings Institution, Glassman designed, supervised and evaluated health and social protection loans at the Inter-American Development Bank and worked as a Population Reference Bureau Fellow at the US Agency for International Development. Glassman holds a MSc from the Harvard School of Public Health and a BA from Brown University, has published on a wide range of health and social protection finance and policy topics and is editor and co-author of the books *From Few to Many: A Decade of Health Insurance Expansion in Colombia* (IDB and Brookings 2010) and *The Health of Women in Latin America and the Caribbean* (World Bank 2001).

**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 (ITPC) and Tides Foundation, which provides small grants for community-based HIV treatment awareness, literacy, community mobilization and advocacy projects. David 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. Consulting clients have included 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 teaching assistant at University of Strasbourg (1962-1968), Professor at University of Aix-Marseille (1968-1986), 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 independent consultant. His field of specialty is health economics in West African countries.

**Kalipso Chalkidou**, is the founding director of NICE's international programme, 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 scientific and legitimate healthcare resource allocation decisions. 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 (UK), an MD (Hons) from the University of Athens and is an honorary lecturer at the London School of Hygiene and Tropical Medicine (UK), a senior advisor on international policy at the Center for Medical Technology Policy (USA) and visiting faculty at the Berman Institute for Bioethics, at Johns Hopkins (USA).

**Karl L. Dehne** is the acting Chief, Economics, Evaluation and Program Effectiveness Division, in UNAIDS, Geneva. This is a newly established division which provides leadership on policies and approaches for achieving the HLM goals related to efficiency and financing of HIV responses. Previously Karl 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. Karl has worked on HIV prevention, treatment care and support for more than 25 years, in various positions in WHO, UNAIDS, NGOs and the Government of Zimbabwe. From 1998-2000 Karl was lecturer at the University of Heidelberg, Germany, where he led the UNAIDS Collaborating Centre on AIDS Strategic Planning and Operational Research. Karl holds an MD from Heidelberg, and a PHD and MPH from Leeds.

**Alan Fairbank** is an applied research economist, lecturer, budget/cost analyst, and policy advisor, Dr. Fairbank 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/lecturer, and project design and evaluation specialist. Assignments have involved design and/or implementation of health systems financing reform efforts in developed, transition, and developing countries. Among consultancies for The World Bank, USAID, and the InterAmerican Development Bank, among others, he has costed public/preventive/primary health programs, estimated National Health Accounts (NHA), performed economic modeling for costing alternative health policies/scenarios, and advised on decentralized health management, on reviewing social health insurance plans, and on resource imbalances created by increased/targeted global health funding (e.g., for HIV/AIDS from GFATM, PEPFAR, etc.). 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. Dr. Fairbank 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 the Center 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.

**Kara Hanson** is Reader in Health System Economics at the London School of Hygiene and Tropical Medicine. She holds degrees from McGill University, Montreal, Canada; University of Cambridge, UK; and Harvard University, USA. She has nearly 25 years' experience of researching health systems in low- and middle-income countries, providing policy advice and input, and teaching health economics and supervising PhD projects. She is Canadian, but has lived in the UK for most of her professional life. Dr Hanson's 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 UK 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 LSHTM 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. Dr Hanson's 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 limitations 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.

**Robert Hecht** joined Results for Development in April 2008, and is currently managing a growing portfolio of projects analyzing policy barriers and solutions related to AIDS and health financing and improving R&D and access to new health technologies in developing countries. Before coming to Results for Development, he spent four years as vice president for Policy and Advocacy at the International AIDS Vaccine Initiative. Prior to this, he had a 20 year tenure at the World Bank, where he occupied a number of senior posts including manager of the Bank's central unit for Health, Nutrition, and Population, with oversight for global

strategies, knowledge, technical services, and partnerships; chief of operations for the Human Development. He served as a director of the Joint United Nations Program on HIV/AIDS (UNAIDS) from 1998 to 2001, where he managed technical units based in South Africa, Cote d'Ivoire, and Thailand, as well as in Geneva. He led UNAIDS efforts to portray AIDS as a development and poverty issue impacting a wide range of social and economic goals, and published a number of papers advancing this view. He is the author of more than 30 articles and other publications. He received his undergraduate degree from Yale and his doctorate from Cambridge University.

**Iain Jones** is an Economist for the Development Financing Team at the Department for International Development, United Kingdom.

**Bruno Meessen** is economist (M.A., PhD). He is based at the Department of Public Health, at the Institute of Tropical Medicine, Antwerp, Belgium ([www.itg.be](http://www.itg.be)). 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 (2000-2003) and Rwanda (2002-2006). He is the lead facilitator of the Performance-Based Financing Community of Practice (500+ members) and an editor of the blog Financing Health in Africa (<http://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 the 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* (1997,1999). 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 World 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 World Bank to join the Center for Global Development 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 (OGAC/PEPFAR), a consultant for the Bill and Melinda Gates Foundation, and a faculty

member at the University of California, Berkeley in the Department of Epidemiology. For more than two decades, Dr. 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 U.S. and internationally. Dr. Padian's 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, United States Agency for International Development. He oversees three Agency 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 A 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: (1) measurement and valuation of health outcomes; (2) modeling of patterns and trends in major causes of global mortality and disease burden; and (3) 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 use of existing health interventions and priorities for developing new technologies. Salomon received a PhD from Harvard University in Health Policy and Decision Science.

**Naline Sangrujee** is an economist with the US 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 over 15 years 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 the President's Emergency Plan for AIDS Relief (PEPFAR) 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. Nina has spent over 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 she directed the Soros' Foundations global public health programme, which focused on a range of critical issues, including strengthening health systems, TB, HIV/AIDS, and programs aimed at vulnerable populations. She also worked in maternal/child health, first with the Population Council and then with AVSC International (now Engender Health), focusing on the introduction of new programmes and technologies. Nina 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.

**Bernhard Schwartländer** currently holds the position of Director for Evidence, Strategy and Results at UNAIDS. He took up this position in May 2010 when he joined UNAIDS at headquarters in Geneva from his assignment as the United Nations Country Coordinator on AIDS in Beijing, China. Prior to these assignments, Dr Schwartländer held a number of senior international positions including as the Director for Performance Evaluation and Policy at the Global Fund to Fight AIDS, Tuberculosis and Malaria, Director of the World Health Organization's HIV Department, and as the Director of Evaluation and Strategic Information at UNAIDS. In 2000, Dr Schwartländer undertook a special assignment to the World Bank to perform economic analyses on the cost and impact of the HIV/AIDS epidemic and the responses to it. Prior to joining the United Nations, Dr Schwartländer was the Director of the national AIDS programme in Germany and the Director of the Division of Infectious Disease Epidemiology at the Robert Koch-Institut in Berlin, the central biomedical and infectious disease research and reference laboratory of the federal Ministry of Health, Germany. Dr Schwartländer has published widely in scientific journals and books and taught applied epidemiology in Berlin. He brings extensive experience in development policies as well as infectious disease epidemiology and programming at global and country levels. Dr Schwartländer is a medical doctor and holds a doctorate in medical epidemiology. He received his education and professional training in Germany and the US at the Centers for Disease Control and Prevention.

**David Serwadda**, infectious disease epidemiologist, is a Professor of Disease Control and the former Dean of the School of Public Health at Makerere University in Kampala. He received his medical degree, M.B.Ch.B and masters in internal medicine MMed from Makerere University and an MPH and honorary doctorate from Johns Hopkins Bloomberg School of Public Health. Dr. Serwadda was among the first researchers to report on the presence of AIDS/HIV in Uganda (Lancet, 1985) and has worked continuously on HIV-related

research and prevention since the mid-1980s. He has been a senior investigator on the Rakai Program since its inception in 1988, and is the Ugandan principal investigator on the ongoing NIH-funded "Trial of Male Circumcision for HIV Prevention". He has been instrumental in the scientific design and management of the project and has provided critical liaison between the project, the local community, Ugandan political and policy decision makers, the Ugandan Ministry of Health, and international agencies including UNAIDS, the WHO, and the World Bank.

**Agnes Soucat** is the Director for Human Development at the African Development Bank. She is responsible for health, education and social protection for 54 countries in Africa, including Sub-Saharan Africa and the Maghreb. She is currently developing the first Human Capital Development Strategy for the Bank along with a New Model of Education for Africa. Previously, she was the World Bank's Lead Economist, and Advisor for Human Development in the Africa region. She led the Health Systems For Outcomes (HSO) program of the World Bank, a program focused on health systems strengthening and reaching the MDGs. She has over 25 years of experience in International Health covering more than 30 countries in Africa, Asia and Europe. She holds an MD and Masters in Nutrition from the University of Nancy in France as well as a Master of Public Health and Ph.D in Health Economics from the Johns Hopkins University. She is a public sector and public finance specialist and has worked extensively on designing and implementing Community Based Financing programs, Poverty Reduction Strategies, Social Services Decentralization and Performance Based Financing. She was responsible for multi-sectoral and results based budget support programs covering sectors such as agriculture, education, health, water energy etc, and focusing on reaching the MDGs in several countries, particularly Rwanda. Dr. Soucat co-authored the Poverty Reduction Strategy Paper toolkit and the World Development Report 2004 "Making Services Work for Poor People". She was the main author of the background reports to the High Level Task Force on Innovative financing (HLTIF). She was also a member of the Global expert Team on Health Systems of the World Bank. She also worked for UNAIDS, UNICEF and the European Commission. Agnes is a French national.

**Yot Teerawattananon** is a medical doctor and economist and current serves as Program Leader and Senior Researcher at Health Intervention and Technology Assessment Program in India. He previously served as a director of Pong District Hospital Phayao Province in northern Thailand where he developed an intense interest in Health Economics and Policy. Since 2000 he works as a health system researcher at Senior Research Scholar Program in Health Financing and Policy (which later becomes International Health Policy Program--IHPP), where he gained experience in project evaluations at the grass-root and national levels. From 2001 to 2002 he worked as principle investigator in a project that evaluated the national program for prevention of mother-to-child HIV transmission in Thailand which subsequently led to the revision of the

national protocol. In 2003 he received the World Health Organization Fellowship Award to study at University of East Anglia, England where he completed his PhD in Health Economics. He has a number of publications related to health economic evaluation in leading international journals e.g. Value in Health, Pharmacoeconomics. His current research focuses on health technology assessment, decision-making in healthcare, and reproductive health including HIV/AIDS.

**Damian Walker** is a Senior Program Officer, Integrated Delivery at the Bill & Melinda Gates Foundation. Damian is a health economist with more than 13 years of experience in international health economics, with a specific focus on the economic evaluation of public health programs in low- and middle-income countries. Prior to the Gates Foundation, Damian was an Associate Professor in the Department of International Health, Bloomberg School of Public Health, Johns Hopkins University.

**Brenda Waning**, Ph.D., is Coordinator of Market Dynamics at UNITAID/World Health Organization in Geneva, Switzerland. She received a bachelor's degree in pharmacy at the Massachusetts College of Pharmacy & Health Sciences, a master's in public health degree from the Boston University School of Public Health, and a PhD in Pharmaceutical Sciences from Utrecht University in the Netherlands. At UNITAID, Dr. Waning leads the technical team responsible for monitoring trends in HIV/AIDS, tuberculosis, and malaria markets and assessing the public health and market impact of UNITAID's interventions. She has more than fifteen years of experience in teaching, research, and consulting in the area of global pharmaceutical policy and access to medicines in developing countries. Prior to joining UNITAID, Brenda served as Director of Pharmaceutical Policy at Boston University School of Medicine where she authored numerous peer-reviewed studies on pharmaceutical policy at local, national, and global levels. She has considerable regional expertise in the Central Asia region where she has supported pharmaceutical reform initiatives, including medicines insurance schemes and public-private partnerships. She serves on many advisory groups and technical panels, including the Global Fund to Fight AIDS, Tuberculosis, and Malaria Market Dynamics Committee, Medicines for Malaria Venture Access and Delivery Advisory Group, World Health Organization Vaccine Product, Price, and Procurement (V3P) Steering Committee, and chair of the UNITAID Artemisinin Forecasting Steering Committee.

**Diana Weil** is Coordinator of the Policy, Strategy & Innovations Team of the World Health Organization's Stop TB Department. She has over 20 years' experience in global public health policy analysis, program support, and disease control strategy development. Working in positions at WHO, the Pan American Health Organization, and the World Bank, she has worked with Ministries of Health and partners in Latin America, Asia and Africa. She has examined the impact of development policies on health, the impact of health system reforms on disease control, program contributions to overall health system strengthening, the role for

incentives and enablers in service delivery, anti-TB drug supply systems and markets, donor investments, and promotion of human rights in the TB response. She has participated in two previous CGD Working Groups.

**David Wilson** is the World Bank's Global AIDS Program Director and was previous the Bank's Lead HIV Specialist. His work on HIV/AIDS spans almost 25 years. During his career he has worked as a scientist and program manager in over 50 countries and published approximately 100 scientific papers. His interests lie in HIV epidemiology, HIV prevention science and program evaluation. He has developed prevention programs that have been recognized as best practice by the World Bank, WHO and DFID, and have been influential in international HIV prevention science. In addition, he has served as technical consultant and adviser to many international agencies, including USAID, DFID, EU, AUSAID, SIDA, NORAD, UNAIDS, UNICEF and WHO.

**Prashant Yadav** is a Senior Research Fellow and Director of Healthcare Research at the William Davidson Institute (WDI) at the University of Michigan. He also holds faculty appointments at the Ross School of Business and the School of Public Health at the University of Michigan. His research explores the functioning of healthcare supply chains using a combination of empirical, analytical and qualitative approaches.

**Gavin Yamey**, MD, MA, MRCP, is Lead of E2Pi, the [Evidence-to-Policy Initiative](#) at the UCSF Global Health Group. He has undergraduate and masters degrees in physiological sciences (medicine) from Oxford University. Dr. Yamey did his medical training at Oxford University and University College London, qualifying as a physician in 1994. He became a Member of the Royal College of Physicians (MRCP) in 1997. He worked for five years in a variety of London teaching hospitals, followed by a fellowship in medical journalism and editing at the *BMJ*. In 2001, he moved to San Francisco to be the Deputy Editor of *njm*, the *Western Journal of Medicine*, while remaining an Assistant Editor at the *BMJ*. In 2004, he was appointed as a founding Senior Editor of *PLoS Medicine*, published by the Public Library of Science, an international non-profit organization dedicated to making the biomedical literature a freely available global public good. He was the Principal Investigator on a \$1.1m grant from the Bill & Melinda Gates Foundation to support the launch of *PLoS Neglected Tropical Diseases*, the world's first journal devoted specifically to the neglected infections of poverty. In 2009, he was awarded a Kaiser Family Mini-Media Fellowship in Global Health Reporting, which took him to Sudan, Uganda, and Kenya. His fellowship led to a series of published articles addressing the barriers to scaling up low cost, low tech health tools. He was invited to discuss his series in the UK Parliament, by the APPMG, the All-Party Parliamentary Group on Malaria and Neglected Tropical Diseases.

## CGD Staff

**Denizhan Duran** joined CGD in June 2011 as a research assistant for the global health team. Originally from Istanbul, Turkey, Duran graduated cum laude from Middlebury College with a B.A. in economics and minors in political science and French. While at Middlebury, he wrote his honors thesis on evaluating the regional and gender-specific impact of the conditional cash transfer program in Turkey. He also spent a semester studying French and European Politics in Sciences Po, Paris.

**Kate McQuestion** is a program coordinator to the global health policy team. Before joining the Center, she received her MPH from Dartmouth College, where she researched cost-effectiveness and quality improvement in both clinical and global health settings. Additionally, she interned at the World Health Organization Regional Office for Europe, where her work focused on quality improvement techniques for use in HIV prevention. Previously, she worked as program assistant with the World Justice Project in Washington, DC. She received her B.A. from the University of Virginia.

**Rachel Silverman** works as a research assistant for the global health team. Prior to joining CGD in August 2011, Silverman spent two years with the National Democratic Institute, where she worked on democratic development initiatives in Kosovo and a program to increase political participation among Europe's Roma minority. Previously, Silverman also served as a research assistant at Stanford University's Center on Democracy, Development, and the Rule of Law, where she investigated the effect of international assistance on democratic transitions. Originally from the New York area, Silverman graduated from Stanford University in 2009 with a B.A. in International Relations and Economics.