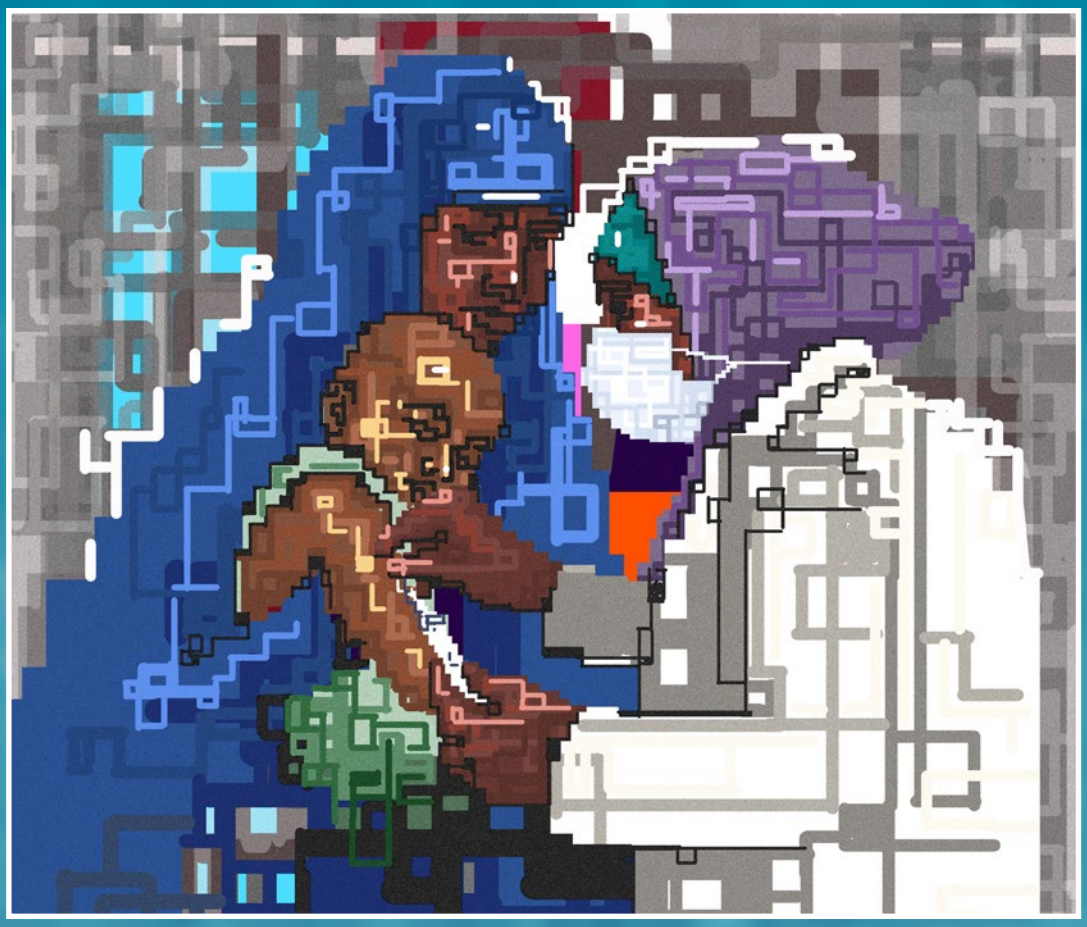
Improving Effective Coverage in Health

Do Financial Incentives Work?



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Overview

IMPROVING EFFECTIVE COVERAGE IN HEALTH: DO FINANCIAL INCENTIVES WORK?

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Policy Research Report

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This booklet contains the Overview from *Improving Effective Coverage in Health: Do Financial Incentives Work?* (doi: 10.1596/978-1-4648-1825-7). A PDF of the full book is available at https://openknowledge.worldbank.org/ and http://documents.worldbank.org/, and print copies can be ordered at www.amazon.com. Please use the final version of the book for citation, reproduction, and adaptation purposes.

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Foreword

Countries have made years of significant progress to improve access to health services. However, important gaps in equity of access to high-quality health care remain due to fragile primary health care systems. And now, the COVID-19 (coronavirus) pandemic has put decades of progress at risk. The question we all face now is how to reclaim prepandemic gains while accelerating equity and progress for greater impacts and health for all.

Financial incentives or performance pay to frontline health facilities and workers were rolled out in many countries in the mid-2000s as an innovative approach to confronting the challenge of poor health outcomes in low-income economies. It was a significant departure from previous financing models, which had little link to outcomes and results. Performance-based financing (PBF) projects included such financial incentives as well as other critical reforms related to transparency and accountability. Moreover, these new projects were accompanied by an extensive portfolio of impact evaluations funded by the World Bank's Health Results Innovation Trust Fund.

These programs—and, indeed, this report—would not have been possible without the unprecedented multidisciplinary collaboration between client governments and World Bank research and operational staff, spanning 15 years and nearly 40 countries, driven by the desire to not only inform country programs with rigorous evidence but also contribute to the global dialogue on improving health systems. *Improving Effective Coverage in Health: Do Financial Incentives Work?* builds on this substantial investment in knowledge and evidence in this critical area to examine the results from PBF. Although focused on low-income countries and primary services, the scope of the studies is impressive. The largest programs studied here, such as those in Argentina, Cameroon, Nigeria, Tajikistan, Rwanda, and Zimbabwe, each covered millions of households. The report collates

this work and brings additional analysis to provide an assessment of the evidence on performance pay specifically as well as of the broader results from PBF projects.

Several powerful, high-level findings emerge from this report. The report documents that PBF projects produced gains in health outcomes compared with the status quo, although these gains did not necessarily result from the specific financial incentives and associated monitoring components of projects. Whereas transparency, accountability, and direct frontline facility financing produced results, the evidence does not show additional benefits that outweigh the costs of performance pay to frontline workers. Specifically, many aspects of quality care improvements are well outside the control of health workers. Thus, impactful health financing reform might mean pivoting from performance pay while retaining other important aspects of PBF projects that do yield similar results. The report also looks at the demand side, emphasizing that cash transfers and vouchers can be part of the solution for more effective coverage in low-demand settings.

The operational and policy messages in this report are compelling, as detailed in the concluding chapter. Health facilities can deliver better results when they have budget autonomy, flexibility, and unified payment systems, and health facilities' budgets can be output oriented and impactful even without explicit performance pay. In contexts in which the time might be right for performance pay, emerging technologies can be used to reduce implementation costs of rollout and monitoring.

Although the analysis in this report draws on evidence that predates the COVID-19 crisis, the findings are more critical than ever as the world navigates recovery and has an unprecedented opportunity to rethink the way countries build health systems, finance them, and deliver services toward the goal of health for all.

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March 2022

Acknowledgments

This report was developed under the leadership of Adam Wagstaff, who was the manager of the Development Research Group's Human Development Team at the time of his passing, at the age of 61, on May 10, 2020. Adam needs no introduction as one of the world's leading lights on health financing and health system reform.

In the planning sessions for this report, he articulated a strong vision for a forthright, evidence-based take on the tough subject of designing health financing reform that is sustainable and scalable. He was particularly interested in documenting the impacts of such reform on the quality of care delivered and equity. Adam drove this report's focus on effective coverage. While pushing us intellectually, Adam also advocated for the clear communication of this research and the translation of analytical findings into concrete action items that policy makers could refer to when developing health financing programs. His intellectual curiosity and rigor led the team to ask important, policy-relevant questions and to answer them as well as the evidence permits without shying away from admitting what we do not know.

We are grateful for having had the opportunity to know Adam, work with him, and learn from him. While we deeply miss him, his warmth, sense of humor, and collegiality have inspired and motivated us throughout the process of working on this report. In his absence, we have endeavored to write a report on which we hope Adam would be happy to see his name.

This report was produced by a team led by Damien de Walque, Eeshani Kandpal, and Adam Wagstaff, with Jed Friedman, Sven Neelsen, Moritz Piatti-Fünfkirchen, Anja Sautmann, Gil Shapira, and Ellen Van de Poel.

The team sincerely thanks Francisca Ayodeji Akala, Harold Alderman, Paulin Basinga, Sebastian Bauhoff, Kathleen Beegle, Mickey Chopra,

Mariam Claeson, Jishnu Das, Asli Demirgüç-Kunt, Shantayanan Devarajan, Tania Dmytraczenko, David Evans, Francisco Ferreira, Deon Filmer, Guenther Fink, Emanuela Galasso, Roberta Gatti, John Giles, Amanda Glassman, Michele Gragnolati, Stuti Khemani, Aart Kraay, Joe Kutzin, Ken Leonard, Magnus Lindelow, Benjamin Loevinsohn, Bruno Meessen, Manoj Mohanan, Mamta Murthi, Ayodeji Oluwole Odutolu, Berk Özler, Elina Pradhan, Carmen Reinhart, Daniel Rogger, Norbert Schady, Mahvish Shaukat, Gaston Sorgho, Juan Pablo Uribe, Petra Vergeer, Christel Vermeersch, Monique Vledder, David Wilson, Sophie Witter, Michael Woolcock, and Feng Zhao for their comments at various stages of this work. Fozia Aman, Salome Drouard, Pablo Amor Fernandez, Diwakar Kishore, Sneha Lamba, Carolina Lopez, Mayra Saenz, and Jeanette Walldorf provided outstanding research assistance. We thank Antonn Park for editing this report. We also gratefully acknowledge support from the following World Bank–managed trust funds: Health Results Innovation Trust Fund; Global Financing for Women, Children and Adolescents; and the Knowledge for Change Program.

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Ellen Van de Poel leads the Health Financing work program within the Global Financing Facility (GFF). Her team supports countries in developing and implementing strategies to increase domestic resources for health and improve the efficiency of health spending. Before joining the GFF, Van de Poel was an associate professor of health economics at Erasmus University Rotterdam (Netherlands). Her research focused on evaluating health financing reforms and the measurement of equity in health and has been published in leading journals. She received her PhD from the Erasmus School of Economics.

Abbreviations

ANC	antenatal care
CCT	conditional cash transfer
DFF	direct facility financing
DHS	Demographic and Health Survey
DSC	district steering committee
HIV/AIDS	human immunodeficiency virus/acquired immunodeficiency syndrome
IHME	Institute for Health Metrics and Evaluation
IPT	intermittent preventive treatment
ITN	insecticide-treated bed net
LMICs	low- and middle-income countries
MCH	maternal and child health
PBF	performance-based financing
PNC	postnatal care
RBF	results-based financing
WHO	World Health Organization

Overview

Key messages

1. Financial incentives or performance pay to frontline health facilities and workers emerged as an innovative means to improve the quantity and quality of health services delivered. This approach to health financing arose from the frustrating status quo of poor health outcomes in low- and middle-income countries despite increased service utilization.
2. This report provides new evidence and reviews the existing literature to assess the results from the introduction of such financial incentives.
   a. The report pays special attention to impacts on effective coverage, a measure that adjusts simple coverage of care with the quality of care provided.
   b. It asks which constraints to poor quality of care can be addressed by financial incentives for health workers.
   c. It further asks what has been the impact of such incentives in general on utilization and quality of care.
   d. Finally, it asks how offering these incentives compares with some key policy alternatives: cash transfers, vouchers, and direct financing of frontline facilities.
3. A range of rigorous studies show that performance-based financing (PBF) projects, which include performance pay among other critical features, including transparency and accountability reforms, resulted in gains in coverage but far fewer, if any, improvements in the quality of health services delivered.
4. Compared with business-as-usual, PBF projects offer gains of a similar magnitude as those from direct facility financing (DFF) approaches, which transfer equivalent funds and have transparency and accountability reforms as do PBF projects but do not have specific incentives for health workers and the associated monitoring.

5. Policy makers may find PBF appealing because of the accountability provided by its link to results. DFF reforms should thus incorporate measures like portals or dashboards that track the flow of funds and provide timely information on the quality and efficiency of health care delivery. In addition, performance pay or household targeted cash transfers may supplement the financing of improvements in selected indicators.

Outline of the report

Improving Effective Coverage in Health: Do Financial Incentives Work? is arranged as follows:

- **Overview—**The Overview provides a summary of the key findings and messages of the report.
- **Chapter 1**: **Introduction—**Chapter 1 describes the lay of the land in the service delivery of maternal and child health care, focusing on how care is financed with and without additional demand- or supply-side incentives. It also introduces the conundrum of increasing coverage but persistently poor health outcomes, which motivates the need to look at effective coverage and financial incentives for effective coverage.
- **Chapter 2**: **Effective Coverage: A Framework Linking Coverage and Quality—**Chapter 2 attempts to answer the question "What is effective coverage, what are its implications for efficiency?"
- **Chapter 3: Quality of Care: A Framework for Measurement—**Chapter 3 focuses on the question "How does quality of care relate to effective coverage, how to measure it, and what constrains it?"
- **Chapter 4: Decomposing the Constraints to Quality of Care Using Data on Antenatal Care Consultations from Five Sub-Saharan African Countries—**Chapter 4 presents new evidence on the constraints to quality of antenatal care.
- **Chapter 5**: **Performance-Based Financing Improves Coverage of Reproductive, Maternal, and Child Health Interventions—**Chapter 5 presents evidence on the impact of performance-based financing on service delivery, quality of care, human resources, and equity thus far.

- **Chapter 6: Policy Alternatives to Performance-Based Financing—** Chapter 6 offers key counterfactuals, including demand-side incentives and direct facility financing, using a systematic review and pooled analysis. It presents a deep dive into direct facility financing.
- **Chapter 7: Performance-Based Financing as a Health System Reform and Cautionary Evidence on Performance Pay and Irrelevant Care**—Chapter 7 describes the role of performance-based financing in the development of health systems: avoiding nonindicated care and wasted resources, integrating quality measurement into health systems, and measuring the broader impacts of health financing reform.
- **Chapter 8: Conclusion and Operational Implications—**Chapter 8 operationalizes key aspects of performance-based financing given the evidence presented.

Introduction

Financial incentives or performance pay links payments to health facilities and workers to the quantity and quality of services they deliver. These performance incentives came on the scene in health financing as a consequence of a frustrating status quo: health outcomes have remained poor in low- and middle-income countries (LMICs) despite sustained investments in health service delivery and concomitant increases in the utilization of services over the past two decades (Eichler and Levine 2009). Performance-based financing (PBF) projects—which include performance pay among other critical features, including public financial management reform, health facility autonomy, decentralization, supportive supervision for the frontlines, and community engagement—held appeal for development agencies and donors because of their explicit links to transparency and accountability. Since the late 2000s, more than US$2.5 billion has been invested in PBF projects in primary health service delivery in low-income countries. This report examines the evidence on the impact of performance pay specifically, and PBF projects more broadly, on coverage, effective coverage, health outcomes, as well as clinical and infrastructure quality.

Much of this report uses effective coverage as a measure of performance. Effective coverage is a metric that combines simple health coverage with minimum content and quality. Considering the content and quality of care is crucial to understanding why service utilization increases may not

translate into improved health outcomes. While the content and quality of care may seemingly be in the locus of control of frontline health facilities and workers—after all, it is up to the health worker to provide relevant care in any patient-provider interaction—there are other constraints to quality that are not under the facility or worker's control.

To understand why the content and quality of care might be inadequate and the scope for performance pay to improve it, the report delves into the constraints to content of care through a theoretical framework and an empirical application to antenatal care (ANC) in five Sub-Saharan African countries. This framework decomposes the constraints to quality of care and describes the various levels at which they lie (Ibnat et al. 2019). These constraints can include inadequate physical capacity at the health facility level; health worker knowledge, which is typically produced further up the health system, in medical schools; and health worker effort, which is the only component that is directly in a health worker's locus of control and thus potentially responsive to performance pay to the worker. For instance, in a centralized health system where frontline health facilities do not receive an adequate operating budget—which too often is the institutional reality in many low-income countries—if a piece of equipment breaks or there is a drug stockout, a health worker may not be able to provide necessary care because they lack the infrastructure to do so. Performance pay can incentivize frontline health facilities and workers, but it only addresses constraints to quality at these levels. However, the data show that gaps in physical infrastructure and the availability of drugs and supplies are substantial. In other words, many constraints to quality are not within the health facility or worker's locus of control, suggesting that performance pay may only have limited potential in improving coverage, effective coverage, or the quality of care.

Next, the report takes a broad-based look at the impact of performance pay and broader PBF projects in high-income country and LMIC health systems and provides new evidence from multiple rigorously designed impact evaluations. The evidence shows that PBF projects have led to gains in primary health service delivery even in low-income, centralized health systems. However, questions of comparative efficacy and effectiveness arise when the impacts of PBF projects are juxtaposed against other interventions related to financial incentives on the demand and supply sides. On the demand side, the report considers conditional cash transfers (CCTs) and vouchers, while on the supply side, it considers direct facility financing (DFF), which shares many features of PBF projects in terms of providing

an operating budget to the frontlines as well as autonomy over how to disburse that budget, but does not include performance pay.

The results show that financial incentives on the demand and supply sides can increase coverage. However, such incentives typically work on the margins, while large gains in effective coverage remain an elusive goal. The discussion and interpretation of these findings highlight the importance of the institutional setting. Performance pay may make sense in decentralized, high-quality health systems that already support facility financing and autonomy as well as accountability and transparency. In contrast, its potential may be more limited in centralized, under-resourced health systems that have key gaps at various points. The report further shows that incentives on the demand and supply sides may work on margins that complement each other by addressing different constraints. It highlights the role of baseline coverage, content, and quality; the provider's effort response to price; and task complementarity as key determinants of the impact of performance pay on purchased indicators. The report also provides cautionary primary evidence that performance pay can incentivize the provision of inappropriate, unnecessary, or irrelevant care. It argues for the integration of health care quality and efficiency measurement into health system reform, with attention paid to both the underprovision of needed care as well as the provision of unnecessary or irrelevant care, which can become an important dimension of quality as health care systems mature. Taken together, these findings shed light on how program teams and policy makers may fruitfully combine demand- and supply-side financing and highlight various questions they should ask when selecting the indicators for which performance pay may be used. The report concludes with a consideration of the operational implications of these findings, especially with regard to the design of a sustainable and scalable health financing reform that aims for substantial improvement in effective coverage.

Why effective coverage?

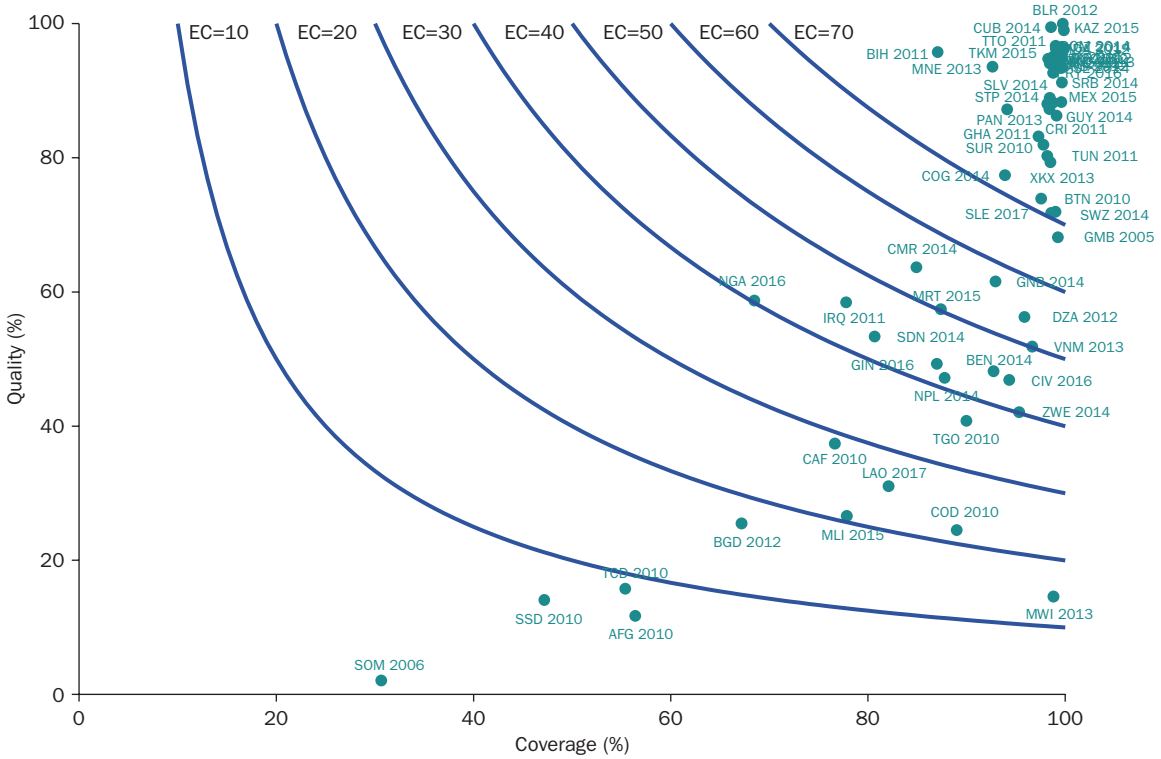
The ultimate goal of development efforts in health is the production of better health in LMIC populations. Such investment is still much needed because all over the developing world, coverage for health services remains low, especially among the poor, notwithstanding progress made during the push toward the Millennium Development Goals (Wagstaff, Bredenkamp, and Buisman 2014). For example, equitable access to affordable health care

is not a reality for many women, men, children, and adolescents in the developing world, resulting in more than six million deaths from preventable causes each year (WHO 2020). This is true both for basic services, such as maternal and child health, as well as for services aimed at preventing and treating the emerging threat of noncommunicable diseases. Indeed, Kruk et al. (2018) show that the majority of LMIC neonatal and maternal deaths are "amenable," which is to say that they could be prevented by improving the quality of care.

This assessment is even starker if, beyond access to medical services, effective coverage is considered, that is, coverage with effective services at a minimum level of quality and content. A framework for effective coverage presents how this concept can be decomposed into the product of coverage (those in need getting care) and quality (correct or successful treatment among those getting care). Estimates of effective coverage and its two components for six conditions (pregnancy, child malaria, child diarrhea, hypertension, tuberculosis, and HIV) using household survey data first establish that effective coverage—and by extension, quality of care—is currently still shockingly poor for many health conditions in many environments. Figure O.1 illustrates with the example of ANC how looking at coverage versus effective coverage provides a very different perspective. It shows the effective coverage contours and their components, coverage and quality, for ANC for a large set of LMICs using data from the Multiple Indicator Cluster Surveys. Each dot represents a survey with the name of the country abbreviated and the survey year. Coverage, on the horizontal axis, is measured as the percentage of women giving birth who had at least one ANC visit. Quality is defined as the proportion among them who had at least four ANC visits, with at least one of those visits with a skilled provider, and for whom, during their ANC visits, blood pressure as well as blood and urine samples were taken. Many countries are situated in the upper right corner of the figure, indicating both high coverage and quality and thus high effective coverage. However, there is another group of countries lower down, on the right side of the graph, for which coverage is high but quality is lower (20–60 percent).

The estimates in the report further explore whether it is coverage or quality that is the bottleneck to better effective coverage varies by condition and country. Using the example of HIV treatment, the results also indicate substantial variation by household wealth and that although over the past decades, there has been substantial progress in coverage of the poor—often

Figure 0.1 Effective coverage contours for antenatal care



Source: World Bank, using data from Multiple Indicator Cluster Surveys.

Note: Coverage: percent of women giving birth who had 1+ antenatal care visits. Quality: of those covered, the percent who had 4+ visits, 1+ visits with a skilled provider, blood pressure taken, and blood and urine samples taken (correct treatment). EC = effective coverage. ISO 3166-1 alpha-3 codes are used for the country abbreviations (https://unstats.un.org/wiki/display/comtrade/Country+codes+in+ISO+3166).

more than wealthier households, even if the levels remain too low—important gaps in quality translate into stark inequity in effective coverage.

Regional and topical focus of the report

Driven by the burden of disease in low-income countries and the fact that most care in LMICs is provided at the primary level, the introduction of financial incentives has mostly focused on frontline health workers—those at the primary level—and specifically maternal and child health services.

Thus, this report focuses on maternal and child health services, with most of the primary evidence coming from Sub-Saharan Africa. This is because evidence suggests that poor quality, over and above access, is the key constraint to improving maternal and neonatal mortality—including for antenatal care, as discussed in figure O.1. In addition to most maternal and neonatal deaths being "amenable" to improvements in quality (Kruk et al. 2018), maternal and neonatal diseases are among the top two contributors to the burden of disease in low-income countries (IHME 2020). Indeed, the five Sub-Saharan African countries that are used for detailed analysis in this report—Cameroon, the Central African Republic, the Democratic Republic of Congo, Nigeria, and the Republic of Congo—contribute almost 20 percent of the global burden of maternal mortality (Kassebaum et al. 2014). The report also reviews and spotlights relevant evidence from high- and middle-income countries (for example, Argentina, Armenia, the Kyrgyz Republic, Tajikistan, the United Kingdom, and the United States) and includes evidence related to the impact of financial incentives for curative care as well as the prevention of noncommunicable diseases.

Of the 26 completed or ongoing impact evaluations of World Bank–funded PBF pilots in health, 19 focus on maternal and child health service delivery in Sub-Saharan Africa (RBFHealth website).[1] This report draws on 22 of these 26 studies, albeit to varying degrees. The analysis focuses on a subset of eight countries, whose selection was driven by data needs. The analysis of the constraints to quality of care requires direct clinical observations of patient-provider interactions for ANC provision. Most of the impact evaluations did not include these data, but the analysis in this report relies on the five that did. Similarly, comparison of PBF with the key policy counterfactual of DFF draws on impact evaluations from the five countries (Cameroon, Nigeria, Rwanda, Zambia, and Zimbabwe) in the impact evaluation portfolio that included this alternative. Thus, not only do the analysis and evidence presented here represent a lion's share of the contributors to poor health outcomes, but also, they provide evidence that is relevant for a number of low-income country contexts.

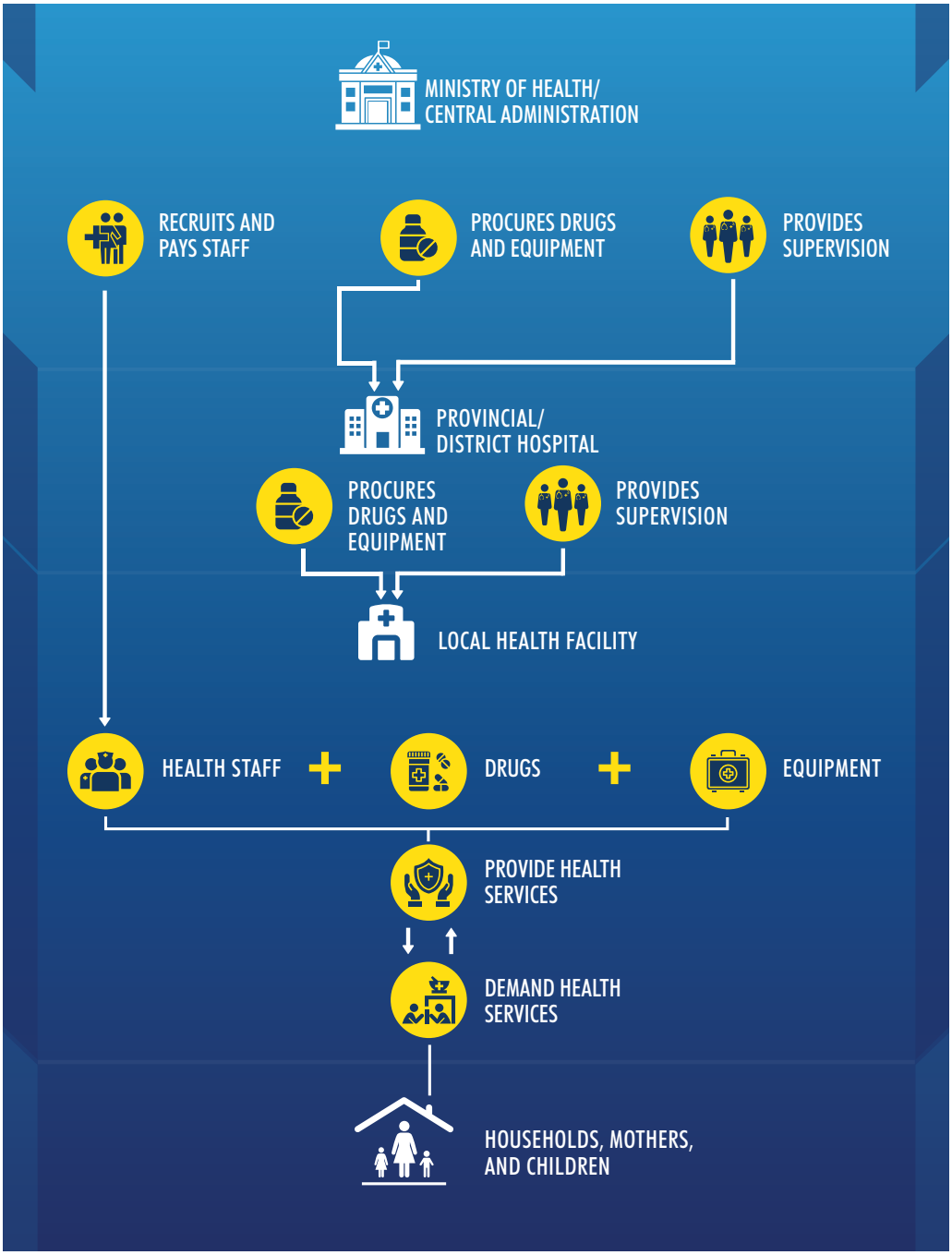
Performance pay

A large set of interventions has been proposed and implemented to address the twin issues of low quality of care and inadequate access to high-quality care in low-income countries. But little progress has been made, particularly in terms of health outcomes. Due to frustration with the status quo of

substantial gains to service utilization but a persistently high and stagnating number of preventable deaths, performance pay gained prominence (Eichler and Levine 2009). Promising early evidence of the effectiveness of financial incentives to health workers in the form of performance pay came from high-income countries, including the United States, the United Kingdom, and many other countries (Doran et al. 2006). In addition, the early evidence on the PBF package—performance pay combined with public financial management reform, health facility autonomy, decentralization, supportive supervision for the frontlines, and community engagement—from two low-income countries, Burundi and Rwanda, was also promising. Donors and governments were attracted by the transparency, accountability, and link to results espoused by PBF programs (Fritsche, Soeters, and Meessen 2014), and significant investments flowed into PBF projects in primary health, with US$2.4 billion in International Development Association financing (Gergen et al. 2017). Notably, these donor finances also included a significant level of funding for rigorous impact evaluations. This report takes a step back and looks at all the evidence, relying heavily on the impact evaluations of PBF pilots in low-income countries, especially the provision of maternal and child health services at the primary level in Sub-Saharan Africa, to assess the impact of PBF.

The report also highlights the salience of the institutional setting. Much of the evidence on the effectiveness of performance pay to improve health services and outcomes is from high- and middle-income countries. To be precise, much of the high-income country experience is from implementing performance pay for selected indicators, with no supplementary interventions. The health systems in question are already high quality, decentralized, transparent, and have accountability measures. Further, all the health facilities, including those on the frontline, have operating budgets and autonomy. Many of the applications of performance pay in low-income settings are in a different type of health system. Figure O.2 depicts the case of the modal health system in a low-income setting. Typically, these systems are centralized, with no operating budget provided to frontline health facilities, and no autonomy over facility management, staffing, or procurement of equipment, drugs, or supplies. The report draws on evidence from impact evaluations that examined the effectiveness of PBF projects, which include performance pay and a host of other reforms to autonomy, transparency, and accountability. As such, it is difficult to make a one-to-one comparison of performance pay interventions in high-income countries with the results from studies of PBF projects.

Figure 0.2 Lay of the land in centralized health systems in low-income countries



Source: World Bank.

Understanding constraints to effective coverage

Substantial evidence suggests that the quality of care in many LMICs is low, especially for the poor (Kruk et al. 2018). Performance-based incentives assume that facilities or providers can respond to the quality-related incentives by improving quality. Understanding why effective coverage lags coverage requires understanding why the rate of relevant treatment is not 100 percent. As this report shows, low rates of effective coverage can arise for a variety of reasons, and not all of them are in the health facility or health worker's locus of control. Service utilization rates can still at times be poor in low-income countries, especially for preventive care (Mills 2014). In addition, health conditions are often misdiagnosed, and even when they are well diagnosed, the correct treatment or interventions might not be prescribed or implemented (Das, Hammer, and Leonard 2008). In other words, even when care is accessed, the quality of the care received can be poor, hence leading to a gap between coverage and effective coverage.

The question central to understanding whether financial incentives such as performance pay would significantly improve quality—and thus increase effective coverage—is one of where the various constraints to quality lie and the degree to which each constraint matters. For instance, health facilities and workers may not be able to change demand-side constraints leading to low service utilization. On the supply side, low effective coverage might be due to (1) poorly trained staff who do not know how to treat a patient, an issue that is addressed upstream in the system at medical schools and through professional training; (2) lack of physical capacity, such as essential equipment, drugs, or supplies, remedying which is likely not in the individual health worker's locus of control—indeed, in centralized systems, this may not even be under the frontline health facility's control; (3) lack of effort from the providers even if they have all the necessary knowledge and physical capacity (Ibnat et al. 2019); or (4) the different treatment of patients depending on their socioeconomic status (Fink, Kandpal, and Shapira 2021). As this decomposition of the constraints to quality demonstrates, only effort and perhaps some of the gaps arising from physical capacity are within the scope of the health worker or health facility's locus of control. However, much underperformance remains unexplained by these two factors, and thus it is unlikely to be addressed by performance pay or even the broader PBF programs.

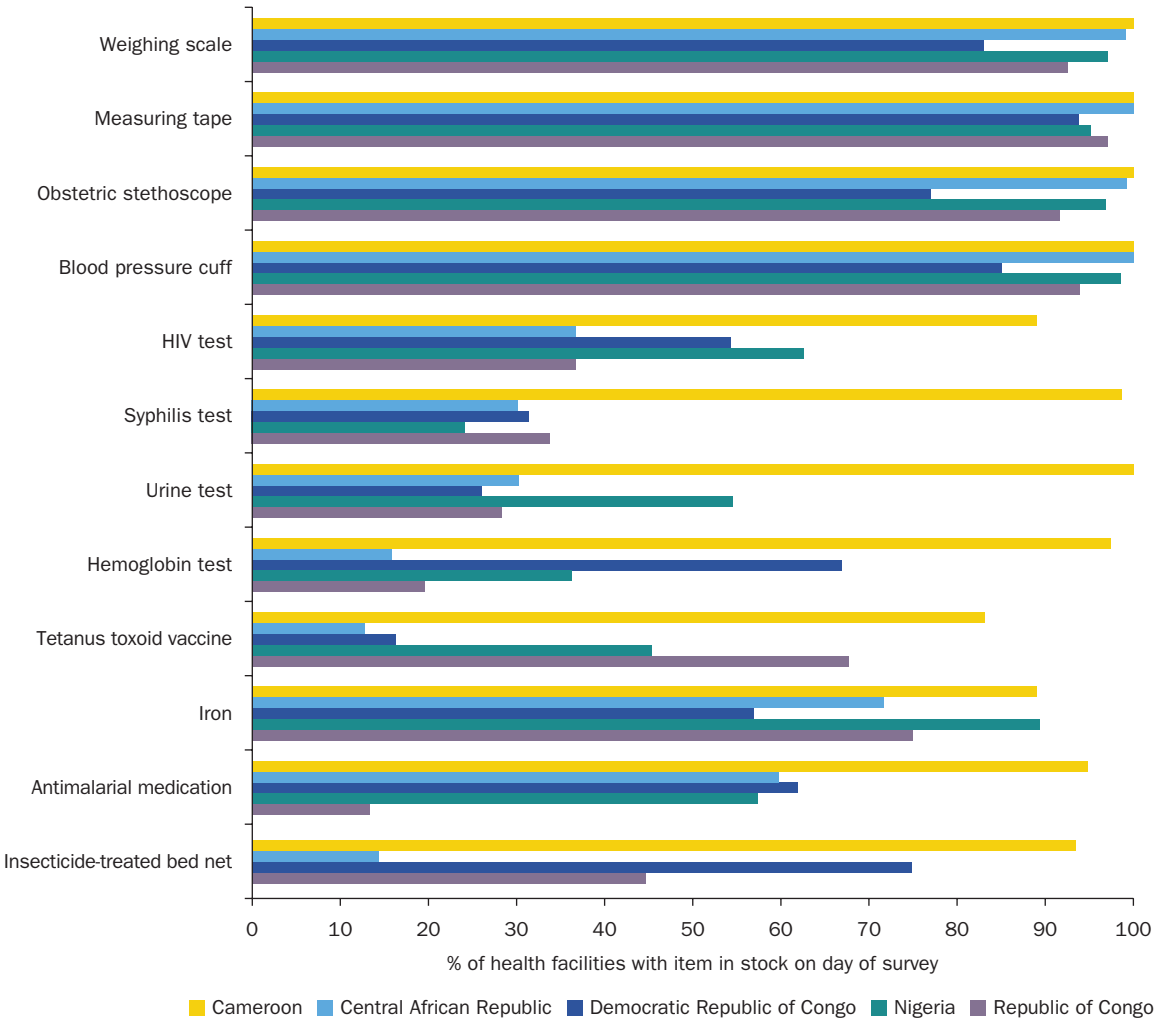
The report illustrates and quantifies the relative sizes of the different constraints to quality, and thus the limits to the potential impact of a

financial incentive intervention to frontline health workers and facilities, using an empirical application of the three-gap model to a five-country data set of ANC consultations in Sub-Saharan Africa. The report finds evidence of constraints along many margins, starting with infrastructure. As shown in figure O.3, despite decades of investments in infrastructure, poor structural quality is widespread. Facilities in some countries are better provisioned than others, but in all the countries examined, facilities that are supposed to provide maternity care often lack even the basic infrastructure and equipment for such care, with particularly poor availability of test kits for the diagnosis of sexually transmitted diseases and consumables such as tetanus toxoid injections. Many of the associated actions—for instance, giving a pregnant woman a tetanus toxoid injection or screening her for HIV—have clear links to maternal and neonatal health outcomes (Carroli, Rooney, and Villar 2001). These gaps in availability thus represent significant shortfalls in health facilities' ability to provide high-quality ANC.

Beyond gaps in infrastructure, the report documents poor performance compared with international protocol. In particular, it finds that underperformance is widespread. As presented in figure O.4, in all five countries, health workers are only performing about 50 to 60 percent of the World Health Organization essential protocol for ANC. To assess levels of idle capacity, the observed levels of performance are linked to structural capacity and health worker knowledge. The findings show that up to a third of all underperformance can be attributed to idle capacity; that is, a third of the time, health workers have all the knowledge and equipment to provide a certain component of ANC but still fail to do so. The report also documents significant variation across and within countries (and between and within facilities) in such idle capacity, suggesting that even in the country with the poorest overall level of care (the Democratic Republic of Congo), some women receive ANC that is comparable in quality to the care provided in the country with the highest level of care (Cameroon).

As shown in figure O.5, poor quality of care in the form of deviations from protocol not only implies undertreatment, but also can include inappropriate or irrelevant treatment. Generally, the rates of overtreatment are low but can be as high as 25 percent. This finding is striking because the measurement of preventive care is not even geared at picking up overtreatment, and much of the overtreatment in LMICs may be in the form of irrelevant medication usage (Kwan et al. 2019; Lopez, Sautmann, and Schaner 2022), which is not measured in the data. Indeed, there are only two robust measures of inappropriate or irrelevant treatment in ANC—the provision of tetanus vaccines

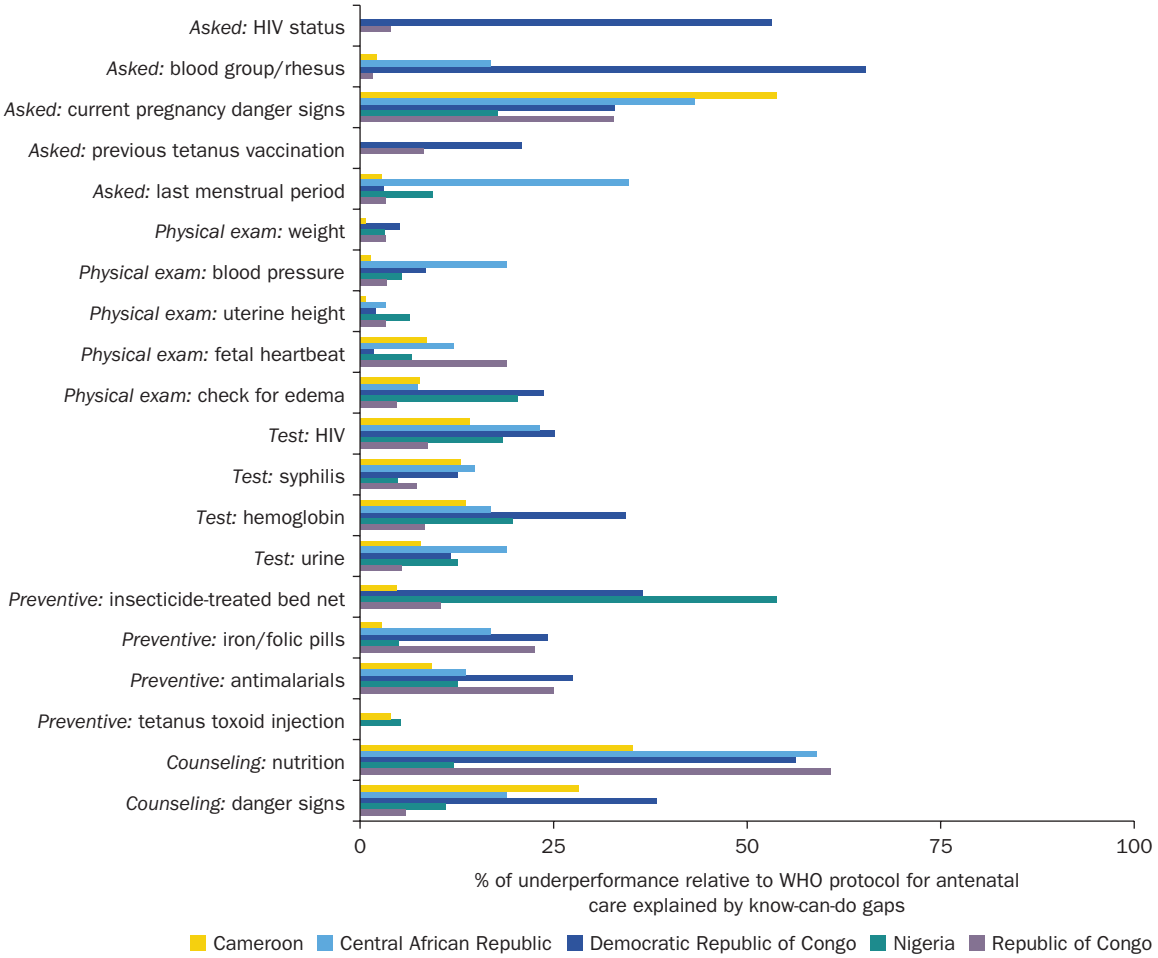
Figure 0.3 Availability of drugs and consumables, equipment, and other supplies for providing antenatal care



Source: World Bank.

in pregnancy without checking whether the woman has already received a tetanus vaccine, and the too-early provision of prophylactic malaria treatment that is not only unnecessary but may even be harmful to fetal development (Peters et al. 2007; Hernándes-Díaz et al. 2000). Yet, unnecessary or irrelevant care provision is found for both measures in all the contexts studied. Although most of the evidence on irrelevant treatment focuses on curative care and not preventive care, this finding motivates the concern surrounding inappropriate treatment and more careful assessment of it. Finally, the finding

Figure 0.4 Know-can-do gaps in the provision of antenatal care



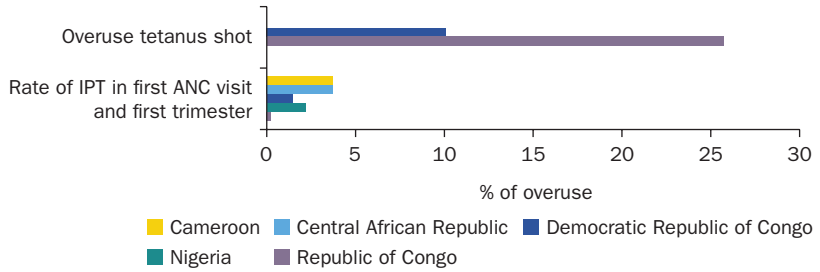
Source: World Bank.

Note: WHO = World Health Organization.

highlights that low effort by providers results in both undertreatment and irrelevant or inappropriate treatment—often concurrently.

The results further suggest that poor effort by providers is not easily explained by attributes like facility level, provider age, grade or experience, or even patient characteristics like age and education, which may be hypothesized to affect provider performance. Such effort gaps may explain up to a third of all underperformance relative to the protocol for ANC, suggesting that "simply" removing structural and knowledge constraints will not suffice in improving the quality of care. The report also reviews evidence showing

Figure 0.5 Provision of unnecessary care in antenatal care provision in five Sub-Saharan African countries



Source: World Bank.

Note: Overuse of tetanus toxoid vaccination is defined as the provision of this vaccine without checking documentation to see whether the woman has already received one for the current pregnancy. IPT refers to the initiation of prophylactic malaria treatment, using prescription sulfadoxine/pyrimethamine. The guidelines recommend prophylactic malaria treatment starting in the second trimester of pregnancy. Overuse of IPT is defined as the provision of such treatment in the woman's first antenatal care visit in her first trimester. ANC = antenatal care.

the presence of a steep wealth-quality gradient, which indicates that wealthier patients receive better quality of care—even at the same facility. However, the evidence also suggests that conditional on the quality of care, wealthier patients pay more than poorer patients. Taken together, these findings highlight the need for interventions that improve the physical capacity of facilities, address key gaps in medical training, *and* bolster health worker effort (whether by offering financial incentives or other means).

Key findings on financial incentives in primary health care provision in low-income countries

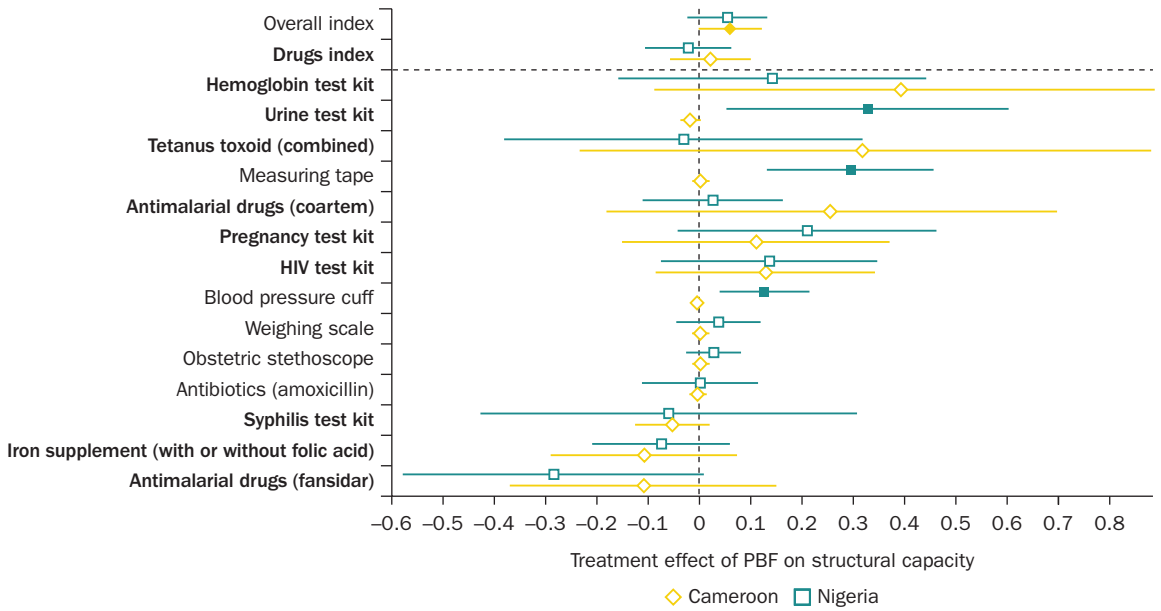
Much of the world, especially high- and middle-income countries, is in the midst of a push away from compensating public sector health providers through low-powered incentives like salaries and fixed facility budgets, toward high-powered incentives involving a mix of salaries/budgets and bonuses as well as facility-level funds linked to performance. A concrete example from Nigeria illustrates how these interventions work: including direct financing and health worker incentives, a facility might receive US$12 for each institutional delivery, US$1.20 for an ANC visit, and US$0.80 for a fully immunized child. In addition to such performance pay, a PBF project would include directly transferring operating budgets to facilities and granting autonomy over how to use these funds, paired with requirements to report on the use of funds for transparency and accountability and, in some instances, community oversight for health

promotion and increased service utilization. Of course, these projects function on top of an existing system of primarily input-based financing. The strength of the incentive thus depends on the baseline level of financing, which may be an important driver of program impact, but which data limitations have prevented from quantification.

The report starts with a rapid overview of the design and characteristics of performance pay approaches in health—largely drawing on high- and middle-income country experience, highlighting the potential of performance pay in improving worker effort. Then, it delves into the evidence on PBF projects. The findings show that in most contexts, PBF projects have resulted in some improvements in terms of coverage. Often, this is institutional delivery, but the findings suggest that the performance pay aspect of PBF projects is likely not the driving force for such improvement.

As shown in figure O.6, some of the largest impacts of the PBF projects studied in this report are observed on structural quality, meaning the quality of infrastructure and equipment at facilities, aspects that performance pay arguably would not affect. Consistent with the discussion on the

Figure O.6 Impacts of performance-based financing on facility physical capacity in Cameroon and Nigeria

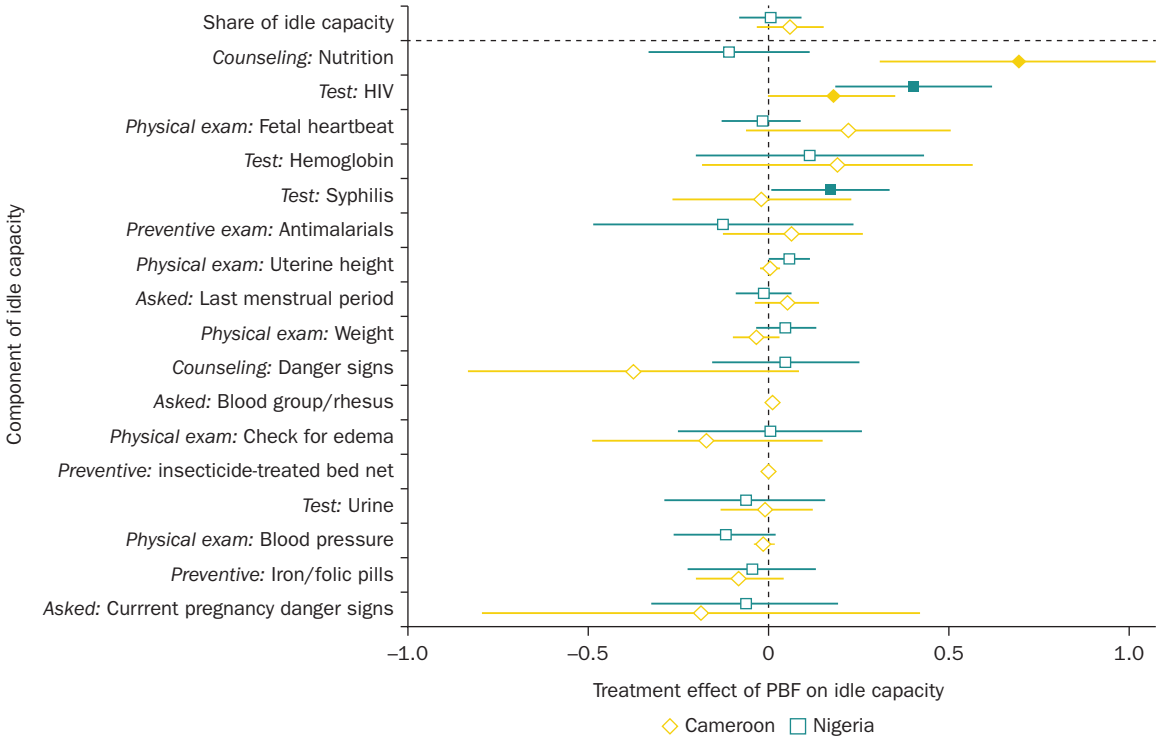


Sources: World Bank, based on Khanna et al. 2021 and de Walque et al. 2021.

Note: Markers above the dashed line refer to summary indexes; those below the line represent the individual components of those indexes. Solid markers indicate statistically significant estimates ($p < .05$); markers that are open indicate imprecise estimates. "Whiskers" around markers represent 95% confidence intervals. Components of the drugs index are in **bold** along the y axis. PBF = performance-based financing.

various constraints to quality, the report shows that PBF projects have small impacts on most aspects of idle capacity, suggesting that such projects may do little to improve clinical quality of care beyond the improvements in structural quality (figure O.7). If anything, as figure O.7 shows, the significantly estimated impacts of PBF on idle capacity are positive. In other words, PBF increases some dimensions of idle capacity—which means that providers respond to PBF by leaving out additional aspects of care that they could perform. However, some of the earlier PBF programs studied in this report only incentivized structural quality rather than clinical or process quality, while later pilot programs incentivized all the dimensions of quality. The report highlights such a "later generation" program (in box 6.1, in chapter 6) implemented in the Kyrgyz Republic, which used anatomical models to train and provide supportive supervision on the correct provision of high-impact maternal and neonatal care. The evaluation of this pilot indeed found that such training can significantly improve clinical quality.

Figure O.7 Impacts of performance-based financing on idle capacity—or the know-can-do gap—in Cameroon and Nigeria



Sources: World Bank, based on Khanna et al. 2021 and de Walque et al. 2021.

Note: Markers above the dashed line indicate a summary effect. Solid markers indicate statistically significant estimates ($p < .05$); markers that are open indicate imprecise estimates. "Whiskers" around markers represent 95% confidence intervals. PBF = performance-based financing.

Nonetheless, the fact that the relatively larger impacts of many PBF projects are on structural quality rather than idle capacity may indicate that the performance pay aspect of PBF projects is not a key driver of any observed gains from PBF projects. Even in the example of the Kyrgyz Republic, the impacts of training on quality appear in an arm where no performance pay was provided, only the training. This finding in turn calls into question the cost-effectiveness of this particular financial incentive approach to improve health. The report also finds mixed but limited evidence of impacts on equity, with PBF projects reducing the disparity in the quality of care received by wealthy and poor women in one instance but increasing it in another.

Moreover, whether performance pay works as a financial incentive might be questioned. Evidence from Argentina and Nigeria suggests that performance pay may mostly work to signal the importance of the services being purchased. This in turn implies that there may be scope to improve the cost-effectiveness of PBF projects if there are other ways to improve effort by signaling such importance rather than through offering high financial incentives that also require third-party verification. Such third-party verification costs can add significantly to overall program costs—up to a third of all administrative costs in one estimate (Zeng et al. 2021)—but they can be substantially reduced through the use of risk-based algorithms (Grover, Bauhoff, and Friedman 2019).

The report provides a cautionary tale from high-cost systems that performance pay may lead to increases in inappropriate care or overtreatment in response to misaligned pecuniary incentives. It reports primary evidence, which is limited in nature due to data challenges, that such a response to performance pay may occur in low-income country health systems as well. In addition to potential harm to patients, or at the very least the desirability of avoiding unnecessary treatment, the provision of unnecessary treatment is also related to sustainability.

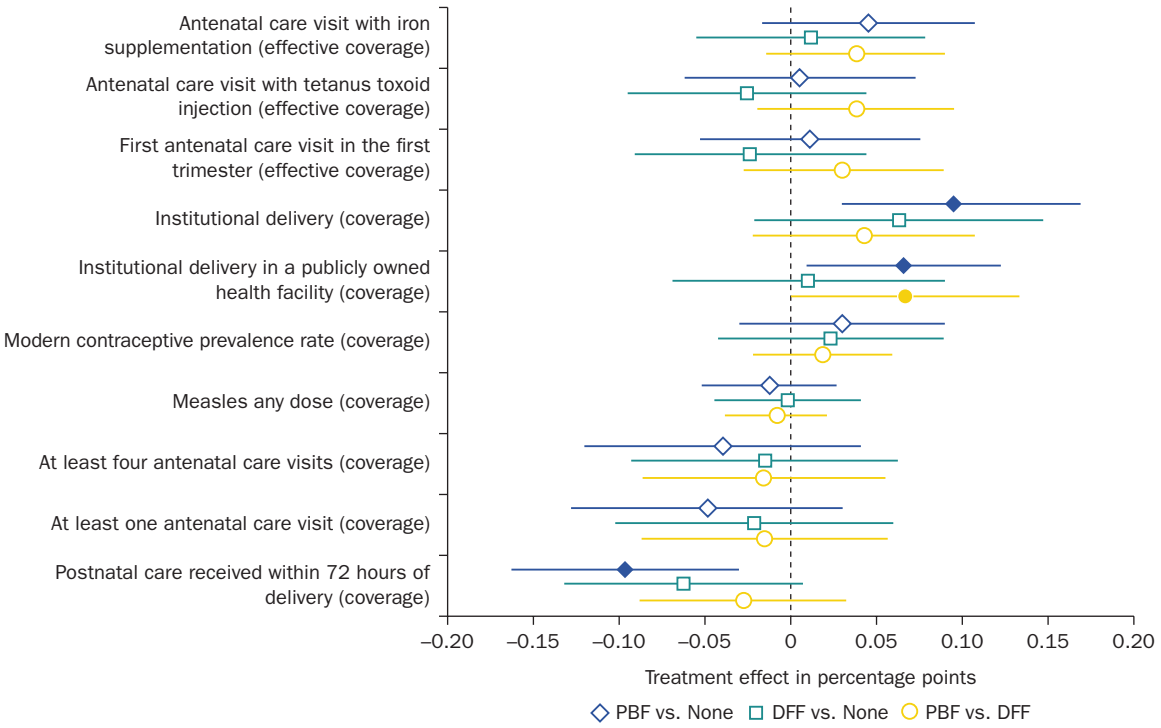
Performance pay and key demand- and supply-side counterfactuals

The existing literature and this report thus yield some evidence of gains in coverage and structural quality from the introduction of PBF projects, but they call into question the impact of the performance pay aspect of these projects. This finding is further explored by comparing PBF projects with

DFF. The key difference between PBF and DFF projects is specifically the performance pay component; they share other features, including public financial management reform, health facility autonomy, decentralization, supportive supervision for the frontlines, and community engagement. DFF transfers equivalent funds to that of the performance pay component of PBF projects but without a conditionality mechanism.

Using harmonized data from five countries—Cameroon, Nigeria, Zambia, Zimbabwe, and the early Rwanda pilot—that piloted a DFF approach (de Walque et al. 2021; Khanna et al. 2021; Friedman, Das, and Mutasa 2017; Friedman et al. 2016; Basinga et al. 2011), the report finds that often both PBF and DFF projects represent notable improvements over business-as-usual in moving forward with the desired transformation of health systems. However, as shown in figure O.8, except for institutional

Figure O.8 Comparison of the pooled impact of performance-based and unconditional facility financing in five Sub-Saharan African countries (Cameroon, Nigeria, Rwanda, Zambia, and Zimbabwe)



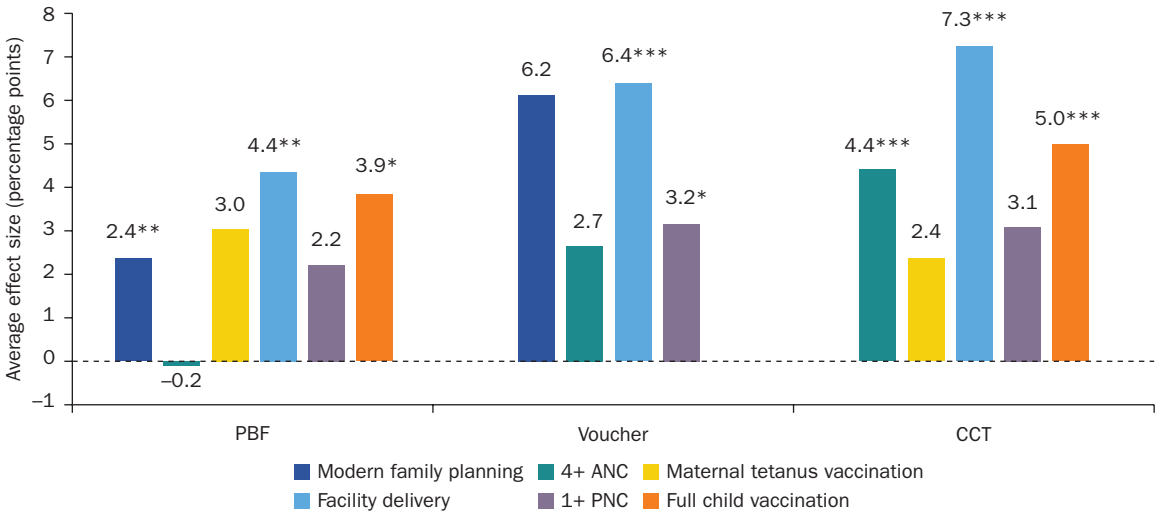
Sources: World Bank, based on de Walque et al. 2022.

Note: Solid markers indicate statistically significant estimates ($p < .05$); markers that are open indicate imprecise estimates. "Whiskers" around markers represent 95% confidence intervals. DFF = direct facility financing; PBF = performance-based financing.

deliveries, PBF projects do not lead to incremental gains over DFF projects, even when the DFF arm disbursed significantly less than the overall PBF package. This is further evidence that suggests that performance pay may yield muted or limited results as opposed to the other aspects of PBF projects, and it calls into question the rationale for financial incentives in the form of performance pay in PBF projects. The report examines several reasons that might explain why institutional deliveries may be more responsive to PBF interventions than to DFF, including assessing differences in program design and the relative importance of the price paid versus the salience of the task itself.

An alternative to financial incentives for health workers is offering such incentives on the demand side, such as CCT programs, which are present in 64 countries, and vouchers, which give beneficiaries free or subsidized access to health services for which providers are reimbursed on a fee-for-service basis. Neelsen et al. (2021) undertake a systematic review and meta-analysis comparing studies of health outcomes from PBF projects, voucher programs, and CCTs. With the necessary caveats inherent in the meta-analysis methodology, the results, presented in figure O.9, suggest that financial incentives, on average, improve maternal and child health service

Figure 0.9 **Impacts of PBF, vouchers, and conditional cash transfers on the utilization of maternal and child health services: Results from a meta-analysis**



Source: Neelsen et al. 2021.

Note: ANC = antenatal care; CCT = conditional cash transfer; PBF = performance-based financing; PNC = postnatal care.

***$p < .01$, **$p < .05$, *$p < 0.1$.

indicators, but the mean effect sizes are modest, ranging between 2 and 7 percentage points. PBF projects (which provide such incentives as well as many other features) have a significant positive mean effect on the use of modern family planning, facility births, maternal tetanus, and child vaccination but not on ANC or postnatal care visits.

Comparison of the supply- and demand-side incentives shows that the mean effects are similar in size and significance across PBF projects, vouchers, and CCTs. Only for ANC visits is there a statistically significant difference between effect sizes across these intervention types, with CCTs being significantly more effective than PBF projects and vouchers. The overall similarity of effect sizes underscores the need for cost-benefit analysis since each of these three approaches to financial incentives comes with different costs of implementation. The cost- and cost-effectiveness analysis of PBF programs is nascent (see Zeng et al. (2018) and Shepard et al. (2020) for examples) and there are very few comparative cost studies. Nevertheless, the choice of specific schemes—whether deployed individually or in combination—should be driven first and foremost by the nature of the barrier to service utilization and provision (a topic covered in box O.1.). A CCT would not have an impact if there is no health facility, and a PBF program would not have any impact if patients cannot afford care at a health facility.

Looking forward: Research and operational implications

The evidence discussed in this report highlights that supply-side incentives, specifically performance pay for frontline health workers and facilities, can yield limited results, but the goal of financing the frontlines is not a marginal one. The question is how to achieve the goal of universal health coverage in a sustainable, effective, and efficient manner. The explicit results orientation might make performance pay more politically palatable. It is likely that this link to results and transparency has crowded-in much-needed donor financing, including for the research on which this report builds. But the report also highlights the importance of the institutional setting in which the reform is being implemented. There is little evidence to support performance pay in centralized, under-resourced, unfinanced health systems, whereas other aspects of reforms related to autonomy, transparency, and accountability in PBF and DFF projects have resulted in notable improvements in health outcomes over business-as-usual.

Box 0.1 In Focus: Action items for task teams working on health financing reform

This report presents evidence showing that meaningful improvements in health system performance can be achieved when financial and managerial autonomy is extended to health providers directly. Such direct financing not only requires that health facilities receive a transfer of resources, but also that they are made accountable for delivery of services and prudent financial management. At the same time, the report casts doubt on the need for performance pay as a starting point in health financing reform in under-resourced settings. The report may thus give rise to reasonable questions about how policy makers can design a health financing reform that finances health service providers directly—in a way that is transparent and accountable, and only using performance pay options when they are carefully contextualized.

This box pulls together various relevant findings from across the report to provide action items for teams working on health financing reform projects aimed at improving effective primary health care coverage in low-income countries in a sustainable and scalable way. It broadly categorizes these actions into four stages: diagnostics to identify barriers to high-quality care, identification of relevant policy options, questions about sustainability and scalability of supply-side interventions, and measurement.

Diagnostics to identify the relevant barriers to access to high-quality care

Teams designing health financing projects may benefit from tracking the following indicators ahead of time, with the goal of deciding whether performance pay is appropriate for any of the indicators targeted by the project:

1. How different are the coverage and effective coverage rates for the key indicators?
   a. Using Demographic and Health Survey (DHS) or other nationally representative household data, calculate coverage and effective coverage for the indicators of interest.
   b. The indicators that have the largest gaps between coverage and effective coverage may represent "low-hanging" fruit for health projects focused on quality improvements to target.
2. What are the baseline levels of coverage?
   a. As chapter 6 shows, performance pay may not make a lot of sense in catchment areas and for indicators where coverage levels are already very high.
   b. Especially low levels of coverage may reveal demand-side issues, indicating a role for vouchers and cash transfers.
   c. Teams may thus consider using demand-side incentives to shore up demand for the least used essential services and then test low levels of performance pay for selected indicators.
   d. The "sweet spot" for performance pay may be for indicators where baseline utilization has room for improvement but is not so low as to be indicative of demand-side barriers.
3. Are there gaps in the structural capacity to provide essential health services?
   a. What are the essential items (equipment, supplies, drugs, and other consumables) that are required to provide the services of interest?
   b. Are they available, stored as per guidelines, in frontline facilities?

(Continued)

Box 0.1 *continued*

4. Similarly, are there gaps in provider knowledge for the provision of essential health services?
   a. If yes, at what level are these gaps typically addressed?
   b. Medical school curricula may be slower to update, but in-service training modules may supplement formal medical training in some instances.
5. For the indicators for which performance pay may be considered, how high is idle capacity, which is the portion of care that could have been provided given health worker knowledge and health facility infrastructure, but is not performed by the provider?
   a. Performance pay may only make sense for indicators that have a high degree of idle capacity.
   b. If idle capacity does not explain underperformance for an indicator, other approaches, including facility financing and demand-side incentives may make more sense.
6. What is the country's capacity to finance facilities directly through prevailing public financial management systems?
   a. Implement the diagnostic proposed by Piatti-Fünfkirchen, Hadley, and Mathivet (2021).

Identification of relevant options

Take a comprehensive health systems approach:

- Map out the various financing flows across sources and ensure that these are complementary.
- The practical question should not be "performance-based financing (PBF) or direct facility financing (DFF)," but rather how, across all sources, facilities are being paid and what a purposeful incentive structure would look like.
- Demand-side options, where feasible, may be combined with supply-side interventions as they address a different set of issues than PBF or DFF.

Scalability and sustainability of supply-side approaches

Where supply-side schemes seem most opportune, or in the context where such schemes have been in place for a while, the following are some questions to ask about scalability and sustainability:

1. If facilities do not have a budget under their control, what needs to be done to send financing directly to them? This may require policy and legal reform. Options may include the following:
   - Setting up dedicated block grants for facilities (as is being done in Burkina Faso).
   - Recognizing facilities as vendors and paying them similarly to how private service providers would be reimbursed (as is being done in Uganda).
   - Integrating facilities into the budget as dedicated spending units (as is being done in Tanzania).
   - Recognizing facilities as extrabudgetary units that receive an intergovernmental transfer (this is more appropriate for larger hospitals and is done in many countries, for example, Rwanda).

(Continued)

Box 0.1 ***continued***

2. If procurement is centralized, consider options for shadow budgets for facilities that are drawn down where facilities purchase inputs from a central repository at a discounted price.
   - o Enable options to procure emergency drugs from the private sector if otherwise not available.
3. If frontline facilities do not receive routine supportive supervisory visits, consider adding visits from the district health team. The verification visits in PBF trials provide a good template for such supervision, even if it is decoupled from performance pay.
4. If there is no community oversight, consider engaging the community in facility management, such as through citizen scorecards and meetings with village development committees.
5. If there are substantial delays in salary payments, consider public expenditure tracking system reforms to improve the timeliness of salary payments.
6. Explore fintech innovations, such as mobile money, to facilitate payments to remote providers while leaving a digital footprint of the transaction.
7. Strengthen basic financial management capacity at the facility level to ensure financial accountability and build confidence in prudent use of resources by financial institutions.
8. Performance pay is not the only way of making payments to providers output oriented: catchment population size and composition, disease burden, and remoteness can be leveraged to serve key needs without performance pay.
   - o Pay for performance should be considered with care and only added at the margins once a functional facility payment system is in place.
   - o Use the diagnostics section above to identify candidate indicators for performance pay or fee-for-service.
9. How to sequence interventions correctly:
   - o Teams may wish to start with 18–24 months of demand-side interventions paired with DFF.
   - o Mobile money, portals, and dashboards can provide accountability, but they can also be used to start changing the orientation of frontline facilities and staff into a more results-linked one.
   - o Repeat the diagnostics exercise and then consider whether it makes sense to add performance pay for any of the indicators.

Measurement

This report and these action items highlight the importance of good data at the household and health facility levels.

1. National health facility censuses that include at least a representative sample of private providers are large investments but provide a wealth of detail.
2. DHS and other nationally representative household surveys can be leveraged to track coverage and effective coverage.
3. DHS-Service Provision Assessment and Service Delivery Indicator surveys provide a wealth of useful data on the structural capacity of representative frontline health facilities.

(Continued)

Box 0.1 ***continued***

4. Irrelevant care should be tracked, not just the underprovision of necessary care. As the report highlights, the threat of misaligned incentives through performance pay is that of the provision of irrelevant care. This has implications for patient welfare and the cost-effectiveness of the health system.
5. Measuring clinical quality can be tricky. Direct observations are expensive, but they provide in-depth pictures of care provision. Where available, balance scorecards and other routinely tracked data reported through PBF portals can provide valuable insights.
6. Administrative data from birth and other civil and vital registries can provide routinely updated data on health outcomes.

Resources brought to the frontlines through PBF projects have significantly improved the structural quality of primary health facilities.

So, the question arises as to the value of performance pay relative to its limited benefits. Performance pay requires verification, which is complex and can be costly to implement. In one example, the costs were estimated to be about 20 percent of all administrative costs (Zeng et al. 2021). Although risk-based verification algorithms may reduce such costs of performance pay, other measures, like dashboards and business plans (as in DFF projects), may offer similar accountability and transparency but at lower cost and with greater simplicity. In addition, the costs of performance pay can be unpredictable for the government and the health facility, which makes performance pay hard to scale unless it is well aligned with the government's public financial management system. This also raises questions about its sustainability. Of course, DFF may also require alignment with public financial management systems—for instance, having health facilities recognized as spending units in the charter of accounts is not always a straightforward process—but DFF does not face the challenge of budget unpredictability faced when scaling PBF programs.

The policy options for improving health services through financial incentives are undoubtedly on a continuum. For instance, one low-cost option may be to identify areas where baseline demand is particularly weak for certain types of services, ensure a minimum standard of quality of care in a public facility—using direct financing—followed by household-level cash transfers to see how much they increase a given indicator, and only then consider performance pay to frontline health workers and facilities. The future of performance pay—as one health financing approach in an

arsenal of several options—should not be a "yes" or "no" question but rather a "how" and "in what sequence" question. Box O.1 discusses in detail how task teams might approach these questions.

Chapter 8 considers the future of approaches to strengthening health systems, including PBF and DFF. PBF schemes offer strong accountability toward external donors, which has likely contributed to their popularity. These schemes incorporate important innovations beyond performance pay, for instance, accountability and transparency linked to decentralization and funding of the frontlines. In contexts where payment mechanisms such as DFF appear more appropriate, as discussed in box O.1, policy makers may want to incorporate accountability measures that satisfy the reporting demands of donors. This is especially the case in heavily donor-dependent countries where it could be argued that—at least in the short term—PBF schemes should serve as a tool for improving donor alignment around a package of services, much more than a tool for changing the public provider payment function. Thus, sustainable health financing reform may not incorporate performance pay while retaining other important aspects of PBF interventions.

The report concludes in chapter 8 with a discussion of the operational insights from the evidence presented. It draws four main messages from the findings presented in the report for the design of sustainable and scalable health financing reform. First, sustainability is about more than just money, and risk and uncertainty can lead to interventions being unsustainable even if the financing is available. Second, health facilities can often benefit from budget autonomy, flexibility, as well as unified payment systems, and their budgets can be output oriented without being linked to performance pay. Third, performance pay must make sense in the broader health system context—in other words, a substantial portion of the constraints to quality must be within the health worker's locus of control; the public financial management system should have a way to make and, if necessary, scale the performance payments; a purchasing unit, whether dedicated or not, should exist; and the budget structure should be able to handle the unpredictability of performance pay. Fourth, emerging technologies can be used to reduce the implementation costs of performance pay approaches. For instance, mobile payments to facilities may help deliver necessary accountability reform alongside the decentralization and direct financing of frontline health facilities. The report calls for the collection and analysis of data to track the constraints to effective coverage and the design of health financing interventions that are informed by such data.

The design of financial incentives in health care and the best way to measure quality of care at scale to support such incentive schemes are a difficult policy problem in which open questions remain. Even with many questions still unanswered, this report presents research that highlights the limits of complex PBF interventions, particularly compared with "lighter touch" policy options such as DFF. The research discussed in this report makes the case that health financing reform can—indeed, should—include accountability and transparency even if it does not include performance pay. The report discusses several rigorous methods for measuring the quality and efficiency of care and offers thoughts on scaling up such measurement. The research collated here also demonstrates the value of fixing the fundamentals: decentralizing, financing the frontlines, and incentivizing the utilization of preventive health services can be meaningful reforms by themselves. That said, in all the countries studied here, much room for improvement remains on many measures of health system performance. As countries seek to leverage health financing reform to develop high-quality health systems, the report argues that there is a need for an expanded suite of policy options, including but not limited to PBF, which can help countries address all the barriers they face to improving effective coverage.

Note

1. Initially 36 impact evaluations of PBF pilot programs in health were funded, but to our knowledge, only 25 have been or are expected to be completed (https://www.rbfhealth.org/impact).

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In many low- and middle-income countries, health coverage has improved dramatically in the past two decades, but health outcomes have not. As such, effective coverage—a measure of service delivery that meets a minimum standard of quality—remains unacceptably low. *Improving Effective Coverage in Health* examines one specific policy approach to improving effective coverage: financial incentives in the form of performance-based financing (PBF), a package reform that typically includes performance pay to frontline health workers as well as facility autonomy, transparency, and community engagement.

This Policy Research Report draws on a rich set of rigorous studies and new analysis. When compared with business-as-usual, in low-income settings with centralized health systems PBF can result in substantial gains in effective coverage. However, the relative benefits of PBF—the performance pay component in particular—are less clear when it is compared with two alternative approaches, direct facility financing, which provides operating budgets to frontline health services with facility autonomy on allocation, but not performance pay, and demand-side financial support for health services (that is, conditional cash transfers and vouchers). Although PBF often results in improvements on the margins, closing the substantial gaps in effective health coverage is not yet within reach for many countries. Nonetheless, important lessons and experiences from the rollout of PBF over the past decade can guide health financing into the future. In particular, to be successful, health financing reform may need to pivot from performance pay while retaining the elements of direct facility financing, autonomy, transparency, and community engagement.

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