

# Can performance-based financing be used to reform health systems in developing countries?

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**Abstract** Over the past 15 years, performance-based financing has been implemented in an increasing number of developing countries, particularly in Africa, as a means of improving health worker performance. Scaling up to national implementation in Burundi and Rwanda has encouraged proponents of performance-based financing to view it as more than a financing mechanism, but increasingly as a strategic tool to reform the health sector. We resist such a notion on the grounds that results-based and economically driven interventions do not, on their own, adequately respond to patient and community needs, upon which health system reform should be based. We also think the debate surrounding performance-based financing is biased by insufficient and unsubstantiated evidence that does not adequately take account of context nor disentangle the various elements of the performance-based financing package.

Abstracts in **عربي**, **中文**, **Français**, **Русский** and **Español** at the end of each article..

## Introduction

Performance-based financing (PBF) is an intervention that is gaining significant momentum as a solution to poor performance and the health worker crisis in low-income countries, particularly in Africa.<sup>1</sup> Results indicate that PBF can play a role in increasing the productivity of health workers and have positive effects on health service utilization.<sup>2–5</sup> The increasing use of PBF and its perceived benefits is now leading proponents to promote it as a strategy to address structural problems and to introduce more generalized health system reform, as testified by the recent paper in the *Bulletin of the World Health Organization* “Performance-based financing: just a donor fad or a catalyst towards comprehensive health-care reform?”<sup>1</sup> We believe that the current optimism for such a strategy is unsubstantiated and underestimates important constraints to its implementation. It also risks falling into the trap of seeking a “magic bullet” solution to improve complex social systems.

## Lack of evidence

PBF is an intervention designed to increase the quantity and quality of health care based on the theory that providing financial incentives to health workers for meeting output targets will motivate them to produce more or better outcomes and hence improve their performance. While the proponents of PBF make grand claims about its achievements and potential, an overview of the literature reveals that there is very little evidence to support these claims.<sup>6–10</sup> This is largely due to the fact that it is very difficult to evaluate PBF. To date most studies have sweepingly attributed most or all changes at district health facility level to the PBF intervention with little or no regard for contributing factors nor insight into how or why changes have occurred.<sup>6–10</sup> To our knowledge, only one evaluation in Rwanda<sup>3</sup> was carried out that isolates the effect of PBF incentives from increased resources. PBF is a comprehensive intervention in a complex, context-specific system. It seeks to improve the health sector by changing the organizational structure of the health system with regard to its financing mechanisms, information systems, planning, monitoring and evaluation. Any evaluation therefore needs to account for

such methodological challenges and take into account the context (economic, social, political), as well as the content and the process of implementation. While the Rwandan study can give us more insight into that country’s particular case, quasi-experimental evaluation designs are limited in evaluating interventions that have such high variance (context, content, process).<sup>11</sup> Arguably, the focus should be on the reasons why and how the intervention is working rather than whether or not it is working.

## What are the side-effects?

An overview of the literature on PBF not only highlights weak evaluations with questionable study designs but also several other anomalies. Possible adverse effects that financial incentives can have on health worker motivation and performance include: focusing on targeted services at the expense of other services (distortions); false reporting (gaming); cherry-picking patients that make it easier to meet targets; focusing on quantity rather than quality of services because it is methodologically easier to implement and monitor; increasing inequity by rewarding providers and facilities that are in a better position to meet targets; temporary improvements to services that cease as soon as the target is lifted; and dilution of intrinsic motivation.<sup>12</sup> Despite significant documentation regarding these effects, there have not been any studies to evaluate their impact.<sup>6,10</sup> This absence of evaluation of the possible negative consequences of PBF is reflected in a favourable bias for PBF in the literature. This is due both to a publishing bias towards studies that demonstrate successful implementation and the fact that most published authors are actively involved in the implementation of PBF initiatives.

## Is it efficient?

After more than a decade of implementation it is time to give serious consideration to efficiency, i.e. maximizing the level and quality of health system output while minimizing costs. There is very little, if any, evidence of the cost-effectiveness of PBF.<sup>8,13</sup> In addition to the extra funding needed to pay incentives and thus increase health-worker earnings, the transaction costs of PBF

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implementation are necessarily high. In most cases there is a need for new bodies or structures (from independent purchasing bodies to civil society organizations charged with community oversight) and strengthening of existing structures (especially health information systems). It would appear that the opportunity costs are also high. Health workers have increased reporting and administrative burdens<sup>14</sup> due to the effort required for monitoring and evaluating performance targets. This is not only to enable the accurate allocation of premiums but also to ensure against “gaming” and should, although this is rarely the case, also monitor for potential adverse effects on non-targeted activities. As PBF gains increasing support and a growing number of countries implement, or plan to introduce it, it is paramount to start taking account of the real costs and benefits and financial sustainability of PBF interventions.

### Is it replicable?

We notice in the literature that most claims of the success of PBF pertain to Rwanda. Rwanda was one of the first developing countries to implement PBF and was the first country to implement it on a national scale and is therefore an important case to study. However, the fact that PBF implementation has been successful in Rwanda is not grounds on which to believe that this intervention can be successfully replicated elsewhere – a concern shared by others, as recently published in the *Lancet*.<sup>15</sup> The success (or failure) of PBF, as a comprehensive social intervention, is entirely dependent on the context. Many authors have defined conditions necessary for the success of PBF such as: strong leadership and management support, accurate information and reporting systems, increased funding and training.<sup>7,8,12,16</sup> It would appear that Rwanda had the right conditions to effectively take on the challenge of implementing a successful PBF intervention. However, it should not be presumed that this is easily achieved elsewhere. Because PBF is a comprehensive package of reforms, a range of

technical as well as contextual constraints can significantly hinder its implementation. Examples of constraints include: the need to have the management capacity at national and local level for effective implementation; the need for a flexible public finance management system that has the capacity to easily mobilize resources to the local level; and the significant methodological challenge of designing a reward system that is equitable, socially acceptable and that promotes quality as highly as quantity of both targeted and non-targeted services.

In addition to technical conditions, the contextual country conditions are equally important for success. As a package of interventions, greater analysis is needed into which elements of the package are most beneficial and the reasons for this. For example, the payment of incentives (the only defining feature of the package specific to PBF) in relation to other elements such as increased coaching, supervision, accountability, increased salaries and increased spending for health.

We argue therefore that a more comprehensive evaluation, supported by clear evidence, should be used to inform the debate about PBF. One of the main reasons for the Rwandan success is strong leadership and political will. However, this political motivation has effectively stifled debate on the topic, making it difficult for stakeholders to raise concerns, for example, about unintended adverse consequences. This sensitivity contributes to the favourable bias but is unhelpful in informing the discussion on the development of PBF. During recent field visits to Rwanda, we have observed waning enthusiasm from health workers who have become accustomed to receiving financial incentives and we therefore question their sustainability as a motivating factor.

### Basis for reform

The relative success and interest in PBF suggest that it has a role to play in improving health-worker performance but we resist the notion that it can be applied

as a foundation to health system reform in low-income countries. By nature, PBF is economically driven and focuses principally on public finance. Indeed it is assumed that PBF is equally applicable to other sectors<sup>1</sup> but as such it overlooks the human dimension to development. *The world health report 2008: primary health care now more than ever*<sup>17</sup> reminds us that better health outcomes are best achieved when service delivery is organized around people’s needs and expectations and that “putting people first” should be the focus of reforms. But the setting of service delivery targets actually risks creating a conflict of interest between patients and providers and can act as a disincentive to patient-centred care. For example, the successful referral of a pregnant woman to a health centre or hospital for delivery is, above all, dependant on the quality of the relationship between the woman and her health provider. It is counter-intuitive to expect that fulfilling antenatal targets will automatically create a good relationship that will ensure follow-up care and a positive outcome of her pregnancy.

PBF has international support because it fits neatly into the Millennium Development Goals aid paradigm for rapid progress on a few key indicators. But we think it is misplaced to focus on outcomes and results without a thorough understanding and development of the processes and relationships that are necessary to obtain sustained improvements and quality of care. While quantitative targets can encourage creativity to increasing access, we wonder if quality of health care can ever really be improved when the system and its providers focus on targets linked to financial gain instead of on patient-centred care and the needs of the populations they serve. History has shown us that there are no “magic bullet” solutions for reforming the health sector and, while good financial management is necessary, it cannot be the motor of reform. ■

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## الملخص

## هل يمكن الاستفادة من التمويل المستند على الأداء في إصلاح النظم الصحية في البلدان النامية؟

التأثيرات والمستفاد من منظور اقتصادي لا تستجيب، في حد ذاتها، استجابة ملائمة لاحتياجات المرضى والمجتمع، وهي ما يجب أن يركز عليهما إصلاح النظام الصحي. كما نعتقد أيضاً أن النقاش الدائر حول التمويل المستند على الأداء غير حيادي نتيجة للبيانات غير الكافية وغير المدعومة بأدلة والتي لم تراعى السياق أو تحلل العناصر المختلفة لحزمة التمويل المستند على الأداء.

طوال الخمس عشرة سنة الماضية، اتسع تطبيق التمويل المستند على الأداء في عدد متزايد من البلدان النامية، ولاسيما في أفريقيا، كوسيلة لتحسين أداء العاملين الصحيين. وأدى توسيع نطاق تطبيقه على الصعيد الوطني في بروندي ورواندا إلى تشجيع مؤيدي التمويل المستند على الأداء واعتباره آلية أعظم من كونها آلية للتمويل، والنظر إليه كأداة استراتيجية لإصلاح القطاع الصحي. ونحن نعترض هذه النظرة على أساس أن التدخلات المستندة على

## 摘要

## 基于绩效的筹资能用来改革发展中国家的医疗卫生系统吗？

在过去的15年里，作为一种改善卫生工作者工作表现的手段，基于绩效的筹资已经在越来越多的发展中国家实施，特别是在非洲的一些国家。布隆迪和卢旺达将其扩大到全国范围内实施，这已经鼓励了基于绩效筹资的支持者逐渐将其视为医疗卫生领域改革的一种战略工具，而不仅仅是一项筹资机制。我们抵制这一观念，理由是，基于结果和

受经济驱动的干预本身并未充分满足病人和社区需要，而后者正是医疗卫生系统改革的基础。同时我们认为，围绕基于绩效筹资的争论，因证据不充分和缺乏依据而存在偏见，因为这些证据既未考虑背景又未解决基于绩效的筹资方案的各种要素。

## Résumé

## Le financement lié aux résultats peut-il être utilisé pour réformer les systèmes de santé dans les pays en voie de développement ?

Au cours des 15 dernières années, le financement basé sur les résultats a été mis en place dans un nombre croissant de pays en voie de développement, en particulier en Afrique, comme un moyen d'améliorer les résultats du personnel soignant. Le passage à la mise en place nationale, au Burundi et au Rwanda, du financement basé sur les résultats a encouragé ses partisans à le considérer comme étant plus qu'un simple mécanisme de financement, mais de plus en plus comme un outil stratégique permettant de réformer le secteur de la santé. Nous

nous opposons à cette opinion, arguant que les interventions basées sur les résultats et dictées par des considérations économiques ne répondent pas de manière adéquate, à elles seules, aux besoins des patients et de la communauté, sur lesquels la réforme du système de santé doit reposer. Nous pensons également que le débat autour du financement basé sur les résultats est influencé par des preuves insuffisantes et non fondées qui ne prennent pas correctement en compte le contexte ni ne démêlent les différents éléments du plan de financement basé sur les résultats.

## Резюме

## Можно ли использовать систему финансирования по результатам деятельности в качестве инструмента реформирования системы здравоохранения в развивающихся странах?

В течение последних пятнадцати лет финансирование по результатам деятельности получает все более широкое распространение в развивающихся странах, особенно в Африке, как средство повышения производительности труда работников здравоохранения. Внедрение этой системы в общенациональном масштабе в Бурунди и Руанде побудило сторонников финансирования по результатам деятельности относиться к нему не просто как к механизму финансирования, но, во всевозрастающей степени, рассматривать его как стратегический инструмент реформирования сектора здравоохранения. Мы выступаем против такой трактовки, поскольку основанные на

результатах и экономически мотивированные меры вмешательства, как таковые, не вполне отвечают нуждам пациентов и общин, которые должны быть положены в основу реформы системы здравоохранения. Мы также считаем, что дискуссия вокруг системы финансирования по результатам деятельности носит необъективный характер, так как основывается на неполной и неподтвержденной информации, которая недостаточно учитывает конкретные условия и не позволяет рассмотреть по отдельности различные элементы пакета финансирования по результатам деятельности.

## Resumen

## ¿Se puede utilizar la financiación basada en el rendimiento para reformar los sistemas sanitarios en países en desarrollo?

Durante los últimos 15 años, la financiación basada en el rendimiento se ha implementado en un número cada vez mayor de países en desarrollo, particularmente en África, como un medio para mejorar el rendimiento del trabajador sanitario. La ampliación de la implementación nacional

en Burundi y Ruanda ha animado a los partidarios de la financiación basada en el rendimiento a que se considere como algo más que un mero mecanismo de financiación y a que se tenga en cuenta cada vez más como una herramienta estratégica utilizada para reformar el

sector sanitario. Nos oponemos a dicha noción, basándonos en que las intervenciones basadas en los resultados y motivadas por la economía no responden adecuadamente, por sí mismas, a las necesidades de los pacientes y la comunidad, que es en lo que se debería basar la reforma del sistema sanitario. También opinamos que el debate sobre la financiación

basada en el rendimiento está sesgado por la falta de evidencias y por fundamentos que no tienen en cuenta el contexto adecuadamente y que no esclarecen los diversos elementos incluidos en el paquete de financiación basada en el rendimiento.

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## Round table discussion

### Performance-based financing: the need for more research

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While several developing countries have been implementing PBF as a strategy to finance health services, a polarized debate between the “proponents” and “opponents” of this approach is gaining prominence.<sup>1–4</sup> Ireland et al.<sup>5</sup> provide a critical view on the paper by Meessen et al.,<sup>6</sup> mainly opposing the argument that PBF, on its own, can be considered as a strategy to reform health systems in developing countries. One of their main criticisms is the lack of evidence. Evidence, of course, should ideally be central to any health sector reform but applying this rule rigorously can lead to inertia. Looking back on the history of public health, we note that many important health reforms implemented in Africa – such as selective primary care for child survival or the health district strategy – were not developed based on recommendations from rigorous experimental studies.<sup>7</sup> Health reformers should care-

fully consider different opportunities based on their potential to maximize the delivery and uptake of proven maternal and child health interventions.<sup>8</sup>

As African public health experts, we believe that PBF is interesting due to its potential. Having said this, we agree that implementing health reforms based on evidence is crucial. For example, some components of selective primary health care, such as growth monitoring, were implemented even though little was known about their cost-effectiveness.<sup>7</sup> However, a recent evaluation of the primary-care approach has shown interesting results<sup>9</sup> and the global public health community has since gained important knowledge on successful interventions in primary health care.

We think that Ireland et al. minimize the growing body of evidence on PBF implementation produced in recent years. Many studies have been published providing details on how to implement PBF and one experimental study has been published on the impact of the approach.<sup>10</sup> Clearly, rigorous research is still needed, especially more theoretical and qualitative studies that address the “how and why” and test hypotheses of potential adverse effects of PBF. Continuous checking and integration of the PBF approach is needed during implementation and this should be informed by operational research aimed at aligning PBF with the existing health system.

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The World Bank, through a grant from the Government of Norway, has launched several PBF initiatives in developing countries, systematically accompanied with an impact evaluation strategy using different innovative research designs.<sup>11</sup> These initiatives should include formative research to address the rapidly changing social and political context that may influence policy implementation.<sup>12</sup>

The debate around PBF should be evidence-based with critical appraisal. Both proponents and opponents should avoid taking a dogmatic position. Both parties have agreed that PBF is not a panacea. The provision of input items and other key interventions, such as provider training, supervision and health-system strengthening, should continue with the aim of producing results. A research agenda and an effective community of practice embracing all views on PBF is critical to understanding more about its potential for helping developing countries to reach some of the United Nations Millennium Development Goals. ■

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## Looking at the effects of performance-based financing through a complex adaptive systems lens

Jean Macq<sup>a</sup> & Jean-Christophe Chiem<sup>a</sup>

The debate on PBF is misdirected. As is too often the case in international aid financing, agencies try to prove the effectiveness of their contribution by isolating it as the main reason for success.<sup>1</sup> In reaction, opponents will often use the same approach in an attempt to prove that another factor is actually the cause of an observed change. We argue that this endless and futile debate, often present among experts in health systems strengthening, will not contribute to improving public health in low-income countries.

Rather than searching for the impossible proof of whether PBF works or not, we should instead try to learn useful lessons from experiences. We agree with Ireland et al. that the focus of PBF assessment should be on “why” and “how” the intervention works.<sup>2</sup> Comprehensive evaluation of PBF is needed as part of complete health system reform.

We think that, to respond to some of these key questions, health systems should be analysed using a complex adaptive systems lens, as others have advocated in the past.<sup>3,4</sup> A complex adaptive system is a collection of interacting components, each of which has its own rules and responsibilities. The behaviour of this kind of system is different to the sum of the behaviour of each of its components. Examples of complex adaptive systems include the human brain, ecosystems and manufacturing businesses.

Health system “behaviour” and particularly counterintuitive behaviour (unexpected changes or lack of change) can be analysed using a complex adaptive systems lens when PBF is introduced, often with a mix of other interventions such as in a context of system reform. The purpose of this analysis is not to isolate causal factors but rather to identify “macro” characteristics of the system that may explain behaviour change.

Although it has often been ignored in health system evaluation, social simulation can be useful for this approach. The most frequently used technique, agent-based modelling, uses computer simulation centred on a collection of autonomous agents whose interactions are based on a set of rules. These simulations can integrate empirical data or existing knowledge or opinions.<sup>5</sup> One of the powerful features of agent-based modelling lies in its capacity to study complex phenomena in a simple and flexible way. Indeed, this approach does not require a high level of mathematical or programming skills, making it accessible to many researchers. Furthermore, it allows for an iterative learning process that is easy to set up compared to long and costly data collection processes.

While this methodological approach may not “prove” the effectiveness of an intervention, it could provide insight into the reason a health system behaves in a given way (whether it changes or remains in a steady-state) when PBF is introduced. We believe that this type of information, although maybe less appealing to the usual stakeholders in development aid debates, is much more useful in evaluating PBF. ■

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## Why there is so much enthusiasm for performance-based financing, particularly in developing countries

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One of the strengths of PBF is its flexibility. Adherents to PBF continuously seek improvements in theory, best practice and instruments. The contributions of Ireland et al.<sup>1</sup> and Kalk<sup>2</sup> in response to the excellent paper from Meessen et al.<sup>3</sup> are therefore welcome. However, some of their points of criticism are based on misunderstandings and they transpose assumptions about behaviour in high-income countries to low-income settings. Ironically, their criticism only strengthens the case for PBF, since the mentioned authors do not propose any alternative for PBF but linger in the status quo, which most people would agree is detrimental to development and health.

Since PBF was first used around 15 years ago, there has been an open debate about its pros and cons. There has been criticism that incentive payments focused too much on quantity and not on quality. We subsequently adapted the incentives towards improving quality with very favourable results shown in recent evaluations from Burundi,<sup>4</sup> Democratic Republic of the Congo<sup>6</sup> and Rwanda.<sup>5</sup>

Another point of criticism has been that activities subsidized by PBF were limited to only 6–10 indicators and thereby ignored other health facility activities. In response, for example, the national PBF programme in Burundi introduced 48 indicators (24 at primary and 24 at hospital level). Equity was also a major and shared point of concern. In response, we introduced new PBF mechanisms such as bonuses for remote provinces and health facilities, quality improvement units for dilapidated health facilities as well as individual equity funds. Due to its purposeful broad orientation to health reforms, PBF also developed performance framework contracts for regulators to assure, for example, the quality of pharmaceuticals in a competitive market.

Internal criticism has included evaluations showing that there is a need for more effective community PBF approaches to promote household hygiene, sanitation and birth spacing.

This openness to constructive criticism explains why there is enthusiasm for PBF, particularly in developing countries, and there is little sympathy for the ideas of Ireland et al. and Kalk.

Twenty-two African countries have adopted PBF, are conducting pilots or are planning to start and all this without much external push or promotion. After reflection on the papers from Ireland et al. and Kalk, we conducted a small survey of 38 health workers in Burundi. We asked them whether they would want to abandon PBF and the answer was a wholehearted “no.” This is because PBF is a flexible system that allows health workers, who better serve the public interest, to receive appropriate payment. PBF grants power to autonomous health facilities to make decisions instead of central bureaucrats. It sensibly proposes checks and balances in health systems by separating regulation, input distribution systems, provision, purchasing and fund holding and strengthening community voice empowerment.

Criticism, therefore, has always been embraced. Some criticism, however, is unfounded such as the suggestion that workers in PBF believe that it is a magic bullet. Yes, we deem PBF to be a broad approach, but one that consists of numerous incremental and sensible steps towards improving the health system, with little magic about them. In addition, Ireland et al. wrongly argue that PBF only works in “stable Rwanda” while recent evidence strongly suggests that it is effective in failed states such as the Central Africa Republic and the Democratic Republic of the Congo. We appeal to all colleagues to continue an open scrutiny of PBF; it is the only way forward. However, in doing so, let us work with state-of-the-art evidence and not with mere personal opinion. ■

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