

Review Article

Factors Inhibiting and Enabling Performance-Based Financing in Health Care Delivery across Low and Middle-Income Countries: A Scoping Review

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Abstract

Background: Emerging financing strategies in the health sector have been developed to improve the impact of investments and enhance healthcare outcomes. One promising approach is Results-based Financing, which establishes a connection between financial incentives and pre-established performance targets. This innovative approach holds the potential to strengthen healthcare delivery and strengthen overall healthcare systems.

Aim: The scoping review endeavored to systematically delineate the body of evidence pertaining to facilitators and barriers to the implementation of performance-based financing within the realm of healthcare provision in low- and middle-income nations.

Methods: The review used Preferred Reporting Items for Systematic Reviews and a Meta-Analysis extension for Scoping Reviews checklist to select, appraise, and report the findings. We searched PubMed, Web of Science, and Google Scholar databases and grey literature published between January 2000 and March 2022. We conducted the abstract screening with two independent reviewers. We also performed full-article screening. We used the six methodological frameworks proposed by Arksey and O'Malley. The results were thematically analyzed.

Results: Of the 1071 searched studies, 34 met the eligibility criteria. 41% of the studies were descriptive, 26% cross-sectional, 18% trial, and 15% cohort studies. The enabling and inhibiting factors of performance-based financing in healthcare delivery have been identified. Moreover, the review revealed that performance-based financing's influence on service delivery is context-specific.

Conclusion: The facilitators and impediments to the effectiveness of performance-based financing in enhancing service delivery are contingent upon a holistic comprehension of the contextual factors, meticulous design, and efficient execution. Factors such as the level of care facilities, presence of community-based initiatives, stakeholder involvement, and participatory design emerge as key facilitators. Conversely, barriers such as communication obstacles, inadequacies in the PBF models, and deficiencies in the healthcare workforce are recognized as inhibitors. By harnessing the insights derived from a multitude of evidence incorporated in this scrutiny, stakeholders can deftly navigate the intricacies of performance-based financing, while also considering the prospective areas for further exploration and research.. [Ethiop. J. Health Dev. 2024; 38(1): 00-00]

Keywords: Performance-based financing, healthcare delivery, Scoping review.

Registration: The scoping review protocol was not registered

Introduction

In low and middle-income countries, financial strategies that enhance the effectiveness of investments in the health sector have emerged to advance healthcare outcomes. One such promising approach is Results-based Financing (RBF), which links financial incentives to predetermined performance targets and is currently implemented in numerous countries(1). While the concept behind RBF holds the potential to strengthen healthcare delivery, concerns persist regarding its long-term sustainability(2). Some nations have operationalized payment systems founded on specific performance metrics in low- and middle-income countries, where resource constraints often loom large. While these initiatives have shown promise, questions remain about their sustainability in the face of unique contextual challenges(3).

The efficacy of financial incentives in driving healthcare improvements is an area of ongoing exploration, emphasizing the importance of understanding how these incentives interact with existing motivations and incentives within healthcare systems(4). Amidst these dynamics, Performance-Based Financing (PBF) has emerged as a valuable tool, fostering heightened motivation among healthcare professionals and facilities, particularly in resource-constrained settings(5). The core premise of PBF hinges on maximizing health-worker motivation, achieved through a blend of financial and non-financial incentives, ultimately resulting in improved healthcare service delivery(6). Research has unveiled compelling evidence of increased physician productivity, output-outpatient-physician ratio reduction, and overall healthcare output enhancements due to performance-based payments(7, 8). Moreover, PBF has exhibited the

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potential to amplify healthcare efficiency without compromising perceived service quality, a testament to the power of incentives in driving performance(9).

Beyond the quantifiable gains, PBF has engendered improvements in the healthcare service provision process, potentially leading to increased availability of essential health commodities(10). However, the realization of PBF's full potential is contingent upon various contextual factors, including the adequacy of healthcare infrastructure and equipment, adherence to established norms, and the managerial dynamics of healthcare workers(11). Moreover, PBF's effectiveness in bolstering the technical quality of healthcare hinges on its integration with quality care and the presence of requisite healthcare standards(12-14). Despite the burgeoning body of evidence surrounding PBF(15-18), there is a need for comprehensive mapping of the available knowledge in this domain. While individual studies have explored the relationships between PBF and various facets of the health system individually(19-27), including its impact on maternal and newborn health(19), there has been a dearth of systematic efforts to map evidence on inhibiting and enabling factors of PBF on healthcare delivery.

This scoping review endeavors to bridge the knowledge gap in this area by systematically mapping the available evidence in identifying inhibitors and enablers of PBF in healthcare delivery, focusing on low and middle-income countries. The review aimed to explore the breadth of available literature on the topic.

Therefore, we conducted a scoping review to systematically map the factors inhibiting and enabling

performance-based financing in health care across low and middle-income countries to identify the existing gaps in knowledge. Researchers, policymakers, and programme managers can use the information generated through this scoping review to foster appropriate programs and policy frameworks. This method is selected against systematic review as it is suited for identifying factors and variables as well as informing policy and practice.

Methods

This scoping review is part of a large-scale study on PBF in Ethiopia. The review followed Arksey and O'Malley's proposed scoping review framework(28). Therefore, the six steps suggested by the framework are followed: (1) identifying the research question, (2) identifying relevant studies, (3) study selection and appraising quality, (4) charting the data, (e) collating, summarizing, and reporting the results, and (f) consultation (optional stage).

Stage one: Identifying the Research Question

This scoping review had the following research questions:

1. What enabling factors favor the positive contribution of PBF to health care delivery?
2. What inhibiting factors hinder the positive contribution of PBF to health care delivery?

Eligibility of the Research Question

This study involved the core elements of the Population, Concept, and Context (PCC) suggested by the 2020 Joanna Briggs Institute (JBI) methodology for scoping review guideline(29) to determine the eligibility of the research question as indicated in Table 1 below.

Table 1 The PCC framework used for the scoping review

Item	Description
Population	Various stakeholders involved in care healthcare delivery: healthcare facilities, health professionals, community health workers, and patients
Concept	"Performance-based financing" (PBF) involves providing financial incentives or rewards based on achieving specific performance goals in the health sector.
Context	low and middle-income countries

Eligibility Criteria

This scoping review incorporated studies that met specific inclusion criteria. Firstly, the review included studies that presented evidence regarding the factors that facilitate the positive contribution of PBF to healthcare delivery. Secondly, studies that focused on factors inhibiting PBF from positively impacting healthcare delivery were also included. Moreover, the review specifically considered studies published in the English language. The timeframe for inclusion encompassed studies published between the year 2000 and March 2022. Furthermore, the review encompassed studies published in peer-reviewed journals as well as grey literature. The range of study designs that were considered included qualitative research, randomized controlled trials, non-randomized studies, quantitative descriptive studies, and mixed methods studies.

Exclusion criteria

This scoping review excluded articles published in languages other than English before the year 2000 and after March 2022.

Stage 2: Identifying Relevant Studies

We developed a Google form to facilitate literature search, incorporating study topics, author information, and publication dates. This form allowed screeners to document studies eligible for screening and present them in the Endnote library. Employing relevant keywords within the advanced search feature, we conducted searches and transferred the results to Endnote.

The review comprehensively identified relevant studies by searching published and unpublished (grey) literature databases. We utilized Google Scholar, Web of Science, and PubMed core databases to gather information published on performance-based financing. International organizations' websites, such as the

World Health Organization and the World Bank, were searched for relevant grey literature.

We carried out a thorough literature search using the MeSH terms "performance," "contracting," and "health financing" with a focus on performance-based financing within health system, incentives, and health impacts. Additionally, we used the following key queries: "Performance-based financing in health" "Performance-based financing and maternal health" "Result-based financing in health" "Performance-based financing and child health," "Performance-based financing and health system," and "Effectiveness of performance-based financing in health.". We focused on dates of publication after 1 January 2000 and found a total of 1029 articles. We completed the search on 15 May 2022.

Stage 3: Study Selection and Appraising Quality

During our search strategy development, we conducted a pilot phase to assess the suitability of chosen electronic databases and included keywords. The primary author screened the initial title, while two reviewers independently screened the abstract—the title screening aimed to evaluate eligibility and remove duplicates. In instances where the studies were not readily accessible, the investigators made efforts to establish contact with the authors. They utilized the services of the University of KwaZulu-Natal library for assistance. All eligible titles were collated into an Endnote library, with duplicates eliminated before the abstract screening. Articles conforming to the scoping review's inclusion criteria were identified.

Furthermore, full-text article screening was independently undertaken based on eligibility criteria. In discrepancies between the two reviewers, the third reviewer made the final decision. Our findings were visually represented using a PRISMA chart for clarity. The research methodology closely adheres to the PRISMA statement(30) for the identification and synthesis of literature concerning PBF and its impact on healthcare delivery.

The quality appraisal evaluated the appropriateness of the study's aim, methods, study design, data collection, analysis, discussion, and conclusion.

Stage 4: Charting the data

The data charting process involved utilizing a table to extract pertinent background details and key information from each chosen study. This was executed using an Excel spreadsheet, focusing on capturing vital concepts related to the variables from the background. Additionally, the form encompassed the research questions, the variables addressed, and the corresponding themes. Collaboratively, two reviewers crafted the data charting form, determining the variables for extraction and independently charting them. This form was consistently refined and updated throughout the study's course.

We extracted data encompassing article attributes (such as publication year and country where the study was conducted), study objectives, data collection and analysis methods, and principal findings.

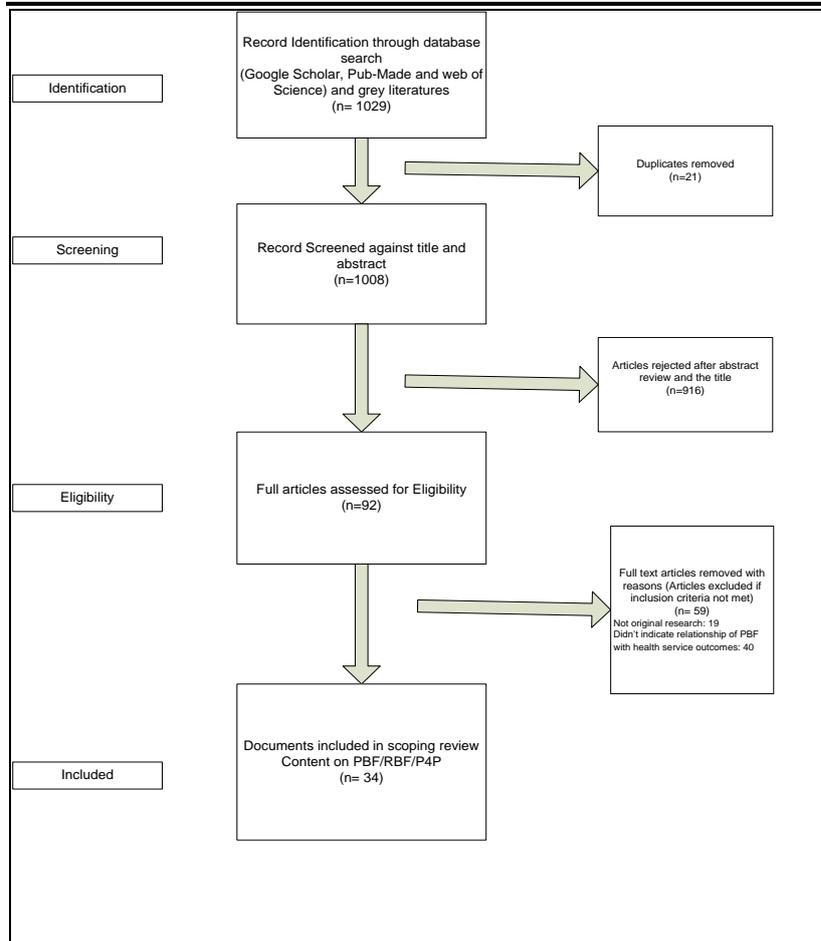


Figure 1. Search strategy for the scoping review: Adapted from the PRISMA flow diagram.

Stage 5: Collating, Summarizing, and Reporting the Results

This scoping review used the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) Extension for Scoping Reviews (PRISMA-ScR) checklist. The review presented a numerical summary description at each stage of the PRISMA flow diagram. The charting and appraisal tools' findings were summarized and presented in the table.

The investigators presented a summarized diagrammatic presentation of eligible articles' significant characteristics. The relevancy of data for the research question was presented for each evidence source. The investigators have also undergone thematic analysis to summarize the main results.

The study's results were assessed by examining PBF and healthcare delivery relationships, discussions, and conclusions. The identified research questions were used to synthesize overall assessed evidence.

Stage 6: Consultation

We consulted with critical stakeholders to comprehensively understand the available literature and explore aspects that may need to be noticed. The consultations involved two program managers, one

policymaker, and two experts who worked in the relevant field.

Results

Study selection

One thousand twenty-nine potentially pertinent publications were found on the Web of Science, Google Scholar, PubMed, and organizations' databases. After duplicates were removed, 1008 were identified from searches of electronic databases and review article references. Based on the title and the abstract review, 916 were excluded, with 92 full-text articles to be retrieved and assessed for eligibility. Of these, 59 were excluded for the following reasons: 19 were not original research, and 40 did not indicate the relationship of PBF with health service outcomes. Thirty-four studies that satisfied our inclusion criteria were kept for analysis based on the research questions after removing duplicates and analysing the remaining abstracts were included in the final evaluation.

Characteristics of the included studies

Most designs of the studies included in the analysis were the cross-sectional type of study design followed by trial studies (cross-sectional studies - sixteen, trial - ten, and cohort study - eight). Most studies (twenty-nine) were from African countries.

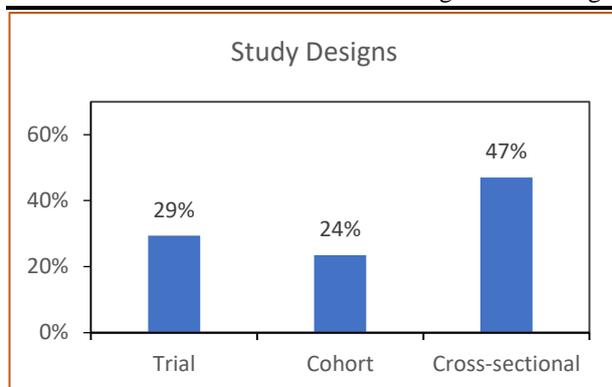


Figure 2: Percentage distribution of study designs used in reviewed studies (n=34)

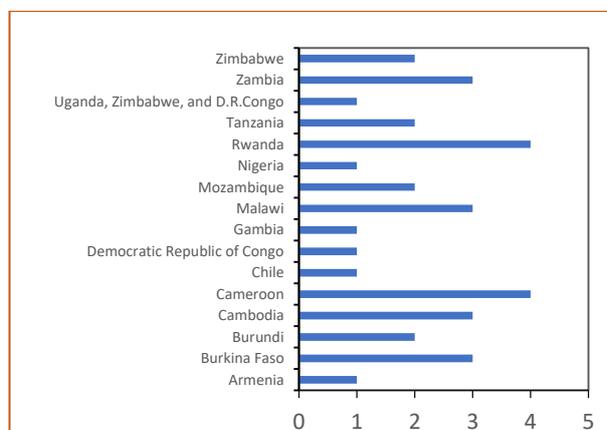


Figure 3: Distribution of countries represented in studies included (n=34)

General Description of the Studies

The mapped literature shows that there are enablers and inhibitors identified that make PBF contribute to service delivery positively or negatively. From the evidence reviewed, 68% of them identified enablers, while 18% indicated inhibitors of PBF.

Evidence shows that in Burundi and Malawi, there was an increase in institutional deliveries(55, 56). Cambodia reported gradual improvements in facility-based delivery rates(38). Also, Burkina Faso demonstrated a significant uptick in antenatal care visits, deliveries, and postnatal care visits(35). PBF in Burundi has contributed to higher anti-tetanus vaccination rates(39). Likewise, positive outcomes yielded in Mozambique's Maternal, New-born, and Child Health (MNCH) programs(43).

Further, in Cameroon, PBF led to increased utilization of modern contraception methods(45). PBF's protective effect against wasting has been observed in Rwanda(47), with average health center performance witnessing significant improvements(50). Chile's dental discharge outcomes(34) and Cambodia's efficient mechanism for fund allocation are attributed to the success of PBF(46). Tanzania's Pay-for-Performance (P4P) program has reduced costs and mitigated drug stock-outs(58).

In Zimbabwe, improved healthcare access for vulnerable groups has been noted(37). Cambodia, through the utilization of internal contracting(32), and

the Democratic Republic of Congo, with a focused approach to grant performance and disbursements, have highlighted the success achieved in the implementation of PBF(59).

Conversely, Zimbabwe's study identified differential impacts on under-five mortality(33). A study in Burundi reported no significant changes in institutional deliveries, prenatal consultations, outpatient visits, postnatal visits, and child health(39). Nigeria's PBF has varying efficacy compared to Direct Facility Financing (DFF)(49), whereas, in Cameroon, it showed reduced enrollment in pentavalent vaccinations over time(52). In Tanzania, P4P leads to improved institutional deliveries but with uneven distribution(60). Malawi's study also identified limitations in reducing stillbirths(41).

Among the array of PBF outcomes, cases of minimal impact also emerged. Burkina Faso's scenario highlighted challenges in community verification processes(61), whereas Zambia's incomplete PBF model hindered communication(36). Gambia's experience indicated limited uptake in utilization(40). Furthermore, PBF exhibits minimal changes in accountability(62). Rwanda's evidence showcased no discernible difference in reported illness probabilities(54).

Enablers that favor PBF's contribution to health care delivery:

Studies recognized PBF as positively contributing to health care delivery, and several factors play a significant role in shaping these outcomes.

One crucial enabler prompting PBF was a focus on the level of care which targeted interventions. Concentrating on primary care settings as an enabling factor for PBF to enhance health care delivery(39). Moreover, when additional resources were mobilized for PBF, it enhanced the specification and dissemination of entitlements(62).

The existence of outreach or community-level activities is identified as an enabler for improving health services under PBF(63). Engaging with communities through outreach efforts ensured that healthcare services were delivered directly to those in need under PBF(51).

A participatory initial design of the PBF scheme involving politically important stakeholders has also been identified as a crucial enabler in achieving positive results in health care delivery(48).

The contribution of PBF in public facilities was more maximized when accompanied by reforms that abolished user fees(46). Additionally, the existence of an independent and well-equipped fundholder responsible for purchasing, service delivery, and regulatory roles was identified as essential for ensuring effective PBF to enhance health outcomes(50).

Involving community health workers was identified as effective as it helps detect vulnerable populations and increase service delivery at the health center level

rather than hospitals(60). Furthermore, the ability to reduce stock-out for essential drugs enabled PBF to increase service delivery(58); with this context, PBF successfully reduced the financial burden on individuals(63).

Linking performance measurement with strategic incentives within the PBF has enabled the structures and processes of care, fostering better relationships between practitioners and patients(55). Moreover, because of the timely submission of quarterly supply and distribution planning, drug availability was improved(64). With this context PBF enabled improved utilization rates for less organized services(53).

Inhibiting factors hinder the positive contribution of PBF to health care delivery:

Inhibiting factors that contribute to the unfavorable effects of PBF on healthcare delivery were identified. The presence of unintended consequences undermines the effectiveness of community verification processes in PBF. This led to inaccuracies in performance assessment and payment distribution, which in turn negatively impacted the desired outcomes of the PBF(44).

The absence of a fully developed and comprehensive PBF model poses hurdles to successful implementation. A well-structured and integrated PBF framework is necessary for the intended benefits of PBF. This also inhibits PBF from being fully integrated into the health system. Because this focus is often centered solely on increasing the volume of certain programs, neglecting others(36).

A study depicted that communication challenges among actors were crucial in impeding PBF results. Another critical factor that constrains the success of PBF is a shortage of skilled human resources, particularly midwives, which inhibits the ability to deliver quality healthcare(42).

Discussion

This review mapped evidence of the enablers and inhibitors of PBF on health care delivery. It showed diversity in the availability of evidence in the reviewed area.

The effectiveness of PBF on healthcare delivery is influenced by a range of factors that vary across different output-based schemes(47). These factors are determined by contextual circumstances, such as the autonomy granted to purchasing organizations, the clarity of financial penalties, and the living conditions in implementing areas(56). The level of autonomy given to purchasing organizations in decision-making and resource allocation plays a crucial role in shaping the impact of PBF on healthcare delivery. Clear and transparent criteria for financial incentives or penalties help motivate healthcare providers and improve their performance. However, factors such as limited access to healthcare facilities, inadequate resources, and sociocultural barriers in implementing areas can hinder the intended positive effects of PBF.

Engaging in mobilizing additional resources enables PBF to amplify entitlements for healthcare services, fostering improvements in provider payment, data quality, financial autonomy, and equitable strategies(44). As aimed by the “Astana Declaration” that primary health care ensures that everyone everywhere enjoys the highest possible attainable standard of health(65), successful integration of PBF into primary healthcare systems is enabling actors and processes to improve service delivery(48). Notably, the level of care targeted by PBF interventions has a pronounced effect in Burundi as well. The focus on health centers, has consistently improved service delivery outcomes, particularly in underserved communities(39).

Due focus given to managing program results is crucial for the effectiveness of PBF, as a lack of focus on results has been identified as a major reason for the unsatisfactory outcomes of PBF(31, 38). The existence of additional financial support on top of regular resources enabled the specification and dissemination of healthcare entitlements under PBF, which ensures essential services are accessible(62). By incorporating outreach and community-level activities, PBF initiatives have been able to expand their scope and impact. These activities involve direct engagement with communities, allowing for a more comprehensive approach to improving healthcare provision. By reaching out to communities, PBF interventions can address specific health needs, promote health, and enhance community participation in decision-making processes, ultimately leading to improved overall healthcare provision(57).

A participatory initial design involving influential stakeholders has proven crucial in adapting PBF interventions to community needs(38). The conjunction of reforms that eliminate user fees with PBF enables more equitable access to health services(60). Having an independent and well-equipped fundholder responsible for the execution, service delivery, and regulatory roles has been highlighted as an enabler for successful PBF(51). Integration of community health workers into the health systems improved healthcare delivery in PBF(58). The presence of strategic alignment between performance measurement and incentives within PBF has resulted in significant improvements in healthcare structures and processes. This alignment has not only fostered better patient-practitioner relationships but has also contributed to enhanced service quality, ultimately leading to improved healthcare outcomes(53).

Unintended consequences arising from community verification processes in PBF can lead to inaccuracies in performance assessment and the distribution of incentives among staff. These inaccuracies, in turn, hinder the effectiveness of PBF by undermining the fairness and reliability of the assessment system and creating disincentives for healthcare providers to participate in PBF initiatives(44) activities. Furthermore, some of the actions taken by health providers to increase service uptake inhibit the intended effects of PBF(57). An incomplete or underdeveloped PBF model also limits the potential benefits and hinders the full realization of PBF

outcomes(48). Combining PBF with equity interventions can have the unintended consequence of inhibiting service utilization, leading to unfavorable results. The focus on equity measures may inadvertently create barriers or disincentives for individuals to access and utilize healthcare services, potentially undermining the intended positive impact of PBF on improving service delivery and health outcomes(66).

Poor communication among stakeholders impeded PBF's progress. Also, the shortage of critical health workforce impeded the achievement of desired outcomes under PBF(42). Some of the negative effects on the utilization of health services inhibit improvements in quality, specifically for neonatal health care(67). Externalities play a significant role in inhibiting the quality of antenatal care services under PBF. These external factors, such as limited availability of essential supplies, inadequate infrastructure, and understaffing, hinder the delivery of high-quality care. Furthermore, increased distance between health facilities and communities poses a challenge to the successful implementation of PBF. The geographical barrier can limit access to services, leading to reduced service utilization and potentially inhibiting PBF on healthcare delivery(67).

Conclusion

Context-specific factors play a pivotal role in shaping the outcomes of PBF. Primary care settings have proven to be more responsive to PBF initiatives, showcasing the importance of tailoring interventions to the appropriate level of care. Adequate resource mobilization and funding enabled PBF to enhance the availability and accessibility of essential healthcare services. The involvement of key stakeholders has extended the reach of PBF. However, inhibitors must be acknowledged and addressed for PBF to achieve its potential. Communication barriers among stakeholders, incomplete PBF models, and shortages of skilled health workers are inhibiting the outcome of PBF interventions. Furthermore, equitable distribution of benefits among vulnerable groups remains a concern.

Therefore, by understanding the interplay between PBF and contextual factors, tailored interventions must be developed to optimize health outcomes.

Recommendations

Exploring strategies to overcome the identified inhibitors, the long-term sustainability of PBF initiatives, and assessing their impact on health system strengthening and viability for implementation are research gaps identified. Recognizing the influence of contextual factors on the success of PBF interventions, policymakers, and implementers should prioritize through contextual analysis before designing and implementing PBF programs. Engaging stakeholders in implementing PBF initiatives is an essential action to be considered by policymakers as well.

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Author Contributions

All authors made significant contributions to the work in conception, study design, execution, acquisition of data, analysis, and interpretation; took part in drafting, revising, or critically reviewing the article; gave final approval of the version; and agreed to be accountable for all aspects of the work.

Competing interests

The authors declared no conflicts of interest in this work.

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Supplimentary Documents

Table 2: Data Charting table

Author (year)	Program Settings	Objectives	Data gathering	Data analysis	Main results
Victoria Y Fan (2013)(31)	Performance-based financing to improve program performance and thus value for money (Multi-country)	aimed to test the association between grant ratings and disbursements, an indication of the extent to which incentives for performance are transmitted to grant recipients	data obtained from Global Fund database grants from 2003 to 2012 with performance ratings and corresponding disbursements	regression analysis	Grant performance rating in Phase 1 was positively associated with having any disbursements in Phase 2.
Koevath nak Khim (2013)(32)	Output-based to improve efficiencies in the use of resources and reduce overheads. (Cambodia)	Assesses the internal contracting approach as a means for improving the management of district health services and strengthening service delivery.	Review of literature and operational documents, semi-structured interview, 2011 routine data report.	Descriptive analysis	Internal contracting improved service delivery.
Anne-Marie Turcotte-Tremblay (2017)(5)	PBF was implemented to improve health care services (Burkina Faso)	To document the unintended consequences of community verification	Community survey and client satisfaction survey	Multiple case study	Healthcare workers did not significantly influence community verifiers during patient selection for community verification. Unintended consequences jeopardize the effectiveness of community verification.
Eleonora Fichera (2021)(33)	RBF schemes have focused on average programme effects for incentivized services (Zimbabwe)	To analyze the effect of Zimbabwe's national RBF scheme on neonatal, infant, and under-five mortality, using Demographic and Health Survey data from 2005, 2010, and 2015	Demographic and Health Survey data	the difference in differences design	RBF reduced under-five mortality by two percentage points overall, but this decrease was only significant for children of mothers with above-median wealth (2.7 percentage points) and education (2.1 percentage points). RBF increased institutional delivery by seven percentage points – with a statistically significant effect for

Author (year)	Program Settings	Objectives	Data gathering	Data analysis	Main results
Marko Cornejo-Ovalle (2015)(34)	P4P for oral healthcare practice (Chile)	To assess the impact of p4p on the efficiency of primary oral healthcare providers in Chile.	Primary health providers in primary healthcare	Random-effect passion regression	poorer socio-economic groups and least educated. There is a significant difference in dental discharge comparing P4P vs no (822.59/1000 and 662.59/1000 at 0.0001), respectively.
Maria Steenland (2017)(35)	The PBF pilot program was launched in Boulsa, Leo, and Titao districts in 2011 (Burkina Faso). Incentives to motivate staff to perform better in Public health commodity supply chains in 2013. (Mozambique)	Aims to increase the provision and quality of maternal health services	Facility-level administrative data from HMIS	Difference-in-differences approach	PBF facilities had 2.3 more antenatal care visits, 2.1 more deliveries, and 9.5 more postnatal care visits each month after the introduction of PBF.
Cary Spisak (2016)(9)	PBF signed by the Zambian government and donors committed to funding a program for Reproductive, Maternal, New-born, Child, and Adolescent Health and Nutrition (RMNCAH) (Zambia)	Aimed to improve the performance of the central medical store—Central de Medicamentose Artigos Medicos (CMAM)—by realigning incentives	in-depth interviews and focus group discussions	Quantitative data analysis...descriptive	CMAM's performance continually improved over baseline, and CMAM achieved many of its performance targets, for example, timely submission of quarterly supply and distribution planning reports.
Rachel Bergman (2021)(36)		aimed to describe stakeholders' knowledge of the RBF model and perceptions of the incentive structure during the first 18 months of the program's implementation	Case study approach, which "allows investigators to focus on a "case" and retain a holistic and real-world perspective	Qualitative framework analysis	challenging. The lack of a fully developed RBF model meant the program was more difficult to communicate to the actors involved. Also, the lack of knowledge of the RBF program and the existence of incentives raises doubts about whether the program incentivized actors to achieve the intended targets.
J. Chinkhumb; (2020)(24)	RBF to reduce maternal and prenatal mortality (Malawi)	Maternal health, Rural Malawi	Delivery care data from four districts	Descriptive analysis	RBF implied incremental costs of US\$1122, US\$26 220, and US\$987 per additional DALY averted, death averted, and LYG, respectively.

Author (year)	Program Settings	Objectives	Data gathering	Data analysis	Main results
A. Sithole (2013)(37)	PBF impact on maternal and child health care (Zimbabwe)	Maternal & Child Health of Poorest Communities in Zimbabwe	Health facility based	Descriptive analysis	PBF brought improvements in the availability of healthcare to vulnerable groups, with no effect on mortality rate reductions
P. Ir (2015)(38)	RBF for facility delivery boosting (Cambodia)	Maternal health	Reported deliveries between 2006 and 2011 from HIS	Econometric analysis	An incremental rate of facility-based delivery was reported due to the implementation of PBF from 19% in 2006 to 57% in 2011, where the increase was more substantial in health centres compared to hospitals.
J. Ndayishi miye (2015)(39)	PBF on the use of healthcare services (Burundi)	17 Provinces of Burundi	Data from the National Health Information System are	Descriptive analysis	PBF was associated with an increase in the number of anti-tetanus vaccination of pregnant women. Non-robust positive effects are also found in institutional deliveries and prenatal consultations. Changes in outpatient visits, postnatal visits and children's vaccinations are not significantly correlated with PBF.
L. Ferguson (2020)(40)	RBF and skilled delivery (Gambia)	Maternal health	Midline evaluation of RBF	Three delays' model	No increase was found in the uptake of health care; however, relative to the control group, significant increases in referral to health facilities for delivery were found.
R. Makuluni (2021)(41)	RBF for maternal and new-born health (Malawi)	Maternal & new-born: Two case districts and two non-intervention areas	Maternity unit delivery registers at hospitals in four districts of Malawi	Logistic regression models	The study did not identify a positive impact of RBF on maternal and new-born health in reducing fresh and macerated stillbirths.
S. Witter	RBF to strengthen				There are minor changes to the

Author (year)	Program Settings	Objectives	Data gathering	Data analysis	Main results
(2018)(14)	health care use (Uganda, Zimbabwe, and D.R.Congo)	PBF in humanitarian settings	Documentary review and interview	Descriptive Analysis	accountability of purchasers at the government level, but RBF does mobilize additional resources to support entitlements. Regarding the population, RBF brings improvements in specifying and informing about entitlements for some services. However, the engagement and consultation with the population on their needs could have been improved. About providers, RBF did not impact in any major way on provider accreditation and selection or treatment guidelines.
K. Lemmy (2019)(42)	RBF to improve skilled delivery (Zambia)	Health facilities of Nchelenge District	Data from stakeholders at various levels of the health system	Descriptive analysis	The accuracy of results on the number of deliveries attended by skilled health workers has improved due to the funds. However, the accuracy of the results could not be sustained because of inadequate staff (midwives).
Y. Rajkotia (2017)(43)	PBF on HIV, maternal and child health services (Mozambique)	Maternal health	Case-control study Data	Econometric framework	PBF positively impacted MCH, PMTCT and paediatric HIV program outcomes. Most of the 18 indicators responded to PBF (77% in the North and 66% in the South), with at least half of the indicators demonstrating a statistically significant increase in average output of more than 50% relative to baseline.
D. Walque	PBF impact on health outcome (Cameroon)	Four evaluation group to measure the outcome	Explicit financial incentive	Descriptive analysis	PBF in Cameroon is an efficient mechanism to channel

Author (year)	Program Settings	Objectives	Data gathering	Data analysis	Main results
(2017)(44)					payments and funding to the provider level, leading to significant increases in utilization in the PBF arm for several services (child and maternal vaccinations and use of modern family planning), but not for others, such as antenatal care visits and facility-based deliveries
T. Egbe (2016)(45)	PBF for modern use contraceptive methods (Cameroon)	Reproductive age women	Cross-sectional data	Descriptive analysis	60.3% of women in the intervention area used modern methods of contraception compared to 46.6% of those in the control group.
		Maternal and child health	Health facility-based data	Descriptive analysis	There is no significant impact on deliveries supervised by a skilled birth attendant, nor is there any significant effect on neonatal mortality, antenatal care and vaccination rates. The impact on births in public facilities is much more significant if PBF is accompanied by maternity vouchers that cover user fees. Still, there is no significant effect among the poorest women.
E. Poel (2015)(46)	PBF and utilization of maternal and child health services (Cambodia)				
A. Binagwa ho (2014)(47)	PBF on malnutrition (stunting, wasting and underweight) in children under five years (Rwanda)	Maternal and children under five years	General Health and HIV Household Survey	Descriptive analysis	The prevalence of wasting was 8.8%, stunting was 58.4%, and underweight status was 20.7%. Maternal emotional and social well-being was protective against wasting in children under five. Living in districts

Author (year)	Program Settings	Objectives	Data gathering	Data analysis	Main results
M. Steenland (2017)(35)	PBF to increase maternal and child health service use (Burkina Faso)	Leo and Titao districts	Facility-level administrative data from the national health management information system (HMIS)	Difference-in-differences approach	implementing PBF was protective of wasting. Living in a district with PBF was not found to be associated with either stunting or underweight status among children under 5. PBF facilities had 2.3 more antenatal care visits, 2.1 more deliveries and 9.5 more postnatal care visits each month after the introduction of PBF.
R. Bergman (2021)(36)	PBF for health (Zambia)	Stakeholders' knowledge of the RBF model and perceptions of the incentive structure	37 in-depth interviews	A qualitative case study was used and included a review of the documents	The lack of knowledge about the RBF scheme among respondents (government, funder and administrators) suggests the possibility that the model did not ultimately have the necessary preconditions to create an effective incentive structure.
V. Petrosyan (2017)(48)	RBF in Primary health care (Armenia)	Primary health care system throughout the period 2000–2015.	Document and literature review key informant interviews and focus group discussions	Descriptive study	A well-sequenced reform process that included the most politically important stakeholders, including the State Health Agency, significantly influenced PBF results.
M. Khanna (2021)(49)	PBF for maternal and child health provision (Nigeria)	Maternal and child health	571 facilities in 52 districts randomly	Difference-in-difference	PBF increased institutional deliveries by 10% points over DFF and 7% over business-as-usual. PBF and Direct Facility Financing (DFF) were more effective than business-as-usual for Penta3; PBF also formed CPR. Twenty-one of 26 QOC indicators improved in PBF and DFF relative to business-as-

Author (year)	Program Settings	Objectives	Data gathering	Data analysis	Main results
R. Soeters (2014)(50)	PBF and district health system (Rwanda)	Rwanda health facility	Observation	Descriptive nature	usual. However, except for deliveries, PBF was as or less effective than DFF: Penta3 immunization and ITN use were each 6% less than DFF and QOC gains were comparable. PBF requires at least one new actor, an independently equipped fundholder organization in the district health system, separating local health authorities' purchasing, service delivery, and regulatory roles from the technical role of contract negotiation and fund disbursement.
I. Flink (2016)(51)	PBF to improve health system performance in developing countries (Cameroon)	The poorest of society ('indigents') in a PBF programme in Cameroon,	Documentation review, 59 key informant interviews and 33 focus group discussions	Descriptive study	Community health workers were able to identify very poor and vulnerable people with a minimal chance of leakage to non-poor people.
		Maternal & Child Health in low- and middle-income countries	Health facility-based data	Cross-sectional time series	The enrolment of pentavalent1 decreased 11.2% between 2017 to 2018 and 11.6% between 2018 and 2019. For pentavalent3, enrolments decreased 10.6% between 2017 to 2018 and 14.3% from 2018 to 2019. The timeliness of EPI data witnessed a 7.5% increase between 2017 and 2018 and a drop of 73.7% between 2018 and 2019. The completeness of EPI data for the DHD went from 98% to 96.6% in 2018 to 99.2% across the three years. The
D. Alain (2021)(52)	PBF and Immunization (Cameroon)				

Author (year)	Program Settings	Objectives	Data gathering	Data analysis	Main results
E. Nahimana (2016)(53)	RBF and health outcome (Rwanda)	Capacity building model of PBF	Health centres in the kiriche district	Mixed-effects linear regression	completeness witnessed a 2.6% increase between 2018 and 2019 following the implementation of PBF. Average health centre performance had improved significantly across the district for all three targets: mean insurance coverage increased from 68% at baseline to 93% (pB0.001); mean number of acute malnutrition cases in the previous 6 months declined from 24 to 5 per facility (pB0.001); and contraceptive prevalence increased from 42 to 59% (pB0.001).
		Less incentivised child health service	DHS	Difference-in-difference	There was no measurable difference in the estimated probability of reporting illness with diarrhoea, fever or acute respiratory infections between the intervention and comparison groups. Seeking care at a facility for these illnesses increased over time. However, no differential effect by PBF was seen. The estimated effect of PBF on receipt of treatment for poor children is 45 percentage points higher compared to the non-poor children seeking care for diarrhoea or fever.
M. Skiles (2015)(54)	RBF on illness, care seeking and treatment (Rwanda)				The estimated effect of PBF on receipt of treatment for poor children is 45 percentage points higher compared to the non-poor children seeking care for diarrhoea or fever.
M. Rudasingwa (2017)(5)	PBF and Maternal health care (Burundi)	Primary and hospital health care in Burundi	Household survey	Difference-in-difference	PBF is associated with an increased institutional delivery probability of 39.5 percentage points, a relative improvement of

Author (year)	Program Settings	Objectives	Data gathering	Data analysis	Main results
5)					81.8%. Institutional delivery probability increased significantly only at the health centre level by 33.6 percentage points, a relative rise of 80.6%—no PBF effect on the number of antenatal care visits and anti-tetanus immunization.
S. Brenner (2014)(56)	RBF and maternal health services (Malawi)	Health facility level	Primary data	Descriptive analysis	The programs contributed to the increase in institutional deliveries. DSF and P4P are positive developments for which the government needs to prepare itself by taking adequate measures in resource mobilization.
P. Binyaruk a (2018)(57)	P4P and service utilization (Tanzania)	Households with women who delivered in the last 12 months	Data from selected health facilities in Tanzania	Difference-in-difference	P4P led to a significant increase in the rate of institutional deliveries among women in the poorest and middle-wealth-status households but not among women in the least poor households. The effect of P4P on institutional deliveries was also significantly higher among women in rural districts compared to women in urban and uninsured women than insured women.
L. Anselmi (2017)(58)	P4P and maternal care outcome (Tanzania)	Delivered mothers	3000 women who delivered and 200 health workers at 150 health facilities in	Difference-in-difference	P4P reduced the probability of women paying for delivery care (−4.5%), which mediates the total effect of P4P on institutional deliveries (by 48%) and deliveries in a public health facility (by 78%). P4P also reduced the stock-out rate for

Author (year)	Program Settings	Objectives	Data gathering	Data analysis	Main results
			Tanzania		essential drugs. P4P increased kindness at delivery (5%). P4P increased the likelihood of supervision visits taking place within 90 days (18%),
