The effects of Performance-Based Financing on the uptake of health services in low-and-middle-income countries: A systematic review

by

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Plagiarism Declaration

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Abstract

Background

Many low- and middle-income countries (LMICs) have adopted Performance-Based Financing (PBF) since the late nineties to improve health system effectiveness and efficiency. Two previous systematic literature reviews assessed the effect of PBF on the uptake of specific health services such as HIV/AIDs and modern family planning. Another two assessed its effect on different aspects of the health system including health outcomes. This systematic review specifically assessed the effects of PBF implemented in LMICs on uptake of health services.

Method

Relevant scientific databases include PubMed, Academic Search Premier, Africa Wide Information, APA Psych Info, Business Source Premier, CINAHL, COCHRANE, EconLit, SCOPUS, Humanities International Complete, African Index Medicus, IndMed, Business Source Premier and Web of Science for: - randomised control trials, contemporaneous comparative studies, time-series studies, and impact evaluation papers published between 2000 and 2019 that evaluated PBF and its effect on the uptake or use of health services. A narrative synthesis was used due to wide variations in the methodologies of the included papers.

Result

Fifteen papers were eligible for analysis, and they are from Asia (3) and sub-Saharan Africa (8), the rests are literature reviews (4). PBF had mixed effects on uptake of targeted health care services in general but specifically showed great promise in the uptake of institutional delivery. It also improved the quality of care and had a mixed effect on equity.

Limitations

The research produced contemporary evidence on the effect of PBF on the utilization of health care services in LMICs. Furthermore, besides public health institutions especially primary health care centres, it also assessed the effect of PBF on faith-based clinics, and among informal health care providers thereby giving a holistic view of the effect of PBF, reflecting the contexts of LMICs.

A major limitation is that the sample size is small to make a generalized conclusion on the effect

of PBF on the uptake of health care services in LMICs. Another limitation is that only peer reviewed papers were analysed and they have diverse methodological approaches and varied contexts, hence unsuitable to conduct a meta-analysis. Again, the research was conducted using papers published in English alone, which limits the resources available to analyse the outcome effect.

Conclusion

PBF had a mixed effect on the uptake of targeted health care services in LMICs, more research is needed for robust evidence; to substantiate PBF's effect on improving, for example institutional delivery to reduce maternal mortality in LMICs.

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List of abbreviations

ANC	Antenatal Care
GAVI	Global Alliance for Vaccines & Immunization
HIV/AIDS	Human Immunodeficiency Virus/ Acquired immune deficiency syndrome
HMIS	Health Management and Information System
HRITF	Health Result Innovation Trust Fund
IDA	International Development Association
INGO	International Non-governmental Organization
NGO	Non-governmental Organizations
LMIC	Low- and middle-income Countries
PBF	Performance-based Financing
RBF	Result-based Financing
SDG	Sustainable Development Goals
UHC	Universal Health Coverage
USAID	United States Agency for International Development
WHO	World Health Organization

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PART A
PROTOCOL

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BACKGROUND

Universal Health Coverage (UHC) is one of the targets of the Sustainable Development Goals (SDGs) desired to be achieved by 2030. It is defined as providing quality health care for all people without individuals incurring any financial hardships (WHO, 2018). One of the keyways to attain UHC is to improve people's access to quality health care. Access is the timely use of services according to need (Jacobs et al, 2012). In 1978, Primary Health Care (PHC) was adopted to ensure universal access to health care (WHO, 2019). Up till today, in low-and middle-income countries (LMICs), PHC is still a necessity.

However, even if the healthcare is available in the communities, the availability does not translate automatically to the uptake of services. Several factors determine the uptake of health services. They include geographical accessibility defined as the distance between the individual and the health facility or service; in other words, services may be available but due to distance, clients may not use them for lack of transportation or high cost of transportation; affordability, which is the ability to pay for the available health service without incurring financial catastrophe, including the opportunity cost of seeking health services (Jacobs et al, 2012); availability, is provision of the right mix of services, skills and technologies most needed by the community at the right time, (including extended time of services). And lastly, acceptability, which is available services meeting up with the community's expectations including age, gender, belief and cultural preferences (Jacobs et al, 2012).

The access factors can be classified under demand-side and supply-side factors. Demand-side factors are those that are within the purview of the individual, household, or community, like income, level of education, belief, and culture, while supply-side factors are based on health facility characteristics which are beyond the control of the clients like quality of services rendered, service charge, and lack of equipment or drugs (Singh, 2016). Furthermore, the factors can be classified under client's constraints i.e., ability to consume, like income, charges, and distance or under clients' preferences i.e., willingness to consume, like culture, knowledge of potential benefits of health care and quality of services rendered at health facilities (O'Donnell et al, 2007).

Health financing is a critical aspect needed to achieve UHC with strategic purchasing forming a key component. Strategic purchasing ensures that scarce resources meant for health are channeled more effectively, efficiently, and equitably. According to the World Health Organization (WHO), "strategic purchasing means active-based engagement in defining the service mix and volume and selecting the provider mix in order to maximize societal objective" (WHO, 2016). Strategic purchasing is also important to reduce the inverse equity hypothesis effect, (i.e., a case where people in upper economic class initially adopts new strategies developed to reduce inequality, and therefore further worsen the inequality) (Victoria et al, 2018).

In LMICs, there is a need for strategic purchasing because of acute shortage of both human and financial resources to deliver UHC. Some of the causes of these shortages include inefficient or inappropriate use of resources, poor quality of care, costly staff mix, unmotivated health care workers and corruption. The WHO has reported that between 20% and 40% of the resources spent on health is wasted leading to a shortage (WHO, 2014). This shortage of resources can be dire that LMICs depend on foreign aid to boost their resources for health. This dependency on foreign aid sometimes induces foreign influence over local priorities, policies, leadership systems and capacity (Andrews, 2009).

Strategic purchasing has been applied in one way or another to ameliorate barriers to health services uptake. This includes the use of health equity fund, vouchers and community loan-funds to pay for transport, health insurance subsidies for the poor, conditional cash transfers and pre-payment schemes and performance-based financing (Jacobs et al, 2012).

Performance-based financing (PBF), a supply-side result-based financing, is a payment mechanism where health providers are paid according to the services rendered against a pre-determined target. This is against the traditional input financing where budgeted money is handed over to health providers to achieve some desired goals. Demand-side result-based funding is where the clients are financially motivated to seek health services in health institutions.

PBF has strategic means that may help to enhance the uptake of health services. Firstly, it involves a contract between the fund holders and the health service providers. Secondly, there is community participation, which allows the community representatives, the opportunity to engage and partake in management regarding their health. Finally, there is a disaggregation of functions where there is greater independence of actors involved in the contract (Toonen et al, 2009). Health providers have greater autonomy over the fund management and greater independence in decision making regarding its use; but to ensure accountability, there is a separate entity for verification and another for regulation to ensure quality. It is through these features that PBF realigns incentives and accountability of health providers to high-volume and quality services. There are reports of successes, and many LMICs and donor agencies are adopting PBF as a way of financing health services.

However, PBF is criticized because the good attributes are exaggerated. Many researchers have consistently insisted that there is no clear evidence that it is more effective and efficient than other health reform strategies like the traditional input-based financing and ambitious decentralisation if they are given the same attention as to PBF. It is said to be a donor fad, context-specific and induces perverse effect like gaming, tunnel vision, adverse selection and crowding-out of intrinsic motivation and professionalism (Paul et al, 2018). This controversy calls for more research to ascertain clarity and the effectiveness of PBF.

There is a need to improve universal access with strategic purchasing to achieve UHC. It involves enhancing health care providers' capacity to target service provision on selected groups bearing in mind communities' peculiar needs and national priorities. The essence of this research is to assess whether strategic purchasing improves universal access to health services. The research will be on whether supply-side result-based financing, i.e., performance-based financing can improve the uptake of health services. Stated differently, can PBF reduce barriers to accessing health care?

STATEMENT OF RESEARCH PROBLEM

According to the WHO and the World Bank, half of the world's population is yet to have access to essential health services (World Bank, 2020). Most of these difficulties experienced in access to health care services are predominant in LMICs and mostly among the poor. Fundamentally, in the health systems of LMICs, both financial and human resources are scarce when compared to high-income countries (HIC). There is a substantial disparity between the actual health investments in LMICs and the spending needed to provide a package of essential services for population health (Clyde, 2019). On the other hand, the health workers are migrating to high income countries due to lack of motivation resulting from poor remuneration, lack of equipment, drugs and infrastructure, and lack of adequate opportunities for skill development (Schuster et al, 2018). In 2018 for example, research showed that 20% of the physicians and 10% of nurses trained in sub-Sahara Africa migrated to high-income countries due to poor condition of service (Schuster et al, 2018). These reasons result in low total health expenditure and poor service delivery (APHA, 2008).

The health systems in LMICs receive significant technical and financial resources from international non-governmental agencies to ameliorate the resource gaps. But most times, these aids are for vertical programmes with priorities that are different from those of the recipient health systems. Though these programmes have made some impacts, they have not generally strengthened the health systems in LMICs, because they create parallel systems that pull the human resources from the already deficient public health sector and further weaken, rather than strengthen, the health systems.

Performance-based financing have potentials to improve access to health care in LMICs, but some factors must be put into consideration for it to achieve this goal. Examples like paying attention to the local context in which it is to be implemented, how the PBF policy is formulated and introduced to the recipient government, how the PBF is designed and finally how the PBF is implemented (Fritshe et al, 2014).

Some circumstances like insufficient funds for the recurrent expenditure of the health systems, low staff salaries that are not paid on time, lack of resources to buy drugs and equipment, poor quality health services, poor technical capacity, and poor right and correct skill mix, are existing weaknesses prevalent in LMICs that may weaken the final credibility of PBF (Renmans et al, 2016).

Also in the policy developmental process, it is vital that the indigenous government be involved right from the planning stage for them to build into the underlying philosophy of PBF to enhance domestic ownership. This is very important because most PBF strategies in LMICs are implemented through pilot projects and the donors most times, channel their resources straight to the operational level because they feel it will give them more return for their money (Paul et al, 2018).

Furthermore, the contract which contains the policy design features must state in clear terms; the governance structures and the division of responsibilities. The chosen indicators and their prize worth, the targets, and the payment modalities should be known, accepted, and agreed upon by stakeholders from the beginning. A clear understanding of these factors is very important as it defines the roles and expectations of health providers, right from the beginning and reduces confusion and under-performance (Renmans et al, 2016).

At the operational level, it is important that the health workers are carried along in the implementation of PBF from the beginning. How verification and regulation are done is also important to the success of PBF. Sharing of the bonus should be seen as fair, without nepotism and not perceived as an avenue to settle scores (Paul et al, 2018).

Finally, facility managers should be accountable to health workers on how the money from PBF is utilised. These build trust in the system and enhances motivation. In addition, there should be intermittent staff training, program evaluation and feedback, to improve health workers motivation and good outcome of PBF (Renmans et al, 2016).

In conclusion, many countries in LMICs since the turn of the century, have adopted PBF and so much money have been spent on it from the World Bank and donor agencies. This is done with the belief that it will help to strengthen the health systems and improve access to health care. But the question is, is PBF implemented as theoretically intended? It is pertinent that the strategy is reviewed to obtain up-to-date knowledge on it, hence the need for the research. The outcome of the research will equip the policy makers to influence future policy.

AIM AND OBJECTIVE

Aim:

The study aims to conduct a systematic literature review to assess the effect of performance based-financing on access to health services in low- and middle-income countries.

Objective:

The objective of this study is to establish whether performance-based financing improves the uptake of health services in LMICs.

METHODOLOGY

Type of studies

This is a systematic literature review using performance based-financing literature. It will concentrate on its effect on the uptake of health services in LMICs. The scientific method will be used to search and appraise the available literature. The review will critically analyse in a stepwise manner, the existing evidence, and use it to synthesise a comprehensive, up-to- date overview of the use of PBF to improve the uptake of health services in LMICs. The stepwise approach will ensure transparency, consistency, reproducibility and improve the accuracy of the study outcome.

The review will include both quantitative and qualitative studies. This involves a combination of qualitative appreciation of people's experiences and quantitative estimation of outcomes if any.

Participants

The research will include PBF studies on the uptake of health services carried out in LMICs as defined by the World Bank.

Types of outcome measures

Primary outcomes: the primary outcome is whether PBF improved access to health services in LMICs including, availability, acceptability, and affordability of health services.

Secondary outcomes: the secondary outcome is whether PBF improved quality and equity in low- and middle-income countries.

Inclusion and exclusion criteria

There will be a clear and strict definition of the criteria that will determine the articles to be reviewed. The review will include both qualitative and quantitative studies on PBF, published between 2000 and 2019 in English language. These papers must be on uptake, improve or increase of health services utilization in LMICs. Eligibility of the papers will be determined through rigorous quality assessment by at least two people independently. Below is the table describing the inclusion and exclusion criteria of the systematic literature review.

Issues to consider	Inclusion Criteria	Exclusion Criteria
Nature of intervention	All papers with sufficient information on PBF. Papers on synonyms of PBF like Result based financing, Pay for performance will also be included.	Papers that do not apply PBF to improve the uptake of health services.
Geographical area	PBF projects conducted in LMICs.	PBF studies conducted in High Income Countries. (HIC)
Language of publication	Only papers published in English will be considered to avoid constraints involved with	Any paper not published in English will not be considered due to translation difficulties.

	translating non-English papers.	
Period of publication	All papers published between 2000 and 2019.	All paper published before 2000 and after 2019
Study design	Experimental, quasi-experimental and cohort studies will be included. Only peer reviewed paper will be used. Only peer reviewed papers will be analysed	Any other study design like case studies or case series studies will not be included.
Outcome	Any outcome that increased or decreased uptake or increased or decreased access to health services.	Any outcome that is not increased or decreased uptake or increased or decreased access to health services.

Table 1: Inclusion and Exclusion Criteria

Electronic searches

Several databases will be involved in the literature search. This is because no singular database contains all articles related to a particular topic (Hammerstrøm et al, 2010). It also helps to reduce bias. An academic librarian will be consulted to guide on search terms, but the basic search terms are 'PBF', 'Improved uptake', 'health services', 'LMICS'.

The following databases will be searched:

- Cumulative Index to Nursing and Allied Health Literature (CINAHL)
- PubMed
- Scopus
- EconLit
- Web of Science
- Academic Search Premier
- PsychINFO
- Humanities International Complete
- Cochrane (Trials and Economic Evaluation)
- African Index Medicus
- Latin American and Caribbean Health Sciences Literature (LILACS)
- IndMed
- Africa Wide Information

- Business source premier

"A comprehensive search strategy for each database will be developed. This will consist of both subject headings and search terms like, improve uptake OR improve access OR increase uptake OR increase acceptance AND Performance based financing OR Result-based financing OR Pay for Performance AND health care OR health services AND LMICs. Appendix 6 shows the comprehensive search strategy of each data base. The operator 'OR' is used to combine the synonyms while the operator 'AND' is used to combine the concepts". Reference Appendix 1

Further search will be carried out in Campbell Collaboration Library of Systematic Reviews; Cochrane Database of Systematic Reviews (CDSR), Journal storage (JSTOR), website of the WHO, National Bureau of Economic Research, Institute of Development Studies, International Health Economic Association and Econ papers will be searched. Furthermore, reference lists of relevant studies will be searched, and field texts articles perused for additional information.

Selection of studies

The inclusion and exclusion criteria will be applied consistently by all the review authors. At least two of the authors will independently screen the titles and abstracts of the papers and compare their results. Full texts of potentially eligible papers will be retrieved by at least one of the authors. The two authors will then independently review the full text, compare their results and through discussion and consensus resolve any discrepancy. A third reviewer will be consulted if a decision is not reached.

Data extraction and management

Standardised data extraction form (Appendix 2) will be used to extract data from included studies by at least two independent authors. It helps to categorise information extracted from each study in an organised manner based on the following: citation, study design and methodology, geographic setting, outcome, types of analysis performed and findings. It helps to reduce bias and promote an organized representation of the extracted data. It will act as a guide for analysing extracted data and its management.

Assessment of studies

Cochrane risk of bias tool (Appendix 3) will be used for 'randomised controlled studies' while the Newcastle-Ottawa Scale (Appendix 4) will be used for 'non-randomised controlled studies. Also, the critical appraisal skills programme (CASP) (Appendix 5) will be used to assess the methodological quality of the qualitative studies included. Missing data and the dropout of each included study will be adequately described, including the extent to which these may affect the results of the study. The reviewers will compare results, and through discussion and consensus resolve any differences, failing which a third party will mediate.

Dealing with missing data

In the case of unreported data where possible, the lead author of the included studies will be contacted to supply the missing information. The other authors will be contacted, if there was no response from the lead author within a week. There will be a thorough discussion of the missing data and dropouts and their effects on the result of the study.

Data analysis

Thematic analysis is proposed for this review. It is the most common form of qualitative research analyses. It allows the researcher to synthesise conclusions across similar studies based on common elements identified (Hammerstrøm et al, 2010). It is useful in describing concepts that are specific to a research question. It involves pinpointing, examining, and recording patterns or themes within a text. Themes are common patterns across data sets and they are established through the process of coding.

However, if the included studies differ significantly in design and settings, a narrative format will be used to summarise the findings. Narrative data synthesis allows the inclusion of evidence from a wide variety of study types, thus encouraging the incorporation of diverse forms of evidence in systematic reviews (Mays et al, 2005). It allows researchers to summarise, interpret evidence, and present findings from the published studies without subjecting the data to further analysis. This method can pose a problem as it may be difficult to consolidate diverse raw narrative data like personal stories into new knowledge.

EXPECTED RESULTS AND IMPLICATION OF THE RESEARCH

We will use PRISMA guidelines (Appendix 6) to report the methods, findings, and implications of the findings. The research will identify gaps and enhance the relevance of the outcome to policy makers in policy formulation and practice.

ETHICS

There is no ethical consideration as it is a systematic literature review.

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APPENDIX 1: SEARCH STRATEGY

A comprehensive search strategy for each database will be developed. This will consist of both subject headings and search terms like;

((improve uptake OR improve access OR increase uptake OR increase acceptance AND Performance based financing OR Result based financing OR Pay for Performance OR Conditional cash transfer OR Incentive based performance AND health services [Mesh] OR health care OR health services AND Deprived Countries OR Deprived Population OR Deprived Populations OR Developing Countries OR Developing Country OR Developing Economies OR Developing Economy OR Developing Nation OR Developing Nations OR Developing Population OR Developing Populations OR Developing World OR LAMI Countries OR LAMI Country OR Less Developed Countries OR Less Developed Country OR Less Developed Economies OR Less Developed Nation OR Less Developed Nations OR Less Developed World OR Lesser Developed Countries OR Lesser Developed Nations OR LMIC OR LMICS OR Low GDP OR Low GNP OR Low Gross Domestic OR Low Gross National OR Low Income OR Lower GDP OR lower gross domestic OR Lower Income OR Middle Income OR Poor Countries OR Poor Country OR Poor Economies OR Poor Economy OR Poor Nation OR Poor Nations OR Poor Population OR Poor Populations OR poor world OR Poorer Countries OR Poorer Economies OR Poorer Economy OR Poorer Nations OR Poorer Population OR Poorer Populations OR Third World OR Transitional Countries OR Transitional Country OR Transitional Economies OR Transitional Economy OR Under Developed Countries OR Under Developed Country OR under developed nations OR Under Developed World OR Under Served Population OR Under Served Populations OR Underdeveloped Countries OR Underdeveloped Country OR underdeveloped economies OR underdeveloped nations OR underdeveloped population OR Underdeveloped World OR Underserved Countries OR Underserved Nations OR Underserved Population OR Underserved Populations)).

APPENDIX 2: DATA EXTRACTION FORM

Author(s) and year of publication	Country of study	Aim of Study	Data collection methods	Types and number of documents used					Focus of study	Level of health system	Identified challenges with use of document	Authors comment on the use of documents
				Policy Documents	Media Outputs	Letters and diaries	Research Outputs	Total number of documents				

APPENDIX 3: COCHRANE RISK OF BIAS TOOL

Domain	Support for judgement	Review author's judgement
Selection bias		
Random sequence generation	Describe the method used to generate the allocation sequence in sufficient detail to allow an assessment of whether it should produce comparable groups	Selection bias (biased allocation to interventions) due to inadequate generation of a randomised sequence.
Allocation concealment	Describe the method used to conceal the allocation sequence in sufficient detail to determine whether intervention allocations could have been foreseen in advance of, or during, enrolment.	Selection bias (biased allocation to interventions) due to inadequate concealment of allocations prior to assignment.
Performance bias		
Blinding of participants and personnel: Assessments should be made for each main outcome (or class of outcomes).	Describe all measures used, if any, to blind study participants and personnel from knowledge of which intervention a participant received. Provide any information relating to whether the intended blinding was effective	Performance bias due to knowledge of the allocated interventions by participants and personnel during the study.
Detection bias		
Blinding of outcome assessment: Assessments should be made for each main outcome (or class of outcomes).	Describe all measures used, if any, to blind outcome assessors from knowledge of which intervention a participant received. Provide any information relating to whether the intended blinding was effective	Detection bias due to knowledge of the allocated interventions by outcome assessors.
Attrition bias		
Incomplete outcome data: Assessments should be made for each main outcome (or class of	Describe the completeness of outcome data for each main outcome, including attrition and exclusions from the analysis. State	Attrition bias due to amount, nature or handling of incomplete outcome data

outcomes).	whether attrition and exclusions were reported, the numbers in each intervention group (compared with total randomized participants), reasons for attrition/exclusions where reported, and any re-inclusions in analyses performed by the review authors	
Reporting bias		
Selective reporting	State how the possibility of selective outcome reporting was examined by the review authors, and what was found	Reporting bias due to selective outcome reporting.
Other bias		
Other sources of bias	State any important concerns about bias not addressed in the other domains in the tool. If particular questions/entries were pre-specified in the review's protocol, responses should be provided for each question/entry	Bias due to problems not covered elsewhere in the table

Adapted from Higgins and Altman 2008

APPENDIX 4: NEWCASTLE-OTTAWA SCALE

Case Studies/ Case Series

Selection

1) Is the case definition adequate?

a) Yes, with independent validation*.

b) Yes, e.g., record linkage on self-reports.

c) No description.

2) Representativeness of the cases

a) Consecutive or obviously representative series of cases*.

b) Potential for selection biases or non-stated.

3) Selection of Controls

a) Community controls*.

b) Hospital controls.

c) No description.

4) Definition of Controls

a) No history of disease (endpoint)*.

b) No description of source

Confounder

1) ***Comparability of cases and controls on the basis of design or analysis***

a) Study controls for age and education*.

b) Study controls for any additional factors*.

Exposure

1) Ascertainment of exposure

a) Secure records*.

b) Structured interview where blind to case/control status*.

c) Interview not blinded to case/ control status.

d) Written self-reports or medical record only.

e) No description.

1) Same method of ascertainment for cases and controls

a) Yes*.

b) No.

2) Non-Response rate.

a) Same rate for both groups*.

b) Non respondents described.

c) Rate different and no designation *.

Cohort Studies

Selection

1) Representativeness of the exposed group/cohort

a) Truly representative of the average participants in the community*.

b) Somewhat representative of the average participants in the community.

c) Selected group of users.

d) No description of the derivation of the group.

2) Selection of the non-exposed group/cohort

a) Drawn from the same community as the exposed group*.

b) Drawn from a different source.

c) No description of the derivation of the non-exposed group.

3) Ascertainment of exposure

a) Secure record*.

b) Structured interview or questionnaire*.

c) Written self-reports.

d) No description.

4) Demonstration that outcome of interest was not present at start of study

a) Yes*.

b) No.

Confounder

1) Comparability of groups on the basis of the design or analysis.

a) Study controls for age and education*.

b) Study controls for any additional factors*.

Outcome

1) Assessment of outcome.

a) Independent blind assessment*.

b) Record linkage*.

c) Self reports.

d) No description.

2) Was follow-up long enough for outcomes to occur.

a) Yes*.

b) No.

3) Adequacy of follow up of cohorts.

a) Complete follow-up – all subjects accounted for*

b) Subjects lost to follow up unlikely to introduce bias*

c) Follow-up <70% and no description of those lost.

d) No statement

Cross Sectional Studies

Selection

1) Representativeness of the exposed group/cohort.

a) Truly representative of the average participant in the community*.

b) Somewhat representative of the average farmers or pesticides applicators in the community.

c) Selected group of users.

d) No description of the derivation of the group.

2) Selection of the non-exposed group/cohort.

a) Drawn from the same community as the exposed group*.

b) Drawn from a different source.

c) No description of the derivation of the non-exposed group.

3) Ascertainment of exposure.

a) Secure record*.

b) Structured interview or questionnaire*.

c) Written self-reports.

d) No description.

Confounder

1) Comparability of groups on the basis of the design or analysis.

a) Study controls for age and education*.

b) Study controls for any additional factors*.

Outcome

1) Assessment of outcome.

a) Independent blind assessment*.

b) Record linkage*.

c) Self reports.

d) No description.

Adapted from http://www.ohri.ca/NOSGEN

APPENDIX 5: QUALITY APPRAISAL TOOL

Critical Appraisal Skills Programme (CASP)

making sense of evidence

10 questions to help you make sense of qualitative research

This assessment tool has been developed for those unfamiliar with qualitative research and its theoretical perspectives. This tool presents a number of questions that deal very broadly with some of the principles or assumptions that characterise qualitative research. It is *not a definitive guide* and extensive further reading is recommended.

How to use this appraisal tool

Three broad issues need to be considered when appraising the report of qualitative research:

- **Rigour: has a thorough and appropriate approach been applied to**
- **key research methods in the study?**
- **Credibility: are the findings well presented and meaningful?**
- **Relevance: how useful are the findings to you and your organisation?**

The 10 questions on the following pages are designed to help you think about these issues systematically.

The first two questions are screening questions and can be answered quickly. If the answer to both is "yes", it is worth proceeding with the remaining questions.

A number of italicised prompts are given after each question. These are designed to remind you why the question is important. Record your reasons for your answers in the spaces provided.

The 10 questions have been developed by the national CASP collaboration for qualitative methodologies.

Screening Questions

1. Was there a clear statement of the aims of the research? ❑ Yes ❑ No

Consider:

– what the goal of the research was

– why it is important

– its relevance

2. Is a qualitative methodology appropriate? ❑ Yes ❑ No

Consider:

– if the research seeks to interpret or illuminate the actions and/or subjective experiences of research participants

Is it worth continuing?

Detailed questions

Appropriate research design

3. Was the research design appropriate to address the aims of the research?

Write comments here

Consider:

– if the researcher has justified the research design (e.g. have they discussed how they decided which methods to use?)

Sampling

4. Was the recruitment strategy appropriate to the aims of the research?

Write comments here

Consider:

– if the researcher has explained how the participants were selected

– if they explained why the participants they selected were the most appropriate to provide access to the type of knowledge sought by the study

– if there are any discussions around recruitment (e.g. why some people chose not to take part)

Data collection

5. Were the data collected in a way that addressed the research issue?

Write comments here

Consider:

– if the setting for data collection was justified

– if it is clear how data were collected (e.g. focus group, semi-structured interview etc)

– if the researcher has justified the methods chosen

– if the researcher has made the methods explicit (e.g. for interview method, is there an indication of how interviews were conducted, did they used a topic guide?)

– if methods were modified during the study. If so, has the researcher explained how and why?

– if the form of data is clear (e.g. tape recordings, video material, notes etc)

– if the researcher has discussed saturation of data

Reflexivity (research partnership relations/recognition of researcher bias)

6. Has the relationship between researcher and participants been adequately considered?

Write comments here

Consider whether it is clear:

– if the researcher critically examined their own role, potential bias and influence during:

– formulation of research questions

– data collection, including sample recruitment and choice of location

– how the researcher responded to events during the study and whether they considered the implications of any changes in the research design

Ethical Issues

7. Have ethical issues been taken into consideration?

Write comments here

Consider:

– if there are sufficient details of how the research was explained to participants for the reader to assess whether ethical standards were maintained

– if the researcher has discussed issues raised by the study (e. g. issues around informed consent or confidentiality or how they have handled the effects of the study on the participants during and after the study)

– if approval has been sought from the ethics committee

Data Analysis

8. Was the data analysis sufficiently rigorous?

Write comments here

Consider:

- *if there is an in-depth description of the analysis process*
- *if thematic analysis is used. If so, is it clear how the categories/themes were derived from the data?*
- *whether the researcher explains how the data presented were selected from the original sample to demonstrate the analysis process*
- *if sufficient data are presented to support the findings*
- *to what extent contradictory data are taken into account*
- *whether the researcher critically examined their own role, potential bias and influence during analysis and selection of data for presentation*

Findings

9. Is there a clear statement of findings?

Write comments here

Consider:

- *if the findings are explicit*
- *if there is adequate discussion of the evidence both for and against the researcher's arguments*
- *if the researcher has discussed the credibility of their findings (e.g. triangulation, respondent validation, more than one analyst.)*
- *if the findings are discussed in relation to the original research questions*

Value of the research

10. How valuable is the research?

Write comments here

Consider:

- *if the researcher discusses the contribution the study makes to existing knowledge or understanding (e.g. do they consider the findings in relation to current practice or policy, or relevant research-based literature?)*
- *if they identify new areas where research is necessary*
- *if the researchers have discussed whether or how the findings can be transferred to other populations or considered other ways the research may be used*

APPENDIX 6: PRISMA CHECKLIST

Section/topic	#	Checklist item	Reported on page #
TITLE			
Title	1	Identify the report as a systematic review, meta-analysis, or both.	
ABSTRACT			
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known.	
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	
METHODS			
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.	
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years	

		considered, language, publication status) used as criteria for eligibility, giving rationale.	
Information sources	**7**	**Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.**	
Search	**8**	**Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.**	
Study selection	**9**	**State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).**	
Data collection process	**10**	**Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.**	
Data items	**11**	**List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.**	
Risk of bias in individual studies	**12**	**Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.**	
Summary measures	**13**	**State the principal summary measures (e.g., risk ratio, difference in means).**	
Synthesis of results	**14**	**Describe the methods of handling data and combining results of studies, if done, including measures of consistency for each meta-analysis**	

Section/topic	#	Checklist item	Reported on page #
Risk of bias across studies	**15**	**Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).**	
Additional analyses	**16**	**Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.**	
RESULTS			
Study selection	**17**	**Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.**	
Study characteristics	**18**	**For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.**	
Risk of bias within studies	**19**	**Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).**	
Results of individual studies	**20**	**For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.**	
Synthesis of results	**21**	**Present results of each meta-analysis done, including confidence intervals and measures of consistency.**	
Risk of bias	**22**	**Present results of any assessment of risk of bias**	

across studies		**across studies (see Item 15).**	
Additional analysis	**23**	**Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).**	
DISCUSSION			
Summary of evidence	**24**	**Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers).**	
Limitations	**25**	**Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias).**	
Conclusions	**26**	**Provide a general interpretation of the results in the context of other evidence, and implications for future research.**	
FUNDING			
Funding	**27**	**Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.**	

Adapted from Page et al 2021

Part B

Systematic Literature Review

BACKGROUND

Health is a fundamental human right and it should be available to all irrespective of creed, race, age, or gender. This was recognized in the WHO constitution of 1948 and was reiterated in the Health for All agenda of the Alma Ata declaration of 1978 (WHO, 2019). Therefore, Universal Health Coverage (UHC) is a concept that advocates for equity in access to health that is of sufficient quality according to need and proffers protection from impoverishment and catastrophic expenditure (financial risk of seeking the health care) (WHO, 2018). It is a major objective of the health sector and one of the targets of the Sustainable Development Goals (SDGs) desired to be achieved by 2030. One of the strategic ways to attain UHC is to improve people's access to quality health care. In low- and middle-income countries (LMICs) as defined by the World Bank, coverage and access to health care is low, most especially among the poor (Peters et al, 2008); and key populations who live in the rural areas and city slums in Africa, South America, and East-Asian countries. In LMICs, there is an obvious gap between the need for health services and the level of access to health care making it difficult to achieve the SDGs of 2030 (Grittner, 2013).

Access is the timely use of health services according to need (Jacobs et al, 2012); and according to the WHO, half of the world population is yet to have access to health services especially in LMICs (World bank, 2021). Some factors that contribute to lack of access include level of income, educational level, traditional and social norms of the clients, the cost of care, distance to health care facilities, availability of essential drugs and equipment, time services are rendered, correct mix and quality of the services available, correct mix and attitude of staff.

These factors can be categorized under geographical accessibility, affordability, availability, and acceptability of health services. Geographical accessibility is defined as the distance between the individual and the health facility (Jacobs et al, 2012); or service; in other words, services may be available but due to distance, clients may not use them for lack of transportation or high cost of transportation; affordability, is the ability to pay for the available health service without incurring impoverishment or financial catastrophe, including the opportunity cost of seeking health services (Jacobs et al 2012); availability, is the provision of the right mix of services, skills and technologies most needed by the community at the right time, (including the extended time of services) (Grittner, 2013).

Facilities usually open and close irregularly and absenteeism of health workers can be high. And lastly, acceptability is available services meeting the community's expectations including quality, age, gender, belief, and cultural preferences.

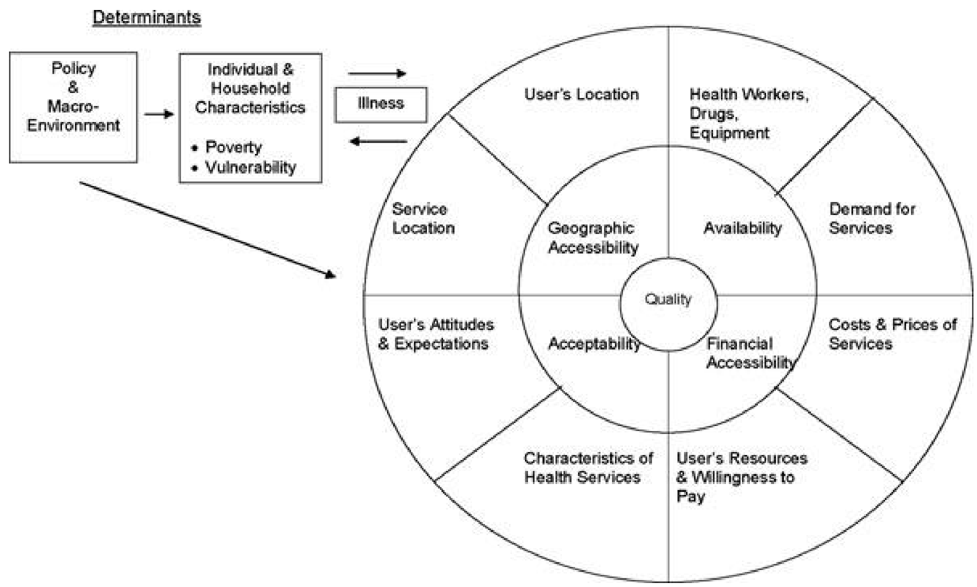

FIG I: Conceptual framework for assessing access to health services (Peters et al, 2008).

From the figure above, at the core, is the quality of the services offered as a major determinant of access. Immediately around it, are the four major factors: the geographic accessibility, availability, financial accessibility, and acceptability. Moving further out to the periphery are the determinant factors of the four major factors of access. Under geographic accessibility are, service location and user's location. Under availability are health workers, drugs and equipment availability and demand for services. Financial accessibility is determined by cost and prizes of the services rendered and user's resources and willingness to pay. And finally, acceptability is determined by characteristics of the health services and user's attitudes and expectations. In the left upper section are the overall contexts factors including Policy and macro environment, individual and household characteristics, and illness.

In Alma Ata, there was a declaration to adopt primary health care as an avenue to reach rural areas, to increase coverage and access to health care (WHO, 2019). The plan was to implement simple, sustainable, and inexpensive health services like health promotion, disease prevention, health maintenance, counseling, patient education and management of common diseases. Others include maternal and child health care, immunization, family planning and provision of essential drugs (Rural Health, 2019). This bottom-to-top approach was abandoned shortly after adoption because it was perceived to be ambitious and unsustainable and was replaced with a selective primary health care approach (Grittner, 2013). This new top-to-bottom approach, though strategic, could not achieve the dreams of Alma Ata because it was seen as narrow and selective (Grittner, 2013).

Also, other methods like health insurance and decentralization of health systems are being advocated to increase access and coverage of health services. Health insurance ensures that the people contribute according to the ability-to-pay into a pool and the pooled money is accessed according to need to seek quality health care without incurring financial hardship. However, in LMICs, health insurance adoption is still low, making access to health care difficult, as out-of-pocket expenditure is still dominant (Qin et al, 2019; Erlangga et al, 2019; Otieno et al, 2020).

Ambitious decentralization of health systems is where direct control of health care decisions is taken away from the central or national government and is delegated to the lower level of governments or in some cases, private sector (Grittner, 2013). The essence is to reduce the bureaucratic bottlenecks in decision making, adapt services to the immediate needs of the people and bring health care management closer to the users of health services to improve performance and access to health care.

Concerted efforts in both targeted and universal approaches have been applied to increase access to health care through innovations in financing. These include health equity fund, issuing of vouchers, community loan-funds, health insurance subsidies for the poor, conditional cash transfers, pre-payment schemes and performance-based financing. These strategies can be targeted at the clients (demand-side) or at the health providers (supply-side). Most are demand-side oriented strategies and they have proven in different settings in LMICs to improve access to health care. But several pieces of research for example, in Kenya, Uganda, Pradesh India, etc. have recommended that supply-side strategy be strengthened to maximise the potentials of the demand-side strategies on outcomes (Ng et al, 2014; Okal et al, 2013; Flodgren et al, 2011). Specifically, research in Turkey recommended that the strategic purchasing function of social security institutions be strengthened, and resource allocation be linked to provider performance for a maximum outcome (Ökem et al, 2015). Therefore, UHC progress also depends on substantial supply-side investments to ensure the availability of quality services (Mathauer et al, 2017). The combination of demand-side and supply-side financing strategies is called Result-based financing.

Eicher defined Result-based financing (RBF) as "transfer of money or material goods conditional on taking a measurable action or achieving a predetermined performance target" (Cometto, 2008); but the World bank defined it as "any program that rewards the delivery of one or more outputs or outcomes by one or more incentives, financial or otherwise after verification of the said delivered results" (Grittner, 2013). Our working definition will be that of the World Bank as verification is an integral part of RBF. PBF is a supply-side of RBF and our work will dwell on it and how it affects uptake of health services.

Now, PBF is based on incentive theory that argues that behaviour is primarily extrinsically motivated (Wiki, 2020). In other words, people are more motivated to perform activities if they receive a reward afterwards (extrinsic motivation) than simply because they enjoy the activities themselves (intrinsic motivation). Research has shown that financial incentives may effectively change health care professional practice during health provision (Flodgren et al, 2011). Therefore, PBF is known to function on the assumption that health workers are motivated to do more when they receive incentives and that providers will attract more patients and indirectly more incentives if they provide quality services (Cometto, 2008).

One major method PBF tends to use to achieve its goals is through the introduction of autonomy among different actors in health service provision. This democratic principle enhances accountability, ensures checks, and balances, and creates the all-important purchaser-provider split that can be explained with an economic theory called the 'Principal-Agent' theory. This relationship exists when the principal contracts the agent to perform a task on their behalf in exchange for a reward that generates utility (Cometto, 2008). The principal agrees to the terms because the principal is unable to perform the task or the agent possesses better technical capacity in that area of expertise. They enter the agreement independently out of self-interest but due to potential information asymmetry favouring the agent, the agent is prone to moral hazards (Cometto, 2008). Here the agents are inclined to act on their own best interest instead of the best interest of their principals which may create problems. The best outcome from the relationship can only be achieved if you align the incentives of the agent with the objectives of the principal

(Cometto, 2008). For these actors to function co-operatively and achieve the desired goals they enter into a contract that spells out all the binding agreements.

In LMICs, poor leadership and harsh socio-economic conditions result in poor health systems which overtly or covertly hinder access to quality health services. Some of these conditions include high illiteracy rate, high unemployment and poverty rate, poor road network, lack of adequate transportation, poor energy supply, unstable governments, low technical capacity including poor management and weak accountability mechanisms (APHA, 2008).

Specifically, the cost of health services in LMICs (including both direct and indirect cost) can be a hindrance to the uptake of health services (APHA, 2008; Qin et al, 2019; Turner et al, 2019). Most of the health care expenditures in LMICs are still through out-of-pocket as against the preferred health insurance that ensures more health access, coverage, and financial protection (Qin et al, 2019; Erlangga et al, 2019; Otieno et al, 2020). Out-of-pocket health expenditure does not offer financial protection as up to 100 million people are pushed below the poverty line due to out-of-pocket health spending each year according to the WHO (World bank, 2021). Many do not seek health care due to unaffordability and resort to alternative medical practices which they consider cheaper (APHA, 2008; O'Donnell, 2007). Equally challenging is the opportunity cost of seeking healthcare services, like the period spent at the clinic and valuable hours away from work resulting in forgone earnings.

Also, there is a lack of infrastructure to deliver health services especially in the rural communities and urban slums and those available are dilapidated and located far in-between. Distance and poor condition of roads are proven to be of great hindrance to the uptake of health services as research in Ghana showed that halving the distance almost doubled utilization of health services (O'Donnell, 2007); this trend was similarly observed in El Salvador, Indonesia, India, and Pakistan (O'Donnell, 2007). Again, poor quality of health care services especially in the public health sector is one of the causes of lack of uptake of health services in LMICs. Research showed in Ghana that in five years, there was 40% decline in uptake of health services in public health facilities due to poor quality (O'Donnell, 2007).

Moreover, the motivation (the degree of willingness to apply and maintain an effort towards set goals) of health workers is usually low in low-resource health systems due to the challenging work environment and poor remuneration. The health providers themselves are not enough as research showed that in 2018, 20% of physicians, and 10% of nurses trained in sub-Saharan Africa migrated to work overseas (O'Donnell, 2007). The shortage is so dire that the WHO recommended task shifting to cope with severe human resources shortages, especially in sub-Saharan Africa (Goodrich et al, 2021). Within countries there is a huge disparity between the urban and rural availability of health workers. They prefer to migrate to urban areas where there are better conditions of living. Research has shown that failure to attract and retain health workers in rural areas reduces population access to health services and poor facility performance (Rockers et al, 2013).

Furthermore, in LMICs, many still hold tenaciously to cultural beliefs and make preferences that favour traditional health practices over conventional medical practices. In Nicaragua for example, it was found that many women shied away from cancer screening because they believed that cervical cancer is associated with sexual promiscuity and they also felt embarrassed due to intimate nature of Pap smear procedure and male gender as exam provider (Rees et al, 2017). In these countries, many people still have poor interpretation of ailments as genuine problems and poor knowledge of the potential benefits of available treatments. This reduces the uptake of health services because knowledge of a disease directly reflects the likelihood of seeking health care (O'Donnell, 2007). It was observed that increased knowledge through educational intervention on breast cancer screening improved cancer screening in Malaysian women (Parsa et al, 2011). In addition, due to culture and religion, women sometimes face restricted public or social life and many solely depend on their male partners financially. These social and financial restrictions affect the health seeking behaviour of these women, thereby affecting utilization (O'Donnell, 2007).

In addition to weak health systems, financial strategies are peculiarly important in LMICs because the resources are scarce with competing needs, coupled with contracting countries' budgets (Grittner, 2013). The national health expenditure in these countries is not enough to provide quality health care for the citizens and many depend on foreign aid to supplement their health budgets. For example, research in 2016 showed that in five years, financing HIV response in sub-Saharan Africa from domestic sources would increase public HIV spending from \$3.04 billion to \$10.8 billion per year (Remme et al, 2016). Obviously, many HIV affected LMICs will not be able to generate this huge fund hence the need for international financial assistance.

Since the turn of the millennium, several billions of dollars have been spent in LMICs to assist in improving health coverage and health outcomes and this has not been effective as expected, as few countries in LMICs met their Millennium Development Goals (MDG) of 2015 despite the money spent. The WHO has reported that between 20% and 40% of the resources spent on health is wasted leading to a shortage (WHO, 2014). Recently, there is an increased demand on donor agencies to account for the fund allotted to them by their respective parliaments for international development in order to justify further allocations (Grittner, 2013). In 2005 there was a call for aid-effectiveness in Paris which was reiterated in Ghana during the Accra Agenda for Action in 2008 and Fourth High-level Forum on Aid Effectiveness in Busan, South Korea (Grittner, 2013). With the increased call on aid-effectiveness coupled with the pressure on budget allocation both in domestic and donor countries, there is much need to link funding to measurable results. Therefore, donor agents prefer assistance to continue against the demonstrated achievement of targets.

Over decades, high-income countries have applied different strategies to implement result-based financing through fee-for-service and diagnostic related groups (DRG) schemes but in LMICs there is a limited experience (Cometto, 2008). But in 1993, the World Bank gave result-based financing a boost in LMICs through its International Development Association (IDA) and later created Health Result Innovative Trust Fund (HRITF) in 2007 to manage and evaluate result-based financing programs in LMICs. As of 2016 HRITF has committed about US$385.6 million for 35 RBF programs in 29 countries in LMICs (Grittner, 2013). Therefore, with this money spent over these years, it is important to review this approach to know whether it has helped improve access to health care in LMICs.

PBF STRATEGY AND IMPLEMENTATION CYCLE

Generally, PBF tends to introduce the market forces into the health care system and stimulate the health care providers to apply their entrepreneurial acumen into improving the quantity and quality of health services for population health.

It uses the following attributes to achieve its results:

- Health provider's autonomy: research in Uganda established that more will be achieved if public health facilities are autonomous (Schuster et al, 2016);

- Increased management capacities at the operational level; another research in Zambia also revealed that mode of leadership and management may influence health outcomes and that health managers are ill-prepared for managing complex health systems, rather they are being promoted based on clinical experience (Mutale et al, 2017);
- Community feedbacks: it was found through research in Nigeria that community engagement is a key management practice and a central element of intervention to improve health facility performance (Mabuchi et al, 2018); and finally,
- Improved health information management: this is an inevitable tool for key health decisions.

Additionally, it can be strategically used to improve equity in access to health care services and gender-based equality and provides the opportunity for health system strengthening.

PBF seeks to make government bureaucracies more effective, efficient, and accountable, and advocates for a new public management style, a paradigm shift that underscores results and accountability. This is against the traditional input financing, a fixed line-item budgeting system that focuses on the provision of inputs like human resources, infrastructure, and drugs with little or no attention on the processes and outcome measures but on the assumption that with the provision of enough inputs, health providers will deliver the desired outcome (Cometto, 2008).

This approach requires new institutions with concomitant human capacity development. Therefore, it requires a huge technical support, including supporting the local NGOs and health facilities in developing the capacity to implement the new approach. It restructures the monitoring and evaluation system and strengthens the supervisory and regulatory role of the district health officials as evidence showed that supervision positively influenced the providers practice, knowledge, and client satisfaction (Lassi et al, 2014). It also demands consultants to render technical support to central governments.

Below is the summarized PBF project cycle:

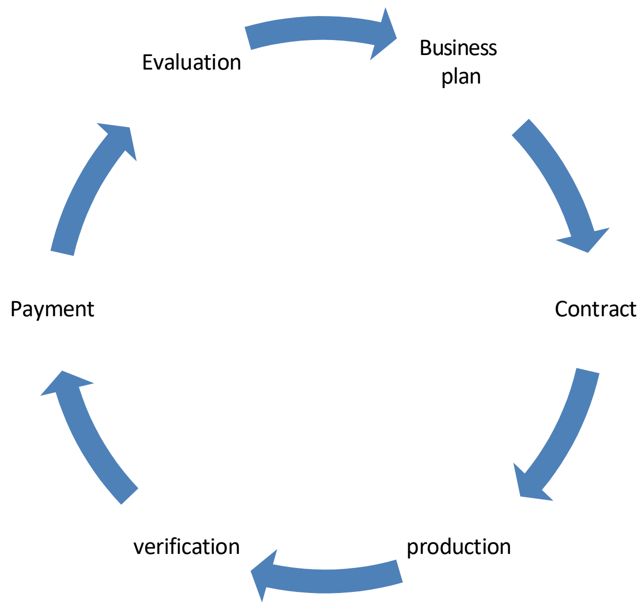

Fig II: PBF implementation cycle adapted from Atanga J et al (Shu et al, 2015).

From the figure above, the business plan is prepared by the management after which the contract is drawn between the management and fund holders on how to achieve the expected outcomes and the resources to achieve them. If the contract is signed by the stakeholders, the next is doing the actual work (production), after which declaration of the work done follows. This is followed by verification of the work done. If the verification is completed and validated, then the payment is done. The whole work is evaluated, and the new knowledge is used to improve the PBF programme or other PBF programmes as the case may be.

THE ROLE OF NGOs IN PBF IN LMICs

PBF was introduced by international NGOs and they have used the strategy to finance their projects in some facilities across several countries in LMICs (Toonen et al, 2009). They are funded either by the central government, the donor agencies or both and most times they involve the local NGOs or faith-based organizations. Together, they have played key roles in health provision and have recorded islands of success, hence the advocation for PBF adoption in health systems across countries in LMICs. Today, Rwanda and Burundi have escalated it to the national level, with so many countries at different levels of implementation (Toonen et al, 2009). They are majorly the sole providers of technical assistance to the ministry of health at different levels of involvement.

TYPES OF PERFORMANCE BASED FINANCING

PBF can be categorized into two types that are determined by the context or the political environment prevalent in the country at the time of PBF implementation (Toonen et al, 2009). They are Systemic and Parallel PBF.

- **Systemic PBF**: In post-conflict contexts, where there are collapsed health systems that are struggling to rebuild, there is usually weak or policy vacuum that creates a very good opportunity for new policies and experience. Governments in these situations are battling to fulfill health service delivery duties resulting from poor resources & capacities and depend heavily on external aid to deliver services. This context creates an opportunity for public-private partnership and allows new strategies and institutions to be introduced into the system. If these projects are successful with the new strategy, it becomes easier to adopt the new method, provide policies to legitimate it and if possible, escalate it to the national level incrementally, hence systemically embedding the approach. Examples of countries that have gone through this route include Rwanda, Burundi, Cambodia, Afghanistan, and Democratic Republic of Congo (Toonen et al, 2009).
- Parallel PBF: In stable countries, it is much more difficult to introduce new ideas because they are already operating with established institutions and policies and any attempt to improve or introduce new institutions normally encounters resistance. This may be due to poor understanding of the principles of PBF, fear of change or both. Most times, international NGOs pioneer PBF by partnering with local NGOs as implementing partners or rather establish a funding system with a faith-based organization like Cordaid did in Tanzania and Zambia (Toonen et al, 2009). The NGOs perform management, fundholding and verification functions and limits the regulatory oversight by the Department of Health because both operate side by side. The problem is that regulation, a core function of the Department of Health and health system strengthening; a major aim of PBF is not optimally achieved (Fritsche et al, 2014).

AIMS AND OBJECTIVES OF PBF

The key objective of PBF is to re-organize the health services to be more efficient and increase the provision of the quantity and quality of health care services to the population. Specifically, it tends to:

- Increase the technical efficiency in the health system by using existing resources like buildings, equipment, drugs, and staff to increase productivity.
- Improve the allocative efficiency by encouraging the provision of priority and cost-effective services.
- Increase the quality of health care services rendered to the population thereby increasing the effectiveness of the health care provision.
- Increase accountability to both the purchasers and utilizers of health care services.
- Improve equity of health service outcomes and coverage of health services by reducing fees and extending services to the hard-to-reach groups.

THE ACTORS IN PBF

As PBF tends to improve on the existing structure by moving from input financing to output financing, there is need to change the existing institutional framework to allow the application of standardized instruments of management like business plans and contracts and then strengthen tools of accountability like verification and monitoring (Fritsche et al, 2014). The change tends to enthrone better public health management, free flow of information and legal framework. These good governance qualities are being instituted through the principle of separation of powers, ensuring health providers' autonomy, the disintegration of regulatory functions, financing, and service provision. The purchaser-provider split, which is the most important disintegration, enhances verification of results and enthrones transparency while credible financing is enhanced through separate fund holding function (Fritsche et al, 2014). The community involvement enables proper verification of results and gives a voice to the general public to partake in their health management. Although PBF relies on the disintegration of roles, its success hugely depends on different stakeholders' cooperation to achieve the desired goals (Fritsche et al, 2014).

The purchaser

The purchaser of health services can be the donor, the central government or the local health authorities and their independence reflects the all-important split between the purchaser and the provider. There are two major models of purchasing: the public purchasing done by the ministry of health and the private purchasing done by the Fund holder (Fritsche et al, 2014). Beside these major types is autonomous purchaser. These are individuals or private institutions, who donate huge sums of money to provide health care to people like: The Bill and Melinda Gates foundation, The Clinton Health Access Initiative, The Desmond Tutu Health Foundation, to mention but a few.

- The Fund holder:

It is a private purchaser, mostly an existing local NGO that carries out the purchasing, monitoring, verification, and provision of technical assistance to the local health authorities. They are normally funded by the donors, the government or both and usually enter into contracts with the providers, local health administration and the community and play a crucial role in commissioning the PBF approach. They are responsible for the financial administration of the project and play an important role in determining the indicators and their pricing in consultation with the donor. The private purchaser approach is quite better in achieving the goals of PBF because in drawing contracts, the content is distinct, conflict of interest is low and there is room for competition with other fund holders in bidding for contracts, but such is not obtainable in public purchasing (Fritsche et al, 2014). Again, the contract with private fund holder is limited in duration giving room for evaluation before signing a new one.

- Public purchaser:

In public purchasing, the fund holder is the ministry of finance while the public purchaser is created within the ministry of health and staffed with civil servants that receive technical assistance from development partners. In a sub-type called quasi-public purchasers, a separate entity is created, distinct from the department of health and staffed with a mix of civil servants and consultants to do the purchasing (Fritsche et al, 2014). In the Kyrgyz Republic, the purchasing unit is located in the National Health Insurance Fund (Fritsche et al, 2014). Generally, the ministry of health is more disposed to 'quasi-public purchaser approach' because it gives them a sense of accountability (Fritsche et al, 2014). In public purchasing, some factors compromise the goal of PBF; it is more difficult to terminate a contract even if the fund holders are not performing well and there is more conflict of interest with regards to regulation, as government officials conduct regulation.

The Providers

The provider can be the national government, the local health authorities, the health facilities, or the private health providers, but in PBF the providers are basically referred to as the health facilities and the individual health providers. In low resource economies like in LMIC, health is mostly centrally controlled, and input-based financing is majorly practiced. These create bureaucratic bottlenecks that hinder the flow of resources and information and therefore restrain the facility managers from applying their skills to improve services. In PBF, the basic principle of autonomy is critically important to allow flexibility to stimulate facility managers to use their financial and human resources to produce results. Basically, in practice, the health provider develops a business plan for the facility in consonance with national policies and guidelines detailing how it plans to achieve its specified objectives. This business plan will be presented to other stakeholders so to reach a consensus on how to achieve the desired goals, after which the PBF steering committee seats over the contract to approve it. Here the facility management possesses the autonomy to discipline, hire or fire staff, manage their assets and procure supplies from the open market. They also authorize clinic and outreach operations, negotiate business plans, operate bank accounts, and use cash income to do procurements. This makes it easier for the managers to articulate the peculiar needs of the clients when preparing the business plan. Research has proven in so many circumstances, for example in Uganda that there are greater advantages from the autonomy of public health facilities. As PBF enhances autonomy and increases responsibilities, it also demands accountability. Managers should be able to use available instruments like indice tool, regularly audited income, and expense register to render the accounts of the health facility to the health facility committee that oversees the use of public funds (Fritsche et al, 2014). The health workers should partake in sharing the profit from PBF if there is, to boost the confidence and motivation of the health workers.

Health workers can improve the quantity and quality of their work through different mechanisms and enhance the amount of money they earn through PBF. The operational time can be made flexible to accommodate the working class to increase the quantity of services. During work, workers must be present and accommodating towards the clients as absenteeism and bad attitude hampers productivity. Also, the workers can organize outreaches to improve geographical accessibility and ameliorate the cultural barrier through educational campaigns and further market the services they provide at the health facility. They can use a good business plan to reduce or abolish user fees in order to improve affordability and raise the quantity of services. Furthermore, they can synergise with the community health workers to increase referrals made to the clinic as this will increase the quantity of services and invariably the amount they earn. To improve quality, it is strategic to use the extra funds from PBF and autonomy from financial management to regularly train and recruit more capable hands to increase technical knowledge and capacity (Fritsche et al, 2014). Health management should endeavor to make sure that the health facilities do have essential drugs all the time and basic necessary equipment to deliver quality health. Besides, the infrastructure should be revamped to raise the confidence of the clients.

The Verifiers

The basic essence of verification is to ensure that the services recorded to have been rendered, were truly provided and at good quality. Misreporting which includes; over-reporting, under- reporting, or inaccurate reporting; can occur. Some factors like: complexity of indicators, high service volume, accepted margin of error and shortage of staff, contribute to this (Kuunibe et al, 2019). Verification is an important aspect of PBF as it signals to health providers that the services they render are of great essence to the population. For proper verification, separation of function is important to ensure no conflict of interest in performing such a sensitive duty. Generally, it is difficult to gauge the job of health providers; therefore, it is very vital how the quantity and quality is captured.

The facility register, a primary data collecting tool is very important for a good verification; therefore, it must be designed properly to capture all relevant information of the patients. If the work done is not properly documented in the register, the verification will be difficult if not futile. Both the quantity and quality of work done are verified but differently by different institutions because it improves transparency and governance. Besides, they both have different methods of verification, which are tasking and if not separated, may overwhelm the verifiers into cutting corners (Fritsche et al, 2014). Most times, the Fund holders verify the quantity of the work done and carry out the community client satisfaction survey while the officers from the department of health do the regulation. It is important that verification is viewed as important, and its outcome implemented to the letter.

- **Quantity verification**

This type of verification is normally done by the Local Fund holder and conducted by experienced medical personnel that have local experience of the working environment (Fritsche et al, 2014). It is expected that the verification officers should have training on PBF because, alongside verification, it is required that the capacities of the staff be improved alongside implementing PBF. The officers should be dedicated and technically sound enough to carry out their job with confidence. There are two stages involved in quantity verification: the pre- and post-payment verification.

For pre-payment verification, the register at the facility is thoroughly checked to validate work said to be done and services must be properly verified. Normally, an acceptable margin of error is predetermined, above which there are consequences for the facility. There is no limit to the amount paid after quantity verification as this stimulates the health providers to work out strategies to increase the number of services rendered using the business plan. The management uses the individual performance evaluation tool and indice tool to work out the individual health workers incentives (Fritsche et al, 2014).

For post-payment verification, the client satisfaction survey is conducted in the community to fish out fraud, if there is, and to underscore the importance attached to the accountability of health services provided.

- **Quality verification**

One of the distinguishing features of PBF is that it does not pay based on quantity alone but conditional upon quality too, otherwise it will seem as if numbers are more important than the welfare of the clients. The challenge is that quality is difficult to capture due to lack of standard methodology and it cannot be neglected because it affects demand directly. Recently, the development of quantified quality checklist has reduced the challenges. The Quantified quality checklist is a document that is written in a clear simple language, and it contains different elements that are made quantifiable and can be verified objectively (Fritsche et al, 2014). Because it is still a document in a developmental process, other measures like continuous training, workplace supervision should continue in order to complement its effort to capture quality as much as possible.

Quality verification is done by the regulators from the department of health using the quality indicators approved by the central Ministry of Health. Due to frequent direct conflict with health authorities, it is also encouraged that verification is done through peer reviews under the supervision of health authorities (Mutale et al, 2017). The verification outcome must be rewarded accordingly as this will resonate with health workers to buckle up as action or inaction has appropriate consequences.

In practice, two different performance frameworks are developed to assess the facilities namely, the carrot-and-carrot framework and carrot-and-stick framework (Fritsche et al, 2014). In carrot-and-carrot, services are purchased, and bonus added for quality performance, as the quality is considered as a bonus instead of risk. It is better applied to those facilities that have limited sources of income, equipment, and drugs and then during free medical health services. In computing the total earnings of a facility after verification, it has a different effect on the final earning of the facility different from the carrot and- stick framework.

- **The Formula for carrot and-carrot**: Total quantity payment due + Total earning of a facility (Total quantity payment due x Quality score xx %)

With this framework, if the quality is low, the facilities will be punished for the low quality but yet has enough money to produce more quantity and sort out the poor quality (Fritsche et al, 2014). If quality is high, they will be rewarded but not as much as it would have been in the carrot and- stick framework. In average quality situations, carrot-and-carrot framework pays out as much as the carrot and- stick framework (Fritsche et al, 2014).

Now, in the carrot and-stick framework, it also rewards quantity conditional on quality but this time quality is considered as a risk as money is subtracted if the quality is low. It is more advisable in conditions where health facilities are stabilized with other sources of income, good infrastructure, equipment, and drugs (Fritsche et al, 2014).

- **The formula for carrot and- stick:**

Total payment for health facility = (Total quantity payments due) x (Quality score %)

With the above approach, if high quality is achieved, the facility receives more money, but if the quality is poor, the earnings will be very low. On average quality, there will be no difference in earnings between the two frameworks (Fritsche et al, 2014).

It is critical to do counter-verification to make sure that the verified documents are reflecting the reality as much as possible. This ensures checks and balances and improves the reliability of verified reports. Finally, it is important to note that verification has high-cost implications and to that effect, risk-based verification may be an alternative.

THE COMMUNITY INVOLVEMENT IN PBF

Community involvement is one of the basic principles of PBF; an important strategy meant to involve the population to increase their voice and participation in issues concerning their health. Researches have shown that community health workers are very effective agents in providing correct diagnoses and treatment for minor ailments especially in remote areas (Asweto et al, 2016; Källander et al, 2015; Kamal-Yanni et al, 2012; Morrison et al, 2011; Sakeah et al, 2014).There are different stages that community can interface with health providers; at the micro-level (health facilities), the community is involved in the health committees of the health facilities where they participate in developing business plan, signing of the contract and in verification and counter-verification of work done. At the Meso-level (State or Provincial), civil society engages the health providers and contributes to health provision and management. At the macro-level (national level), the national government is engaged to play a role in health provision through bilateral agreements (Cometto, 2008).

Health and management committees are administrative entities that act as the interphase between the health facilities and the community for operational purposes and are populated with elected members of the community and facility officials. They use leadership, financial mobilization, service organization and needs assessment to improve the health service coverage, especially in terms of use and acceptance (Fritsche et al, 2014). Another way they can help to improve access to health care for the poor is to prepare a list of the poor in the community for partial or complete service-fee exemption. The list is prepared by community representatives, validated by the health committee, and presented to the health facility for implementation. This list is open to review periodically as people's economic status changes. Because PBF incentivises quantity, the increased number of clients due to fee exemption, accrues more money for the facility and compensates for the loss through fee exemption. Community health workers can reduce the barrier to health care through health campaigns and education. They can also reduce barrier through active identification and referral to the clinic, the patients that need services. Moreover, some services can be taken to the community, by community health workers on behalf of the facilities. Furthermore, needs assessment can be done by using the clients' perception of quality of care during patient satisfaction survey in the community. This is done by using questions that border on attitudes of health workers, cleanliness of the facility, the cost of services and waiting time (Fritsche et al, 2014). This information is very valuable to the management as it uses them to improve quality and adapt services to soothe the clients. Lastly the committee members are trained on the rudiments of PBF, so that they can participate in business plan development with the management. Their participation and contribution will give context-specific strategies and improve their commitment towards achieving the set goals (Fritsche et al, 2014).

Sometimes problems arise and affect the relationship between the committee members and management. For example, if services improve, committee members may start requesting for payment. The health facility managers on the other hand may start perceiving them as intruders that interfere with management confidentiality, power, and roles. These problems can be resolved if in the business plan, modalities are spelt out and community members are contracted through performance-based arrangement (Fritsche et al, 2014).

THE GOVERNANCE AND MANAGEMENT TOOLS OF PBF

PBF requires better management style using standard governance and management tools, good teamwork, and sound relationship between staff. These can be achieved when the management carries the staff along by having regular meetings on the performance results.

- **The business plan**

The business plan is the main document developed by the management of the health facilities, with which they negotiate with the fund holder's agency, to develop a contract between them. The facility management uses the independence provided by PBF strategy to develop a plan on how the facility will increase its performance, putting their context into perspective (Cometto, 2008). It contains the current baseline of the health facility, the goals, and the strategies on how to achieve the goals. The business plan provides the purchaser with a clear idea of what steps to take, what resources are required and time to accomplish desired goals. If they reach a favourable agreement, they enter a contract. The quality of the business plan depends on the capacity of the management. This calls for technical support and training, as the ability to develop a very good business plan is one of the goals of PBF financing (Fritsche et al, 2014).

- **The contract**

The contract is an official, standardized operational instrument of PBF, in which lies the binding agreement between the actors on the expected outcomes and the resources needed to achieve it (Fritsche et al, 2014). For performance-based financing to be successful, there is important need for clarity and mutual agreements on the inputs and measurable outputs as stipulated in the business plan. Contracts contain the indicators, the targets and the differential prizes attached to the indicators. Whenever it is approved by the steering committee, it becomes binding on all stakeholders. Ideally, the contract should be reviewed periodically to reflect the dynamic contexts.

- **The individual monthly performance evaluation form**

The individual monthly performance evaluation tool is an instrument used to assess the individual health worker (Fritsche et al, 2014). Normally a health worker enters into a contract with the management based on what is expected of him/her, including the benefits. It is vital that the process is open, as it can be counter-productive if otherwise. It is useful to apply it regularly and discuss the outcome with the staff. It is vital that the managers are assessed according to how well they apply management tools in their facility to ensure accountability, fairness, and motivation (Fritsche et al, 2014).

- **The indice tool**

  The indice tool helps the facility manager to manage all the sources of income and distribute the incentives equitably (Fritsche et al, 2014). It will be wise to incentivize individual exceptional performance, incorporate fairness and organize social functions together, preferably at the workplace.

KEY PERFORMANCE INDICATORS

These are a group of services that are quantifiable and are chosen to gauge the performance of the provider toward achieving its stated goals and objectives. Not every service is selected as an indicator for easy management but those chosen should reflect the objectives, strategy, and the critical success factors. These are activities in which the facilities must perform well in order to be adjudged successful. These indicators have certain characteristics:

- It should be specific; what exactly the indicator wants to measure should be clear and important.
- It should be measurable; there must be a defined standard of measurement.
- It should be achievable; in other words, the goals are not too ambitious to attain.
- It should be relevant; the indicator should reflect the goals and aims set out to be achieved.
- Time-bound; it can be achieved within a time frame.

These key performance indicators are important contents of the contract and different financial incentives are attached to the expected outcomes reflecting the differential importance attached to them (Toonen et al, 2009). The number, type and prize of indicators can be a very important mechanism to achieve the desired goals and priorities of health systems. Most times, the indicators chosen are often influenced by donors to reflect their specific objectives, but it is advisable that indicators also reflect the priorities of the central ministry of health to enhance support and sustainability (Fritsche et al, 2014). It is also important that indicators are context specific as different facilities have peculiar characteristics. If it is uniform across facilities, some may not achieve goals due to circumstances beyond their control. The indicators should reflect clinical, preventive, and promotional health services for balance. Poor selection of indicators may lead to perverse effects as health workers may pay more attention to selected services or even over supply them to earn more incentives while non-selected health services are neglected. To that effect, a mixture of rewarded and non-rewarded indicators should be developed to avert the selective service effect (Fritsche et al, 2014). Finally, it is pertinent that both quality and quantity indicators are selected because only quantitative indicators give a picture that the interest is only in numbers and not how well the patients are treated. Previously, the methodology for quality measurement was a problem but recently the added quality checklist offers a reasonable alternative measure of quality at least for the interim as it is progressive in development (Fritsche et al, 2014).

FACTORS THAT DETERMINE PBF SUCCESS

PBF has qualities that can help to improve access to health care in LMICs, but some factors must be put into consideration for it to achieve this goal. Examples are paying attention to the local context in which it is to be implemented, how the PBF policy is formulated and introduced to the recipient government, how the PBF is designed and how the PBF is implemented.

It is important to be mindful of inherent weaknesses in the health systems as well as macro-economic context as most of the cash flow is from the International Non-Governmental Organisations. Specifically, research in Tanzania indicated that health workers were concerned about their basic salary, basic infrastructure, adequate number of skilled staff, adequate resources and demanded that these are basics to be taken care of, before implementing PBF (Olafsdottir et al, 2014).

The policy development process is an important determinant of PBF success. The indigenous government should be involved right from the planning stage for them to build into the theory of change of PBF. It is advisable to align it with domestic priorities especially those that are not yielding good outcomes and are of great importance to the domestic country, for example maternal and child health, HIV/AIDS etc. (Renmans et al, 2016). These may influence the perspective of the stakeholders and help them to accept the strategy and the systemic changes that are associated with PBF without much resistance. With this approach, they will view the idea as domestic instead of one being imposed on them by foreign bodies which is counterproductive.

Furthermore, policy design features also play a role in the effectiveness of PBF. The contract which contains these features must state in clear terms the level of autonomy, job specifications and level of involvement of the community. For example, who performs the role of regulation should be different from who performs verification to avoid conflict of interest. Again, the chosen indicators and their prize-worth should be clear and reflect a good balance between quantitative and qualitative measures. It should be accepted by health workers, oriented towards teamwork, and easily attributed to health workers behaviour and less prone to client's health-seeking behaviour (Peñaloza et al, 2011). The chosen targets should be sensitive, measurable, achievable, and realistic, with time bounds. The time frame should not be too rigid or over-optimistic (Renmans et al, 2016).

It is also important to state how systemic inequalities would be taken care of; for example, facilities in the rural areas will find it difficult to reach targets when compared with those in urban areas, thereby making them poorer if paid at the same rate with urban facilities (Fritsche et al, 2014). It is therefore important to adjust the differences with payment modalities to avoid perpetuating the inequality. A clear understanding of these factors is very important as it defines the roles and expectations of health providers, right from the beginning and reduces confusion and under-performance (Renmans et al, 2016).

Finally, the how PBF is implemented also influences its outcome. At the operational level, the health workers must be carried along in implementing PBF from the beginning to enhance ownership. They should participate in choosing the indicators and targets. Health workers should be trained to enhance their capacity to take on new roles created by PBF. The PBF bonus should be disbursed on time and as agreed in order to build trust. The amount should also be subject to review to reflect economic realities. The verification should be conducted by somebody who has the skills and authority and is able to develop a cordial relationship with health workers. Regulation should be in the form of formative supervision to reduce conflict and be regular and often, to reduce perverse effects (Fritsche et al, 2014). The sharing of the bonus should be seen as fair, without nepotism and not perceived as an avenue to settle scores (Paul et al, 2018). Finally, facility managers should be accountable to health workers on how the money from PBF is utilised as this builds trust in the system and enhances motivation.

There are successes recorded in different countries so far, like in Rwanda, where in 2006, PBF was escalated to the national level. In DRC and Burundi, the effect of the PBF is felt at the operational level. This is against the zero effect it has in Zambia and Tanzania in health systems as it runs parallel with the Ministry of Health (Toonen et al, 2009).

ESCALATION OF PBF TO THE NATIONAL LEVEL

Most of the PBF programmes being implemented in LMICs were initially introduced as pilot projects financed by external donors and operate side by side with health care facilities (Toonen et al, 2009). Scaling up of PBF requires institutional rearrangement at all levels of health system which must deal with compatibility with the existing structures (Fritsche et al, 2014). It also demands change in financial mobilization as PBF has cost implications. Institutionally, there is need to support PBF with national structures and policies and embed it into the general national budget. This demands strong political will; therefore, the central government must be involved at all the levels of PBF projects and should be supported by other government functional units like Department of Finance (Fritsche et al, 2014). Already at the operational level, the function of regulation is being carried out by the department of health and there is an opportunity for Fund Holders Agency (FHA) to enter into contract with the health facilities. But there is need to develop policies and create organizational structures within the department of health, like the fund-holding function to serve as a basis for escalation of PBF (Fritsche et al, 2014). The organisational structures become a nexus between the central government and the local NGOs who offer both financial and technical support and transfer. Over time it is expected that the central government will take over the PBF projects and escalate it to become national programmes with a budget to run it, as the funding from donors is not sustainable. Rwanda and Burundi have demonstrated the immense political will and has expanded their PBF projects to national programmes (Toonen et al, 2009).

CONTROVERSIES AND UNINTENDED EFFECTS OF PERFORMANCE-BASED FINANCING

Although PBF seems to offer a solution on how to achieve the UHC and SDG, practically it does not have the automatic solutions to solve all the problems in the health sector (Toonen et al, 2009). In fact, there is evidence proving that it is a donor fad, and its importance is exaggerated (Paul et al, 2018). In addition to perverse effects, there are genuine concerns of sustainability if the donor agencies withdraw their financial support (Fritsche et al, 2014). Another concern is that of the economy of scale as this implementation is only targeted most times on certain vulnerable people or geographical areas of the population thereby questioning the massive investment that benefits only a few (Grittner, 2013). Many argue that empirical evidence showed that the effectiveness is marginal and mixed and that it is being implemented under donor pressure (Paul et al, 2018). Another is the short-lived positive effects of PBF as some school of thoughts alleged. Specifically, the following are the areas of contention:

- **Attribution**

It is difficult to strictly link improvement in health service utilisation to PBF due to factors that includes contextual factors, piloting effect and changes in government policies. Contextually, institutional set-up in fragile states influences the results in a positive direction because before the studies, access to basic health services is compromised due to insecurity (Toonen et al, 2009). Sometimes, before introduction in immediate post-conflict, there is already increase in access to health services, so results might be confounded with natural increase due to restoration of peace and stability in the society. In stable states, PBF is hardly yielding any significant improvement in output because there is not much contextual difference between before and after studies (Paul et al, 2018). Beyond context, piloting effects also affects the outcome of PBF thereby beclouding attribution of successes to PBF. Most of the PBF are still projects that are being managed by NGOs with both enough human and capital resources made available to make sure that the project is successful against the traditional circumstance where there is obvious lack of resources. This throws a shade on the outcome and becomes a confounding factor hampering attribution of results to PBF. Again, attributing result to PBF is very difficult in circumstances where there are concurrent government policies like national health insurance and reduction in user fees because these programmes will obviously increase uptake of health services. So, if implemented alongside PBF, it becomes difficult to ascribe the increase in utilisation to PBF alone.

- **The financial cost of PBF**

It is believed that the cost of PBF is high and therefore unaffordable and unsustainable if the INGOs withdraw their support. PBF is costly because it demands both reorganisation of existing institutions and addition of new institutions as well as capacity building and ongoing technical assistance to function optimally. It is difficult to ascertain the efficiency of PBF because of diverse budgeting modalities of NGOs and the methodology of assessing the cost is ambiguous (Fritsche et al, 2014). However, it is believed that it adds additional 15-30% of the per capita health expenditure of any health system (Toonen et al, 2009).

- **Perverse effect**

One major controversy surrounding PBF is introduction into the health systems of perverse effect, which is unintended consequences that result while implementing PBF. Examples are:

Gaming: This is introduction of different types of tricks and data manipulation to attract more money or to please the Funders (Kalk, 2011).

Cherry-picking: is when health workers target easy-to-see patients thereby disrupting the priorities of the health facilities. This often favours the less poor thereby compromising equity [42].

Task trade-off: is when health workers target easy tasks and shirk those, they consider difficult and not profitable (Renmans et al, 2016)

Rent seeking: when a health worker is behaving in a way to increase his or her wealth without adding value (Renmans et al, 2016)

Free riding is when health workers get money without doing much work, which can be curtailed through peer review (Renmans et al, 2016).

Tunnel vision: is when health providers focus on limited objectives by giving special attention to some services and run a risk of neglecting others. For example, HIV/AIDS, mother & child health may receive so much attention than other health issues like diabetes and hypertension, not minding that health is wholistic in nature (Fritsche et al, 2014; Renmans et al, 2016)

Crowding out of intrinsic motivation: it is feared that, introduction of extrinsic motivation may wane the intrinsic motivation of the health workers, which will adversely affect the health service delivery (Peñaloza et al, 2011).

PBF AND EQUITY IN LMIC

In LMICs, so many people live below the poverty line and the health status of the poor people lags that of the rich, likewise the use of health facilities even when the health services are free (Masiye et al, 2016). Besides, the poor are more prone to impoverishment due to out-of-pocket payment for health care. Payment is impoverishing when it is large enough to push households below the poverty line. To this effect, the poor need financial protection too. Health systems, therefore, strive to balance these inequities in seeking health care in the population (Fritsche et al, 2014). PBF has inherent characteristics that if appropriately harnessed, can improve the pro-poor effect. Research showed that design and implementation of PBF plays important role in reducing inequalities in health care use (Flink et al, 2016). For example: choosing pro-poor indicators, involving the community health workers strategically, targeting the poor or geographically poor areas, redirecting more resources to reach the health providers working in the poor areas, the introduction of the demand-side RBF and reduction of out-of-pocket payment at the point of service, are all avenues to close the equity gap (Fritsche et al, 2014).

Selection of services that have shown consistent poor outcome or poor uptake among the poor during indicator design increases the use of these services by the poor. Examples of these services are maternal and child health, malaria, HIV/AIDS, vaccination, and immunisation (Fritsche et al, 2014). Another way to ensure equity is by paying providers more money for servicing poor persons. It is easier to target the geographically poor areas and increase resources there so that people living in these areas will increase their use of health services than individually identifying the poor in the communities (Fritsche et al, 2014). Then to improve financial protection, PBF can be designed to reduce out-of-pocket expenses at the point of service. If the providers lower their charges when negotiating with the purchasers, this improves affordability and directly encourages use by the poor. Involvement of the community health workers is an important design feature of PBF that can improve equity. Lack of information, social and cultural barriers are key contributors of imbalance in health use by the poor. If appropriately trained, the community health workers can be involved in educating the people on good health habits, on the type and importance of the services rendered by the facility. They can be contracted to bring to the facilities, sick patients, and pregnant mothers instead of going to the traditional institutions. They can also be used to deliver some services to the client in the community for example, wound dressing and directly observed therapy (DOT) in TB management. Again, demand side incentives can be introduced to mitigate the indirect costs of seeking health care like transportation costs and accommodation. For example, transport vouchers can be handed out to households that live below the poverty line to seek free or highly subsidized health services. PBF is a very good administrative platform to organize these incentives as autonomy of the facility management creates opportunities to align with the demand side incentive schemes to achieve uptake of health services (Fritsche et al, 2014).

Intermittently, it is important to evaluate the PBF programs to assess whether it is bridging the equity gap and improving financial protection as intended. This evaluation is usually difficult because of the unavailability of adequate data and lack of technical know-how (Fritsche et al, 2014). The routine data in the health information system is not adequate for this analysis as it does not indicate who is poor or not. Therefore, the appropriate data should be from household surveys, illness variables and healthcare use variable for protection measurement (Fritsche et al, 2014). The data can help in assessing equity determinants by using a summary measure of inequality or by disaggregating health outcomes into quintiles to demonstrate health outcome variation across wealth groups. It can also help in calculating the improvement in financial protection as well as benefit incidence analysis to determine whether government spending on health is pro-poor or not (Fritsche et al, 2014). One of such analysis done in Cambodia indicated that PBF reduced inequity substantially in 2010 when compared to 2000 before implementation, though it was greatest among the wealthier quintiles (Dingle et al, 2013). Similarly, analysis of PBF showed in Rwanda that it improved efficiency rather than equity for most health services in those easier to reach rather than in the poorest (Lannes et al, 2016). Besides, research in Denmark indicated that measuring inequalities using concentration curves and indices may run a risk of not identifying the group experiencing the largest inequality. It advocates for inequality analysis based on health care deprivation profile because it considers the multidimensional aspect of deprivation in the inequality analysis (Olsen et al, 2019). Anyway, the outcome of the analysis will help to improve PBF programmes and to inform policy to improve equity.

EXAMPLES OF PERFORMANCE-BASED FINANCING PROJECTS IN LMIC

As earlier mentioned, many countries in LMICs still need foreign assistance to supplement their national health expenditure in order to provide quality health care for their citizens. Several billions of dollars have been spent in this regard for decades now. The list of countries below is not at all exhaustive, rather an attempt to mention but a few, moreover, they are randomly selected.

International Development Association (IDA) is an agency created by The World Bank and backed by Multi-lateral Donors to provide concessional loans to poor countries to boost economic growth, reduce inequalities, and improve living conditions. It has been funding result-based financing since 1993 (RBF Health, 2021).

Health Result Innovative Trust Fund (HRITF) was specifically initiated to support RBF strategies to improve maternal and child health in the health sector especially in LMICs (RBF Health, 2021). The trust fund is administered by The World Bank but financially supported by Norwegian Agency for Development Cooperation (NORAD) of the Government of Norway and Department for International Development (DFID) of the Government of United Kingdom (RBF Health, 2021). HRITF synergises with IDA to finance the projects around the world.

Currently, HRITF has metamorphosed into Global Financing Facility (GFF) but still retains its two basic features: focusing on results and maintaining the linking of grant with the credits from the IDA (RBF Health, 2021). The grants are specifically for Reproductive, Maternal, Newborn, Child and Adolescent Health and Nutrition (RMNCAH-N).

Below are some of the PBF projects executed in LMICs.

AFGHANISTAN:

In 2002, in a post-conflict setting, the World Bank, United States Agency for International Development (USAID), European Commission (EC) and Afghanistan Ministry of Public health (MOPH) initiated 'Primary Health Care Project' and contracted the NGOs to deliver health care services in Afghanistan. They were paid on a performance basis. USAID and EC repaid the expenditure on inputs while World Bank paid the NGOs and MOPH a fixed amount including a performance bonus. The program was worth $155 million and was implemented from 2003 to 2005 (Grittner, 2013).

Later, to further improve and enhance the public health system, 'The System Enhancement for Health Action in Transition' was launched. This was to improve the scope, coverage and quality of health services. It lasted from 2013 to 2016 and was financed by HRITF and IDA which contributed $12 million and $100 million respectively while the United States of America (USA) through Afghanistan Reconstruction Trust Fund contributed $517 million (RBF Health, 2021). Health services were contracted out to international NGOs while the MOPH were contracted-in to provide pre-determined services emphasising quality and quantity.

A third party – a reputable university was contracted to do verification six-monthly by reviewing self-reported data. They also verified in the community the veracity of the services delivered. In addition, the contracted NGOs and the Provincial Health Office also assessed the quantity and quality of the services rendered every quarter. Payments were distributed every semester based on the quality and quantity of services delivered.

ARMENIA:

Between 2013 and 2019, HRITF and IDA financed 'The Disease Prevention and Control Project' in Armenia. They contributed $1.8 million and $35 million respectively (RBF Health, 2021). The essence was to improve maternal and child health services at both primary and secondary level of health care. In addition, they sought to screen and manage Non-Communicable Diseases (NCD) like diabetes mellitus, hypertension, and cervical cancer.

The State Health Agency purchased pre-defined maternal and child health services and non-communicable services from the primary health care facilities. Verification was done by combined team of Health Project Implementation unit of the Ministry of Health and the working group created by State Health Agency. Payment was made upon verification according to the quantity and quality achieved. The project was regulated by the Ministry Of health (RBF Health, 2021).

BENIN:

'The Health System Performance Project' was executed in Republic du Benin between 2011 - 2017. It was financed by HRITF and IDA which contributed $11 million and $32.8 million respectively (RBF Health, 2021). The essence was to improve the coverage and quality of maternal, neonatal and child health services especially for the poor.

The Ministry of Health contracted the health facilities to provide package of maternal and neonatal child health services including free malaria treatment. Verification was done by international NGO quarterly. Money was paid quarterly after verification of the work done and 50% of the money was made to incentivise the health workers (RBF Health, 2021).

The community health workers were contracted to do counter-verification at the community level. The project was successfully leading the government to own the model and scaled up PBF to the national level in 2015.

BURKINAFASO:

The HRITF and IDA financed 'The Reproductive Health Project' in Burkina Faso at the tune of $12.7 million and $29 million respectively. There was additional $35 million and $21 million specifically for PBF (RBF Health, 2021). The goal was for PBF to increase utilization and the quality of reproductive health services in five regions in Burkina Faso.

The Ministry of Health contracted the health facilities to deliver pre-defined packages of basic health services. Verification was quarterly done by an independent international firm contracted to crosscheck the quantity and quality of services delivered.

Upon verification, payments were done based on quality and quantity of services achieved. The community-based organization was contracted to do counter-verification in the communities through household surveys and exit interviews (RBF Health, 2021).

B**URUNDI**:

PBF scheme was first implemented in two districts in Burundi in 2006. Forty primary health care facilities were involved, and they received a fixed amount per targeted action including a quality bonus of 15%. It was sponsored by International NGO Cordaid and was supported by the Dutch government and the European Union (Grittner, 2013).

Later, 'The Health Sector Development Support Project' was launched in two stages. The first stage was from 2010 to 2014 and was financed by HRITF and IDA to the tune of $14.8 million and $23 million. The aim was to improve reproductive, maternal & child health. The second phase lasted from 2013 to 2017 and was majorly financed by HRITF and IDA at the tune of $20 million and $25 million respectively (RBF Health, 2021). But the Government of Burundi; GAVI, European Union and Belgian Co-operation contributed to the second phase too.

The Ministry of Health contracted both primary and secondary health facilities to deliver maternal and child health services and they were paid based on performance. Verification of the quantity of services delivered was done monthly by the Provincial Verification and Validation Committee while quality was assessed quarterly by district health officials at the primary level and by peer hospitals at the secondary level. Local NGOs were contracted to do counter-verification every six months to ascertain work is done and the client's satisfaction (RBF Health, 2021).

CAMEROON:

'The Health Sector Support Investment Project' in Cameroon was financed by HRITF and IDA. They both contributed $20million and $45 million respectively from 2008 to 2017 (RBF Health, 2021). The goal was to increase service utilization and improve the quality of health services especially maternal and child health and communicable diseases.

This project leveraged on pre-existing PBF scheme in four regions and extended it to the three Northern regions. The ministry of health entered contract with the Performance Purchasing Agency to purchase services and verify results (RBF Health, 2021).

Upon verification of delivered services, health facilities were paid monthly and quality bonus quarterly. In October 2015, the Cameroonian government called for nation-wide scale-up of PBF in 2021 and transferred PBF responsibilities to national actors (RBF Health, 2021).

CENTRAL AFRICAN REPUBLIC:

'The Health System Support Project' in the Central African Republic (CAR) between 2012 & 2018 aimed to expand access and quality of maternal and child health services especially among the poor in five health regions. It was financed by HRITF with $11.2 million and IDA with $17 million respectively but latter there was an additional $12 million financing in 2015 after the humanitarian crisis interrupted the project in 2013 (RBF Health, 2021).

The Performance Purchasing Agency (PPA) contracted health facilities run by NGOs and faith-based Organisations to deliver agreed health services (RBF Health, 2021). They were paid based on the quality and quantity of these services quarterly, upon verification of the work done. An External Evaluation Agency did the verification.

CHAD:

'The Mother and Child Health Services Strengthening Project' was sponsored by HRITF and IDA at a tune of $5 million and $15.79 million respectively between 2014 and 2018 (RBF Health, 2021).

The ministry of health contracted international NGO to act as Performance Purchasing Agency who in turn contracted health facilities to deliver both improved quality and quantity of maternal and child health services. Payments were made quarterly upon verification of results and additional equity bonus was also paid to health facilities operating at remote and poor areas.

Verification was led by the Performance Purchasing Agency (RBF Health, 2021). They did the quantity verification monthly while the quality verification was done quarterly using a quantified quality checklist. They also conducted a quantity verification and client satisfaction survey at the community level. In addition, an External Evaluation Agency was also contracted by the Ministry of Health to do counter-verification of the work done.

THE DEMOCRATIC REPUBLIC OF CONGO:

The International NGO ‘Cordaid’ and local NGO Bureau du Oeuvres Medicals in conjunction with the health authority in South Kivu initiated PBF scheme in two districts at a cost of $2.4 per capita in 200 (Grittner, 2013). They aim was to improve HIV/AIDS testing and care, tuberculosis, and preventive health care services. Under a performance contract, health facilities were paid a fixed amount monthly. There was an additional 15% payment for quality and another 15% for remote health facilities (Grittner, 2013).

Later, between 2016 and 2019, HRITF and IDA sponsored ‘The Health System Strengthening for Better Maternal and Child Health Project’ in DRC at the tune of $6.5 million and $20 million respectively (RBF Health, 2021). The aim was to provide basic maternal and child health services in 11 provinces.

The Ministry of Public Health contracted the Provincial Purchasing Agency who in turn incentivised the public health centres and primary level hospitals to improve both quantity and quality of maternal and child health services (RBF Health, 2021). The PBF payments were made upon verification of work done based on the quantity and quality achieved.

Verification of the quantity of work done was done by the Provincial Purchasing Agency quarterly, while the Zone supervisory Team and Provincial Health Division quarterly assesses the quality respectively (RBF Health, 2021). Local community organizations did the clients’ satisfaction survey and quantity counter-verification. In addition, an external agency was contracted to do both ex-ante and ex-post verifications too.

DJIBOUTI:

In Djibouti, HRITF and IDA committed $7 million each to finance 'The Improving Health Sector Performance Project' which lasted from 2015 to 2018 (RBF Health, 2021). The essence was to improve access and quality of maternal and child health services including communicable diseases like HIV/AIDS and tuberculosis across Djibouti.

The Performance Purchasing Unit was created within the Ministry of Health which in turn contracted the primary and secondary health facilities to deliver pre-defined health services (RBF Health, 2021). They were incentivised according to the quantity and quality of health services achieved after verification. There was also an equity bonus for health facilities in poor and rural areas.

Also, the Performance Purchasing Unit led the verification too (RBF Health, 2021). The quantity was verified monthly while Quality was verified quarterly using a quantified checklist. They contracted the local community organization for clients' satisfaction survey and quantity counter-verification. They also contracted an external agency for counter- verification too.

ETHIOPIA:

The World Bank initiated 'The Ethiopian Health MDG Program for Results' which lasted from 2013 to2018. The program was financed by HRITF which contributed $20 million while IDA contributed $100million (RBF Health, 2021). The aim of the programme was to improve access to maternal and child health services, enhance accountability and strengthen the Health Management Information System in Ethiopia.

Verification at the national level was done through regular demographic health surveys and cluster surveys while the Service Availability and Readiness Assessment (SARA) and the Service Provision Assessment Plus (SPA+) were used to track performance at the health facilities (RBF Health, 2021). Incentives were provided by the Programme for Results (PforR) and health facilities were paid based on achievement of pre-defined Disbursement Linked Indicators (DLI).

GAMBIA:

Between 2014 and 2019, HRITF and IDA sponsored 'Maternal and Child Nutrition and Health Result Project' to increase maternal and child health services including increase in utilisation of community nutrition. They contributed $15 million and $8.68 million respectively (RBF Health, 2021).

The purchaser was the Ministry of Health and Social Welfare which contracts health facilities to improve access and quality of health services. Health facilities were paid incentives for the achieved quantity and quality increase upon verification including quality bonus.

The incentives were to be shared at 60/40 percent basis; 60% for infrastructural development, equipment procurement and for outreach activities while 40% was for performance incentive for health care personnel (RBF Health, 2021).

The verification was done by National Nutrition Agency monthly while regulation was done by the Ministry of Health and Social Welfare.

HAITI:

In 1995 USAID contracted NGOs to deliver basic health services under 'Haiti Health Systems 2004 Project'. However, in 1999, the payment structure changed from re-imbursement to include a performance component. In this new arrangement, NGOs could complement with the basic fixed-funding amount with 10% of the original budget if pre-defined targets were met (Grittner, 2013). The pilot programme was successful with 3 NGOs and was later expanded to 25 NGOs in 2005

Later, 'The Improving Maternal and Child Health through Integrated Service Delivery Project' was launched in 2013 and ended in 2018. The project sought to increase access and utilisation of maternal and child health services especially among pregnant women, children under the age of 5 and poor families. HRITF contributed $20 million while IDA contributed $70 million (RBF Health, 2021).

The Ministry of Public Health and Population contracted primary health care facilities to deliver pre-defined service packages. The facilities were paid by the Directorate for Administration and

Budget quarterly based on the quantity, quality and equity of services achieved after verification (RBF Health, 2021).

The verification was done by a contracted external independent agency quarterly and supplemented by quarterly community surveys.

INDIA:

Due to poor health system in the state of Karnataka India, HRITF with its partner IDA contributed $0.7 million and $142 million respectively to finance the 'Karnataka Health System Development and Reform Project' (RBF Health, 2021). Duke University contributed $0.22 million to the project too (RBF Health, 2021). The aim was to increase the utilisation of essential health services among the poor, especially the maternal and health services in order to accelerate the Millennium development Goals. The project lasted from October 2011 to August 2014.

The Ministry of Health and Family Welfare contracted private obstetric care providers in rural areas to provide pre-defined package of maternal care. The project also included the tertiary institutions, where the hospitals were contracted to deliver 447 pre-defined packages of tertiary care services (RBF Health, 2021).

They were incentivised in three stages based on performance after verification of achievements.

KENYA:

The HRITF in conjunction with its partner IDA committed $20 million and $41 million respectively to finance the "Kenya Health Sector Support Project" from 2014 to 2018 (RBF Health, 2021). The aim was to improve delivery of essential health services especially among the poor.

In the project, the Department of Health was the fund holder and they contracted primary health facilities to deliver selected maternal and child health services. The quantity and quality verification were done by a joint verification team comprising of representatives from the Department of Health, partner NGO and county hospitals (RBF Health, 2021).

Payment was done upon verification of the achievement against pre-defined targets. The amount paid was shared on 60-40 percent basis; 60% performance incentive for health personnel while 40% was for minor infrastructural developments, equipment, and supplies (RBF Health, 2021).

The Ministry of Health performs the regulation function making sure that PBF objectives are aligned with the national guidelines and principles.

KYRGYZ REPUBLIC:

The republic of Kyrgyz has a high level of service coverage and utilisation yet her maternal and child mortality rates were amongst the highest in Central Asia. This paradoxical situation led to suspicion of the quality of services rendered and so gave birth to "Kyrgyz Health Results based Financing Project" financed by HRITF at the tune of $11 million between July 2014 and July 2017 (RBF Health, 2021).

The project was in two pilot interventions. The first was pay-for quality at district hospitals while the second project was at primary health care level where primary health care facilities were contracted and incentivised based on quality and quantity of delivered services in four rayons (RBF Health, 2021).

Verification was done through peer reviews and random semi-annual country verification.

LAOS People Democratic Republic:

Despite improvement made by Laos PDR, the health indications were still low. Therefore, HRITF and its partner IDA financed "The Health Services Improvement Project" (HSIP) and contributed $2.4 million and $15 million respectively (RBF Health, 2021). The aim was to improve the coverage and quality of maternal and child health services especially among the poor. The project lasted between November 2011 and October 2015.

The government of Laos Peoples Democratic Republic contracted the Laos Red Cross to coordinate the schemes. The Laos Red Cross in turn contracted the health facilities and signed performance agreements with them. The incentives were paid based on the quantity, quality and equity achieved in maternal and child health services (RBF Health, 2021).

LESOTHO:

To support the health system in Lesotho, HRITF and IDA financed "The Health Sector Performance Enhancement Project" at the tune of $4 million and $12 million respectively (RBF Health, 2021). The aim was to increase utilisation and improve the quality of primary health care services especially for the poor. The focus was on HIV, Tuberculosis, and maternal & Child health. The project lasted between February 2014 and July 2019.

Under the PBF arrangement, the Ministry of Health contracted health centres and signed performance agreements with District hospitals to deliver package of primary health care services and improve the quality of secondary health care services.

The Ministry of Health contracted Performance Purchasing Technical Assistance (PPTA) firm to do quarterly verifications. The firm partnered with District Health Management Teams (DHMTs) to do quality assessment using quality check list at the primary health care level while at the hospital level, peer review system was used to perform quality verification. In addition, the District Health Management Teams also received performance-based incentives to ensure supportive supervision of primary health care services (RBF Health, 2021).

Payments were made based on quantity and quality of services achieved against pre-determined targets. Equity bonus was also paid to geographically disadvantaged facilities to encourage remote areas and hard-to-reach facilities.

LIBERIA:

The HRITF and IDA devoted $5 million and $10 million respectively to finance "The Liberia Health Systems Strengthening Project" to improve the access and quality of maternal and child health services including infectious diseases services in selected secondary health facilities and to support the emergency responses needed to combat Ebola outbreak. The project lasted from March 2013 to May 2018.

The project funded two PBF schemes; the first was to improve the quality of health care in hospitals while the second was to improve the quantity and quality of health services at the primary health care level.

The verification was done by National Verification Agency contracted by the Ministry of Health and Social Welfare to assess the quality and quantity of services delivered. The payments were done quarterly by the office of the financial management. For the first scheme, the payment was on the ratio of 75 to 25; 75% was for quantity and 25% for quality, while for the second scheme, the payment was based on the USAID Fixed Amount Reimbursement Agreement (FARA) approach (RBF Health, 2021).

NICARAGUA:

In 2000, the Inter-American Development Bank supported the ‘Nicaraguan Emergency Social Investment Fund’ to extend health care coverage in Nicaragua (Grittner, 2013).

In the project, NGOs and private-for-project health care providers were contracted and they were paid according to meeting pre-determined targets. The 3-year pilot studies were successful and were therefore expanded to include other targets like reproductive and maternal health services. The project was later extended for another 5years (Grittner, 2013).

NIGERIA:

In Nigeria, due to poor health indicators despite relatively high spending on health and discrepancies between the Northern States, especially in North-East States and Southern States in health indicators, ‘The Nigeria States Health Program Investment Project’ was initiated in 2012 and ended 2018 (RBF Health, 2021). The project was financed by HRITF and its partner IDA at the tune of $20 million and $150 million respectively (Paul et al 2018). There was an additional funding of $1.7 million latter (RBF Health, 2021). The project sought to increase delivery and utilisation of high quality maternal and child health services.

Under the PBF arrangements, the State Primary Health Care Development Agency (SPHCDA) contracted health facilities to deliver an improved equity, quantity, and quality of a pre-defined package of maternal and child health services in all the Northern states including Ondo state (RBF Health, 2021). The National Primary Healthcare Development Agency (NPHCDA) provided technical support to the state agencies.

Quarterly verification of quantity of services delivered was done by a third party, The RBF Technical Assistant (RBFTA) while the quality verification was by Primary Healthcare Departments in individual Local Government Areas using the quality checklist (RBF Health, 2021). However, in hospitals, the SPHCDA supervised a peer review mechanism using a quality checklist.

Facilities were paid upon verification of the work done and 50% of the money was used to cover operational costs and improvement of quality while 50% was invested in incentivising personnel achievements (RBF Health, 2021).

RWANDA:

PBF was first started in Rwanda in three districts of Bature in 2001, Cyangugu in 2002 and Kigali in 2005. In Bature, it was financed by the Dutch NGO Healthnet International at per capita costs of $0.3; it was supported by the Sweden International Development Agency (SIDA) (Grittner, 2013).

In Cyangugu, the International NGO Cordaid initiated PBF scheme with financial support from the Cyangugu Province Community Development Funds, United Nations Population Funds (UNFPA) and the World Bank at per capita cost of $2 (Grittner 2013). The Belgian Technical Cooperation (BTC) started the PBF scheme in Kigali (Grittner, 2013).

Primary health care facilities were contracted to deliver package of services and were paid according to the quality and quantity achieved against a pre-determined target. The aim was to improve access to quality HIV/AIDS and maternal and child health services by motivating health workers with incentives.

The Ministry of health in Rwanda adopted PBF as a national policy in 2005 and scaled it up to the national level. They are supported by the World Bank, Presidents' Emergency Plan for Aids relief and Belgium government (Grittner, 2013).

SENEGAL:

'The Community Nutrition Project (CNP)' of 1996 in Senegal was done based on PBF. The World Bank, World Food Program, The German Development Bank contributed 91% while the Government of Senegal contributed 5% and the remaining 4% by the community. It was at a cost of $15 per capita (Grittner, 2013).

Later, to further combat malnutrition and poor maternal health in Senegal, HRITF and IDA invested $20 million each while USAID contributed $2.3 million to fund 'The Health and Nutrition

Financing Project' from 2012 to 2018 (RBF Health 2021). The aim was to increase health and nutrition outcomes for women and children especially in the poor regions of Senegal.

The Ministry of Health and Social Action of Senegal contracted the health facilities and hospitals on PBF basis to improve the access and quality of key maternal, child & nutritional services. The ministry of health also contracted regional health officers on PBF basis to help coordinate PBF at health facilities.

Independent Verification Agency (IVA) contracted by the Ministry of Health verified both the quantity and quality of the work achieved using facility records and quantified quality checklist. Upon verification, the Financial Management Directorate of the Ministry of Health and Social Action did the payments based on the achievement of the pre-defined target and quality scores (RBF Health, 2021).

Counter-verification after payment was done by the community-based organisation contracted by the Ministry of Health and Social Action (RBF Health, 2021).

SIERRA LEONE:

'The Reproductive and Child Health Project Phase 2' in Sierra Leone lasted from 2013 to 2016. It was financed by HRITF and IDA to the tune of $5million and $13million dollars respectively (RBF Health, 2021). The aim was to increase usage of package of essential health services by children under the age of five, pregnant and breastfeeding mothers. It also supported emergency response to Ebola.

The Ministry of Health contracted 1,200 primary health care facilities and six hospitals to provide pre-defined package of health services (RBF Health, 2021). The hospitals were contracted specifically to improve the quality of their services.

Verification at the primary health care facilities were done by the District Health Management Officers on quarterly basis while at the hospital level, it was done by Quality Assurance Committee on quarterly basis too (RBF Health, 2021).

Payment was done quarterly by the Ministry of Finance and Economic Development (Paul et al, 2018). An independent external agency was also contracted to independently verify the validity of the reported data and trace patients in the community to ascertain the quality of care.

TAJIKISTAN:

‘The Health Service Improvement Project’ was initiated in 2013 and was implemented till 2019 to help improve access and quality of basic primary health care services in selected districts in Tajikistan. It was financed by HRITF and IDA at the tune of $4.8 million and $15 million respectively (RBF Health, 2021).

The project involved 449 health facilities which were contracted by Ministry of Health to improve both quality and quantity of maternal and child health including non-communicable disease using PBF strategy (RBF Health, 2021).

Quarterly verification of work done was led by the State Health Activities Supervision Service in conjunction with the District PBF Verifications Teams. Payment was made quarterly by the Ministry of Finance. After payment, UNICEF independently performs assessment in some PBF facilities twice a year to ensure that the reports were accurate (RBF Health, 2021).

ZAMBIA:

To improve the health system and health outcomes in Zambia ‘The Zambia Health Services Improvement Project’ was launched in 2015 and was implemented till 2019. It was financed by HRITF and IDA, both contributing $15 million and $52 million respectively (RBF Health, 2021). The aim was to increase the delivery and utilisation of Maternal, Newborn and Child Health and nutritional services in five provinces in Zambia.

The Provincial Medical Office contracted the District Medical Office to enhance the performance of the district health system. Also, the Provincial Medical Office contracted the hospitals to improve the quality of health care and strengthen the referral systems. On the other hand, the District Health Office contracted the health centres to deliver a package of maternal and child health services including nutrition. The health centres in turn contracted the community health workers to improve health services in the community.

At each level, PBF was used to incentivise the health workers based on achievement made against pre-determined targets. Verification was done by the Provincial and District RBF Steering Committees while the payments were done by the Ministry of Health (RBF Health, 2021).

ZIMBABWE:

To improve health indicators and outcomes in Zimbabwe, 'The Health Sector Development Support Project' was financed by HRITF at the tune of $20 million between 2013 and 2017 (RBF Health, 2021). The aim was to increase the coverage of key maternal and child health services in some rural and urban districts.

Cordaid an international NGO was contracted to be both the fund holder and purchasing agent. Under PBF arrangement, health facilities and district hospitals in 18 rural districts were contracted by the implementing partner Cordaid to deliver specified maternal and child health services (RBF Health, 2021).

Cordaid also verified the work done before payment using the Risk-based Sampling approach but ensured that each facility was verified at least once quarterly (RBF Health, 2021). The health facilities were paid after verification based on performance achievements against pre-defined target in relation to quality and quantity.

Cordaid also contracted the community-based organisation to assess patients' satisfaction on a quarterly basis. Continuous quality improvement model was also adopted in the health facilities in 5 districts to improve the quality of health services delivered (RBF Health, 2021).

CONCLUSION

PBF offers in theory a panacea to the access problem irrespective of its shortcomings, and in practice, so many countries in LMICs are at different levels of implementation. Moreover, its ancillary components like monitoring, evaluation and feedback, training, and formative supervision, improved HMIS are in short supply but highly needed to improve health workers motivation, high quality & quantity health services, health system strengthening and invariably improve access to health services in LMICs (RBF Health, 2021). Therefore, there is a need to know how far in reality, it has achieved this goal since the turn of the millennium, hence this research.

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Part C

Journal Manuscript

The effects of Performance-Based Financing on the uptake of health services in low-and-middle-income countries: A systematic review

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ABSTRACT

Background: Many low- and middle-income countries (LMICs) have adopted Performance-Based Financing (PBF) since the late nineties to improve health system effectiveness and efficiency. Two previous systematic literature reviews assessed the effect of PBF on the uptake of specific health services such as HIV/AIDs and modern family planning. Another two assessed its effect on different aspects of the health system including health outcomes. This systematic review specifically assessed the effects of PBF implemented in LMICs on uptake of health services.

Method: Relevant scientific databases include PubMed, Academic Search Premier, Africa Wide Information, APA Psych Info, Business Source Premier, CINAHL, COCHRANE, EconLit, SCOPUS, Humanities International Complete, African Index Medicus, IndMed, Business Source Premier and Web of Science. Reference lists of retrieved articles were also searched for: -randomised control trials, contemporaneous comparative studies, time-series studies, and impact evaluation papers published between 2000 and 2019 that evaluated PBF and its effect on the uptake or use of health services. A narrative synthesis was used due to wide variations in the methodologies of the included papers.

Result: Fifteen papers were eligible for analysis, and they are from Asia (3) and sub- Saharan Africa (8). Others are literature reviews in LMICs (4). PBF had mixed effects on uptake of targeted health care services in general but specifically showed great promise in the uptake of institutional delivery. It also improved the quality of care and had a mixed effect on equity.

Conclusion: PBF had a mixed effect on the uptake of targeted health care services in LMICs. More research is needed for robust evidence; to substantiate PBF's effect on improving, for example, institutional delivery to reduce maternal mortality in LMICs.

Key words: Performance-based financing (PBF), Universal Health Coverage (UHC), Anti-retroviral (ARV), Antenatal Care (ANC), High-income Countries (HIC), Low-and- middle income countries (LMICs)

1.0 INTRODUCTION

Universal Health Coverage (UHC) demands that all people access the quality health services they need without incurring financial hardship (WHO, 2021). Half of the world population do not receive the health services they need, and about 100 million people are pushed into extreme poverty each year due to out-of-pocket (OOP) expenditure (World Bank, 2021). Mainly, unaffordability, inaccessibility, unavailability, and unacceptability of health care services serve as barriers to health services utilization in LMICs.

Currently, UHC is popular among many nations as they desire to provide health care at the population level. According to World Health Organization (WHO), health care financing is one of the fundamental elements of UHC and involves; - mobilization, pooling, and allocation of funds to cover the health needs of the people. Furthermore, the sources of funds for health care in LMICs are from a mix of financial arrangements, including government spending, private/household expenditure through OOP expenditure, health insurance and donor-funded payments (WHO, 2010).

Now, regardless of the source, the available fund usually is prospectively budgeted through forecasting, using catchment population, human resource, infrastructure, and commodity needs (Suthar et al 2017). Often, funds are scarce in LMICs, which results in poor remuneration, lack of equipment, infrastructure, adequate training, and lack of motivated health care workers.

Consequently, health workers relocate in droves to cities and high-income countries with better health systems, leaving behind a health system that cannot provide adequate and quality health services to those who need it. Research has shown that failure to attract and retain health workers reduces populations' health service access and results in poor health system performance (Rockers et al 2012). Therefore, to improve health system performance, it is pertinent to maximise the available resources, hence the need for strategic purchasing in the health sector in LMICs.

The WHO states that strategic purchasing involves purchasers applying methods that make health providers improve efficiency, effectiveness, and quality of health services (WHO, 2019). Recently, there are innovations to improve health systems in LMICs, including Result-Based

Financing (RBF), targeted at both the supply-side and demand-side of the health system to improve access to basic health care services.

Performance-based financing (PBF) which is also referred to as paying for performance (P4P) or supply-side financing, is a strategy where the incentive for achieving pre-determined targets is directly linked to performance. Here, health facilities and health workers are incentivised if they achieve a pre-determined target after verification. It is believed that this method of financing will produce better results because it aligns the incentives of the health workers with the desires of the population they serve (Luck et al, 2014). In other words, it improves the principal-agent relationship.

Furthermore, PBF is premised on the assumption that health workers will be motivated to change their behaviour in response to incentives and deliver more and better health services to improve access to health care. Research has shown that PBF can improve both the quantity and quality of health care services, especially in LMICs where resources are scarce (Fritsche et al, 2014). This behavioral change is expected to improve most especially, the availability and acceptability of health care services, which may require adapting the available health care services to suit the contexts of the people they serve.

Moreover, there are other health's system-wide benefits of PBF that are highly needed in LMICs, and some are essential elements of UHC. They include good governance by introducing separation of responsibilities, better accountability through improved verification and regulation, and strengthened consumer influence on service delivery. Others are, improved Health Management and Information System (HMIS), technical support and training and improved resource availability for health facilities (Fritsche et al, 2014).

Indeed, these features make PBF attractive and so, several countries in Asia and Africa have adopted PBF since the late nineties. Research has also shown in Latin America and the Caribbean that reliance on RBF improved health system efficiency (Moreno-Serra et al, 2019). However, though PBF may seem to be promising, controversies surround it.

For instance, there are controversies around its relevance, effectiveness, efficiency, and sustainability. Moreover, there are concerns that financial incentives will introduce perverse effects into the health system and may erode health workers' intrinsic motivation (Toonen et al, 2009). Research has shown that the utility function of health workers does not rely on financial gain alone but also on further training, good living conditions, and the availability of technology. (Blacklock et al, 2016). Hence, there is a need to clear grey areas around PBF and substantiate claims with hard facts through research.

Currently, there are four systematic literature reviews on PBF reflecting uptake of health services in LMICs. The first was on paying for performance to improve the delivery and uptake of family planning in LMICs. The second reviewed literature on PBF for improving HIV/AIDS service delivery in LMICs. The third and fourth are similar; Witter et al., (2012) assessed the effectiveness of PBF on all aspects of the health sector, including uptake of health services in LMICs and Diaconu et al., reviewed the paper in 2021.

The primary objective of this paper is to assess the effect of PBF on the uptake of health services in LMICs. Uptake of health services was isolated from all other aspects of the health system like health outcomes, adverse effects, health management and information system (HMIS), and service organization etc., to establish its direct link with PBF. It also assessed the quality of the health services and equity as secondary outcomes, if they are included in the selected studies. The essence is to have up-to-date evidence to inform policy.

2.0 METHODS

2.1 Search Terms

This paper used PBF (or its variant) or terms describing supply-side financing as an intervention, uptake of health services or terms denoting it as outcomes in LMICs. Any other financing method was excluded, and the search period is between 2000 and 2019. Searched databases include Pub-Med, Academic Search Premier, Africa Wide Information, APA Psych Info, Business Source Premier, CINAHL, COCHRANE, EconLit, SCOPUS, Humanities International Complete, African Index Medicus, IndMed, Bussiness Source Premier and Web of Science. Reference lists of retrieved articles were also searched.

Websites of the World Bank, US Agency for International Development (USAID), Management Sciences for Health (MSH), Centre for Global Development, World Health Organisation (WHO), Swiss Tropical Centre, Department for International Development (DFID), Global

Alliance for Vaccines and Immunisation (GAVI), Global Fund to fight AIDS, Tuberculosis and Malaria, CORDAID, IFAKARA Institute in Tanzania were also searched.

2.2 Types of studies included

2.2.1 Study design

The systematic review includes all available papers including Randomised Controlled Trials (RCTs), quasi-experimental and observational studies including Controlled before-after Trials (CBA) studies, Interrupted Time-series Studies (ITS) and impact evaluations of PBF. Only peer reviewed papers were included.

Inclusion criteria

- **Population**: Health service users in both private and public health care facilities in LMICs.
- **Intervention:** PBF or any description that denotes compensation, whether financial or otherwise, to health care providers for attaining a certain target level.
- **Outcome**: The primary outcome affects the utilisation of health services due to incentive payments to health workers. The secondary outcomes include the quality of health services and equity if they are included in the studies reporting the primary outcome.

2.3 Exclusion criteria

Any study that focused on the following was excluded:

- Demand-side financing i.e., payment to consumers or health service users instead of suppliers of health services
- Combination of supply-side and demand-side financing but the effect of the supply-side was not separated from the effect of demand-side.
- Study outcome different from the uptake of health services
- Studies conducted in high-income counties (using the World Bank classification of countries).
- Studies not published in English.

2.4 Selection of included studies

Two individuals independently screened titles and abstracts to identify the studies that met the inclusion criteria. The same two authors independently reviewed the full texts of the articles using the standardised checklist. Disagreements were resolved through dialogue and the involvement of a third party.

2.5 Data extraction

We designed a data extraction form adapted from the Cochrane Effective Practice and Organization of Care (EPOC) data collection form (EPOC, 2017), according to needed relevant information. Included in the form are authors and year of publication, year of study, the aim of the study, study design, focus of the study, the study outcome, years of follow up, analytical model, and the quality of the publication as assessed below. Two authors independently used the form to extract information from the included studies. A third review author independently verified all extractions and resolved disagreements by discussion.

2.6 Data analysis

2.6.1 Quality appraisal

Two authors analysed the papers and assessed the overall risk of bias independently. Included systematic literature reviewed papers were analysed differently using AMSTAR 2 while the rest were analysed using Downs and Black scale. Differences in the scoring or rating of the studies were discussed among the two authors and a third party was involved in resolving any dispute.

Downs and Black scale is numerically based and was chosen because it is used widely (O'Connor et al 2015). It has a checklist for assessing the methodological quality of both randomised and non-randomised studies (Downs and Black, 1998)

The modified scale has a total of 27 questions. It assesses the quality of reporting with 10 questions, external validity with 3 questions, internal validity (bias and confounding) with 13 questions and the statistical power with 1 question. Twenty-six questions were rated either 'Yes' with 1 point each or 'No' or 'unable to determine' with 0 point. The remaining question from the reporting section was rated on a 3-point scale; 'Yes' with 2 points, 'Partial' with 1 point and

‘No’ with 0 points. This makes the scale have a maximum score of 28. Any paper graded between 24 and 28 is rated excellent, while from 19 to 23 is rated good, from 14 to 18 is rated fair while any score less than 14 is rated poor (O’Connor et al, 2015)

The AMSTAR 2 (Assessing the Methodological Quality of Systematic Reviews) was developed to appraise both randomised and non-randomised studies for uniformity (Shea et al, 2017). It has 10 domains, 16 questions and has an overall rating based on weaknesses in critical domains. It assists in identifying high-quality systematic reviews using qualitative judgements rather than scoring. The outcome is graded as high, moderate, low, or critically low (Shea et al, 2017).

2.6.2 Data synthesis

Most of the relative effects were obtained from difference-in-difference regression analysis and reported in the form of regression coefficients. Most of the regression analyses were clustered at the facility level and they adjusted for the multiple co-variates and confounders.

2.6.3 Measure of treatment effect and heterogeneity

We did not calculate the mean effects across studies but compared the effects and use narrative synthesis to report the range of effects noted across the reviewed papers. This is because there was considerable disparity in the PBF studies regarding context, characteristics of the participants, follow-up period, study design and outcome measures. We did not do the statistical assessment of heterogeneity due to the disparity.

2.7.4 Reporting

We reported the primary outcome effect against the control at the indicator level under major themes like institutional deliveries, other maternal and childcare services, and other health care services. The secondary outcomes were reported under quality and equity.

3.0 RESULTS

From the database search, 2004 citations were retrieved, but1008 citations were removed based on duplicates. A further 871 citations were excluded after screening the remaining 996 titles because they were not relevant. After going through the abstracts of the remaining 125 citations, 79 citations were removed because they were not relevant too. The full texts of the remaining 46 citations were fully reviewed and 32 were excluded using the inclusion and exclusion criteria. Finally, 14 citations were selected for analysis. Below is figure 1, the Prisma flow diagram.

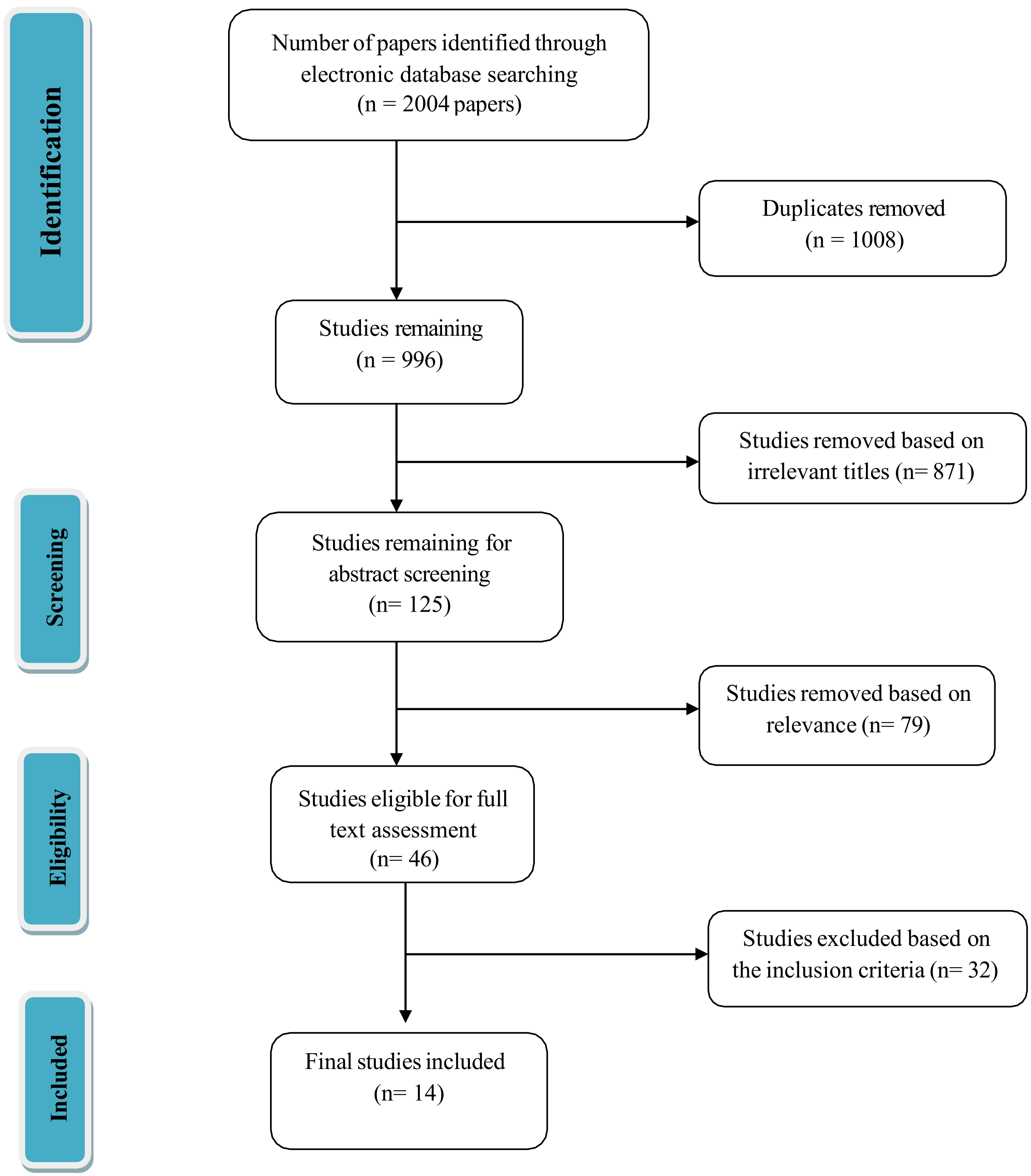

Figure 1: Prisma flow diagram showing the results of search and studies' selection

3.1 Characteristics of reviewed papers

The selected studies of this systematic review were published between 2011 and 2017 and they were all conducted in LMICs mainly from sub-Sahara Africa and Asia. Eight studies from sub-Sahara Africa are: Rwanda (2), Burundi (2), Tanzania, Uganda, Democratic Republic of Congo (DRC), and Burkina Faso. Three studies from Asia, are: Myanmar, Cambodia, and Yunnan China. The three included systematic literature reviews were in LMICs too.

Eight of the original papers were exclusively on maternal and child health while three were on general health services including maternal health services. The remaining two studies were on artemisinin drug uptake and uptake of syphilis testing.

Besides the included three systematic literature reviews, the study designs of the remaining eleven original research articles are: cross-sectional surveys (2), interrupted time series (2), before-and-after study (4), randomised controlled trial (2), mixed-method including: - interrupted time series, key informant interviews and focused group discussions (1).

Most studies assessed the PBF effect against similar facilities rendering existing standards of care as control. The researchers in most cases tried to choose both the intervention and control facilities from an environment with the same socio-economic status and participants within the same demographics. Despite this attempt, there was a disparity in resources available to both arms with the intervention arm having more resources than the control arms. Except in DRC and Rwanda where attempts were made to equilibrate the financial resources available to both arms by giving more resources to control arms.

Below is Table I: the Data extraction form depicting the characteristics of the reviewed paper

Table I: Characteristics of reviewed articles and data extraction form

Authors and Year of Publication	Country of study	Aim of study	Study design	Focus of study	Outcomes	Years of Study	Follow up	Analytic Model	Quality scores
Paulin Basinga et al 2011	Rwanda	The effect of PBF on use and quality of child and maternalcare services in health care facilities	Randomised controlled trial	Maternaland Childcare	Improvement in the use of maternal and child health services	2005 - 2007	23 Months	Difference-in-difference model	Good
Robert Soeters et al 2011	Congo	To find the effect of PBF on uptake of maternal and child health	Before and after studies	Maternaland Child Care	PBF improved utilisation as well as quality of maternaland child health services	2005 – 2008	3years	Logistics regression model	Fair
Witteretal 2012	LMICs	To assess the effect P4P on the provision of health care and health Outcomes	Systematic Literature Review	Allaspects of health interventions	Weak and mixed outcomes.	Pastto 2011	Varied numbe r of years	Narrative synthesis	High
Igna Bonfrer et al 2014	Burundi	The effect of PBF on the improvement of care and quality	Interrupted Time series	Effectiveness of PBF	PBF was associated with improvement in care and quality	2006 – 2010	4years	Difference-in-difference model and logistic regression analysis	Poor
Tin Aung et al 2015	Myanmar	Uptake of RDT (rapid diagnostic test) use in the community and improvement of quality of care among informal private healthcare providers in Myanmar	Before and after studies	Containment of artemisinin resistance and elimination of Plasmodium falciparum	Improved uptake and appropriate use of RDT	April 2013 – September 2013	6 Months	Multiple logistics regression analysis STATA	Good
Peter Binyaruka et al 2015	Tanzania	To evaluate the effect of a P4P scheme on utilisation of all maternal and child immunisation services	A controlled before and after study	Maternal and child immunisation services	A significant positive effect on 2 out of 8 targeted indicators	2012 – 2013	13 Months	Difference –in-difference regression analysis	Fair
Philip Govule et al 2015	Uganda	The effect of PBF on the performance of level 3 health centres	Cross-sectional study	Effectiveness of PBF on the performance of health centres	There was a positive trend in the performance in the selected indicators in PBF health centres	2007 – 2011	4years	Comparative description analysis	Poor

Por Ir et al 2015	Cambodia	To evaluate the effects of the Government Midwifery Incentive Scheme (GMIS) on facility deliveries and the health systems	Mixed method of interrupted time series model, interviews and focus group discussions	Institutional delivery to reduce maternal mortality	Facility deliveries tripled from 19% to 57%	2007 – 2011	4years	Segmented mixed method	Poor
Martha PreidemanSkiles et al 2015	Rwanda	The effect of performance-based financing on illness, care seeking and treatment among children	Randomised control trial	The health of children under five years	There was increased uptake of health services but no differential effect of PBF	2005 – 2008	3years	Difference-in-difference model	Fair
Claire Blacklock et al 2016	Low-and middle-income countries	To determine whether PBF improved uptake of family planning in LMIC	Systemic literature Review	Family planning	The result was of a mixed outcome as some of the studies indicated uptake while others did not	1994 – 2016	N/A	Narrative synthesis	Moderate
Martin Rudasingwa et al 2017	Burundi	The effect of PBF on maternal care at primary and hospital level and how the number of subsidies influences health care outputs	Cross-sectional survey	Maternal health care use	Improvement in institutional delivery	2006 – 2008	2years	Difference-in-difference model	Poor
Maria Steenland et al 2017	Burkina Faso	To evaluate the impact of PBF in increasing utilisation of maternal health services	Controlled before and after studies	The utilisation of maternal services	There was increased uptake of maternal services	April 2011 – December 2012	20 Months	Difference-in-difference regression analysis	Fair
Amitabh B Sutharetal 2017	Low-and middle-income countries	Effect of PBF on HIV/AIDS service delivery	Systematic literature review	HIV service delivery	Improved HIV service access and quality	2009-2015	6 years	Narrative synthesis	Moderate
Wanyue Zhang et al 2017	Yunnan China	To find the effect of PBF on uptake of syphilis testing and treatment	Interrupted time series	Syphilis eradication	PBF greatly increased the uptake of syphilis testing and treatment among people at risk	2011 – 2015	4years	Trend analysis	Poor

3.1.1 The quality assessment outcome

The qualities of the 11 studies rated with the Downs and Black scale were scored thus: good (2) fair (5) and poor (4). See a detailed copy of the scores and ratings in the appendix. Then out of the 3 studies rated with AMSTAR 2, 1 study was rated good while 2 studies were rated moderate.

We did not drop any paper due to quality because we did not statistically combine the effect measures, rather we used narrative synthesis.

Below is the graphical representation of the quality scores of the included papers assessed with Downs and Black scale.

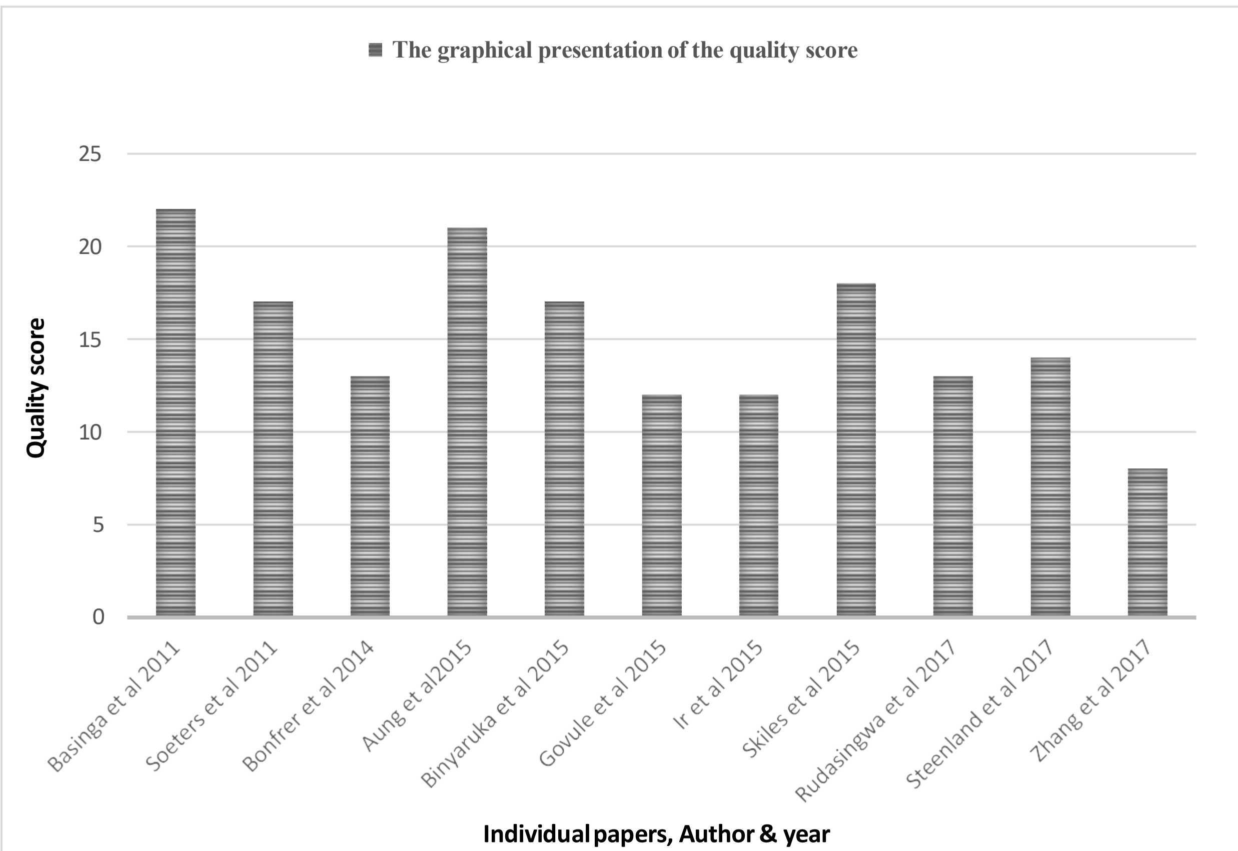

Figure II: The graphical presentation of the quality score

3.2 Findings

3.2.1 Primary outcome: The Effect of PBF on uptake of health services.

Institutional delivery

Basinga et al (2011) assessed the effect of paying primary health care providers based on performance on maternal and child health services in Rwanda and found that a significant increase (23%) in the probability of institutional deliveries in intervention facilities compared to control facilities. Similarly, a significant improvement in institutional delivery by 22% when compared to control facilities was found in Burundi due to the introduction of PBF (Bonfrer et al, 2014)

Another study in Burundi reported that the probability of a woman giving birth in a PBF health facility improved by 39.5%, an increase of 81% from the baseline. Most of these deliveries were in health centers (70.8% in 2008) than in hospitals (16.7% in 2008) and were conducted mostly by nurses (47.7% in 2006 and 69.4% in 2008) rather than the physicians (3.3% in 2006 and 8.3% in 2008) (Rudasingwa et al., 2017)

Likewise in Burkina Faso, institutional delivery increased by 2 births per month (95% CI 0.034 to 4.069) when compared to the control facilities, which is an average increase of 9.2% from the baseline (Steenland et al, 2017). Also, Binyaruka et al (2015) found an increase in the probability of institutional delivery in Tanzania.

A study in Cambodia discovered 36 more facility deliveries each month in districts practicing PBF alone (Ir et al 2015). They noted that the proportion of deliveries attended by health professionals in all locations increased by 78.6%, mainly conducted by nurses. These deliveries were more at the health centres than in the hospitals. Ir et al (2015) further found that the probability of deliveries attended by the traditional birth attendants declined dramatically from 29.3% to 5.4% within the period assessed.

However, some studies reported an increase in institutional delivery both in intervention and control facilities. For instance, Soeters et al (2011) found an improvement in institutional delivery both in the intervention and control facilities in DRC likewise Govule et al (2015) in health clinics in Jinja Diocese in Uganda. They found a progressive increase in institutional deliveries in both PBF and control facilities. However, the increase was insignificantly more in PBF facilities.

Other maternal and childcare services

Basinga et al (2011) noted in their study that there was a significant increase in tetanus vaccination with a 10% increase in intervention facilities when compared to control facilities during prenatal visits in Rwanda. Another study in Burundi (Bonfrer et al, 2014) found a 5% increase in the use of family planning services over the increase of 53% reported at baseline.

In Burkina Faso, PBF provided two or more 4th and 5th ANC visits in intervention facilities; an increase of 2.34% from the baseline (95% CI 0.446 to 4.225), (Steenland et al, 2017). They recorded that the average number of ANC visits increased by 27.7% from the baseline while post-natal care visits increased by 119% from the baseline.

In Tanzania PBF caused a significant 10.3% increase (95% CI 4.4% to16.1%) in the number of women receiving two doses of isoniazid preventive therapy (IPT) during ANC; and a positive effect (5% increment) on polio immunization at birth (95% CI -1.0% to 12.8%) but was not significant (Binyaruka et al, 2015).

Some studies have found a mixed effect, a reduction, or no effect in using these services despite PBF interventions. A systematic literature review that assessed if paying for performance improved the delivery and uptake of family planning in LMICs (Blacklock et al 2016) noted no impact of PBF in most countries except in Burundi with conflicting outcomes. The study noted an increase in the use of modern family planning in Burundi (Bonfrer et al 2014) while another study recorded no significant association between PBF and the use of modern family planning in Burundi (Falisse et al, 2014).

In another study in Tanzania there were no significant changes in both intervention and control facilities in tetanus vaccination, ANC, and immunisation injections in Tanzania (Rudasingwa et al 2017). In Uganda, Govule et al (2015) found no significant increase in the 1st and 4th ANC visits in PBF and control facilities.

Other health services

A study by Govule et al (2015) in health clinics in Jinja diocese in Uganda documented a sharp increase in outpatient department utilization in PBF facilities throughout the four years of study. In another study Aung et al (2015) evaluated the effect of incentive schemes among informal private healthcare providers in improving the uptake and use of Malaria rapid diagnostic test (RDT) in the context of Artemisinin drug resistance containment in Myanmar; they found a significant increase (10.1%) in RDT following the use of incentives when compared to the baseline or pre-RDT roll out.

Likewise, a systematic review assessing the effect of PBF on improving HIV/AIDS service delivery in LMICs (Suthar et al, 2017); found that PBF increased pregnant women HIV testing, couples HIV testing, and anti-retroviral drug use in pregnant women, infants, and adults. Similarly, another study reported that monetary incentivisation of health workers motivated them to undertake syphilis intervention services in Yunnan province, China (Zhang et al, 2017). The study found that both syphilis testing and its treatment increased from 46.2% to 98.2% and from 26.6% to 82.5% respectively from 2010 to 2015.

However, some studies documented that PBF had a mixed effect on the uptake of health services. When Skiles et al (2015) assessed the effect of PBF on illness, care-seeking and treatment among children in Rwanda, they found that oral re-hydration therapy (ORT) utilization increased, and the use of antibiotics decreased dramatically. They also found that seeking care at a health facility for diarrhea, respiratory tract infections and fever increased overtime by 7% compared to the baseline. However, there was no differential effect between the intervention and the control facilities. Another study in Rwanda (Bonfrer et al, 2014) concluded that there was no effect of PBF on bed net utilization or visiting health centres when ill.

3.2.2 Secondary outcomes

Quality

In Rwanda, two different studies by Basinga et al (2011) and Skiles et al (2015) documented that PBF improved the quality of targeted health services. While the former documented an increase of 15.7% in quality measures using pre-natal quality measures as a yard stick, the latter documented a 22% increase in the quality of maternal and child healthcare services.

In another study in DRC, Soeters et al (2011) noted that the quality score indicator improved from 39% in 2006 to 65% in 2008. Health centre managers were also more satisfied with the health authorities' supervision visits than their colleagues in the control districts. The qualified staff in PBF facilities increased by 23% compared to 8% in the control districts between 2005 and 2008.

Furthermore, in Myanmar, Aung et al (2015) found that PBF improved the quality of care especially with intensified Information, Education and Counselling (IEC). Suthar et al (2017) found that, two observational studies in Cote d'Ivoire and Rwanda associated PBF with reducing attrition and treatment failure rates. There was also improvement in the quality of care especially with intensified Information, Education and Counselling (IEC).

On the other hand, some studies revealed a mixed effect of PBF on the quality of health services. Govule et al (2015) noted that when human resources are used as a proxy marker of quality in faith-based clinics in Jinja Diocese in Uganda, the quality of care in study health facilities is lower than that of control health facilities. Nevertheless, besides the human resources index, the quality met all the 'yellow star' index of Uganda.

In Rwanda, Bonfrer et al (2014) noted that PBF improved quality score by 17%, a relative change of 45% from baseline but there was no effect on the quality of care as reported by patients. Also, Binyaruka et al (2015) found in Tanzania, that there was an increase in provider kindness reported by the patients during delivery but there was no effect in patients' experience of care in target services. However, in non-targeted services, there was an increase in patients' satisfaction with inter-personal care. Again, Blacklock et al (2016) reported mixed results of the effect of PBF on the quality of care and services when they reviewed the literatures on 'Paying for Performance to improve the delivery and Uptake of modern Family Planning in LMICs'.

Equity

Skiles et al (2015) observed from their study in Rwanda that PBF has a pro-poor effect because children from poor households had a 44.6% higher probability of receiving medicine than children from non-poor households. In another study in Tanzania, Binyaruka et al (2015) found an increase in institutional deliveries among middle tercile relative to the least poor tercile and among the poorest tercile relative to least tercile for deliveries in public facilities.

Similarly, Blacklock et al (2016) noted marked inequity as family planning significantly increased in the upper wealth group than the lower wealth group in LMICs. Likewise, Soeters et al (2011) found in DRC that though there was a 45% increase in the overall per capita out-of- pocket spending in PBF districts, the spending did not affect the 25% of the poorest households. Rather the poorest household reduced their spending by 14% while the relatively wealthy households increased their health spending. On the other hand, some studies like Bonfrer et al (2014) and Binyaruka et al (2015) recorded no effect on equity.

4.0 DISCUSSION

PBF generally had a mixed effect on the uptake of health services in LMICs. It improved the uptake of rapid diagnostic tests in Myanmar among informal health providers (Aung et al 2015), syphilis testing and treatment in Yunnan province in China (Zhang et al, 2017) and uptake of antiretroviral access in adult couples (Suthar et al 2017). It also improved quality and had mixed effect on equity. On the other hand, it did not improve uptake of bed-net use in Burundi (Bonfrer et al, 2014), individual HIV testing in selected LMICs (Suthar et al, 2017). Also, it did not affect facility care-seeking among children in Tanzania (Binyaruka et al, 2015).

Despite the mixed effect, PBF specifically showed great promise in improving institutional deliveries in many countries assessed. Interestingly, most of the deliveries were in health centres rather than in the hospitals and nurses conducted most of the deliveries than physicians (Ir et al, 2015, Rudasingwa et al, 2017). In 2018, the World Bank data showed that in LMICs, the number of nurses and midwives per 1000 people was 2.5 as against 1.3 physicians per 1000 people (World bank, 2021). Then again, the Alma Ata declaration of 1978 indicated primary health care as an avenue to expand population health. All these would enhance greater access to institutional delivery in rural communities.

Institutional delivery improved with a decline in home deliveries and the proportion of deliveries attended by traditional birth attendants (Ir et al, 2015). Indeed, this is promising as institutional delivery is known to reduce maternal mortality (WHO, 2019), and home delivery by unskilled attendants is one of the major causes of maternal mortality in LMICs. In fact, 94% of the 295,000 maternal deaths in the world in 2017 were in LMICs (WHO, 2019). To that effect, WHO advises that skilled health care professionals should supervise delivery as 15% of all pregnancies are most likely to become complicated during labour.

PBF also had mixed effects on antenatal care, immunisation, and vaccination. Perhaps, this may be due to the high number of ANC visits at baseline (Rudasingwa et al, 2017) or low incentives for these indicators. For instance, in Rwanda, each delivery was priced at $4.59 while complete vaccination and ANC was priced at $0.92 and $0.09 respectively (Basinga et al, 2011). The health workers would have found these incentives too low to be worth the effort and concentrated on deliveries attracting more money.

This underscores the need to balance the value of the incentives to stimulate appropriate motivation. It should be high enough to motivate the workers, but not so high as not to be cost-effective, yet not as low as to cause demotivation. Expectedly, undue high financial incentives might induce overservice to attract more money (Fritsche et al, 2014). However, contrary to expectations, in Burundi, although the price for caesarean section was 10 times more than the prices of other services (Rudasingwa et al, 2017), there was no evidence of an unnecessary increase in the number of caesarean sections.

Furthermore, quality is central to the uptake of health care services and PBF improved most of the targeted indicators in this research. The most current literature review by Diaconu et al (2021) agrees with this finding. Moreover, it is documented that PBF can improve the quality of health care services but at the cost of great financial incentive (Park et al, 2012). Also, in the Philippines, it was observed that quality due to PBF was sustainable for more than 5 years with less than 1% per year rate of decay in the quality score (Quimbo et al, 2016).

The discrepancy in clients' feedback and the researchers' quality findings in Burundi call for more research. This will establish the clients' perspective of quality and help adapt services to their satisfaction. Also, the risk to the quality of care due to limited skilled staff as observed in faith-based clinics in Jinja Diocese in Uganda calls for a balance between structural and process quality indicators to create adequate demand.

Equity, a major goal of PBF, yielded mixed results in the literature. To improve equity, it is vital to use the design and implementation of PBF for targeting, to reduce inequalities in care use (Flink et al, 2016). Identifying the real poor in the community can be logistically cumbersome and prone to moral hazards. However, geographic targeting can be utilized to reduce the difficulty and provide bonus incentives for the facilities servicing the poor areas.

Some observations from the reviewed literature threw light on some of the critical questions on PBF. For some schools of thought, if the resources are improved, health systems will provide better outcomes and access (Paul et al, 2018). However, the experience in Rwanda and DRC suggested otherwise. In Rwanda, Basinga et al (2011) isolated the effects of PBF incentives from the effects related to the increase in resources and found improvements in the PBF districts to exceed improvements in the control districts. Likewise, in DRC, the $2 per capita per year yielded better results in PBF districts than in control districts that received $9-12 per capita per year (Soeters et al, 2011).

In other words, PBF showed signs of efficiency in Rwanda and DRC. In Burkina Faso, Steenland et al (2017) noted that PBF had a low-cost high-impact effect at an average cost of $3.00 per capita per year to improve maternal and child health care. Again, in Yunnan China, the cost of implementing PBF was mentioned to be inexpensive (Zhang et al, 2017).

Close supervision and monitoring are strong features of PBF and may be an advantage of intervention facilities over control facilities. However, in Rwanda, supervision was centrally done from the district office for both intervention and control facilities, yet the intervention facilities outperformed the control facilities. Also, the ability of PBF to produce desirable effects in the then war-torn DRC, Rwanda and Burundi demonstrated that administrative systems and capacity must not be at their best before PBF becomes effective.

In addition, health facilities' autonomy and community involvement are important to PBF's success. In DRC, facility managers, through constant community engagement and surveys were able to arrive at a price the communities were willing and able to pay (Soeters et al, 2011). It may be the case that private facilities have better management plans and are more successful in generating revenue (Ssengooba et al, 2002). This is vital because user fees undermine equitable access to essential health services in many LMICs (Park et al, 2012).

Again, it is important to have an independent and credible data collection and verification plan during the implementation of PBF. In Burkina Faso, PBF effects were analysed using administrative data instead of survey data (Steenland et al, 2017), while in health clinics in the Jinja diocese in Uganda, there was inadequate post-verification of data (Govule et al, 2012). In Rwanda, survey data were used, and the process of selecting the intervention group was randomised (Basinga et al 2011), thereby giving credence to PBF. It is also commendable to triangulate data as was done in Cambodia to ensure credibility and build confidence in the observed effect.

It is pertinent to address the demand-side impediments to the uptake of health services as they play vital a role in amplifying the supply-side financing effect. For example, it was noted in Cambodia that districts with other complementary demand-side health financing schemes had stronger and longer-lasting effects when compared to those with only PBF mechanisms (Ir et al, 2015). In this regard, too, Blacklock et al (2016) noted that the combination of demand- and supply-side financing mechanisms improved uptake of modern family planning by 5% in Nicaragua.

Other supply-side financing strategies can improve access and uptake of health care services, like health insurance and fee exemption. For health insurance, cost escalation is a risk during re-imbursement, and it may be difficult to verify and manage, but cost escalation in PBF can be better managed through incentive adjustment. Furthermore, PBF can have synergistic effect with fee exemption strategy; for example, Blackrock et al (2016) found that PBF improved fee exemption strategy by 5% in Nicaragua. It is, therefore, best to tap into the advantages of these strategies to complement each other to improve uptake of health services in LMICs.

The research outcome may be prone to language bias as search was limited to papers published in English. However, we analysed four (4) papers from Francophone countries published in English: Burundi (2) DRC (1) and Burkina Faso (1). According to Word bank evaluation reports, few more countries like Cameroon and Niger Republic seem to support mixed effect of PBF as this research discovered. In Niger, there was relatively small and inconsistent effect of PBF. It improved quality of care and responsiveness towards clients, but no significant impact on clinical productivity, Largarde et al (2015). In Cameroon, it produced mixed result in both coverage and quality of maternal and child health care services, according to Cameroon PBF Impact Evaluation Report (2017).

Moreover, research has shown that the probability of publishing research works in English is higher irrespective of the language it was conducted and excluding trials published in languages other than English has little effect on summary estimates (Jüni et al 2002). Furthermore, the research analysed papers within a short time frame (2011 and 2019); which may be limited time span to make a judgement of effectiveness on PBF. However, PBF is fundamentally, relatively new in LMICs as it was introduced at the turn of the century. Though much work has been done on it, it was natural to have papers analyzing its effects much latter within the time frame under review as evaluations come after implementation, hence the short time frame.

5.0 CONCLUSION

The research showed that PBF had mixed effects on the uptake of targeted health care services but demonstrated significant potential to improve institutional delivery. Moreover, most of the deliveries were conducted at the primary health facilities by nurses. PBF also improved the quality of most of the targeted health services and had mixed effects on equity.

6.0 STRENGTHS AND LIMITATIONS

The research produced contemporary evidence on the effect of PBF on the utilization of health care services in LMICs. Furthermore, besides public health institutions especially primary health care centres, it also assessed the effect of PBF on faith-based clinics, and among informal health care providers thereby giving a holistic view of the effect of PBF, reflecting the contexts of LMICs.
The limitations are the time frame is short, the sample size is small, and the research analysed papers published in English alone. These make it difficult to make general conclusion on the effect of PBF on uptake of health services in LMICs. Moreover, the grey literatures were excluded, and the only peer reviewed papers analysed had diverse methodological approach and varied contexts, hence unsuitable for meta-analysis.

7.0 FURTHER QUESTION

The next literature reviews will seek to answer specific questions like; Do PBF improve the uptake of institutional delivery in LMICs and how best can health workers be incentivised to get the desired outcomes without eroding their intrinsic motivation.

Ethics

There was no ethical consideration as this is a literature review.

Competing Interest

The Author declares no competing interest in this review as there is no sponsorship from any individual or institution.

Reason for the Manuscript

It is a partial fulfilment for Master of Public Health (Health Economics)

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APPENDIX 1: ELECTRONIC DATABASE SEARCH RESULTS

SCOPUS

	Query	Output
#5	#1 AND #2 AND #3 AND #4	268
#4	improve uptake OR improveaccess OR increaseuptake OR increaseacceptanc e	26,120
#3	performance based financing OR result based financing OR pay for p erformance OR conditional cash transfer OR incentivebased performance	7023
#2	health services AND [mesh] OR health care OR health services	3,874,610
#1	TITLE-ABS-KEY (afghanistan OR albania OR algeria OR "American Samoa" OR angola OR argentina OR "Argentine Republic" OR armenia OR azerbaijan OR bangladesh OR belarus OR byelarus OR belorussia OR belize OR benin OR bhutan OR b olivia OR bosnia OR botswana OR brazil OR bulgaria OR burma OR "Burkina Faso" OR burundi OR "Cabo Verde" OR "Cape verde" OR cambodia OR cameroon OR "Central African Republic" OR chad OR china OR colombia OR comoros OR com ores OR comoro OR congo OR "Costa Rica" OR "Côte d'Ivoire" OR cuba OR djibouti OR dominica OR "Dominican Republic" OR ecuador OR egypt OR "El Salvador" OR eritrea OR ethiopia OR fiji OR gabon OR gambia OR gaza OR "Georgia Republic" OR georgian OR ghana OR grenada OR grenadines OR guatemala OR guinea OR "Guinea Bissau" OR guyana OR haiti OR herzegovina OR hercegovina OR honduras OR india OR indonesia OR iran OR iraq OR jamaica OR jordan OR kazakhstan OR kenya OR kiribati OR korea OR k osovo OR kyrgyz OR kirghizia OR kirghiz OR kirgizstan OR kyr gyzstan OR "Lao PDR" OR laos OR lebanon OR lesotho OR liberia OR libya OR macedonia OR madagascar OR malawi OR malay OR malaya OR malaysia OR maldives OR mali OR "Marshall Islands" OR mauritania OR mauritius OR mexico OR micronesia OR moldova OR mongolia OR montenegro OR morocco OR moza mbique OR myanmar OR namibia OR nauru AND ornepal OR nicaragua OR niger OR nigeria OR pakistan OR palau OR panama OR "Papua New Guinea" OR paraguay OR peru OR philippines OR phillippines O R philipines OR phillipines OR principe OR romania OR rwanda	14,905

	OR ruanda OR samoa OR "Sao Tome" OR senegal OR serbia OR "Sierra Leone" OR "Solomon Islands" OR somalia OR "South Africa" OR "South Sudan" OR "Sri Lanka" OR "St Lucia" OR "St Vincent" OR sudan OR surinam OR suriname OR swaziland OR s yria OR "Syrian Arab Republic" OR tajikistan OR tadzhikistan OR tadjikistan OR tadzhik OR tanzania OR thailand OR timor OR togo OR tonga OR tunis ia OR turkey OR turkmen OR turkmenistan OR tuvalu OR uganda OR ukraine OR uzbek OR uzbekistan OR vanuatuor AND venezuela OR vietnam OR "West Bank" OR yemen OR zambia OR zimbabwe)	

PUBMED

	Query	Output
#3	(#2) AND (#1) **Filters**: Clinical Trial, Randomised ControlledTrial, Review, Systematic Review, from 2000/1/1 - 2019/12/31	130
#2	(improve uptake OR improve access OR increase uptake ORincrease acceptance) AND (Performance based financing OR Resultbased financing OR Pay for Performance OR Conditional cash transferOR Incentive based performance)) AND (health services [Mesh] ORhealth care OR health services) **Filters**: Clinical Trial,RandomisedControlled Trial, Review, Systematic Review, from 2000/1/1 -2019/12/31	1026
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	OR Herzegovina OR Hercegovina OR Honduras OR India OR Indonesia OR Iran OR Iraq OR Ivory Coast OR Jamaica OR Jordan OR Kazakhstan OR Kenya OR Kiribati OR Democratic People's Republic of Korea OR Kosovo OR Kyrgyz OR Kirghizia OR Kirghiz OR Kyrgyzstan OR Lao PDR OR Laos OR Lebanon OR Lesotho OR Liberia OR Libya OR Macedonia OR Madagascar OR Malawi OR Malay OR Malaya OR Malaysia OR Maldives OR Mali OR Marshall Islands OR Mauritania OR Mauritius OR Mexico OR Micronesia OR Moldova OR Mongolia OR Montenegro OR Morocco OR Mozambique OR Myanmar OR Namibia OR Nepal OR Nicaragua OR Niger OR Nigeria OR Pakistan OR Palau OR Papua New Guinea OR Paraguay OR Peru OR Philippines OR Principe OR Romania OR Ruanda OR Rwanda OR Samoa OR Sao Tome OR Senegal OR Serbia OR Sierra Leone OR Solomon Islands OR Somalia OR South Africa OR South Sudan OR Sri Lanka OR St Lucia OR St Vincent OR Sudan OR Surinam OR Suriname OR Swaziland OR Syria OR Syrian Arab Republic OR Tajikistan OR Tadzhikistan OR Tajikistan OR Tadzhik OR Tanzania OR Thailand OR Timor OR Togo OR Tonga OR Tunisia OR Turkey OR Turkmen OR Turkmenistan OR Tuvalu OR Uganda OR Ukraine OR Uzbek OR Uzbekistan OR Vanuatu OR Venezuela OR Vietnam OR West Bank OR Yemen OR Zambia OR Zimbabwe**OR** Deprived Countries OR Deprived Population OR Deprived Populations OR Developing Countries OR Developing Country OR Developing Economies OR Developing Economy OR Developing Nation OR Developing Nations OR Developing Population OR Developing Populations OR Developing World OR LAMI Countries OR LAMI Country OR Less Developed Countries OR Less Developed Country OR Less Developed Economies OR Less Developed Nation OR Less Developed Nations OR Less Developed World OR Lesser Developed Countries OR Lesser Developed Nations OR LMIC OR LMICS OR Low GDP OR Low GNP OR Low Gross Domestic OR Low Gross National OR Low Income OR Lower GDP OR lower gross domestic OR Lower Income OR Middle Income OR Poor Countries OR Poor Country OR Poor Economies OR Poor Economy OR Poor Nation OR Poor Nations OR Poor Population OR Poor Populations OR poor world OR Poorer Countries OR Poorer Economies OR Poorer Economy OR Poorer Nations OR Poorer Population OR Poorer Populations OR Third World OR Transitional Countries OR Transitional Country OR Transitional Economies OR Transitional Economy OR Under Developed Countries OR Under Developed Country OR under developed nations OR Under Developed World OR Under Served Population OR Under Served Populations OR Underdeveloped Countries OR Underdeveloped Country OR underdeveloped economies OR underdeveloped nations OR underdeveloped population OR Underdeveloped World OR Underserved Countries OR Underserved Nations OR Underserved Population OR Underserved Populations	

	Filters: Clinical Trial, Randomised Controlled Trial, Review, Systematic Review, from 2000/1/1 – 2019/12/31	

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	Uzbekistan OR Vanuatu OR Venezuela OR Vietnam OR West Bank OR Yemen OR Zambia OR Zimbabwe *Publication Date: 2000/1/1 – 2019/12/31*	
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#1	(health care OR health services):ti,ab,kw *Publication Date: 2000/1/1 – 2019/12/31*	117500

DATABASES VIA EBSCOhost

(ACADEMIC SEARCH PREMIER, AFRICA WIDE INFORMATION, APA PsychInfo, CINAHL, EconLit, BUSINESS SOURCE PREMIER)

	Query	Output
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	CINAHL	9
	EconLit	1
S2	(Deprived Countries OR Deprived Population OR Deprived Populations OR Developing Countries OR Developing Country OR Developing Economies OR Developing Economy OR Developing Nation OR Developing Nations OR Developing Population OR Developing Populations OR Developing World OR LAMI Countries OR LAMI Country OR Less Developed Countries OR Less Developed Country OR Less Developed Economies OR Less Developed Nation OR Less Developed Nations OR Less Developed World OR Lesser Developed Countries OR Lesser Developed Nations OR LMIC OR LMICS OR Low GDP OR Low GNP OR Low Gross Domestic OR Low Gross National OR Low Income OR Lower GDP OR lower gross domestic OR Lower Income OR Middle Income OR Poor Countries OR Poor Country OR Poor Economies OR Poor Economy OR Poor Nation OR Poor Nations OR Poor Population OR Poor Populations OR poor world OR Poorer Countries OR Poorer Economies OR Poorer Economy OR Poorer Nations OR Poorer Population OR Poorer Populations OR Third World OR Transitional Countries OR Transitional Country OR Transitional Economies OR Transitional Economy OR Under Developed Countries OR Under Developed Country OR under developed nations OR Under Developed World OR Under Served Population OR Under Served Populations OR Underdeveloped Countries OR Underdeveloped Country OR underdeveloped economies OR underdeveloped nations OR underdeveloped population OR Underdeveloped World OR Underserved Countries OR Underserved Nations OR Underserved Population OR Underserved Populations) **OR** (Afghanistan OR Albania OR Algeria OR American Samoa OR Angola OR Armenia OR Azerbaijan OR Bangladesh OR Belarus OR Byelarus OR Belorussia OR Belize OR	11,494,475

	Benin OR Bhutan OR Bolivia OR Bosnia OR Botswana OR Brazil OR Bulgaria OR Burma OR Burkina Faso OR Burundi OR Cabo Verde OR Cape Verde OR Cambodia OR Cameroon OR Central African Republic OR Chad OR China OR Colombia OR Comoros OR Comores OR Comoro OR Congo OR Costa Rica OR Côte d'Ivoire OR Cuba OR Democratic People's Republic of KoreaOR Djibouti OR Dominica OR Dominican Republic OR Ecuador OR Egypt OR El Salvador OREquatorial Guinea OR Eritrea OR Ethiopia OR Fiji OR Gabon OR Gambia OR Gaza OR Georgia OR Georgia Republic OR Ghana OR Grenada OR Grenadines OR Guatemala OR Guinea OR Guinea Bissau OR Guyana OR Haiti OR Herzegovina OR Hercegovina OR Honduras OR India OR Indonesia OR Iran OR Iraq OR Ivory Coast OR Jamaica OR Jordan OR Kazakhstan OR Kenya OR Kiribati OR Korea OR Kosovo OR Kyrgyz OR Kirghizia OR Kirghiz OR Kyrgyzstan OR Lao PDR OR Laos OR Lebanon OR Lesotho OR Liberia OR Libya OR Macedonia OR Madagascar OR Malawi OR Malay OR Malaya OR Malaysia OR Maldives OR Mali OR Marshall Islands OR Mauritania OR Mauritius OR Mexico OR Micronesia OR Moldova OR Mongolia OR Montenegro OR Morocco OR Mozambique OR Myanmar OR Namibia OR Nepal OR Nicaragua OR Niger OR Nigeria OR Pakistan OR Palau OR Papua New Guinea OR Paraguay OR Peru OR Philippines OR Principe OR Romania OR Rwanda OR Ruanda OR Samoa OR Sao Tome OR Senegal OR Serbia OR Sierra Leone OR Solomon Islands OR Somalia OR South Africa OR South Sudan OR Sri Lanka OR St Lucia OR St Vincent OR Sudan OR Surinam OR Suriname OR Swaziland OR Syria OR Syrian Arab Republic OR Tajikistan OR Tadzhikistan OR Tajikistan OR Tadzhik OR Tanzania OR Thailand OR Timor OR Togo OR Tonga OR Tunisia OR Turkey OR Turkmen OR Turkmenistan OR Tuvalu OR Uganda OR Ukraine OR Uzbek OR Uzbekistan OR Vanuatu OR Venezuela OR Vietnam OR West Bank OR Yemen OR Zambia OR Zimbabwe) **Searchmodes**: Boolean/Phrase **Limiters**: Published Date 2000/1/1 – 2019/12/31	
S1	(improve uptake OR improve access OR increase uptake OR increase acceptance) AND (Performance based financing OR Result based financing OR Pay for Performance OR Conditional cash transfer OR Incentive based performance) AND (health services [Mesh] OR health care OR health services) **Searchmodes**: Boolean/Phrase **Limiters**: Published Date 2000/1/1 – 2019/12/31	72

WEB OF SCIENCE

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APPENDIX II: DOWNS AND BLACK CHECKLIST REPORTING

Article author & year		Basinga et al (2011)	Soeters et al (2011)	Bonfrer et al (2014)	Aung et al (2015)	Binyaruka et al (2015)	Govule et al (2015)	Ir et al (2015)	Skiles et al (2015)	Rudasingwa et al (2017)	Steenland et al (2017)	Zhang et al (2017)
REPORTING												
Q1	**Hypothesis /aim /objective clearly described**	1	1	1	1	1	1	1	1	1	1	1
Q2	**Main outcomes in introduction or Methods**	1	1	1	1	1	1	1	1	1	1	1
Q3	**Patient characteristics clearly described**	1	1	1	1	1	0	1	1	1	1	0
Q4	**Interventions of interest clearly described**	1	1	1	1	1	1	1	1	1	1	0
Q5	**Principal confounders clearly described**	1	1	0	0	0	0	0	0	0	0	0
Q6	**Main findings clearly described**	1	0	0	1	1	1	1	1	1	1	1
Q7	**Estimates of random variability provided for main outcomes**	0	0	0	0	0	0	0	0	0	0	0
Q8	**All adverse events of intervention reported**	0	0	1	0	0	0	0	0	0	0	0
Q9	**Characteristics of patients lost to follow-up described**	1	0	0	1	0	0	0	0	0	0	0
Q10	**Probability values reported for main outcomes**	1	1	0	0	1	0	0	0	0	0	0
EXTERNAL												

VALIDITY												
Q11	Subjects asked to participate were representative of source population	1	1	1	1	1	1	1	1	0	1	1
Q12	Subjects prepared to participate were representative of source population	1	1	1	1	1	1	1	1	1	1	1
Q13	Location and delivery of study treatment was representative of source population	1	1	1	1	1	1	1	1	0	1	1
INTERNAL VALIDITY - BIAS & CONFOUNDING												
Q14	Study participants blinded to treatment	1	0	0	1	0	0	0	0	0	0	0
Q15	Blinded outcome assessment	1	0	0	1	0	0	0	0	0	0	0
Q16	Any data dredging clearly described	1	1	1	1	1	0	1	1	1	1	0
Q17	Analysis adjust for differing lengths of follow-up	1	1	1	1	1	1	UTD	1	1	1	0
Q18	Appropriate statistical tests performed	1	1	0	1	1	0	0	1	0	1	0
Q19	Compliance with interventions was reliable	1	1	1	1	1	1	0	1	1	0	1

Q20	**Outcome measures were reliable and valid**	1	1	1	1	1	1	1	1	1	0	0
Q21	**All participants recruited from the same source population**	1	1	1	1	1	1	1	1	1	1	1
Q22	**All participants recruited over the same time period**	0	1	0	1	1	1	1	1	0	1	0
Q23	**Participants randomised to treatment (s)**	1	0	0	1	0	0	0	0	0	0	0
Q24	**Allocation of treatment concealed from investigators and participants**	0	0	0	0	0	0	0	0	0	0	0
Q25	**Adequate adjustment for confounding**	0	0	0	0	0	0	0	1	1	0	0
Q26	**Losses to follow-up taken into account**	1	0	0	1	0	0	0	1	UTD	0	0
POWER												
Q27	**Sufficient power to detect treatment effect at significance level of 0.05**	1	1	0	1	1	0	0	1	1	1	0
TOTAL		**22/28**	**17/28**	**13/28**	**21/28**	**17/28**	**12/28**	**12/28**	**18/28**	**13/28**	**14/28**	**8/28**

Part D

Policy Brief

PART D: POLICY BRIEF

Performance-Based Financing in low- and middle-income countries

Health is a fundamental human right and health care should be available to all in need irrespective of creed, race, age, or gender. Universal Health Coverage (UHC) is a concept that advocates for fair access to health services that are of sufficient quality according to need and proffers protection from impoverishment due to health expenditure.

Achieving UHC is a major objective of the health sector and one of the targets of the Sustainable Development Goals (SDGs) desired to be achieved by 2030. However, according to the World Health Organization (WHO), half of the world's population is yet to have access to essential health services.

Access is the timely use of health services according to need. In low- and middle-income countries (LMICs) as defined by the World Bank, access to health care is low, most especially among the poor and key populations who live in rural areas and city slums in Africa, South America, and East-Asian countries.

Several factors determine the uptake of available health services. They are the distance between the individual and the health facility, the ability to pay for the available health services without getting into poverty, provision of the right mix of services, skills, and technologies most needed by the community at the right time, available services meeting up with the community's expectations including age, gender, belief, cultural preferences, and finally, staff attitude.

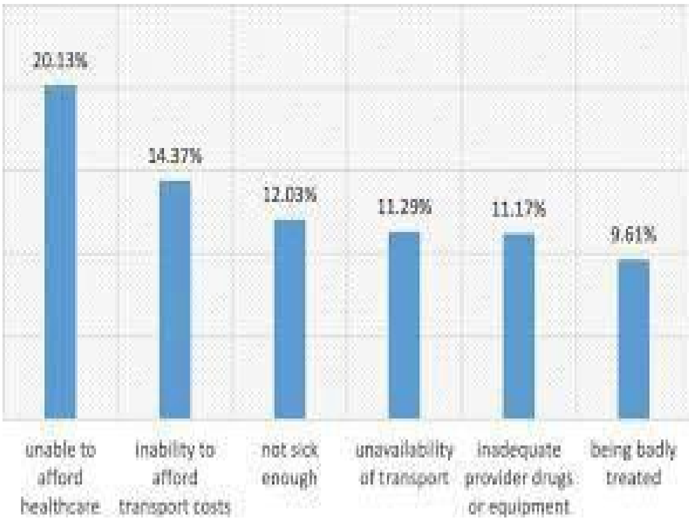

Fig I: Most typical reasons for households postponing health care in South Africa (Gordon et al., 2020)

Innovations in financing have been applied to increase access to health care, especially in LMICs. These innovations ensure that scarce resources meant for health care are channeled more effectively, efficiently, and equitably. Among these strategies is performance-based financing (PBF).

PBF is a payment innovation targeting the health providers. PBF involves paying health service providers according to the services rendered against a pre-determined target. It is based on the notion that people are more motivated to perform activities if they receive a reward, usually afterwards. This is against the traditional input financing arrangement where budgeted money is handed over to health service providers to achieve desired goals without any clear linkage to performance.

Traditional input financing may offer stability and predictability, but it lacks the mechanism to improve output, quality, and other health outcomes. On the other hand, PBF realigns incentives and accountability of health providers to high-volume and quality services. It involves enhancing health care providers' capacity to target service provision on selected groups bearing in mind communities' peculiar needs and national priorities.

PBF can be operated at different levels; for example, health workers in public, private or private not-for-profit organizations can directly receive payments. Payment can also be made at the facility level by linking it to the facility's budget, likewise at the district or regional level through supplementary budget. At the national level international donor agencies negotiate aid with the Ministries of Health using PBF mechanism.

In LMICs, financial innovations are important because of the acute shortage of resources to deliver UHC. This shortage of resources can be dire that LMICs depend on foreign aid to boost their resources for health. Since the turn of the millennium, several billions of dollars have been spent on LMICs to improve health coverage and health outcomes in general. Specifically, the World Bank has committed about US$385.6 million for 35 result-based financing (RBF) programs in 29 LMICs by 2016.

Recently, there has been an increased demand for donor agencies to account for the funds meant for international development to justify further allocations. Also, there was a call for aid-effectiveness in recent conferences in Paris, Accra, and Busan.

So, with the increased call on aid-effectiveness coupled with the pressure on budget allocations, donor agents prefer assistance to continue against the demonstrated achievement of targets.

Consequently, PBF was introduced by international NGOs, and they have used the strategy to finance their projects in some facilities across several countries in LMICs.

There are reports of successes, and many LMICs and donor agencies adopt PBF to finance projects. However, PBF has been criticized as a donor fad with no clear evidence of better effectiveness and efficiency over the traditional input-based financing and other financial strategies if given the same resources and attention as PBF.

PBF produced mixed results

PBF in LMICs mostly yielded mixed results but shows great potentials in maternal health services, in this case, institutional delivery. It seems not to do well in health outcomes in general.

On a face value, PBF seems promising if more money is paid and if the health care market operates like a typical market. In a typical market, it is assumed that the client has all the information of the product he wants to buy, the reason why the product is being bought and the expected satisfaction to be derived from the product.

However, in health care market, clients do not have perfect knowledge of their medical conditions, the need to seek for care and the expected outcome of seeking health care services. They rely on, and trust that health care providers will represent them adequately.

PBF seems to improve this relationship between the clients and health care providers, however, the human behaviour is complex in nature. This complex nature of human behaviour influences the client's health seeking behaviour and health professional conducts which may affect demand and supply in the health care market.

Financial incentives may motivate health workers, but the maximum wellbeing and satisfaction of health workers do not rely on financial income alone. Other factors like their professional and social status, good working conditions, further training and satisfying their clients are critical. In other words, health care workers need both financial and non-financial incentives to improve their performance.

In many low-resource health systems, insufficient funds, low staff salaries that are not paid on time, lack of drugs and equipment, and insufficient technical capacity, are prevalent weaknesses that may weaken the final credibility of PBF. They reduce the degree of willingness to apply and maintain an effort towards set goals. Financial incentive, therefore, may provide motivation only in the short term.

Generally, the cost of health services, culture and religion still influence health seeking behaviours in LMICs despite innovations. Inability to pay for health services still lead many individuals and households into alternative medical practices that they consider cheaper. Again, many still make preferences that favour traditional health practices and have poor knowledge of the potential benefits of available treatments.

Donors most times, channel their resources straight to the operational level and create parallel systems that pull the human resources from the already deficient public health sector and further weaken, rather than strengthen, the health systems. This breeds resistance from host facilities and affects PBF outcomes negatively.

At the operational level, health workers sometimes do not understand the principles of PBF, causing confusion and under-performance. Where applicable, facility managers should be accountable on how the bonus is utilised.

Way forward

Generally, there is need to strengthen the health syst e m s a n d improves the socio-economic determinants of health in general in LMICs.

When designing PBF features, the design features should b e l e s s prone to health-seeking behaviours of the clients, as health service providers h a s limited control over them. Indigenous government should be involved from the planning stage for them to build into the theory of change of PBF. Health workers should also be trained to enhance their capacity to take on new roles created by PBF. Specifically, there is need to institutionalise PBF with policies and embed it into the Ministries of Health

Fig III: Social determinants of health

and support it with budget from the Ministries of Finance.

The verification of the work performed by health care providers should be skillfully done to enhance cordial relationships while regulation and supervision should be formative to reduce conflict.

Then, PBF should be combined with other financial innovations targeted at the clients to help them overcome barriers to seeking health care service.

Conclusion

PBF has qualities that can help improve access to quality health care in LMIC but some factors like attention to the local context, the policy formulation process, the design, the implementation and finally combining it with other financial strategies must be put into consideration for it to achieve a better result.

Recommendations

PBF should be institutionalised into national Ministries of Health to enhance acceptance, sustainability and better outcomes.

PBF should be combined with other financial strategies to enhance its effect on uptake of health care services in LMICs.

More research should be done on PBF for robust evidence to enhance its effect on the uptake of health care services in LMICs.

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Part E
Appendix

Appendix A: Information for Authors

INFORMATION FOR AUTHORS

***Health Policy and Planning*'s** aim is to improve the design and implementation of health systems and policies in low- and middle-income countries through providing a forum for publishing high quality research and original ideas, for an audience of policy and public health researchers and practitioners. HPP is published six times a year.

HPP has a double-blinded peer-review policy. All papers, in each of the categories described below, is peer reviewed.

Specific objectives are to:

- Attract high quality research papers, reviews, and debates on topics relevant to health systems and policies in low- and middle-income countries.
- Ensure wide geographical coverage of papers including coverage of the poorest countries and those in transition.
- Encourage and support researchers from low- and middle-income countries to publish in *HPP*.
- Ensure papers reflect a broad range of disciplines, methodologies, and topics.
- Ensure that papers are clearly explained and accessible to readers from the range of disciplines used to analyse health systems and policies; and
- Provide a fair, supportive and high-quality peer review process.

Health Policy and Planning welcomes submissions of the following types: original articles, review papers, methodological musings, research in practice, commentaries, and papers in our series 'How to do (or not to do) ...' [for example, see Hutton & Baltussen, HPP, 20(4): 252-9] and '10 best resources' [for example, see David & Haberlen, HPP, 20(4): 260-3].

Authors should pay close attention to the factors that will increase likelihood of acceptance. As well as the high overall quality required for publication in an international journal, authors should address HPP's readership: national and international policy makers, practitioners, academics and general readers with a particular interest in health systems and policy issues and debates in low- and middle-income countries. Manuscripts that fail to set out the international debates to which the paper contributes, and to draw out policy lessons and

Conclusions are more likely to be rejected or returned to the authors for redrafting prior to being reviewed. In addition, economists should note that papers accepted for publication in HPP will consider the broad policy implications of an economic analysis rather than focusing primarily on the methodological or theoretical aspects of the study.

Public health specialists writing about a specific health, policy, challenge, or service should discuss the relevance of the analysis for the broader health system. Those submitting health policy analyses should draw on relevant bodies of theory in their analysis, or justify why they have not, rather than only presenting a narrative based on empirical data.

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