# OPENING THE 'BLACK BOX' OF PERFORMANCE-BASED FINANCING IN THE HEALTHCARE SECTOR OF WESTERN UGANDA

# EEN ZOEKTOCHT NAAR DE MECHANISMES VAN OP PRESTATIE GEBASEERDE FINANCIERING IN DE GEZONDHEIDSSECTOR VAN WEST OEGANDA

PROEFSCHRIFT VOORGELEGD TOT HET BEHALEN VAN DE GRAAD VAN DOCTOR IN ONTWIKKELINGSSTUDIES AAN DE UNIVERSITEIT ANTWERPEN

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## LIST OF ABBREVIATIONS

ANC	Antenatal Care
ART	Anti-Retroviral Therapy
BTC/Enabel	Belgian Technical Cooperation (now called Enabel)
C/S	Caesarean Sections
CAS	Complex Adaptive System
СВО	Community-Based Organisation
CLD	Causal Loop Diagramming
СМО	Context-Mechanism-Outcome
СМОС	Context-Mechanism-Outcome Configuration
DHMT	District Health Management Team
E-DHMT	Extended-District Health Management Team
EMHS	Essential Medicines and Health Supplies
FY	Financial Year
GFF	Global Financing Facility
HC	Health Centre
HF	Health Eacility
HES	Health Financing Strategy
HIS	Health Information System
HMIS	Health Management Information System
HRH	Human resources for Health
HRITE	Health Results Innovation Trust Fund
HSD	Health Sub-District
	Health Sector Development Plan
	Health Linit Management Committee
	Health Worker
	In Patient Department
	In-Patient Department
	Kov Informant
	Key Informatic
	Low- and Middle-Income Countries
MDC	Willernium Development Coole
MDGS	Managing for Development Goals
MIR	Managing for Results
MLG	Ministry of Local Government
	Maternal Mortality Rate
MOFPED	Ministry of Finance, Planning and Economic Development
MOH	Ministry of Health
MOU	Memorandum Of Understanding
NDP II	Second National Development Plan
NGO	Non-Governmental Organisation
NHIS	National Health Insurance Scheme
NHP II	Second National Health Policy
NPPPPH	National Policy on Public Private Partnership in Health
NRA	National Resistance Army
NRM	National Resistance Movement
OECD	Organisation for Economic Cooperation and Development
OOP	Out-Of-Pocket payment
OPD	Out-Patient Department

OPENING THE 'BLACK BOX' OF PERFORMANCE-BASED FINANCING IN THE HEALTHCARE SECTOR OF WESTERN UGANDA

РА	Principal-Agent
PBB	Performance-Based Budgeting
PBC	Performance-Based Contracting
PBF	Performance-Based Financing
PES	Payment for Ecosystem Services
РНС	Primary Healthcare
РНР	Private Health Practitioners
PNC	Post-Natal Care
PNFP	Private Not-For-Profit
QCA	Qualitative Comparative Analysis
QI	Quality Improvement
RBF	Results-Based Financing
RCT	Randomized Controlled Trial
RE	Realist Evaluation
ReSQ	Realist evaluation combined with Systems thinking and QCA
ReSt	Realist evaluation combined with Systems thinking
SDGs	Sustainable Development Goals
SDT	Self-Determination Theory
SSI	Semi-Structured Interviews
ТВ	Tuberculosis
ТМСР	Traditional Medicine and Complementary Practitioners
UCG	Ugandan Clinical Guidelines
UCMB	Ugandan Catholic Medical Bureau
UGX	Ugandan Shillings
UHC	Universal Health Coverage
UMMB	Ugandan Muslim Medical Bureau
UNMHCP	Ugandan National Minimum Healthcare Package
UPMB	Ugandan Protestant Medical Bureau
USD	US Dollars
USI	Unstructured Interviews
VHT	Village Health Team
WHO	World Health Organisation

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If you ain't aim too high, Then you aim too low J Cole – January 28<sup>th</sup>

The acknowledgement section of the PhD is probably the most difficult to write. With so many people contributing to the final product, the danger is real to forget one or two people. So in case you think you should be in here and you are not: I'm sorry! In order to avoid this I will try to give a chronological overview of how I came to this point.

It all started at the University of Leuven where I did my Bachelor in Political Science and a Master in International Politics. My master's thesis concerned the support of the European Union to the health sector in the DR Congo. A subject that would structure my future. My supervisor was Professor Stephan Keukeleire and a few months after the completion of my master's thesis he contacted me to work part-time for him. It were my first steps in the academic world and I learned a lot from the work I was doing and from the people around me, in particular my three office mates: Arnout, Bas and Niels. It was a great joy to work at the KUL. Stephan also helped me to further develop my career by, for example, giving me the opportunity to go to Geneva for a week and pursue an Advanced Certificate in Health, Human Rights, and Discrimination. Given my experience with the health sector during my master's thesis, he also advised me to continue in this direction. Which I did by going for a Master in Public Health at the Université Libre de Bruxelles. Stephan thus helped lay the foundations of this PhD, for which I am very grateful.

At the ULB, again, I met a lot of wonderful people from who I learned a lot. Better French for starters. We had some very interesting discussions, always accompanied by a nice beer. There are too many people to mention but I think that those who need to be mentioned know who they are! Again, my master's thesis proved to be the guide to my future. It was on the Global Fund and results-based aid under the guidance of the late Professor Bruno Dujardin. Bruno was an outstanding and very kind professor with a very bright mind. An inspiration to many of us students. Many of my own ideas on global health are inspired by his insightful lectures. After my thesis, Bruno asked me to take a look into performance-based financing and develop an analytical framework. Indeed, it was the unofficial start of my PhD. Unfortunately, Bruno passed away before my first article was published.

Thanks to Bruno I also came into touch with Elisabeth Paul from the Université de Liège. She immediately put me on the right track in my thinking about PBF. She explained

that PBF is a reform package and not just an incentive scheme, a view on PBF that structured all of my future thinking. She also supported me throughout my whole PhD which I strongly appreciate. Both Bruno and Elisabeth have an important contribution to this PhD dissertation.

It is also during a presentation of Bruno and Elisabeth that I got to know that the Belgian Development Agency BTC (now Enabel) was planning to implement a PBF intervention in Uganda. I saw this as an opportunity to study a PBF intervention with a before and after design, which would be interesting for a PhD study. However, at the time I did not have a job and I first need to thank the people from the only organization in the 'real' world I worked for: Memisa. Memisa is an NGO that mainly works in the health sector of the DR Congo. Very intelligent, hard-working and fun people work there and have learned me a lot about how development cooperation works. I am very happy and proud to have been a part of this organization and also very proud to be a member of its general assembly.

Before I could even start thinking about doing a PhD I needed to find supervisors, and this was probably one of my best decisions during the PhD. I chose to contact first Prof. Nathalie Holvoet, and later on Prof. Bart Criel and Prof. Christopher Garimoi Orach. A choice I would not regret. Nathalie always gave me full support in everything I did, and protected me from having an overload on tasks which would jeopardize the planning of my PhD. She always gave me good and useful advice both on the content of the PhD and on everything around it. At the same time I was given the freedom to explore the topic myself and fully own my research. I could not have chosen for a better supervisor. The same goes for Bart who I asked to be my co-supervisor because of his extended knowledge of local health care systems and specifically Uganda. He did not disappoint and gave vital comments and critiques. Not being a doctor myself, his contributions on patient-health workers interactions proved to give me a more in-depth understanding of what I was observing. At the same time, Bart always helped me wherever he could during my field visits and integrated me at the Institute of Tropical Medicine. Both helped me a lot with their comments on papers and drafts that were always on point, straightforward, honest, and enlightening. I also had the privilege to have three supervisors supporting me. Christopher was always a pleasure to visit. Although he was always very busy, he always made time to go out for lunch together in his favorite local restaurant. Fields visits can sometimes be a bit stressful but he always made sure to make me feel welcome in Uganda. He helped me wherever he could and was a great support during my stays in Uganda.

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I have come to the end of the acknowledgements and I hope I have not forgotten anyone, if so I apologise. However, there is one person that needs to be mentioned here and that is the woman to whom this PhD is dedicated and unfortunately passed away before she

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could see the results of my research: my grandmother also known as 'Meter'. She was a great woman, adventurous, helpful, strong. She was a nurse and went to the DR Congo a couple of years before independence. Whereas she had to leave DRC together with my mother during the independency turmoil, she always kept her heart close to the people who suffer around the world. She kept a healthy dose of indignation throughout her life and tried to transfer it to her grandchildren. I hope I will never lose my indignation and can keep her spirit alive through my research and work. I hope this PhD is a worthy first step.

#### ABSTRACT

In response to frustration about the slow (yet still significant) improvement of the health care sectors in low- and middle-income countries (LMICs), some 20 years ago several international and domestic policy entrepreneurs put forward the idea of Performance-Based Financing (PBF). PBF can be defined as:

a supply-side reform package that is guided towards improved performance ... by using performance-based financial incentives for health providers and ... most or all of the following elements: a separation of functions (purchasing, regulating, providing, verifying health care services), spending autonomy for the health facilities, strict monitoring and verification of services delivered, community involvement, performance-based planning and accountability arrangements.

The introduction of PBF for health sectors in LMICs has sparked a lively debate; however, a thorough understanding of PBF and its theoretical basis is lacking, which jeopardizes this debate. This PhD dissertation therefore sets out to unravel the theory of PBF by studying a PBF intervention of the Belgian Development Agency BTC/Enabel in Western Uganda. We devised a methodological strategy that consisted of a combination of realist evaluation research and systems thinking, or, more specifically, causal loop diagramming (CLD). This strategy focused on the mechanisms initiated by the implementation of a PBF intervention, rather than solely looking at the intervention outcomes. This was considered a way of 'opening the black box', by which we distinguished seven mechanisms that may be triggered by the intervention and that, in combination, constitute the programme theory: financial incentivisation, non-financial incentivisation, management, knowledge and saliency, financial accessibility, patient feedback and the workload mechanism.

In order to analyse these mechanisms, we conducted before and after case studies in two districts of Western Uganda: Kasese and Kyenjojo. Data was collected before the intervention and two years later (after one year of implementation). In total, we surveyed 175 health workers; organized 59 semi-structured and 11 unstructured interviews with health workers; conducted 16 key-informant interviews with high-level officials within the Ministry of Health, BTC/Enabel, Catholic and Protestant medical bureaus and key stakeholders at the district level; consulted relevant policy documents; and made observations at 16 health facilities during both baseline and end line study.

The results indicate that a range of barriers either impede the triggering of some of the mechanisms or reduce their impact. The many delays, the lack of a coherent communication strategy at different levels of the health system that would adequately and,

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in a timely fashion, inform health facilities and workers on the intervention itself and on the reasons for the delays, and the lack of a rationalized coverage plan are the most significant barriers.

However, we identified three mechanisms as particularly important: the management mechanism, entailing a more active health unit management committee, with more investment in the work environment; the financial accessibility mechanism, meaning that lower user fees lead to more patients being able to attend the facility; and the knowledge and saliency mechanism, enhancing awareness about Ugandan Clinical Guidelines.

This research increases insight into the most important barriers and mechanisms at play in the specific BTC/Enabel PBF intervention. Furthermore, it was an opportunity to test an innovative methodological strategy and to learn more about its strengths and limitations. We believe that addressing these limitations will help us to further increase our understanding of PBF theory. INTRODUCTION

The average man can't prove of most of the things That he chooses to speak of And still won't research and find out The root of the truth that you seek of

Damian Marley and Nas - Patience

Notwithstanding the important improvements during the last two decades, the state of health in low- and middle-income countries (LMICs) remains wanting. Although a declining trend is noticeable due to more attention given to health by the national governments and international community, problems are the HIV/AIDS epidemic, the low life expectancy, the high maternal mortality rate and the burden on individuals, families, communities and countries, caused by communicable diseases like tuberculosis and malaria and increasingly non-communicable diseases remain (WHO, 2017). Healthcare systems as such are also in need of improvements. Research shows that they are plagued by health workers' absenteeism, inadequate execution of guidelines, lack of knowledge amongst health workers, low motivation, bad infrastructure and insufficient and inadequate equipment at the facilities, important financial but also social, cultural and geographical barriers to accessing healthcare (Anselmi et al., 2015; Leonard & Masatu, 2010; Orem et al., 2012; Puchalski Ritchie et al., 2016; Tweheyo et al., 2017). Notwithstanding the 2001 Abuja Declaration (African Union, 2001) in which the African Heads of State pledged to allocate 15% of their national budget to the health sector, financial resources are limited and do not rise to the challenges.

In a response to the frustrations about the slow improvements, some 20 years ago, several international and domestic policy entrepreneurs put forward the idea of performance-based financing (PBF). As discussed in Chapter 1, the essence of what PBF exactly is, is up until now at the centre of debate, although not always explicitly. After a short analysis of the debate<sup>1</sup> and several toolkits on PBF we propose in Chapter 1 the following definition:

'PBF is a supply-side reform package that is guided towards improved performance (defined as increased predefined services and improved quality measures) using performance-based financial incentives for health providers (facilities and/or workers) through internal contracting and strengthening this with most or all of the following

<sup>&</sup>lt;sup>1</sup> Based on the work of Mayaka Manitu, Meessen, et al. (2015).

elements: separation of functions (purchaser, provider, regulator and verifier), spending autonomy for the health facilities, strict monitoring and verification of services, community involvement, result-based planning and accountability arrangements.'

What started off as donor-funded projects in Rwanda and Cambodia (Bhushan et al., 2002; Meessen et al., 2006; Soeters & Griffiths, 2003), has over the last 20 years evolved into the implementation of PBF, to differing degrees, in over 30 LMICs (World Bank, 2018b). This rather quick expansion can partly be attributed to the financial support given by the World Bank, a strong epistemic community gathered in a community of practice<sup>2</sup>, the fragile context open to change in which most PBF schemes were implemented and strong advocacy from non-governmental organisation (NGOs) (e.g. Cordaid), donors (e.g. Norway), private organisations (e.g. SINA Health) and local policy entrepreneurs (see Chapter 9) (Barnes et al., 2015; Bertone et al., 2018; Gautier & Ridde, 2017).

Although not entirely innovative (see Intermezzo 1 and Paul and Renmans (2018)), PBF brings in a new rationale within the healthcare systems of LMICs, by only providing funds after certain measurable results are achieved. This new rationale has led to quite some friction, opposition and heated debates amongst policy makers, donors, NGOs, researchers and people whose heart is in improving the health situation in LMICs. Unfortunately, this discussion on PBF has not always been the epitome of a constructive debate and resided (especially in the beginning of PBF) on the border between science and ideology. Proponents<sup>3</sup> linked (and some still do) the strong opposition to vested interests that are being tackled, people that are stuck within their own outdated paradigms, power structures that are being changed or ideological positions that obscure a clear look at the positive evidence, whereas opponents claimed (and some still do) that good reasons exist for why PBF is new and has not been done before, that this is a way to commodify healthcare (given the apparent introduction of market mechanisms) and that evidence of PBF's impact is scarce, not rigorous enough and/or perhaps even manipulated.

A first attempt to bring more evidence into the debate was the Cochrane systematic literature review of Witter et al. (2012), a publication that also marked the first big clash

<sup>&</sup>lt;sup>2</sup> https://groups.google.com/forum/#!forum/performance-based-financing

<sup>&</sup>lt;sup>3</sup> For clarity of the discussion we refer here to proponents and opponents. However, many people would position themselves in the middle of the discussion (among which myself) and focus on understanding PBF rather than debating it. The distinction is thus not as clear-cut as it might appear from this discussion. We also do not claim that either of these positions is (in)correct.

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within the research community. The study concluded that no convincing evidence could be found on PBF's effectiveness. At best, PBF could claim mixed results. The authors highlighted the notion that a lack of rigorously performed impact evaluations was one of the reasons for the low level of evidence in the literature review and for the lack of knowledge on the effects of PBF (Witter et al., 2012). This outcome led to quite some frustration amongst some proponents of PBF who felt that PBF did have positive outcomes based on their day-today experience. They also claimed that PBF was too narrowly defined in the study, only focusing on the effects of the financial incentives and disregarding the multi-component nature of PBF and the system-wide effects they themselves observe in the field (see also Chapter 1)<sup>4</sup>. Opponents saw in this publication empirical support for their claims against PBF.

Interestingly, the discussion after this clash between the authors of the study and the forerunners of PBF resulted in a common publication which proposed an analytical framework for the evaluation and monitoring of PBF from a more systemic perspective (Witter et al., 2013). Hence, the publication addressed the main comments of the proponents<sup>5</sup>. Since then, the number of publications on PBF has risen sharply and the methods and perspectives used have diversified. As Chapter 3 shows, we have a much better view of PBF's effects on the different healthcare system elements. However, we still lack a systematic understanding of the mechanisms that lead to positive as well as to negative outcomes; we basically still lack a theory of PBF that is based on strong empirical studies.

This lacuna in the knowledge base led to the second and most recent clash between opponents and proponents of PBF: the paper by Paul et al. (2018) in BMJ Global Health. Paul and colleagues lament the large amount of resources invested in an intervention that still lacks the needed evidence. The paper has been rightfully accused of being unbalanced. However, arguably, being balanced was not the objective of this paper; the aim of the authors was to stir a debate and to oust a dissonant voice to counter what they perceive as "the mainstream view that PBF is an effective, efficient and equitable approach to improving the performance of health systems" (p. 2). Interestingly, whereas earlier critical papers lacked strong empirical backing and were mainly based on theoretical claims (Ireland et al.,

<sup>&</sup>lt;sup>4</sup> See the discussion that started in the online community of practice on PBF :

https://groups.google.com/forum/?utm\_source=digest&utm\_medium=email#!forum/performance-based-financing/topics

<sup>&</sup>lt;sup>5</sup> This publication is also the starting point of our actor-centred analytical framework in Chapter 2.

2011; Kalk, 2011), the paper of Paul et al. (2018) is able to back up claims with empirical evidence, albeit with a relatively unbalanced reading and interpretation of the findings.

Large parts of the reactions to this paper, predictably, went in the direction of emphasising the positive sides of PBF, which the authors had left out. However, the most interesting reactions opened the door for the 'PBF research of the future'. In his contribution, Mayaka Manitu (2018) emphasises that, in his country (the Democratic Republic of Congo), PBF is not seen as a panacea but as "a strategy complementary to others" (Mayaka Manitu, 2018, para. 6) (own translation)<sup>6</sup>. This might indeed be one of the future pathways. How can PBF be better integrated into the healthcare system? What are the synergies between PBF and other interventions and elements of the healthcare system? How can such synergies be created? What can PBF achieve and what can it not? This is a clear position between the fully pro-PBF and radically anti-PBF position, as it recognises the fact that PBF is able to have positive effects but also that it has its limitations. The latter has insufficiently been discussed within the Community of Practice on PBF. Demarcating PBF and simultaneously integrating PBF might be the future for PBF research, yet at the same time the relevance of each of its components should be continuously questioned (see the earlier mentioned definition and Chapters 1 and 2 for the different components).

In order to fulfil this general research agenda, we need to learn more about the mechanisms of PBF and need to advance on the earlier mentioned theory of PBF. By knowing how it works and what it does, we will be able to better distinguish its limitations (related to both the effects and the context in which to implement it) and exploit its advantages. This brings us to the contribution of Bigirimana (2018) who makes a plea for the use of realist evaluation (RE) in order to grab a hold of the mechanisms that PBF triggers and understand the contexts in which it will work best. Contrary to what Bigirimana (2018) claims in his blog, many of Paul et al.'s (2018) co-authors are far from positivists and even experts in RE. Therefore, they can certainly be of much help in guiding the PBF research community towards better evaluations and research in order to gather more relevant knowledge to determine the most appropriate place of PBF in the healthcare system. It will

<sup>&</sup>lt;sup>6</sup> « Ici en RDC, nous ne concevons pas le FBP comme une panacée qui réglerait tous les problèmes du système de santé, comme le laisse penser l'argumentaire de Paul et al. Nous l'envisageons plutôt comme un outil ou un levier qui contribue à l'atteinte des objectifs de santé, mais aussi comme une stratégie complémentaire à d'autres pour l'amélioration de l'accessibilité aux soins. » (Mayaka Manitu, 2018, para. 6).

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be interesting to see whether another joint publication can lessen the tension between opponents and proponents.

Either way, it is at this point that this study tries to enter the equation. The objective of this study is to open the black box<sup>7</sup> of a PBF intervention (see Chapter 4)<sup>8</sup>, which means it will aim to look for the mechanisms that were triggered by the PBF intervention. Study focuses more specifically on the level of the health workers. It does this by using elements of RE in combination with causal loop diagramming (CLD), RE is an approach to evaluation based on the realist epistemology, rather than on the more common positivist philosophy (Pawson, 2013; Pawson & Tilley, 1997). Central to this approach is its objective to look not only at 'what works', but also at 'what works for whom, when, in what circumstances and why'. This makes it specifically useful for the evaluation of PBF given its mixed results (see Basinga et al., 2011; Binyaruka et al., 2015; Witter et al., 2012). Importantly, 'mixed results' in RE does not mean that the results are uncertain. It rather means that it works in some contexts for some but not for others in the same or other contexts. Such mixed results are gold mines for realist evaluators and help us come closer to a theory of PBF.

We combine this RE study with CLD (Tomoaia-Cotisel et al., 2017). CLD is a tool used in the systems thinking approach (de Savigny & Adam, 2009; Meadows & Wright, 2008; Senge, 1990). The latter is a way of approaching problems as embedded in a set of interconnected variables and conditions that work together towards a specific goal (i.e. systems). These interconnections lead to specific behaviours that can only be observed at the level of the system and not at the level of its parts. The whole is more than the sum of its parts. CLD is used to visualise this system and clarify certain behaviours and outcomes by showing and analysing the feedback loops within the system. It does so by using arrows between variables that depict causal relationships (Tomoaia-Cotisel et al., 2017).

We will use this methodological strategy to evaluate and study a PBF intervention implemented by the Belgian Development Agency BTC/Enabel<sup>9</sup> in the Western and Northern

<sup>&</sup>lt;sup>7</sup> The 'black box' is the space between the implementation of the intervention components and the outcomes. Impact evaluations that only focus on the outcomes are referred to as 'black box' evaluations as they are not so much concerned with what processes lead to the outcomes. Hence, opening the black box means to study the mechanisms and processes that link the intervention components with the observed outcomes.

<sup>&</sup>lt;sup>8</sup> See also the groundbreaking work of Ssengooba et al. (2012) on 'opening the black box'.

<sup>&</sup>lt;sup>9</sup> At the beginning of the intervention, the Belgian Development Agency was named BTC, Belgian Technical Cooperation. The agency is an experienced and well-known partner in the health sector of many low- and middle-income countries and is very well known under its acronym BTC. Many of the

Regions of Uganda. The intervention is developed in close cooperation with the Ministry of Health (MoH) and puts into practice the PBF scheme as stipulated by the National RBF Framework<sup>10</sup> (see Chapter 6). The intervention started after some delay in June 2016 and is still ongoing. Therefore, we hope that our research findings will help the implementers to make sound and well-informed decisions concerning the intervention.

The intervention<sup>11</sup> was only implemented in the private not-for-profit (PNFP) health facilities of the three religious medical bureaus (the Muslim, Protestant, and Catholic) in the Rwenzori and West Nile region. It consists of three components: the accreditation<sup>12</sup>, the quality based payments<sup>13</sup> and the output-based payments. During the accreditation the health facilities receive a score based on a structural quality checklist (on the infrastructure, equipment, and human resources). Facilities that achieve more than 85% are included in the PBF intervention and receive equipment and drugs. Facilities that receive a score between 65% and 84% receive conditional acceptance and receive funds to improve above 85%. When a facility scores below 65% the facility is not selected and has to make improvements with own funds.

The second component concerns the quarterly quality assessment. Each quarter, the facilities have to perform a self-assessment using a checklist that covers several infrastructural and administrative aspects (see annex VII). Subsequently, this self-assessment will be verified by the verification team after which each facility receives a star rating (maximum five stars). Each star corresponds to a certain amount of money the facility will receive for that quarter.

The last component consists of the output-based payment. For every patient the facilities receives a certain amount of money if the patient was treated according to the

respondents also referred to the intervention as the BTC intervention. In 2018, however, it was decided to change its name to Enabel. Because the donor and its intervention is so well-known in the region under its acronym BTC, we will keep on using it in this thesis in combination with the new name 'Enabel'.

<sup>&</sup>lt;sup>10</sup> For an unclear reason, the Ugandan ministry uses the term 'Result-based financing' or 'RBF'. However, according to Musgrove (2011) the term RBF should be used as an umbrella term for both supply-side and demand-side (e.g. vouchers) interventions that link financial incentives to a certain behaviour or performance. In this case, it is advised to use the term 'performance-based financing' (PBF) which is specific for supply-side RBF interventions (i.e. focused on health providers) using contracting-in. Hence, in this thesis we will use the term PBF instead of RBF.

<sup>&</sup>lt;sup>11</sup> A more extensive description of the intervention can be found in Chapter 6 and Annex VII.

<sup>&</sup>lt;sup>12</sup> Called the pre-qualification phase in the implementation manual.

<sup>&</sup>lt;sup>13</sup> Called the accreditation phase in the implementation manual. However, since the first phase is more akin to our understanding of accreditation, we call the first phase the accreditation phase.
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Ugandan Clinical Guidelines (UCG) and was appropriately recorded in the register books. Different groups of patients<sup>14</sup> yield different amounts of money. At the end of each quarter the facilities have to report to the intervention how many patients of each group they treated according to the UCG. Subsequently, the verification team verifies a sample of 10 patients for each group of patients and if more than two patients are not according to the guidelines the facility is sanctioned by a reduction in funds.

The received funds are to be invested in the facility according to the business plan. 25% of the funds can be used for health worker incentives. Other aspects of the intervention are the introduction of business plans, regular meetings between the district RBF focal persons, incentives at the level of the district in order to improve supervision and a reduction of the user fees (patients pay a lower fee and receive all necessary treatments, lab test and medication for that flat fee).

Whereas the intervention took place in about 15 districts, the focus of our evaluation study was on two districts in Western Uganda: Kasese and Kyenjojo. Data was collected using both quantitative and qualitative methods before the intervention (the baseline study) and two years later, i.e. after one year of implementation (the end line study) (see Chapter 5)<sup>15</sup>. In total, we collected 175 quantitative surveys (baseline: 81, end line: 94), performed 59 semi-structured (baseline: 30, end line: 29) and 11 unstructured (all during the end line study) interviews with health workers, had 16 key-informant interviews with high-level officials within the MoH, the BTC/Enabel, Catholic and Protestant medical bureaus and key stakeholders from the district level and made observations at 16 health facilities during both the baseline study and end line study. We also looked into relevant policy documents and performed a systematic literature review which yielded 71 peer-reviewed articles on PBF (see Chapter 3).

Like every theory-based and realist evaluation study, we start with the conception of the programme theory. Given our combination of RE with CLD we depicted the programme theory by a causal loop diagram based on the programme manual and interviews with the health workers, and key informants. This programme theory consists of several theorised mechanisms which guide the analysis of the data. We look for elements that function as

<sup>&</sup>lt;sup>14</sup> For example, under 5 out-patient department visits, new visits for moderate and acute malnutrition, patients on anti-retroviral therapy, etc.

<sup>&</sup>lt;sup>15</sup> The baseline study was done when the intervention was programmed to start immediately after the baseline. However, because the Ugandan Ministry of Health asked Enabel to first create a national PBF framework, the intervention was delayed by a year (see Chapter 5).

barriers to the mechanisms and for clues that give evidence of the existence of the mechanisms. We are, however, not performing a rigorous impact evaluation study, which would need a larger sample size and a more systematic collection of data related to the outcomes. Yet, through theorisation and the insights of key informants we aim to attribute the occurrence of some of the mechanisms to the observed outcomes. We conclude our research with a revised programme theory that helps us understand how the programme worked, which mechanisms it triggered and which remained idle. The final programme theory provides lessons learned not only for the implementers of this specific intervention, but also for every intervention trying to trigger the same mechanisms.

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#### **OVERVIEW OF THE THESIS**

Our objective in this thesis is to open the black box of a PBF intervention. We, however, cannot just open the box and look inside. The box should be handled with care as its content is fragile. We need to think strategically about how we are going to open it and observe its content. In the four chapters of **Part 1**, we therefore start by slightly shaking the black box to get a first feeling of what might be inside.

In **Chapter 1**, we start by looking at the shape of the black box and try to define it. We already explained that the debate on PBF is regularly 'infected' by ideological positions. Therefore, the conceptual exploration of PBF in this first chapter tries to reach a definition that reflects what PBF is about, is perceived as valid by both opponents and proponents and clarifies the multi-component nature of PBF. This way, we hope to create common ground for a constructive debate and steer the discussion away from the narrow conception of PBF. Our broader definition also clears the way for three research pathways which need further investigation: describing PBF, understanding PBF and framing PBF.

Our analytical framework in **Chapter 2** indicates what to look for in the black box. The comprehensive actor-centred analytical framework which is based on the principal-agent (PA) theory is the start of our quest for the second research pathway (understanding PBF). We chose the PA theory because it is so closely aligned with the aim of PBF: aligning the interest of an agent (i.e. the health provider who, inter alia, wants to earn money), to the interests of a principal (i.e. the MoH that wants to see quality of care for as little money as possible). We quickly learn that the basic assumptions of this theory (agents act according to the model of *Homo Economicus*) have some serious limitations, especially in the light of our conceptualisation of PBF in Chapter 1. However, we do not set aside the theory, but rather we use the critiques to improve our framework.

We subsequently put forward what we already think we know about the content of the box. We use the analytical framework to structure the data obtained through a systematic literature review presented in **Chapter 3**. We systematically searched the international peer-reviewed literature and found 71 articles that evaluate a PBF intervention. In a narrative review, we discern what earlier research has taught us about the processes, mechanisms and effects that are generated by the implementation of a PBF intervention.

With the knowledge at hand of the three earlier mentioned chapters, we devise an approach to carefully unwrap the black box. **Chapter 4** sets out a methodological strategy that consists of a combination of RE and systems thinking, more specifically CLD. We explain

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the essentials of RE by comparing it with other philosophies of science and epistemologies. The main principles of systems thinking are also elaborated upon and the CLD tool is explained. Subsequently, we explain how the two methodologies can be combined.

**Intermezzo 1** shortly exemplifies the concept of 'reusable conceptual platforms' (which is explained in Chapter 4) by showing that PBF is not something completely new, but rather it has strong linkages with other reforms in other sectors, namely 'Managing for Results' and 'Performance-Based Budgeting'.

In **Part 2**, we start by unwrapping the black box and look at how the black box looks like from the outside. This is important as the outside (i.e. the context) strongly influences what can possibly be inside the black box.

While we clarify our general methodological strategy in Chapter 4, in **Chapter 5**, we go from strategy to action and thus from methodology to methods. We describe the different data collection tools used (surveys, qualitative interviews, documentary searches, observations and key informant interviews) and explain how the collected data have been analysed.

By now, the reader should be eagerly waiting for some content about the intervention. **Chapter 6** is the first chapter to cut into this. It describes how the black box looks like (i.e. the context in which the intervention is being implemented) and visualises the different causal linkages of the context in a causal loop diagram. This chapter also presents the programme theory which is composed of different mechanisms, which are subsequently added to the causal loop diagram depicting the causal linkages constituting the context. This chapter thus relates to the first research pathway highlighted in Chapter 1 ('describing PBF').

The core part of the evaluation study is presented in **Part 3**. Here we actually take a look into the box and present the evaluation study findings of the BTC/Enabel PBF intervention. This part is central to our search for a theory of PBF and understanding of how it works (the second research pathway).

In **Chapter 7**, we look at how the box got assembled (i.e. implemented). We first introduce the concept of 'realist implementation fidelity', which is slightly different from the traditional view on implementation fidelity. In RE, the implementation of an intervention concerns the enabling of certain programme mechanisms rather than the implantation of programme components. Therefore, realist implementation fidelity studies the barriers that hamper the triggering of the theorised mechanisms. These barriers can be related to implementation flaws, design issues or contextual elements. In the second part of the chapter, we apply this concept of realist implementation fidelity on the intervention and visualise our findings using causal loop diagrams.

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As we are nearing the end of the thesis, it is time to open the box in **Chapter 8**. Here, we look at which mechanisms actually got triggered by the intervention and whether they may have contributed to the observed outcomes. For each of the mechanisms, we try to discern how, for whom and in what circumstances they worked or did not work. Again, each of the mechanisms (or rather 'context–mechanism–outcome' configurations; see Chapter 4) is visualised by a causal loop diagram.

After Chapters 7 and 8, we have a clear picture of how the intervention was implemented and what its effects were during the first year of the implementation. With this knowledge in mind, we give eleven preliminary lessons learned about the intervention in **Intermezzo 2**.

**Chapter 9** is somewhat an outlier as it is not part of the RE study. It is, however, an important chapter as it looks at the future prospects of the intervention and PBF in Uganda. We give an informed guess on whether the intervention and its design will be sustained after the donor's exit. Due to the fact that the intervention is seen as a pilot project, we claim that sustainability is best analysed by looking at the policy process. We create an analytical framework based on the sustainability and scaling-up literature. Drawing upon key informants' interview data, we analyse the roles played by the different stakeholders within the policy process steering the implementation of the intervention and the creation of the national PBF framework. Hence, we also contribute to the third research pathway ('framing PBF').

In the last part of the thesis, **Part 4**, we try to stack the black box in the right place. We assess the theorised programme theory and give a tentative judgement of the first year of implementation and of how the future of PBF and in particular this design might look like.

The summary of the evaluation evidence from Chapters 7 and 8 is presented in **Chapter 10**, where we bring together the findings for each of the mechanisms and build the final programme theory. This updated programme theory will again be visualised in a causal loop diagram.

A final assessment of the intervention, several lessons drawn from the methodological strategy used and on the theory of PBF and a reflection on the research project as a whole are presented in the **Conclusion**, in which we also try to look forward and plan for future research.

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## **Readers'** GUIDE

A PhD thesis is always a comprehensive piece of work with large parts of theoretical and conceptual, methodological, empirical, philosophical, political and/or ideological reflections. With increasingly higher demands not only on the people in the field but also on academics, researchers, policymakers and implementers, being selective in our readings might be a matter of efficiency. We therefore propose a guide to the reader on how to get the most out of this thesis for his/her specific needs.

The first and most obvious group of potential readers are fellow PBF researchers. For this group, all the chapters are supposed to be relevant, yet Chapter 4 which discusses the used methodologies and the underlying epistemology and ontology might be less interesting, especially for those who do not wish to carry out research within the realist and systems thinking framework. Chapter 5 which discusses the methods might also be skipped.

Second, complete PBF novices might want to start with Chapter 1, which tries to bring about conceptual clarity within the debate. Chapter 2 may also be an interesting read as it puts forward the different aspects and issues that need to be taken into account when evaluating a PBF intervention. Finally, Chapter 3 concerns a systematic literature review that gives a good overview of what research has taught us up until now.

Third, to readers with a bit more experience in PBF and those interested in the overall debate on PBF we propose to certainly read Chapter 1. This chapter has been published in the international peer-reviewed literature (see Renmans, Holvoet, Criel, et al., 2017) and resembles, yet slightly differs from, the claims made in a paper by Soucat et al. (2017) that was published at around the same time and may also be an interesting read. Chapter 1 is interesting because it discusses the conceptual foundations of the debate and tries to level the field between opponents and proponents by creating a common conceptual ground as a basis for further debate. Chapter 3 might also be of interest as it gives an overview of the evidence upon which we can base the debate. Finally, Chapter 10 and the Conclusion entail a short discussion of the findings and their consequences for the debate and the way forward.

The fourth group of readers might be policymakers/implementers and people interested in PBF implementation (e.g. donors, health workers and communities). They might want to read Chapter 3 to learn how other projects have performed and what pitfalls need to be prevented. Subsequently, they might want to take a look at Chapter 6 to immerse themselves in not only the Ugandan context in which the observed mechanisms were triggered, but also the design of the BTC/Enabel PBF intervention. Chapters 7 and 8 are certainly must-reads for this group of readers as they show how the intervention performed

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and what the pitfalls are. Chapter 9 may help implementers (especially donors) discern the necessary conditions for a sustainable intervention.

Fifth, researchers that are mainly interested in methodologies might want to take a look at Chapter 4, which proposes the combination of RE and systems thinking. Moreover, in Chapter 5, we explain the methods that we use to go from the proposed research strategy to an actual research. In the Conclusion, we shortly discuss the methodology used and the research process.

Readers with a specific interest in the Ugandan healthcare system (the sixth group) might want to take a look at Chapter 6 where we create a causal loop diagram of the local healthcare system based on data obtained from the health workers. Chapter 10 might also be interesting as it brings together the findings of Chapters 7 and 8. If the reader is also interested in the politics behind the healthcare system, he/she should refer to Chapter 9.

Finally, to friends and relatives, I would suggest that you read the Acknowledgements and propose a date, possibly more than one, in order to discuss the subject over some drinks.

PART 1

SHAKING THE BOX

**CHAPTER 1** 

# **DEFINING THE BOX: THE SAME IS DIFFERENT**

Note: This chapter is based on a peer reviewed article: Renmans, D., Holvoet, N., Criel, B., & Meessen, B. (2017). Performance-Based Financing: the same is different. Health Policy and Planning, 32(6), 860-868. doi: 10.1093/heapol/czx030.

Changes were made to fit the storyline of this thesis and to adjust for new knowledge.

In this first chapter, we set out to clarify the conceptual fuzziness that exists in the debate on PBF. According to Witter et al. (2012), the lack of robust studies was an important explanation for the insufficiency of knowledge about PBF found in their systematic literature review. Although we do not dispute this, we argue that the problem may already start at the definition of the construct<sup>16</sup>. In the literature, there is an explicit (apparent in the used definitions) and implicit (apparent in the research designs) overemphasis on the 'payments based on performance' (with 'performance' defined as 'verified outputs satisfying certain quality measures') as being the only element of PBF (see Binagwaho et al., 2014; Bonfrer, Soeters, et al., 2014; Engineer et al., 2016; Kalk et al., 2010; Khim, 2016; Menya et al., 2015)<sup>17</sup>. This leads to inadvertently unproductive ideological pollution of the debate, where emotional arguments sometimes dominate a discussion between proponents and opponents that too often centres around the virtues and drawbacks of using market mechanisms in the healthcare sector (see Mayaka Manitu, Lushimba, et al., 2015; Mayaka Manitu, Meessen, et al., 2015). By emphasising, as has been done before (Meessen et al., 2006; Meessen et al., 2011; Renmans, Paul, et al., 2016; Witter et al., 2013), that PBF is more than only payments based on performance and comprises a package of other reforms (see later in this chapter), we aim to facilitate the building of common ground between PBF proponents and opponents. However, moving towards such a broader definition leads to another challenge: what then would differentiate a PBF reform package from other reforms? Attempts to come up with a wider definition have so far been unsatisfactory. We therefore propose a definition that aims to be neutral and acceptable for both proponents and opponents and gives an accurate presentation of what PBF is.

The broadening of the PBF definition opens up opportunities for better (i.e. more thorough) research. We identify three research pathways that deserve to be investigated more thoroughly as a consequence of the adoption of a broader PBF definition: describing, understanding and framing of PBF schemes.

<sup>&</sup>lt;sup>16</sup> As was later also acknowledged to some extend by the follow-up publication (Witter et al., 2013). <sup>17</sup> Although the tides have been changing over the last years: see for example Bhatnagar and George (2016) or Lohmann et al. (2016).

From these vantage points, it becomes evident that 'the same is different'; every PBF scheme has different features, is implemented in a different context, triggers different mechanisms and has different objectives (improve accountability, improve the performance of the healthcare system, increase the coverage of healthcare services, build capacity to move towards a national health insurance scheme, more closely incorporate the private sector or the community, etc.). Despite the introduction of even more complexity, we claim that if we manage to advance on these three research pathways, we will strongly improve our understanding of PBF schemes.

This chapter is purely conceptual/methodological and does not claim to be a guide on how to implement PBF in practice or how its implementation has evolved historically. It rather looks at how PBF has been evaluated and researched as of yet. It is not the chapter's objective to engage in a normative debate on the desirability of PBF, or on its success in actually enhancing (or not) systems' performance, but rather to create a more rational basis for these discussions, which we believe is still missing.

In the next section, we will present the case for a wide and neutral definition of PBF. Afterwards, we discuss the three research pathways that this broader definition opens up. The following chapters will build on this definition and the three research pathways.

### **1. FROM A NARROW TO A WIDE DEFINITION**

The majority of definitions used in scientific articles are a variation of the following: PBF is a financing mechanism that gives healthcare providers (facilities or health workers) financial payments based on the achievement of predetermined targets, goals or outputs after being verified for authenticity and quality (see Borghi et al., 2015; Janssen et al., 2015; Rudasingwa et al., 2015). This narrow definition can be seen as an artefact of the early days of PBF when branding was important to distinguish it from 'competing' propositions. The first issue was to clear up the possible confusion between the contracting-in approach of PBF and the contracting-out approach of Performance-Based Contracting (PBC). Whereas the former is directed towards health service providers acting within the national health system as in Rwanda (see Rusa et al., 2009); the latter mainly focuses on non-state entities (not necessarily providers) outside the hierarchical structure of the national health system (see Loevinsohn & Harding, 2005) as in Haiti (Eichler et al., 2001) or Cambodia (Bhushan et al., 2002)<sup>18</sup>. When the World Bank established its Health Results Innovation Trust Fund (the forebearer of the Global Financing Facility), a second issue was to distinguish PBF from other forms of Results-Based Financing (RBF); this was done by pointing out PBF's emphasis on quality, its focus on the supply-side of healthcare and its purely financial nature (see Musgrove (2011) which 'stabilizes' this distinction).

The narrow definition is also very popular due to its clarity and specificity and thus its usefulness for impact evaluations (certainly randomized controlled trials). However, its usage is not unproblematic. It is questionable whether such a narrowly defined PBF scheme corresponds to reality. Within the context of low- and middle-income countries, the implementation of financial incentives based on performance (the narrow definition) is often not a stand-alone intervention but is embedded in a broader set of reforms pertaining to other dimensions of the healthcare system aiming to strengthen the enhancement of performance (defined as 'verified outputs satisfying certain quality measures') (e.g. community involvement or more autonomy at the health facility level) (e.g. Consortium AEDES/IRESCO, 2012; République du Tchad, 2011). Using the narrow definition may thus be misleading. Studies claiming to be reporting on the 'narrow definition' of PBF are often reporting on a package of reforms with many different possible drivers of change (e.g. de Walque et al., 2015b; Gertler & Vermeersch, 2012). Moreover, the narrow definition

<sup>&</sup>lt;sup>18</sup> As often is the case, the distinction is not always clear-cut.

overlooks possible interlinkages between the payments and the other aspects of the reform process, which in turn leads to specific research models not designed to discover or test these interlinkages (e.g. impact evaluations without process evaluations).

In order to address the limitations of the narrow PBF definition, a broader view has been proposed (Meessen et al., 2011; Witter et al., 2013) which is becoming increasingly mainstream in the scientific community as was witnessed during a workshop in Dar Es Salaam, Tanzania (Witter, 2015). However, if PBF is a reform package we need to be clear about what makes it different from other broad reforms. What is the unique selling point of PBF reform and what does it consist of? Within the online 'Community of Practice on PBF'<sup>19</sup> an effort was made in 2010 to arrive at such a wider definition. However, the resulting definition of this effort<sup>20</sup> is itself not unproblematic. While it does a much better job of capturing the 'amorphous' nature of PBF, it remains too vague to be used as a practical definition. More importantly, the one-sided ideological inclination of the definition makes it ill-suited to act as a basis for discussion. This also closes some doors within the debate which we would like to open further on in this chapter (see section 2.3). To stimulate and structure the debate, there is a need to come up with a more neutral and descriptive definition void of references to a single underlying theory, ideological propositions and value-laden notions, one that is acceptable to a broad audience (PBF opponents and proponents) and is an accurate and valid description of PBF in reality. Such a definition should approach PBF, like many other interventions, as a loose construct based on principles and not on specific features (e.g. community involvement as a principle may be implemented very differently from co-decision making at facility level to filling-in client satisfaction surveys) (Meessen, 2009). At the same time, it is essential that the definition points out what the added value is of payments based on performance. Only then can a PBF reform package have a distinct identity and claim its status as a reform package.

<sup>&</sup>lt;sup>19</sup> http://groups.google.com/group/performance-based-financing.

<sup>&</sup>lt;sup>20</sup> "... a system approach with an orientation on results defined as quantity & quality of service outputs and inclusion of vulnerable persons. ... making facilities autonomous agencies that work for the benefit of health ... related goals and their staff. ... characterized by multiple performance frameworks for the regulatory functions, the contract development & verification agency and community empowerment. ... applies market forces but seeks to correct market failures to attain health ... gains. ... aims at cost-containment and a sustainable mix of revenues from cost-recovery, government and international contributions. ... a flexible approach that continuously seeks to improve through empirical research and rigorous impact evaluations, which lead to best practices." (SINA Health, 2015)

So as to set the scene for the debate and the remainder of this chapter and the thesis, we propose a preliminary definition. In order to make the definition acceptable for both proponents and opponents, we take their different points of agreement and disagreement as our starting point. These are drawn from the study of Mayaka Manitu, Lushimba, et al. (2015), which gives a structured overview of the debate (see Table 1). From this analysis we conclude that PBF is to be defined as a supply-side intervention, with a general focus on predefined services and quality measures, involving but not necessarily empowering the community, giving autonomy to the health facilities and creating new structures in order to secure a division of functions within the PBF scheme (purchaser, provider, regulator, and verifier).

Discussion point	Agreement or Disagreement	Implications for definition
PBF is not adapted to tackle social determinants or health inequities	Agreement	Do not include in the definition that it aims to tackle social determinants or health inequities
PBF is focused on the health services/supply side	Agreement	PBF is a supply side intervention
It is not a panacea and needs to be accompanied by other policies in order to fully tackle financial and other barriers	Agreement	PBF is only one among many other interventions, programmes and policies in the healthcare sector.
Focus on measurable results is a weakness as it has possible negative side-effects on unmeasurable issues (-) <-> It helps to focus on priority issues like strategic purchasing (+)	Disagreement	PBF focuses on specific measures of quality and quantity
The verification of the delivered services through the community may create distrust and endanger the positive relationship between the community and the health workers (-) <-> the involvement of the community empowers them and engages them in the management of the facility which may lead to a more equal and constructive relationship (+)	Disagreement	Include community 'involvement', rather than 'empowerment' in the definition
Health managers need to have sufficient autonomy in order to implement the best suited strategies	Agreement	Include 'autonomy' in the definition

PBF creates parallel structures and is thus not able to improve the health system (-) <-> It does not create parallel structures but new structures that counterbalance existing power relations. The division of functions is essential (+)	Disagreement	The definition should recognize that PBF creates new functions and emphasizes a division of functions (between purchaser, provider, regulator and verifier). Without reference to whether they act as counterbalance or as parallel structure
Given the limited number of facilities patients cannot choose their health facility (-), however several proponents claim that such competition between facilities is important for PBF (+)	Relative agreement	Do not include 'competition' in the definition
PBF is just another financing mechanism (-) <-> PBF is a broader reform (+)	Disagreement	Look into the several toolkits that depict how to implement a PBF scheme.

Note: (-) = argument voiced by the opponents; (+) = argument voiced by the proponents Source: Adapted from Mayaka Manitu, Lushimba, et al. (2015)

The last point of disagreement in Table 1 concerns the scope of a PBF reform. In order to settle this issue we analyse several toolkits that depict how a PBF scheme should be implemented. We prefer toolkits over real projects' operating manuals as the latter may differ due to political decisions or local configurations (e.g. when the Health Management Information System is already strong, it does not need to be improved by the PBF scheme). Table 2 shows the different recurring elements found in four different toolkits (Fritsche et al., 2014; SINA Health, 2015; The AIDSTAR-Two project, 2011; Toonen & van der Wal, 2012). This analysis confirms our initial statement that PBF is a package of reforms and not limited to financial incentives. The first seven elements (autonomy, clarified roles (contracting-in), the focus on planning, community participation, separation of functions, intensified monitoring and specific accountability arrangements) are present in at least three of the four toolkits and, therefore, should appear in the PBF definition. The other elements are only present in two out of the four toolkits (or less) and will not appear in our definition.

World Bank	SINA health	AIDSTAR	KIT/SNV
Performance-based financial incentives +			
Autonomy	Autonomy	Autonomy	Autonomy
Clarification of roles and objectives (for health administration)	Clear contracts and roles (for the regulators)	Clearly defined roles and responsibilities	Clear roles, responsibilities and goals
Improved planning	Improved planning	Improved planning	Results-based planning
Community participation	Community empowerment	Participation of stakeholders	Community/patient participation

Separation of functions	Separation of functions	Separation of functions	Separation of functions
Better data analysis	Effective M&E	Effective HIS, HMIS and M&E	Independent monitoring and verification
Accountability arrangements		Transparency and accountability	Clear accountability relations
Improved financial management	Improved financial management		
Within broader reform			Within broader reform
Feedback		Performance feedback	
Improved stewardship			Regulation by MoH
Training	Training		
	Competition		Competition
Sources:			
(Fritsche et al., 2014)	(SINA Health, 2015)	(The AIDSTAR-Two project, 2011)	(Toonen & van der Wal, 2012)

Drawing upon the analysis of the narrow definition, the points of agreement and disagreement and the four different toolkits, we propose the following preliminary PBF definition:

"performance-based financing is a supply-side reform package that is guided towards improved performance (defined as increased predefined services and improved quality measures) by using performance-based financial incentives for health providers (facilities and/or workers) through internal contracting and strengthening this with most or all of the following elements: a separation of functions (purchaser, provider, regulator, verifier), (spending) autonomy for the health facilities, strict monitoring and verification of services, community involvement, result-based planning and accountability arrangements."

As this definition responds to the arguments of both PBF proponents and opponents it is sufficiently neutral, providing common ground to support further debate. The definition also describes the different elements of a PBF scheme, but gives, at the same time, enough policy space to interpret these elements differently<sup>21</sup>. Finally, it positions the financial incentives as the guiding principle of the reform package, and as such distinguishes it from other reforms.

<sup>&</sup>lt;sup>21</sup> For example, 'strict monitoring and verification' can be done by using the recordkeeping books or through increased digitalization.

## **2. THREE RESEARCH PATHWAYS**

While moving towards this broader definition, we lose some of the advantages of the narrow definition, most importantly, its clarity and specificity. However, we also create some new opportunities. We identify three research pathways that spring from our broader definition and can help to further our knowledge and structure the debate better.

## 2.1 Describing a PBF scheme or policy

A good description of the object under research is essential. It is not only important for foreign practitioners to learn from other experiences, it also facilitates linking the object under study with a higher-order construct. According to Shadish et al. (2002) "a precise explication of constructs (...) allows future readers to critique the operations of past studies." (p. 74). A clear construct is thus crucial in the transformation of particular study results into general knowledge and is essential if we want to compare studies from different settings. This need becomes even more apparent when we move towards the wider definition of PBF with multiple possible interpretations of the different elements included: 'the same is different'.

Whereas the description of PBF has often been limited to the incentives, targets and verification process (e.g. Janssen et al., 2015; Matsuoka et al., 2014; Ogundeji et al., 2016) every component that was mentioned in our preliminary definition needs to be sufficiently described (see Table 3 for an non-exhaustive list of issues to describe). Moreover, elements that are not part of our PBF definition but which are implemented in order to further support its implementation (e.g. training, workshops, accreditation system, etc.) (ancillary components) also need to be described, as they may have an important impact on the outcome.

The in Table 3 described framework will be applied to the BTC/Enabel intervention in Chapter 6, Section 4.

Initial context	PBF elements	Issues to take into account
General health	Financial incentives	Amount in absolute terms, and relative to other
financing system	i manciar meentives	incomes and ner canita?
		To whom (facilities or personnel)? What
		percentage accrues to the staff?
		When are incentives paid and what is the
		periodicity?
		How are incentives paid (directly or not?, by
		whom?, via bank account?)
		What is the payment formula? What is the
		balance between quantity and quality
		measures?
		Do sanctions exist for underperformance?
		Are incentives additive or substitute?
Other	Service and quality	Which services and dimensions of quality are
performance	measures	incentivized?
appreciation		Which measures and indicators are used?
policies/tools		What were the initial levels of the indicators?
		Who has selected the indicators and measures?
		How have indicators and measures been
		selected?
		what is their timetrame?
		Are they related to the outputs, outcomes,
		procedures or structural aspects of healthcare?
General	Monitoring and	Who performs this function and what is his /her
monitoring	verification system	hierarchical position/authority?
system (HMIS)	vermeation system	When and how often is it performed?
oyocom (o,		How is this function implemented?
		What are the costs?
		How does it make use of ICT?
		Do sanctions exist for reporting error/fraude?
Institutional	Split of functions	Which agency, organisation or department is
set-up and		responsible for the different functions, such as
division of		purchasing, regulation, provision, and
responsibilities in		verification of the health services? And what are
the health sector		their other functions? And how are they
		contracted, incentivized, and monitored?
		How do they hierarchically relate to each other?
	Autonomy	Which decisions can the facilities take?
		Are there any restrictions on the use of the PBF
		Tunas?
		bo they have to report to a higher authority? is
		decisions?
	Accountability	What information is communicated?
	arrangements	To whom is this information communicated?
		Through which channel?
Organisation and	Community	How are they involved?
participation of	involvement	Who represents them?
the community		What power do they have?

Table 3: Descriptive framework for a PBF scheme

OPENING THE 'BLACK BOX' OF PERFORMANCE-BASED FINANCING IN THE HEALTHCARE SECTOR OF WESTERN UGANDA

and patients in general		In what phase of the project/scheme are they involved? What are their tasks/responsibilities?
Other planning tools, including those from international donors	Planning arrangements	Which tool is used? How does it relate to existing tools? What are its specificities (timeframe, content, level of detail,)? How binding is it? Are their possible sanctions?
Related strategies	Ancillary components	Are there other measures to support the financial incentives (e.g. training, workshops, extra supervision, accreditation, etc.)?

Source: Adapted from (Renmans, Holvoet, Criel, et al., 2017)

It is important to recognize, however, that PBF schemes are implemented in a 'complex adaptive system' (see Chapter 4, Section 1) and rearrange a pre-existing 'nexus of institutions' (Meessen et al., 2006; Paina & Peters, 2012; Van Olmen et al., 2012). The initial context, thus, becomes an inherent part of each PBF scheme<sup>22</sup> (see Chapter 4, Section 2) and includes important drivers of change that interact with the processes/mechanisms that are being initiated. Describing this initial context is thus essential. Identifying which aspects are relevant, is closely related to the aforementioned debate on the PBF definition but also to its theory explained below. The most relevant 'context' elements are those related to the elements that generally comprise PBF (see Table 3) as these are the first with which PBF elements will interact. Additionally, there are elements of the wider context (social, cultural, economic, institutional, epidemiological, etc.) whose discussion is beyond the scope of this chapter. Importantly, the proposed framework is a preliminary one since designing such a framework in a complex system is an iterative process responsive to new knowledge and insights (see Bossyns & Verlé, 2016).

In order to improve comparative studies and our knowledge on PBF, we therefore advise researchers not to rush through the description of the project by limiting it to the financial incentives based on performance or of the context by limiting it to general geographical, economic, political and/or topographical statements, but to give it the attention necessary. This will enable other researchers, policymakers and practitioners to make sense of the results and use them in an appropriate manner. The use of the process evaluation method can strongly reinforce this endeavour (Oakley et al., 2006) and future theory-based reviews (e.g. realist synthesis (Pawson, 2006)) may benefit from it.

<sup>&</sup>lt;sup>22</sup> Or more accurately, the PBF scheme becomes an inherent part of the context.

## 2.2 Understanding a PBF scheme or policy

Notwithstanding the steep increase in interesting studies on PBF schemes, the extensive use of the narrow definition has pushed the systematic search for a theory of PBF<sup>23</sup> to the margins. The narrow PBF definition inevitably leads to the use of neo-classical economics to describe PBF's theory (see Kalk et al., 2010). This means, *inter alia*, assuming the health worker (or the health facility manager) to be a rational utility-maximizing individual (*homo economicus*) who adapts his/her behaviour according to the financial incentives that are provided (Holmström & Milgrom, 1991; Jensen & Meckling, 1976; Laffont & Martimort, 2002).

Moving towards a wider PBF definition gives way to a more nuanced view on PBF's theory which needs to address three essential issues. Firstly, the payments are no longer seen as the sole drivers of change; the other aspects of the reform package (e.g. the community involvement) may all play an important role in changing the outcomes (positively and negatively) (Bertone & Meessen, 2013; Kalk et al., 2010; Manongi et al., 2014; Matsuoka et al., 2014; Paul et al., 2014; Rusa et al., 2009; Soeters et al., 2011; Witter et al., 2011). Some even state that the payments mainly function as facilitators (Peabody et al., 2011; Peabody et al., 2014) or that the other elements may be more important than the payments (Lohmann et al., 2018; Paul et al., 2014). Secondly, the wider definition implies a more significant interaction between the PBF scheme and the initial context. Thus, the implementation of the PBF reform package creates a much more complex network of interlinkages than when using the narrow definition. Thirdly, if a multitude of elements influences the health workers' behaviour and the organisation of the facility, then a more complex view of human psychology and the management of health service delivery is warranted. Concepts and theories from disciplines such as economics (e.g. behavioural economics), psychology (e.g. cognitive evaluation theory), sociology (e.g. social learning), public health (e.g. patient-centred care), management sciences (e.g. new public management), educational sciences (e.g. transformative learning), political science (e.g. framing theory) will have to be brought into the theory.

<sup>&</sup>lt;sup>23</sup> In the paper on which this article is based we talk about 'theory of change', however because this relates to a specific approach of theory-based evaluation we have opted here to use the term 'theory of PBF'. In this way we avoid the impression that this is the only possible approach, which is not the case as we see in Chapter 4.

Because of this multitude of possibly relevant factors at the global, national, district, facility, management, and health worker levels, every PBF scheme and even every facility will have its own theory: 'the same is different'.

We therefore propose to work with a modular theory<sup>24</sup>. This is a collection of possible mechanisms that occur in specific contexts and project settings, through which the payments based on performance run as a thread. Depending on the specific context and features of the PBF project certain mechanisms may or may not be triggered. By modulating a theory with the relevant mechanisms it becomes possible to create a specific theory for each PBF scheme.

For example, Figure 1A displays a part of a simplified, partial basic PBF theory depicting the general elements described in the definition, which can be implemented in different ways. The two other theories in Figure 1B and C are more specific with the former having accountability arrangements towards the community (B) while the latter one focusing on accountability towards the purchaser (C). It is clear that these two different arrangements will have two different pathways to the outcomes. Björkman Nyqvist et al. (2014) show that giving more specific information to the community increases the effectiveness of their participation. Hence, case B will lead to better results through the pathway of community involvement while this pathway will be less important in case C where the accountability to the purchasers will induce other pathways.

<sup>&</sup>lt;sup>24</sup> A more elaborate descrciption of a methodological strategy to come to such a modular theory for PBF (and other health interventions) can be found in Chapter 4.

Figure 1: Simplified and partial theory of PBF (A) and two modulated theories of a PBF project with accountability focused towards the community (B) and towards the purchaser (C)



Source: (Renmans, Holvoet, Criel, et al., 2017)

This example underscores three main issues: firstly, the modular theory is derived from a more general theory; secondly, it deconstructs the effect of the PBF reform package into smaller pathways and mechanisms<sup>25</sup>, and thirdly, it uses theories and empirical findings from other fields of study (in this case social accountability studies).

However, rather than by such desk-based analyses, the search for PBF's theory should be guided by sound systematic empirical research that investigates the different hypotheses and claims. Clearly, the previously described complexity necessitates specific research designs. The combination of theory-based evaluation designs with process tracing can be a

<sup>&</sup>lt;sup>25</sup> Called 'tracks of transmission' by Nimpagaritse et al. (2016).

promising research approach in this respect (see Bamanyaki & Holvoet, 2016). In Chapter 4 we propose the combination of realist evaluation and systems thinking.

This research pathway is the core of this evaluation study and will be mainly addressed in Chapters 7, 8 and 10.

## 2.3 Framing a PBF scheme or policy

Health sector reform is a highly debated terrain where ideological, political, philosophical, scientific and personal views collide and the PBF debate is no exception (see Mayaka Manitu, Meessen, et al., 2015). Such polemics are unavoidable and probably even healthy (but mainly within the policy process). However, they have also polluted the debate and created a false dichotomy. Partly due to the focus on the performance-based financial incentives (narrow definition), PBF has been framed by opponents and proponents alike as a prototype of the market-based reform agenda. This framing strongly antagonized the debate between substantial parts of the proponents (glorifying the virtues of the market) and the opponents (lamenting the commodification of health).

Interestingly, the wider PBF definition leaves room for policymakers to give their own interpretation of the constituting principles: 'the same is different'. It makes a more nuanced view of the ideological framing of PBF possible and helps to overcome the dichotomisation within the debate by creating the possibility that a PBF scheme need not be the epitome of a 'neo-liberal' reshaping of the healthcare sector<sup>26</sup>. For example, community involvement can be implemented in two different ways (Gaventa & McGee, 2013): in a new public management oriented way through satisfaction surveys, which better fits a 'neo-liberal' framework (Antos, 2015; Simonet, 2008), or in a 'deep-democracy' oriented way by giving a co-decision making role in the health facility to elected community representatives, which fits the communitarian framework (Mooney, 2012). Thus the wider definition may raise awareness among policymakers that the choice for PBF is only the beginning of the healthcare sector. This is important because ideological, cultural, social and political values matter and, thus, politics matter.

This also indicates a third research pathway: to elaborate how ideological inclinations and cultural values influence the design of a specific PBF scheme, but also whether and, if so,

<sup>&</sup>lt;sup>26</sup> See Van Hecken et al. (2018) for a very interesting commentary on a similar issue in the debate on Payment for Ecosystem Services (PES).

how PBF can contribute to different kinds of policy objectives (e.g. a more 'neo-liberal' or a more communitarian organisation of the health sector). The use of the political economy framework to look at PBF is an important tool in this respect (see Chimhutu et al., 2015).

We will touch upon this research pathway in Chapter 9.

## **3.** CONCLUSION

This chapter highlights the importance of moving away from the explicit and implicit use of the narrow PBF definition towards a much broader view of PBF. We proposed a preliminary wider definition, yet we invite researchers (opponents and proponents), policymakers, implementers, providers and affected agents and organisations to join the debate and help to improve it. The adoption of this wider definition opens up three new and interesting research pathways: describing, understanding and framing PBF. Underlying these three pathways is the observation that in PBF 'the same is different'; every PBF scheme has its own peculiarities, its own features and is embedded in a specific context. Only by making progress on the definition and the three research pathways can we substantially improve our knowledge of PBF, which is the necessary basis for better designed PBF schemes and a more substantive debate on PBF.

To this background, this study will put a particularly strong emphasis on the description of the intervention and the context (see Chapter 6) (research pathway 1) and the search for mechanisms (i.e. PBF's theory) that were initiated by the PBF intervention (see Chapters 7, 8 and 10) (research pathway 2). We will also look at the framing and the policy process behind the intervention within the framework of its sustainability prospects (see Chapter 9).

**CHAPTER 2** 

# WHAT TO LOOK FOR? AN ACTOR-CENTRED ANALYTICAL FRAMEWORK

Note: This chapter is based on a IOB working paper. Renmans D, Paul E, Dujardin B. Analysing PBF through the lenses of the Principal-Agent theory. *IOB working paper*. Antwerp: University of Antwerp; 2016.

Some changes were made to fit the storyline of this thesis and to adjust for new knowledge.

Now that we have defined PBF and mapped out some specific research pathways, time has come to develop an appropriate framework to structure our knowledge and steer our attention. In this chapter, we propose a framework that will help us structure the plethora of study findings.

A first attempt to establish an analytical framework was undertaken by Bertone and Meessen (2013). However, as acknowledged by the authors, their framework mainly focuses on internal processes, leaving out important aspects such as patients' interests and context-related influences, and insufficiently apprehending issues related to information, monitoring and evaluation. Witter et al. (2013) came up with a more elaborate framework centred on the different implementation phases of PBF. It acknowledges that PBF programmes must be evaluated on the basis of a programme theory, but their framework lacks theoretical underpinning. Moreover, in this thesis, we focus more prominently on the roles played by various actors involved in PBF policies and implementation processes (see Chapter 4), a focus that is not on the forefront in the framework of Witter et al. (2013).

We therefore develop our own comprehensive analytical framework to complement the earlier developed ones. It is based on a theory that enables connecting to empirical research, which is known as the principal-agent (PA) theory. As we shall see below, this theory can be considered one of the underlying rationales of PBF since it pursues the same objective, namely, getting the interests of the agents—in our case, health providers (who are likely to be willing to be paid higher while putting in less effort)—in line with those of their principal—in our case, the Ministry of health (MoH) (which is likely to be willing to pay them less for increased efforts). In the remainder of this chapter, we integrate several of the lessons from the PA literature into our analytical framework of PBF. However, as argued in Chapter 1, PA theory is a good basis but lacks nuance and does not sufficiently account for every aspect of a wider view on PBF. We therefore need to incorporate lessons drawn from other streams in science (e.g. behavioural economics, social constructivism and selfdetermination theory). We use the PA theory as a guide, heuristic and stepping stone to a more nuanced, fitting and empirically based theory of PBF.

## **1. EXPLORING PRINCIPAL-AGENT THEORY AND PERFORMANCE-BASED FINANCING**

## **1.1** The principal-agent theory

The PA theory or agency theory belongs to the institutional economic current and analyses situations where an actor (called the principal) delegates a task and authority to another actor (called the agent) who receives a compensation for doing that task (Jensen & Meckling, 1976). For example, a gold seller (principal) may recruit a gold digger (agent) to dig for him. The principal will then compensate the gold digger (agent) according to a certain remuneration scheme. The PA theory tries to predict the most effective 'contract' (comprising a mix of remuneration scheme and sanction) to achieve optimum output or outcome, considering a number of constraints.

The PA theory is grounded on two basic assumptions. Firstly, the interests of the principal and the agent diverge and are independent. For example, the gold digger will avoid too much effort, while wanting to earn as much as possible (i.e. effort causes disutility while leisure and money entail utility). Concomitantly, the gold seller wants to get as much gold as possible, and pay the gold digger as little as possible (the agent's effort causes utility while the agent's remuneration causes disutility). An implicit assumption here is that both are rational entities who are opportunistic and only motivated by financial, materialistic selfinterest (model of homo economicus) (Cuevas-Rodríguez et al., 2012). Secondly, there is an information asymmetry between the principal and the agent. This entails that the agent is generally more knowledgeable about the situation and his own efforts and capacities, whereas the efforts put in by the agent are not always visible to the principal (Arrow, 1986; Ostrom et al., 2002). For example, a gold digger might be able to mine five kilograms each week, yet he might communicate to the principal that the ground is very solid and that he can only mine three kilograms. Consequently, he may dig the three kilograms during the first three days and rest during the other two. Or he can keep on digging and try to sell the two extra kilograms.

These two assumptions lead to a major problem that is commonly analysed by the PA theory, and called moral hazard (Laffont & Martimort, 2002). It refers to a situation wherein the agent does not bear the negative consequences of his actions. For example, the gold digger who uses parts of his time to rest or to work for himself while being paid by the gold seller. These actions performed by the agent against the interests of the principal are called 'shirking' or 'rent seeking behaviour', a tendency that is aggravated when assuming the model of homo economicus. Agency theory tries to predict how moral hazard can be mitigated by offering agents a remuneration scheme and associated contract that brings the

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agent's interests in line with the principal's interests. In many instances, the PA theory recommends linking pay with some measure of performance, which enables aligning the agent's objective function with the principal's (increasing outputs or outcomes). It is this linking of payments to the achievement of certain targets and the aligning of the different interests, that makes the PA theory such an interesting basis for an analysis of PBF.

A number of general lessons arise from the literature which will be discussed in the next section. Among other things: the importance of the observability of the targets, the existence of sources of motivations other than financial, and the finding that high-powered incentives are not the solution in all settings, especially where multi-tasking, multiple principles and difficult to measure outcomes are prevalent as is often the case in the public sector (see Paul & Robinson, 2007 for a survey of the literature on these matters).

#### 1.2 Performance-Based Financing and PA theory in the healthcare sector

In this section, we scrutinize the PA relationships at stake in the healthcare sector in developing countries where the donor or government (or the purchasing agency) can be viewed as a principal who delegates tasks aimed at improving health outcomes to a health facility or its health workers, who are thus viewed as agents. However, this is not the only PA relationship in a PBF setting: as we will see, many different actors are involved in PBF (verifying officers, patients, other stakeholders) which are interlinked in a network of PA relationships.

An information asymmetry occurs from the fact that it is difficult for the principals to observe whether health providers offer good quality services, while health providers' interests might diverge from those of the principal. PBF was initiated in order to mitigate these problems. However, lessons from the PA theory actually call for much caution in applying performance related payments to the public sector and especially the health sector: indeed, some of its specificities may actually modify the optimal 'contract' compared to a simple model (usually assumed to be the productive, private sector) (Paul & Robinson, 2007). The existence of PBF schemes as described by the wider definition is testimonial to this.

Importantly, as any PA contract, each PBF scheme is different (see Chapter 1). We can identify six main elements of its package which are subject to choice and correspond to the elements described in the wider definition: (1) governance arrangements, (2) a matrix of quantity and quality measures, (3) monitoring and verification arrangements, (4) financial incentives and their time schedule, (5) a dispute settlement mechanism and (6) ancillary components (e.g. training or workshops). Variations on each aspect of the package may lead

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# OPENING THE 'BLACK BOX' OF PERFORMANCE-BASED FINANCING IN THE HEALTHCARE SECTOR OF WESTERN UGANDA

to an infinite number of PBF models which can be adapted to local contexts. Note also that, differently from what the most basic comprehension of the PA theory and the *homo economicus* concept claims, PBF schemes may impact in varying ways and degrees on different sources of motivation of health workers: the financial one of course, but also social (through peer pressure, social recognition), moral (through external accountability) and intrinsic (through increased participation for instance) motivations (Lohmann et al., 2016; Paul & Robinson, 2007).

## 2. AN ACTOR-CENTRED ANALYTICAL FRAMEWORK FOR PBF

The framework we present in this chapter is centred on the main actors of a PBF scheme (financiers, ministry and purchasers, health providers, verification officers, patients). It further incorporates important dimensions like the context and other stakeholders, the contract, the positive and negative effects, and the costs and benefits (cf. Figure 2). Our framework thus deepens some dimensions touched upon by Witter et al. (2013) to take the advantage of the PA theory and include a number of lessons from this current of literature. This can help researchers and evaluators in identifying important aspects of PBF mechanisms – that otherwise risk to stay in the 'black box' of PBF.





Source: (Renmans, Paul, et al., 2016)

Below we discuss some of the main assumptions, flaws, and aspects pointed out by the PA theory that need to be critically assessed and that can guide evaluations of PBF.

## 2.1 Main principals (donors, government, purchasing agency)

Given the actor-centeredness of the framework we start its discussion with the four actors, beginning with the main principals. Earlier we have argued that in PBF schemes, the donors or government (or purchasing agency) act as principals of the PA contract – since

patients do not explicitly enter into a contract, we deal with them separately. These 'main principals' play a particularly important role at the 'policy development' and the 'implementation phase' of the framework of Witter et al. (2013). They often also have an important operational role, paying out the rewards and giving guidance to the PBF scheme in general.

While theoretical PA models are usually simplified, in reality there are often multiple principals, especially in the public and health sector which is characterized by a 'relation network' if we consider other PA relationships like hospital managers/health workers, patients/hospital managers, health funds/hospital managers, etc. (Liu & Mills, 2007a). This observation is 'often critical to understand agency relations' (Kiser, 1999, p. 151). Additionally, the health sector in developing countries is characterized by a high presence of international donors with their own objectives who may be very influential. The result of a lack of harmonisation between them may be that none of the principals' objectives are reached, because agency theory predicts that 'having multiple principals weakens the overall incentives for the agent to deliver to any one principal' (Easterly, 2005). Therefore, the level of ownership is an important aspect to take into account.

Values and (hidden) objectives (i.e. the political economy) that lay behind the implementation of a PBF scheme by a donor or government may equally have an important influence on the effectiveness of the PBF scheme and the choices made (Bertone & Meessen, 2013; Mooney, 2012). Likewise, as discussed in Chapter 1, the way the PBF is being framed may also have an important influence on its effectiveness. The pressure to disburse all committed funds may lead to an exaggerated reported success, an uncritical continuation of the PBF or a payment despite a negative evaluation (the Samaritan's dilemma) (Buchanan, 1975).

Finally, as with other programmes, it is needed to evaluate the (financial) sustainability of PBF. Indeed, many PBF schemes are initially (co-)financed by donors over a limited period of time, and it is not certain whether the recipient government will have sufficient resources or capacity to fund it after donors' exit<sup>27</sup>.

## 2.2 Agents (health providers)

Those in charge of improving health outcomes in the field, namely health providers (individual staff and facilities), are the agents in the PBF's PA relationship. Besides delivering

<sup>&</sup>lt;sup>27</sup> See also Witter and Bolton (2015) for a more thorough discussion of sustainability.
health services and reporting on their output, they may also participate in the design of the PBF scheme. These are critical actors as the success of PBF depends on their receptiveness towards it and their behaviour. Taking them into account during an evaluation is thus crucial.

Firstly, evaluators should look into the way positive/negative attitudes may influence the work environment and performance or even lead to obstruction (Frey, 1993). The same goes for the knowledge of the managers and the health workers on the arrangements (objectives, targets, etc.) of the PBF scheme, since a lack of it may impact its effectiveness (Ssengooba et al., 2012).

A second issue is the expertise and capacities of the health workers to provide quality services. This determines the outcome of the PBF but also the needed elements to be implemented next to the incentives (trainings, formative supervision, etc.). PBF gives more autonomy to the facilities and is thus based on the assumption that the local managers are better placed to come up with effective strategies. Therefore, the creativity and competence of the health managers to guide the facility towards better performance and to implement effective, innovative and locally adapted strategies is equally essential.

Thirdly, traditional PA theory perceives agents as *homo economicus* and warns against a number of possible perverse behavioural responses ('shirking'/'rent seeking behaviour') to high-powered incentive schemes such as PBF (see Table 4).

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Gaming	Agents take "actions that increase pay-outs from the incentive contract without improving actual performance" (Baker, 1992, p. 600). This may entail harmful and unsafe behaviour.
Cherry-picking	Only patients that make it easier to reach the target are being treated or work in rural and poorer health centres is being refused.
Task trade-off	The payment scheme "direct[s] the allocation of the agents' attention <i>among</i> their various duties" ( <i>original emphasis</i> ) (Holmström & Milgrom, 1991, p. 25) and among the different aspects of their duties (e.g. between quality and quantity) (Holmström & Milgrom, 1991; Langebrunner & Liu, 2005).
The blatant manipulation of information	Campbell's law states that "the more any quantitative social indicator is used for social decision-making, the more subject it will be to corruption pressures" (Campbell, 1976, p. 65).
Free riding	This occurs when a team member is trying to take advantage of a team effort without contributing to it (e.g. in the case of targets at the level of the health facility) (Laffont & Martimort, 2002; Ostrom et al., 2002), which may lead to reduced motivation among other health workers. On the other hand, Cuevas-Rodríguez et al. (2012) posit an alternative view: the best performing team members have an interest in encouraging their peers and monitoring the latter's performance, and thus improving everyone's performance.

Table 4: Perverse behavioural responses called 'shirking' or 'rent-seeking behaviour'

Source: (Renmans, Paul, et al., 2016)

The effect of these 'rent seeking behaviours' may not be underestimated and asks for specific research designs that incorporate qualitative research methods like observation, focus groups and interviews. However, the assumption of *homo economicus* is probably the most criticized of the PA theory (e.g. Sen, 2004). Research suggests that non-materialistic motivations (social, intrinsic and moral) may be more important than materialistic motivations (Minkler, 2004) (for a short overview see Liu & Mills, 2007c; Paul & Robinson, 2007); thus that the tendency to perverse behaviour may be less blatant.

This may even be more so in the health care sector where health workers often, yet not always, "are driven by an intrinsic motivation" (World Bank, 2003, p. 5) and have professional ethics which may limit rent-seeking behaviours. Moreover, it is probable that "the professional includes at least part of the patient's/client's interests in her own objectives" (Evans, 1984, p. 79), hence their utility functions and those of the main principals are not completely divergent.

Yet, according to some authors, the emphasis on materialistic and extrinsic motivation may crowd-out this intrinsic motivation and in turn enhance 'rent seeking behaviour' (Deci et al., 1999; Dickinson & Villeval, 2008; Frey & Oberholzer-Gee, 1997). However, intrinsic motivation can equally get crowded *in* by financial incentives or by other aspects of the PBF reform (Frey & Jegen, 2001; Lohmann et al., 2016; Pierce et al., 2012). More long-term research (of at least 5 years on the same subjects) is needed on the (intrinsic and extrinsic) motivation of health workers, both the self-reported and observed. Especially, since most of the research and theorisation on this topic is done in the context of high income countries. The level of the salaries before the incentives may have an important influence on the way the latter are perceived, which may mediate the crowding-in/out effect.

Another important aspect at the level of the health providers is the impact of the power relationships within the facilities (between the management and the health workers) on the implementation and, vice versa, the effect of the PBF on this. Do power relationships shift? How does this affect the functioning of the facility?

Moreover, one also has to consider whether PBF is sustainable for health workers. The increased workload may have an influence on the motivation and self-esteem of the workers in the long run (Kalk et al., 2010). Health workers may be pushed to a level that exceeds their possibilities, leading to a failure to obtain the targets and decreased motivation among them. However, improved infrastructure and an increased feeling of recognition may in turn improve the work-environment and self-esteem of the health workers.

# 2.3 Verification officers

Given the importance of monitoring in PA relationships and PBF schemes, the impact of this should be thoroughly investigated. The verification officers have the task to control the information reported from agents and bring them together to report to the main principals. This is either a newly created agency or a contracted independent firm; but it is also sometimes added to the tasks of the supervisors or another pre-existing entity. The relationship between the main principals and the verification officers is often constituted by a PBF contract; hence it can also be seen as a PA relationship, bringing along the same possible problems and opportunities discussed in the section on 'agents'.

An extra aspect to investigate is the possibility of 'collusion' between agents and verification officers. This happens when the two can communicate with each other and entails "a collective manipulation of the verification officers and the agent's individual reports" (Faure-Grimaud et al., 2003, p. 253). It is more likely when the two actors know each other and the covered area per verification officer is small. This should not be confused with conflict of interest, which may happen when the payment of the verifying officer is correlated with the performance of who (s)he controls. Both relate to the issue of independence and should be thoroughly investigated.

The person doing the verification may also be an important determinant of success. When a verification officer combines this role with a supervisory task, the latter may be affected by the former blurring their open and supporting relationship and jeopardising the training aspect of his/her task.

A final essential issue is the influence of the position in the institutional structure and the level of knowledge, authority and access of the verification officer on his/her ability to perform his/her work. Is the verification officer knowledgeable enough to understand the records, to distinguish good from bad practices? Is s/he able and does s/he have enough time to look into all the necessary books, to have access to every space at any time? Does s/he have the authority to question, change or reject collected data when manipulations are observed?

## 2.4 Benefitting principals (patients)

Evaluating a PBF programme also requires analysing its impact on patients as they are the final beneficiaries of every healthcare programme. Therefore, unlike others, our framework incorporates the patients as important actors. We acknowledge that health workers are not only the agents of the third-payer, but that they act as 'double agents' having patients as principals as well (Blomqvist, 1991). However, the role of patients as principals should be nuanced, given the lack of knowledge, the related difficulty to evaluate actions, and the fact that patients usually do not enter into an explicit contract with their healthcare provider. Moreover, in developing countries, patients often do not have the luxury to "choose with their feet" which has been seen as the "patients' last resource to constrain physicians to behave as 'better' agents" (Rochaix, 1989, p. 54). Therefore, we call them 'benefitting principals'.

Firstly, the needs and wishes (utility functions) of the patients need to be thoroughly investigated and not to be assumed, because improved health is not the only possible argument in the utility function of the patient. M. Ryan (1994) and Liu and Mills (2007b) highlight the importance of non-medical arguments. For example, getting information, getting a certificate, having someone that listens. The only common argument among patients seems to be satisfaction (Liu & Mills, 2007b). When doing an impact evaluation it thus may be relevant to look at the satisfaction of the patients. As the usual patient satisfaction surveys are not very accurate, other methods need to be explored.

Secondly, an important part of PBF schemes is the involvement of the community. They involve the patients, the community or their representatives in the verification or even the management of the services. Thus, the power relations between patients, government (or donors) and health providers may be differently affected by different PBF schemes, resulting in different outcomes. Moreover, the effectiveness of these participation mechanisms also depends on the socio-economic representativeness of the delegates and their ability to influence policies and hold health workers accountable.

Thirdly, the presence of two principals with different levels of power creates a risk of 'misdirected or upward accountability', which means that health workers stop being responsive to the needs of patients and instead are only accountable to the objectives of the 'main principals', i.e. the incentivised services. For example, taking a TB test to reach a certain target, to the detriment of the interest of the patient.

## 2.5 Context and other stakeholders

As acknowledged by Witter et al. (2013) and emphasized in Chapter 1, an important dimension to analyse when assessing a PBF scheme is the local context. As the PA school of thought is dominated by American scholars and empirical evidence from the USA; the standard PA theory is little adapted to the context of developing countries which is characterized by specific features and constraints, among which differing levels of motivation sources and information constraints (Paul, 2006). Similarly, despite the recent increase in studies in developing countries, the social, cultural, institutional, economic and

epidemiological embedding of relationships and personal characteristics are often neglected in research on PA relationships and PBF alike (Cuevas-Rodríguez et al., 2012; Lubatkin et al., 2007; Wiseman et al., 2012). This in spite of the fact that they influence the utility functions (interests) of principals and agents, the degree of opportunism (risk of moral hazard), the perception of rewards and payment schemes, and the preferred leadership styles (Cuevas-Rodríguez et al., 2012; Lubatkin et al., 2007; Wendt et al., 2009).

The local, national and international institutional context (including political and administrative norms, other policies being pursued by the actors – notably the Millennium Development Goals (MDGs) – power relations, the organisation of the health sector, the supply of drugs and equipment and the health facilities, etc.) have a direct influence on the most preferred and most appropriate design of the PBF and its outcomes.

Another aspect is the paying capacity of the purchaser. Uncertainty about the payment of the rewards or untimely payment may influence the effectiveness of financial incentives. Importantly, one should also include an analysis of the epidemiologic context since some diseases or health outcomes are more suitable to PBF-schemes than others (cf. measurability and attributability) (Eichler et al., 2009) and the best incentive mix will probably depend on the priority problems to be tackled (e.g. increasing coverage or improving quality of care) (Paul & Robinson, 2007).

Furthermore, a number of actors have been insufficiently considered by the PA theory and many PBF frameworks, while they are very influential in the health sector. These are the stakeholders defined as "any individual or group that has an interest … or is affected" (Cuevas-Rodríguez et al., 2012, p. 533) and are among others pharmaceutical companies, religious organisations, local and foreign NGOs, other health facilities, international institutions and organisations, etc. These may restrict the activities of the health workers and/or provide incentives that compete with or interact with the incentives of the PBF scheme. They may as well influence the utility function of the patients and the actions of the third payer organisations, and therefore the conception of the PBF scheme.

The interaction with and the effect on the aforementioned context and existing institutions should of course be an essential part of the research on PBF. How does PBF affect the trust between different actors, the work ethics, the organisation of the health sector, the health management information system, etc. Indeed, although Meessen et al. (2011) claim that PBF makes health workers more responsible in completing health information forms, it may also lead to the prettification or even manipulation of the data (cf. Campbell's law) making it useless as an information tool (see Lim et al., 2008). On the other hand, it may also be that the increased (formative) supervision increases the quality of both

the health actions and the reporting (Suh et al., 2007). The bigger question is whether PBF is solely an incentive programme with accompanying measures or a larger healthcare system reform capable to shake up the healthcare system (Meessen et al., 2011). And if the latter is the case, under which conditions.

## 2.6 Main elements of the PBF contract

As already stated, a PBF scheme implies choices concerning six elements. The PA theory states that these choices are essential, influence the opportunities for shirking/rent seeking behaviour (Eichler et al., 2009) and determine the outcome. Therefore, research should focus on the impact of the different components and their interactions. The framework of Witter et al. (2013) surely touches upon this issue, however we aim to go even more in depth on this issue.

Furthermore, it is important to distinguish between the implementation in theory and the *de facto* implementation as they may differ, which may explain unexpected effects. Even this difference may differ over time.

## **GOVERNANCE ARRANGEMENTS**

A first aspect to be assessed is the level of participation of the agents and stakeholders and of the interaction between the different actors (power relations) during the set-up and the implementation of the contract, including management freedom over the use of resources, decision power of the community (benefitting principals) and how local stakeholders accommodate theoretical PBF models (see Paul et al., 2014). Moreover, health workers have a certain degree of discretionary power to influence the implementation process and problems at the micro level of implementation may explain failure of PBF schemes (Lehmann & Gilson, 2013; Lipsky, 1979; Ssengooba et al., 2012).

An important part of PBF is the increased autonomy for the health facilities. It is assumed that they have better information than the principal, hence more autonomy should increase creativity and improve the strategies to reach the predefined targets/outputs (Fritsche et al., 2014). The level and breadth of the autonomy and the capacity of the supervisors (possibly the District Health Management Team) to guide facilities to actually use it may be an important factor of success/failure.

Another aspect of PBF is the separation of the different functions (verification officer, purchaser, regulator and provider) in order to secure independence and objectivity. As we have seen, collusion and conflict of interest can be detrimental to the effectiveness of a PBF.

Additionally, the specific governance arrangements produce specific power configurations that can strongly affect the implementation and the outcome of the PBF.

### **MATRIX OF QUANTITY AND QUALITY MEASURES**

Second, the choice of objectives – quantitative indicators, quality measures and targets – remunerated by the PBF scheme is critical as it will guide health workers' behaviour. The literature points to several requirements PBF indicators should respect, referred to as 'SMART': Specific, Measurable, Attainable, Realistic and Time bound (Doran, 1981). Others add that the indicators should be consistent with other objectives and targets, accepted by the health workers, challenging enough, oriented towards teamwork, easily attributed to the health workers' behaviour, observable and validated to measure what they are meant to measure (Liu & Mills, 2007c; Stiglitz, 1987). Any violation of these rules may lead to failure or underachievement. This is not to say that all PBF schemes should adopt similar measures; measures will be different depending on the context and the objectives put forward by the main principals. Moreover, according to the PA theory, too many measures and consequently targets may lead to a blurring of the focus and have a negative influence on the effectiveness of the scheme. Too few measures, however, may make it difficult to comprehensively measure performance.

Assessing the participation of the agents in the choice of indicators may also shed light on success or failure. Agents often have specific local information that is only available to the principal at a cost, especially when the principal is a foreign donor (cf. information asymmetry), this specific information can make a difference between effective and unreachable, unacceptable and/or useless measures. Therefore it is useful to analyse the priority setting phase since priorities may be forced onto the agents (and the governments) as shown by Sjöstedt (2013).

#### **MONITORING ARRANGEMENTS**

The information asymmetry can be tackled by monitoring systems – which is however done at a cost (Alchian & Demsetz, 1972). Different kinds of monitoring are part of a PBF scheme (verification of reported indicators, assessment of quality measures, supervisions, and contact tracing by private or community-based organisations). Moreover, within each kind of monitoring system, there is a plethora of possibilities on how to organize it (different verification officers, parallel or integrated information systems, different periodicity, systematically or samples). Decisions will be influenced by the level of trust between the health facilities and the principals. Evaluations should scrutinize the impact and effectiveness of the used monitoring arrangements and evaluate the rationale for choosing one and not another method.

### **FINANCIAL INCENTIVE ARRANGEMENTS**

Understandably, rewards should be clearly stated in the contract and communicated to health workers to have a maximum effect. Because financial incentives are central to the initial programme theory of PBF (PA theory), it is important that evaluation focuses on the way they are distributed among recipients (see for example Paul et al. (2014) who show that perceived unfairness in premium distribution among health workers is a critical issue jeopardizing PBF schemes in Benin) and the kind, height and timing of incentives.

### **DISPUTE SETTLEMENT MECHANISM**

Since targets are sometimes difficult to observe, it is also useful to look into the way the scheme handles situations when there is disagreement e.g. on the reports, attainment of targets or the exact provisions of the contract. This can be a completely new mechanism or can be aligned to already existing mechanisms, but adapting it to the local context will likely increase its credibility.

### **ANCILLARY COMPONENTS**

It is important to note that, as highlighted by Holmström and Milgrom (1994), incentive instruments should not be evaluated "in isolation, but as part of a coherent incentive scheme" (p. 990). In a PBF reform, such an incentive or reform package may comprise the earlier mentioned governance and monitoring arrangements but also trainings, workshops, planning and management tools, increased supervision. These elements of the package may be crucial for the success of PBF (for instance, Paul et al. (2014) found that health workers welcome additional supervision, while the effect of financial premiums is blurred); they may help increase human capacity, (intrinsic) motivation and/or the knowledge on the PBF itself and healthcare in general. They may complement financial incentives by acting on non-materialistic sources of motivation or interact with the incentives strengthening or weakening some of the discussed negative and positive effects.

## 2.7 Effects (positive and negative)

The seventh aspect to investigate are the effects of the PBF scheme, including those unexpected and those needing a longer time to materialize (e.g. the health outcomes). Performance should be clearly defined and conceptualized before initiating any impact evaluation. In doing so, it is advised to go further than dully copying the indicators that appear in the Health Management Information System or the matrix of indicators (see for example Bawo et al., 2015).

The objectives of PBF may differ between countries, schemes and interventions: the improvement of the health situation of a certain population or region, the promotion of universal health coverage, the improvement or reform of the health care system, the introduction of certain new health care system functions (e.g. verification), the improvement of accountability, the motivation of health workers, etc.. This difference in objectives should be reflected in research as well.

Importantly, when doing research at such a general level of impact the problem of attribution occurs; however, using the right methodology and being clear on what is being studied can help to a great extent to circumvent this problem. An important starting point is the design of the PBF scheme, e.g. the link between the targets and the studied objective.

When it comes to the health outcomes, the impact on the quality of care and services is very much relevant, because increased quantity is not automatically associated with increased quality. Indeed, even a trade-off may occur. At the same time, it should be acknowledged that quality is a multifaceted concept and that it may not be possible to grasp every single element of it.

The aim of universal health coverage is to give accessible, quality healthcare for everyone. Thus, the possible impact on geographical inequality between health facilities is another important aspect to examine. It may be that better equipped health centres have an easier task to achieve targets. Similarly, the size of the catchment population strongly influences the number of patients a facility can serve. Both may lead to an aggravation of an already problematic inequality between urban and rural facilities. This can also reinforce the 'inverse care law' since the more poor are usually serviced by the least-performing facilities. The effect of the inclusion of specific targets/indicators related to such inequities deserves a thorough examination.

Finally, the effect on how the system functions, and how pre-existing institutions and the set-up of the local health system get strengthened or changed, may be crucial. Using it in order to enhance the implementation of other reforms is increasingly becoming common practice (e.g. Josephson, 2017).

## 2.8 Costs and benefits

Although it is important to investigate the effects of PBF, this does not suffice to make a sound judgment on the use of PBF as a policy (instrument). Reporting on its effectiveness

should be accompanied by research on its efficiency. A thorough cost-benefit analysis may be an important tool to compare the efficiency of a PBF with other performance improvement strategies that aim to achieve the same results (Ireland et al., 2011; Jensen & Meckling, 1976; Mills, 2014; Paul & Robinson, 2007). Such an analysis of the costs and benefits should take account of the cost attributed to monitoring, performance premiums, and the transaction costs due to increased administrative burdens and possible other economic costs (Borghi et al., 2015; Ireland et al., 2011). While at the same time accounting for the benefits that come from the incentives and from the other aspects of the reform package. Importantly, these other reforms may have become possible because of its embeddedness in a PBF programme.

However, it should also be noted that not all costs or benefits are easily quantified or translated into financial gains or losses (e.g. increased or decreased trust levels, teamwork, perception of fairness, equity, improved transparency, improved accountability, community participation, etc.), some PBF interventions' main objective might be to put in place or strengthen certain functions within the system as a step-up to another reform (e.g. national health insurance (Josephson, 2017)) which is impossible to translate into costs or benefits. Therefore it is essential that any cost-benefit analysis is accompanied by a more qualitative assessment that takes into account the actual objectives of the intervention/policy.

Table 5 summarizes the different dimensions and elements of our framework that will guide the literature review in Chapter 3.

Dimensions	Elements	Dimensions	Elements
1. Main principals (donors, MoH, etc.)	<ul> <li>Harmonisation</li> <li>Hidden objectives and values</li> <li>Political economy and framing</li> <li>Ownership</li> <li>Sustainability</li> <li>Samaritan's dilemma</li> </ul>	6. Contract	<ul> <li>Implementation</li> <li>Governance arrangements (participation and interaction between agents, ownership, etc.)</li> <li>Matrix of indicators &amp; quality measures</li> </ul>
2. Agents (health providers)	<ul> <li>Perception and acceptance of PBF and its components</li> <li>Rent seeking behaviour (gaming, manipulation of info, cherry picking, task trade off, free-riding)</li> <li>Motivation of health workers</li> <li>Facility level changes</li> <li>Work environment and relations between health workers</li> <li>Knowledge of PBF</li> </ul>		<ul> <li>(participation, measurability, attributability, 7 requirements)</li> <li>Monitoring &amp; Evaluation arrangements (different options and effect on quality of services and Health Management Information System)</li> <li>Financial incentive arrangements (appropriateness, height and timing)</li> </ul>
<ol> <li>Verification officers</li> <li>Benefitting</li> </ol>	<ul> <li>Scrutinise PA relationship between verifier and funder</li> <li>Collusion and conflict of interest</li> <li>Capacity</li> <li>Decision making power</li> <li>Needs and wishes (utility</li> </ul>		<ul> <li>Dispute settlement mechanism (new mechanism?, local context)</li> <li>Ancillary components (effect on non-materialistic motivation)</li> </ul>
principals (patients) 5. Context	<ul><li>function)</li><li>'Misdirected accountability'</li><li>(Ways of) participation</li><li>Social and cultural context</li></ul>	7. Effects	<ul> <li>Health impact</li> <li>Quality of care and services</li> <li>Inequality</li> <li>Sustainability</li> </ul>
and stakeholders	<ul> <li>Institutional context (norms, laws, other policies, other sectors, etc.)</li> <li>Economic context</li> <li>Epidemiologic context</li> <li>Other stakeholders (religious organisations, pharmaceutical companies, etc.)</li> </ul>	8. Costs and Benefits	<ul> <li>Costs related to monitoring, premiums, transaction costs, other economic costs</li> <li>Comparison with other programmes</li> <li>Wider benefits (reforms)</li> </ul>

Table 5: Dimensions and elements of the framework

Source: (Renmans, Holvoet, et al., 2016)

# **3.** CONCLUSION

In this chapter, we have developed a comprehensive, actor-centred analytical framework based on the assumptions and predictions raised by the principal-agent theory and the known shortcomings and pitfalls of this theory. The framework aims to structure research and evaluations of PBF. It is built around eight dimensions: principals (government, donors,...), agents (health providers), verification officers, benefitting principals (patients), context and other stakeholders, the PBF contract and its constituting elements, positive and negative effects, and costs and benefits.

We posit that PBF schemes are a package and may differ over six distinct elements shaping their 'contract': (1) governance arrangements, (2) matrices of indicators and quality measures, (3) monitoring arrangements, (4) financial incentives and time schedule, (5) dispute settlement mechanisms and (6) ancillary components. The importance of the first research pathway ('describing PBF') is thus emphasised: if progress is to be made in building a sound theory of PBF, one needs to be clear on the very subject of investigation, and on the factors that lead to the observed effects of PBF programmes.

# **CHAPTER 3**

# WHAT WE THINK WE KNOW IS IN THE BLACK BOX: A REVIEW OF THE LITERATURE

Note: This chapter is an updated version of our literature review published in 2016 which included studies up to 2015: Renmans D, Holvoet N, Orach C G, & Criel B. 2016. Opening the 'black box' of performance-based financing in low- and lower middle-income countries: a review of the literature. *Health Policy and Planning*, **31**: 1297-309

Studies published between 2016 and 2018 were added in this chapter. The search was done on 8-9<sup>th</sup> January 2018.

Kendrick Lamar - Poetic Justice

Taking stock of what has already been researched and found is an inherent part of every research. There is no need to reinvent the wheel. In the research setup of this thesis, reviewing the literature is even more important as it is needed to create an initial programme theory. Using the definition from Chapter 1 and the analytical framework from Chapter 2, we have performed an extensive systematic literature review of the studies published in international peer-reviewed journals.

Unlike other reviews (see Das et al., 2016; Eldridge & Palmer, 2009; Witter et al., 2012), ours does not focus on results *per se*, but rather on trying to answer the following research questions: What changes (in behaviours of the different actors and the work environment) are being initiated through the implementation of a PBF scheme and how does it tie in with other elements of the context? What has research thought us about PBF and the changes it initiates? This is somewhat in line with the review of Miller and Babiarz (2013), but the latter focused on the effects of any kind of financial incentive in the health sector, while ours is restricted to PBF schemes. Moreover, our scope goes beyond the study of possible perverse effects and the 'what', 'how' and 'who to reward' questions. More specifically, we intend to open up the 'black box' of PBF and look at what research has taught us so far about the effects of PBF schemes on different aspects of health service delivery. Our earlier developed analytical framework is a useful guide to such an endeavour (see Chapter 2).

# **1. METHODOLOGY**

An essential starting point for a review on such a heavily debated topic is a definition of the study subject. In Chapter 1 we clarified that the often used narrow definition (which defines PBF as just financial incentives) is not only out of touch with reality but also inadequately captures the advancement of knowledge on the mechanisms of PBF. We therefore proposed a broader definition:

"performance-based financing is a supply-side reform package that is guided towards improved performance (defined as increased predefined services and improved quality measures) by using performance-based financial incentives for health providers (facilities and/or workers) through internal contracting and strengthening this with most or all of the following elements: a separation of functions (purchaser, provider, regulator, verifier), (spending) autonomy for the health facilities, strict monitoring and verification of services, community involvement, result-based planning and accountability arrangements."

Within the framework of this literature review, we opt for a middle ground and consider PBF as an incentive scheme directed to health providers (facilities and/or health workers), but accompanied by an increased level of autonomy of the health facility (e.g. to decide on the use of resources), increased monitoring and a separation of functions between the purchaser, regulator, provider, and/ or the newly created verifier of health services (see Figure 3).



Figure 3: Operational defintion of PBF

Source: (Renmans, Holvoet, et al., 2016)

## 1.1. Search strategy

We searched the online databases Wiley Online, PubMed and ScienceDirect using the search words and filters presented in Table 6. Our inclusion criteria were the following: original research article; observations clearly related to PBF; PBF corresponding to the aforementioned operational definition; focus on low- or lower middle-income countries according to the classification used by the World Bank (World Bank, 2018a); and published in an internationally peer-reviewed journal. Our exclusion criteria were the following: a review article; an editorial; a meeting abstract; the research population being unsalaried health workers; and the link between PBF and the observations is not clear. After an initial screening based on the title and abstract of the articles we scrutinised the remaining articles to check against our inclusion criteria.

Database	Search words	Filters
PubMed	"Reimbursement, Incentive"[Mesh] OR "performance-based financing" OR "performance-based incentives" OR "P4P" OR "payment for performance" OR "Result-Based Financing" OR "Pay for performance"	Publication dates: 2000/01/01 - 2017/12/31
Wiley Online	"performance-based financing" OR "performance-based incentive" OR "results-based financing" OR "P4P" OR "pay for performance" OR "payment for performance"	In All Fields Date range: 2000 – 2017 Publication type: Journals
	"Incentive" AND "health"	In Abstract (incentive); In All Fields (health) <b>Date range:</b> 2000 – 2017 <b>Publication type:</b> Journals
ScienceDirect	"Incentive AND health" OR "performance-based financing" OR "performance-based incentives" OR "P4P" OR "payment for performance" OR "Result-Based Financing" OR "Pay for performance"	In Abstract, Title or Keyword Date range: 2000 – 2017 Publication type: Journals: article Sciences: in 'arts & humanities', 'medicine and dentistry', 'nursing & health professions', 'psychology', 'social sciences'

## Table 6: Used search words and filters

Source: (Renmans, Holvoet, et al., 2016)

# 2. RESULTS

The initial search of the databases generated 12315 hits (see Figure 4) of which 97 articles remained for closer scrutiny after we screened the titles and abstracts and deleted duplicates. The main reasons for deletion were as follows: focus on high-and higher middle-income countries; reviews, editorials, or comments; or because they did not discuss PBF. After reading all articles, we concluded that 56 of them met our criteria, while the remaining studies were deleted because they were either not original research, the intervention was not in compliance with our definition, or the link between the PBF and the results was unclear. We subsequently added 15 articles found through the reference lists of articles already included, brought to our attention by colleagues, or from our own literature list. Table 7 gives an overview of the 71 articles that fulfilled our inclusion criteria and are used in the review.

In terms of geographic focus, there is a clear bias towards African countries, with a predominance of studies in Rwanda (17), Tanzania (10) and Burundi (9). However, studies from other countries are increasingly being published. We also observe that the subject is becoming progressively popular; with the number of studies increasing from thirteen articles until 2013, to twenty two in 2014 and 2015 together, and finally, 24 in 2017 alone.





Source: Adapted from Renmans, Holvoet, et al. (2016)

	Country Article		Country	Article	
1	Armenia	(Petrosyan et al., 2017)	37		(Meessen et al., 2006)
2		(Paul et al., 2014)	38		(Soeters et al., 2006)
3	3 Benin	(Antony et al., 2017)	39		(Meessen et al., 2007)
4		(Paul et al., 2017)	40		(Rusa et al., 2009)
5	Purking Eaco	(Turcotte-Tremblay et al., 2017)	41		(Kalk et al., 2010)
6	Burkina raso	(Ridde et al., 2018)	42		(Basinga et al., 2011)
7		(Falisse et al., 2012)	43		(Skiles et al., 2013)
8		(Bertone & Meessen, 2013)	44		(Binagwaho et al., 2014)
9		(Peerenboom et al., 2014)	45	Rwanda	(Zeng et al., 2014)
10		(Bonfrer, Soeters, et al., 2014)	46		(de Walque et al., 2015a)
11	Burundi	(Bonfrer, Van de Poel, et al., 2014)	47		(Janssen et al., 2015)
12		(Falisse et al., 2015)	48		(Lannes, 2015)
13		(Rudasingwa et al., 2015)	49		(Skiles et al., 2015)
14		(Rudasingwa & Uwizeye, 2017)	50		(Lannes et al., 2016)
15		(Rudasingwa et al., 2017)	51		(Nahimana et al., 2016)
16		(Khim & Annear, 2013)	52		(Ngo et al., 2017)
17	17	(Matsuoka et al., 2014)	53		(Schriver et al., 2017)
18	Cambodia	(Van de Poel et al., 2016)	54	Sierra Leone	(Bertone et al., 2016)
19		(Khim, 2016)	55		(Chimhutu et al., 2014)
20		(Khim et al., 2017)	56		(Manongi et al., 2014)
21		(Njoumemi & Fadimatou, 2013)	57		(Olafsdottir et al., 2014)
22		(Flink et al., 2016)	58		(Binyaruka et al., 2015)
23	Cameroon	(Sieleunou, Turcotte-Tremblay, Yumo, et al., 2017)	59	Tanzania	(Borghi et al., 2015)
24		(Sieleunou, Turcotte-Tremblay, Fotso, et al., 2017)	60	Tanzania	(Chimhutu et al., 2015)
25	Chad	(Kiendrébéogo et al., 2017)	61		(Chimhutu et al., 2016)
26	DR Congo	(Soeters et al., 2011)	62		(Anselmi et al., 2017)
27	Diveoligo	(Fox et al., 2014)	63		(Binyaruka & Borghi, 2017)
28	8	(Wilhelm et al., 2016)	64		(Mayumana et al., 2017)
29		(Brenner et al., 2017)	65	Uganda	(Ssengooba et al., 2012)
30	30 Malawi 31	(Chinkhumba et al., 2017)	66	Zambia	(Shen et al., 2017)
31		(Kambala et al., 2017)	67	Zimbabwe	(Feldacker et al., 2017)
32		(Lohmann et al., 2018)	68	28 countries *	(Josephson et al., 2017)
33	Mali	(Seppey et al., 2017)	69	20 00010103	(Gergen et al., 2017)
34		(Ogundeji et al., 2016)	70	10 countries #	(Shroff, Bigdeli, et al., 2017)
35	<b>35</b> Nigeria <b>36</b>	(Bhatnagar & George, 2016)	71	3 countries §	(Barnes et al., 2015)
36		(Mabuchi et al., 2018) <sup>28</sup>			

# Table 7: Included articles

 \* Afghanistan, Armenia, Benin, Burkina Faso, Burundi, Cameroon, Congo, Democratic Republic of Congo, Djibouti, The Gambia, Haiti, Ivory Coast, Kenya, Kyrgyz Republic, Laos, Lesotho, Liberia, Malawi, Mozambique, Nigeria, Rwanda, Senegal, Sierra Leone, Tajikistan, Tanzania, Uganda Vietnam, Zambia # Armenia, Burundi, Cambodia, Cameroon, Chad, Kenya, Mozambique, Rwanda, Tanzania, Uganda.
 § South Africa, Tanzania, Zambia

Source: Adapted from Renmans, Holvoet, et al. (2016)

<sup>&</sup>lt;sup>28</sup> This study was published in early access in 2017, but published in 2018.

One initial interesting observation is that PBF schemes differ on almost every single of the six 'contract' elements described in Chapter 2. This is consistent with the findings from Eldridge and Palmer (2009) who highlighted in their review that the 27 PBF schemes under study differed considerably with respect to the nature of the actors involved, the matrix of indicators and the incentive arrangements used. However, as evidenced in the remainder of this chapter, this diversity has not been reflected by research focusing on the specific impact of these different arrangements.

The discussion below is based upon an in-depth review of the 71 articles and structured according to the eight dimensions of the analytical framework discussed in Chapter 2. The study limitations are highlighted at the end of this section.

# 2.1 Main principals

Notwithstanding the 2005 Paris Declaration on Aid Effectiveness<sup>29</sup> (OECD, 2005), a lack of harmonisation in terms of approaches and payment levels within one country remains problematic (Fox et al., 2014; Gergen et al., 2017; Paul et al., 2014). This has severe repercussions on the feasibility of national expansion of a PBF project and can contribute to a feeling of unfairness when different levels of incentives are used across different schemes in the same country (Paul et al., 2014).

Another important issue on the table since the Paris Declaration is ownership. Research shows that foreign donors (especially the World Bank) have a strong influence on the launching, funding and initial implementation of PBF in LMIC through international agenda-setting (e.g. Millennium Development Goals, the Aid Effectiveness Agenda), the provision of funds (e.g. the World Bank's Health Results Innovation Trust Fund), or lobbying (e.g. study trips to countries implementing PBF, dissemination of positive results of small pilots in the country, trainings and workshops), often leaving little space for a thorough needs assessment or alternative ideas (Barnes et al., 2015; Chimhutu et al., 2015; Khim et al., 2017; Kiendrébéogo et al., 2017; Paul et al., 2017; Petrosyan et al., 2017; Shroff, Bigdeli, et al., 2017; Sieleunou, Turcotte-Tremblay, Fotso, et al., 2017; Wilhelm et al., 2016). Moreover, the PBF design is often similarly dominated by foreign donors. Bertone and Meessen (2013) indicate that the "underlying philosophy of a project [and in this case the donor] can influence the institutional rearrangement that its implementers are prepared to

<sup>&</sup>lt;sup>29</sup> An agreement among donors and recipient countries to focus on five principles: ownership, alignment, harmonisation, managing for results and mutual accountability (see OECD, 2005).

put in place" (p. 8). Similarly, Chimhutu et al. (2015) find that the government was not the driving force and even often ignored in the decisions on PBF in Tanzania. Kalk et al. (2010); Rudasingwa and Uwizeye (2017), and report health workers' complaints about not being included in the design process, which in some cases led to indicators that mainly correspond to donor priorities and suffer from a lack of local embeddedness. This lack of ownership is also exemplified in the structure of some of the PBF projects, as international organisations take up management and verification roles due to the high complexity and technicality of the implementation modalities (Antony et al., 2017; Kiendrébéogo et al., 2017).

Importantly, ownership is a two-way process and the foreign donors' dominance can often be explained by the going together of a government eager to implement PBF, but lacking the required technical expertise (Khim et al., 2017; Shroff, Bigdeli, et al., 2017). Therefore, ownership can be strengthened by increasing the expertise on PBF among the different levels of the healthcare systems (from the facilities up until the national level) through close involvement of local stakeholders and experts from the very beginning onwards (Nahimana et al., 2016; Shroff, Bigdeli, et al., 2017; Sieleunou, Turcotte-Tremblay, Yumo, et al., 2017; Wilhelm et al., 2016).

However, this does not mean that governments cannot take ownership later in the process. Van de Poel et al. (2016) and Khim et al. (2017) clarify that the Cambodian government opted, against the wishes of the international health partners, for a contractingin approach instead of a contracting-out approach after reviewing the different donor-led pilot projects.

The issue of ownership is not only a matter of democratic legitimacy (Sieleunou, Turcotte-Tremblay, Yumo, et al., 2017), a lack of it may lead to obstruction, impede the project's correct implementation, and hamper its integration in the national healthcare system (Kiendrébéogo et al., 2017; Sieleunou, Turcotte-Tremblay, Yumo, et al., 2017). According to Kiendrébéogo et al. (2017) such ownership should not just be limited to the Ministry of Health but include other ministries as well. In Armenia, the Ministries of Finance and of Territorial Administration, and the Provincial Governor's offices were all closely involved together with the Ministry of Health (Petrosyan et al., 2017). A low level of ownership is equally detrimental for (financial) sustainability (Seppey et al., 2017), as the important and uncertain financial role played by donors impedes long-term budgeting (Peerenboom et al., 2014; Wilhelm et al., 2016). Whereas the national scale-up in Burundi

points to a certain long-term coherence, the budget for it remains largely aid-dependent and thus fragile (Falisse et al., 2015).<sup>30</sup> Mobilizing domestic funds is thus essential for full ownership and real sustainability (Shroff, Bigdeli, et al., 2017) as has been seen in Armenia (Petrosyan et al., 2017).

# 2.2 Agents

Studies reveal that the health workers' overall perception on PBF is mixed. On the one hand, it appears that many health workers have a positive stance towards PBF, mainly because of an increase in salary, but also because of: perceived positive effects on motivation, and the quality and volume of services; better access to information, more training, and a feeling of recognition and accomplishment; an improved working environment and improved knowledge; more qualified co-workers and a clearer job description, more autonomy. (Bertone et al., 2016; Bertone & Meessen, 2013; Bhatnagar & George, 2016; Chimhutu et al., 2014; Feldacker et al., 2017; Kalk et al., 2010; Lohmann et al., 2018; Manongi et al., 2014; Ridde et al., 2018; Rudasingwa & Uwizeye, 2017; Shen et al., 2017; Wilhelm et al., 2016) Interestingly, Bertone et al. (2016) and Chimhutu et al. (2016) show that health workers are more positive towards the performance-based incentives than their salary, because they see it as a complement with "less sense of entitlement (p. 6) or "a gift" (p. 8) respectively. Nevertheless, in Sierra Leone health workers still preferred a salary increase (Bertone et al., 2016).

On the other hand, health workers do have a number of criticisms concerning the increased workload but also the way certain PBF schemes are implemented: dissatisfaction with the allocation method of allowances, the occurrence of nepotism, the level of the payments, a lack of clarity, a feeling of unfairness, the too frequent verification visits, a lack of contract enforcement, insufficient increase of resources and of staff to cope with the increased number of patients (Bhatnagar & George, 2016; Chimhutu et al., 2016; Fox et al., 2014; Kambala et al., 2017; Khim & Annear, 2013; Paul et al., 2014; Ridde et al., 2018; Rudasingwa & Uwizeye, 2017; Shen et al., 2017). There are also more general points of criticism expressed by health workers such as frustration about the conflict between targeted and untargeted tasks, a negative perception of PBF as a controlling mechanism

<sup>&</sup>lt;sup>30</sup> Although Rudasingwa and Uwizeye (2017) claim, based on the World Bank PBF toolkit (Fritsche et al., 2014), that the share of the Burundian is substantial.

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leading to anxiety and fear, insufficient attention for the constraints faced by health workers and the dependence upon donor funding (Kalk et al., 2010; Lohmann et al., 2018; Paul et al., 2014; Schriver et al., 2017).

The acceptance of PBF is closely related to the health workers' motivation. PA theory, which in a way underpins PBF (see Chapter 2), assumes that they act along the lines of the *homo economicus* model, which posits that health workers are mainly motivated by financial and self-regarded interests and act rationally to obtain them. However, several studies report expressions of non-financial motivation (like recognition) by health workers (Kalk et al., 2010; Khim, 2016; Olafsdottir et al., 2014; Wilhelm et al., 2016).

While systematic research on the crowding out/in of intrinsic motivation within the framework of PBF is either unpublished due to inconclusive results, ongoing or still in the process of being published, some studies do mention the issue. Bertone and Meessen (2013) observed in Ngozi, a Burundian province, that the bonus was gradually perceived as a right and a fixed extra which may have led to less intrinsic motivation. Yet, it has also been reported that PBF through its closer support, increased resources, and clear tasks and objectives increases health workers' responsibility, feeling of appreciation, motivation<sup>31</sup>, morale, pride, commitment and satisfaction (Bhatnagar & George, 2016; Chimhutu et al., 2014; Khim, 2016; Lohmann et al., 2018; Manongi et al., 2014; Mayumana et al., 2017; Paul et al., 2014; Shen et al., 2017; Wilhelm et al., 2016). Improved attitudes towards the patients and the use of the own bonuses to improve the work environment can also be seen as indicators of improved intrinsic motivation (Mayumana et al., 2017; Ogundeji et al., 2016; Shen et al., 2017). However, in the long term, increased workload might eventually lead health workers to "feel constantly tired" (Kalk et al., 2010, p. 185), to take the premiums for granted reducing their motivation or "to feel blasé about PBF" (Paul et al., 2014, p. 212).

Although the consensus is building that crowding-out is not a significant problem, the mere observation that extrinsic motivation is an important facet of health workers' motivation warrants a closer look at 'rent-seeking behaviour' or shirking. A first form is called gaming and has been observed in several PBF schemes. In Rwanda, the PBF programme aimed to reduce stock depletion. However, health workers refused to distribute the last boxes of medicine creating a *de facto* stock depletion yet still reaching the target (Kalk et al., 2010). In Tanzania, health facilities deployed harmful strategies to attract women

<sup>&</sup>lt;sup>31</sup> Although not confirmed by research by Anselmi et al. (2017) in Tanzania nor by Shen et al. (2017) in Zambia.

to deliver at the facility by telling them that they would otherwise receive a fine or be denied vaccinations (Chimhutu et al., 2014). While in Burkina Faso, health workers prepared the scene before a verification visit, including temporarily changing patients' worn out mattresses and discharging patients under observation (Ridde et al., 2018).

Another side-effect is related to task trade-offs. Kalk et al. (2010) notice that practitioners became frustrated because of the limited time available, which made them choose between necessary activities in the intensive care unit and those needed for rewards (e.g. filling out forms). Binyaruka et al. (2015) even found a significant reduction in nontargeted outpatient visits, possibly due to the data generation and verification activities (see also Janssen et al., 2015). In a PBF scheme focused on male medical circumcision the health workers left their other patients in order to perform circumcisions (Feldacker et al., 2017). Other studies found that the greatest increase of utilisation was observed for the services that generated the highest incentive (Basinga et al., 2011; Chimhutu et al., 2014). Whereas respondents in Rudasingwa and Uwizeye (2017)'s study emphasize non-incentivized services were not neglected, the incentivized services did receive more time and attention, mainly because of more careful documentation. In contrast, Binyaruka and Borghi (2017) show improvements in the availability of drugs linked to both incentivized and non-incentivized services, while Ngo et al. (2017) found that also "untargeted inputs like provider availability will respond if deemed important by providers" (p. 17). Yet, this study also shows that structural quality improvements not related to incentivized services were limited, which supports the claim that resources are shifted from untargeted to targeted services.

Cherry-picking is closely related to task trade-off but it concerns the choice *between patients* instead of *between tasks*; yet it receives much less attention in the literature. Lannes et al. (2016) found, using impact evaluation data, that 'easier to reach' patients (the less poor) were mainly focused on by the health workers in Rwanda, while Skiles et al. (2013), using less disaggregated data from the Rwandan national Demographic and Health Survey, did not find evidence that it would favour urban communities or wealthier quintiles.

A rather difficult issue to monitor is free-riding, which explains the lack of studies and observations on the issue. Khim and Annear (2013) report the importance of peer pressure to enhance performance and discourage free-riding.

The last form of 'rent-seeking behaviour' is the intended manipulation of reports. Several studies (Kalk et al., 2010; Lohmann et al., 2018; Ridde et al., 2018; Rudasingwa & Uwizeye, 2017; Turcotte-Tremblay et al., 2017) report manipulations such as the arbitrary and retrospective filling of forms and the falsification of community verification reports. By contrast, Khim and Annear (2013) state that the misreporting had decreased in Cambodia

'thanks to regular monitoring, random verification and the availability of web-based reporting' (p. 245).

Contrary to these observations of negative effects, positive influences on health workers' behaviour and facilities' strategies are also shown. Studies report an increase of professionalism and respect of national norms, reduced absenteeism, more cooperation, improved provider availability, facility management, awareness of tasks, self-sufficiency, diligence, dynamism and innovativeness, and more focus and efficiency (Bhatnagar & George, 2016; Kambala et al., 2017; Lohmann et al., 2018; Ngo et al., 2017; Ogundeji et al., 2016; Paul et al., 2014; Rudasingwa & Uwizeye, 2017; Shen et al., 2017). The interaction with the patients also seems to have improved (Kalk et al., 2010; Khim & Annear, 2013; Paul et al., 2014; Ridde et al., 2018; Rudasingwa & Uwizeye, 2017). In several countries, PBF led to more outreach activities<sup>32</sup>, to more responsiveness towards stock outs, and to new initiatives to increase the performance on the indicators, e.g. lower treatment costs, new services, incentives for pregnant women (Bhatnagar & George, 2016; Bonfrer, Soeters, et al., 2014; Chimhutu et al., 2014; Janssen et al., 2015; Mabuchi et al., 2018; Mayumana et al., 2017; Ogundeji et al., 2016; Seppey et al., 2017). Ngo et al. (2017) also show that in Rwanda the staff composition changed: the 'non-medical, non-managerial support staff' decreased with 47%. These strategies depend, however, on the quality of the facility management, which underscores the importance of a capable manager able to conduct performance management (Mabuchi et al., 2018; Ogundeji et al., 2016), of sharing effective strategies between facilities (Nahimana et al., 2016), or of the creation of new institutions that strengthen the health facilities' management and planning capacity (Manongi et al., 2014; Peerenboom et al., 2014). Indeed, the health facility as a whole and its specific local context are important determinants of success and large variations may exist between facilities (Mabuchi et al., 2018).

PBF can also have an influence on existing norms at the facility level. Incentives at the health facility level may foster team spirit and staff dynamics towards a common goal (Bhatnagar & George, 2016; Kalk et al., 2010; Lohmann et al., 2018; Mayumana et al., 2017; Ridde et al., 2018; Shen et al., 2017; Wilhelm et al., 2016) and "direct and transparent payment ... as well as more frequent contact with their managers" enhances trust and team relationships (Mayumana et al., 2017, p. 64). While Paul et al. (2014) remark that the PBF scheme did not seem to improve collaboration and teamwork between the different levels

<sup>&</sup>lt;sup>32</sup> Although not confirmed by Anselmi et al. (2017) and Mayumana et al. (2017) in Tanzania.

of the health system in Benin. In Rwanda, Janssen et al. (2015) do report increased dynamism between actors at different levels, and Seppey et al. (2017) found that PBF united all different stakeholders but this faded once the project came to an end.

The trust levels at a facility are especially fragile, and research shows that it is possible that a sense of unfairness and perception of nepotism or favouritism may settle in the health workers' minds, depleting trust levels among the health workers and between them and their superiors (Feldacker et al., 2017; Khim & Annear, 2013; Paul et al., 2014; Rudasingwa & Uwizeye, 2017). This is especially the case when only one specific service/department receives the incentives (Feldacker et al., 2017). PBF also introduces a certain level of competition to the facility and a need for 'social marketing', yet not necessarily to the detriment of colleagues or other facilities (Bertone et al., 2016; Bhatnagar & George, 2016; Lohmann et al., 2018).

Finally, as a PBF scheme strongly relies upon the health workers' actions it is essential that they have a good understanding of the contract, a concern raised by health practitioners themselves (Paul et al., 2014). Indeed, Ogundeji et al. (2016) state that "[p]articipants who understood the scheme appeared to be more highly motivated" (p. 959). A lack of knowledge and understanding of the PBF scheme is nonetheless widespread and an important contributing factor to underperformance (Fox et al., 2014; Janssen et al., 2015; Ogundeji et al., 2016; Ridde et al., 2018; Seppey et al., 2017; Ssengooba et al., 2012). High turnover and a lack of training of newly recruited staff members exacerbate this knowledge gap (Ridde et al., 2018; Seppey et al., 2017).

# 2.3 Verification officer

The study of Fox et al. (2014) underscores the importance of the introduction of a strong verification officer to detect fraud and rent-seeking behaviour. Firstly, according to Fox et al. (2014), a 'strong verification officer' means an agency or organisation, created for or assigned to the purpose of verifying the reported services, with enough authority to check the reports sent to them for deliberate errors and faults. This appeared not to be the case in a project in Cambodia where the director was concerned about over-reporting, yet was not able to verify this in the field (Matsuoka et al., 2014).

Secondly, it also means that the verifier has enough capacities and knowledge to perform these checks. This seemed to be one of the problems in a PBF project in Uganda where the verifiers did not have enough clinical experience to make sense of the shorthand and recording practices in the primary registers (Ssengooba et al., 2012). Thirdly, the verification officer's trustworthiness is another important aspect to investigate. In Tanzania, the complaint that the verifiers too often considered the data as inflated was widespread across all kinds of facilities (Chimhutu et al., 2016). A clearly defined verification tool was therefore appreciated in Burundi (Rudasingwa & Uwizeye, 2017). Problems of collusion and conflicts of interest are observed in several studies (Bertone & Meessen, 2013; Chimhutu et al., 2014; Falisse et al., 2012; Schriver et al., 2017; Turcotte-Tremblay et al., 2017). In Burkina Faso, the different actors had an interest in reporting high scores, while the verifiers warned the health workers when and where there would be supervisions (Turcotte-Tremblay et al., 2017). A blatant form of conflict of interest and collusion was found in Ngozi, Burundi where the District Health Bureau was initially entrusted with this verification role while at the same time being evaluated itself on the basis of the health facilities' performance. In the province of Bubanza, this was avoided by assigning this verification role to the purchasing agency (Bertone & Meessen, 2013). However, Khim and Annear (2013) warn against this merger of roles (verification and purchasing) as it might lead to a conflict of interest to the health workers' disadvantage.

Fourthly, the workload for the verification officers can become too heavy, which again decreases the quality of the verification (Antony et al., 2017; Ssengooba et al., 2012; Turcotte-Tremblay et al., 2017) and may interfere with more interesting tasks being one-to-one coaching and provider feedback (Antony et al., 2017). This heavy workload is often a consequence of the strong reliance on regional management teams who already have an overcrowded work package (Antony et al., 2017; Gergen et al., 2017).

Fifthly, this extra role may jeopardise a constructive relationship with the health workers as they may not be able to differentiate between the verifiers and supportive supervisors (Ridde et al., 2018) which may lead to anxiety and fear among the health workers (Schriver et al., 2017). Another possible negative consequence is that feedback is too closely tied to the incentives and the focus on the learning process decreases as observed in Rwanda, Mali and Nigeria (Bhatnagar & George, 2016; Janssen et al., 2015; Schriver et al., 2017; Seppey et al., 2017). Conversely, in Nigeria health workers did perceive an overall improvement of supervision (Mayumana et al., 2017). Other studies highlight that when performed well and clearly separate from the supervisions, verification exercises can be valuable learning moments and invoke a feeling of appreciation (Lohmann et al., 2018; Mayumana et al., 2017; Ridde et al., 2018).

Finally, the relationship between the 'verification officer' and the programme funder can obviously be considered as another PA relationship that may lead to side-effects similar to those discussed in the section on 'agents' in the analytical framework. In Burundi, Falisse

et al. (2012) found that the verifying Community-Based Organisations (CBOs) <sup>33</sup> were mainly driven by financial incentives, while verifiers in Burkina Faso complained about the costbenefit ratio of tracing patients which led to falsified reports (Turcotte-Tremblay et al., 2017).

# 2.4 Benefitting principals (patients)

There are several ways to include the patients' view in a PBF scheme. The Burundian project chose CBOs to monitor the health workers' performance and collect the patients' views via surveys. However, these CBOs had an above average socio-economic status, making their representativeness questionable (Falisse et al., 2012). Similarly, in Benin the CBOs appeared to be branches of national NGOs which puts into question their proximity to the community (Antony et al., 2017). The representatives' real influence is another important aspect. Again Falisse et al. (2012) found that in Burundi the information provided by the health committees was poorly used and medical staff had no obligation to take action after receiving patients' comments or recommendations.

Another way is to opt for client satisfaction surveys. Nigerian health workers claimed that the fact that a certain patient might be in the client satisfaction survey made them treat their patients more carefully (Bhatnagar & George, 2016), while Malawian health workers saw it as a source of feedback (Kambala et al., 2017). However, these surveys need to be analysed in order to be worthwhile, which did not happen in a PBF project in Benin (Antony et al., 2017). Moreover, their validity is being questioned as patients often give very high ratings (Kambala et al., 2017).

A third possibility is to let representatives from the community participate in the management of the facility. In Tanzania, however, it was observed that community members failed to actively participate due to a lack of knowledge and skills, overly technical discussions, and health workers that already had decided beforehand (Mayumana et al., 2017). A language gap was also observed in Mali, where the discontinuation of these meetings after the project may point to a lack of motivation among the health workers for such power sharing modalities (Seppey et al., 2017). In contrast, close cooperation between

<sup>&</sup>lt;sup>33</sup> This is a "public or private non-profit (including a church or religious entity) that is representative of a community or a significant segment of a community, and is engaged in meeting human, ...or public safety community needs". (National Network of Libraries of Medicine (NNLM), 2016)

community leaders and the facility managers proved to be one of the determining factors between high and low performers in Nigeria (Mabuchi et al., 2018).

Turning to the benefitting principals' (patients') views on PBF, it appears that surprisingly little research has been done on this issue, despite it being central. Njoumemi and Fadimatou (2013) found that 60% of the population perceives PBF to be more effective than classic input payment, while only 30% thinks otherwise. Bhatnagar and George (2016) found that health workers felt that the support from the community increased due to improved performance of the facilities. This positive evaluation is confirmed by Lannes (2015); Ridde et al. (2018), Kambala et al. (2017), and Anselmi et al. (2017) who found a positive influence on the patients' satisfaction with the quality of the services, the infrastructure and cleanliness at the facilities, and the kindness of the staff. However, Bonfrer, Soeters, et al. (2014) and Kambala et al. (2017) find no statistical evidence that the increase in quality was also acknowledged by the patients and according to Kambala et al. (2017) instances of disrespect and abuse continued. The latter study questions whether PBF can actually improve the provider-patient interactions without a specific strategy to target it.

In Burkina Faso patients had mixed feelings about the community verification as confidentiality was being breached and they feared the verifiers and retaliation from the health workers, but at the same time some appreciated the opportunity to share their views (Turcotte-Tremblay et al., 2017).

## 2.5 Context and other stakeholders

Taking the context into account before implementing a PBF scheme is essential, as the study of Olafsdottir et al. (2014) suggests. While at the same time, PBF may have an important impact on this context.

A first important issue is the institutional context in which a plethora of poorly coordinated, and often mutually conflicting incentive arrangements are functioning. These pre-existing financial incentives launched in the frame of *other* policies and programmes/projects, often addressing competing priorities (Fox et al., 2014; Paul et al., 2014; Ssengooba et al., 2012), can lead to unintended effects on the PBF scheme coming with its own distinct incentive structure, and vice-versa (typical of a situation of complexity). They not only affect the outcome of the PBF, but may also hamper its national scale-up. Conversely, policies in line with the implementation of PBF (e.g. contracting, decentralisation, improved information systems, etc.) strengthen its implementation (Petrosyan et al., 2017; Shroff, Bigdeli, et al., 2017). Policies breaking down demand-side barriers can improve the attainment of certain targets and PBF's effectiveness as proposed

by *inter alia* Falisse et al. (2015); Matsuoka et al. (2014); Rudasingwa and Uwizeye (2017); Skiles et al. (2013) and Lannes et al. (2016) (e.g. through conditional cash transfers, health insurance or fee exemptions).

The very structure of the health sector is also important. Newly launched PBF schemes do not operate in a vacuum; they constitute an intervention in a health system characterised by complexity. Studies reveal that existing weaknesses in the health system, such as the poor quality of healthcare on offer, the suboptimal functioning of the routine Health Management and Information System and the drugs procurement system, and problematic financial management, greatly influence the PBF scheme's effectiveness (Chimhutu et al., 2014; Matsuoka et al., 2014; Mayumana et al., 2017; Meessen et al., 2006; Rudasingwa & Uwizeye, 2017). However, not only weaknesses, but also specific healthcare sector arrangements can interfere. For example, in Ngozi, Burundi, the facilities already received enough funds for training, drugs, infrastructure, etc. from input-based payment, which reduced the incentive to achieve the bonuses which were partly intended for the purchase of the same items (Bertone & Meessen, 2013). In Malawi, the highly centralized financial system (facilities were not allowed to have bank accounts) weakened local authority and impeded the fluent transfer of funds (Wilhelm et al., 2016). In Cameroon, the envisaged fund holder's legal status needed to be changed (Sieleunou, Turcotte-Tremblay, Yumo, et al., 2017).

The health facilities' capacities (human, financial, infrastructural resources) are critical in every programme and PBF is no exception (Rudasingwa & Uwizeye, 2017; Wilhelm et al., 2016). Meessen et al. (2007) and Olafsdottir et al. (2014) claim that a nationwide scale-up is probably not possible unless capacity is increased and Fox et al. (2014) state that the fragile context in the DR Congo presents "considerable challenges in terms of appropriate design and implementation" (p. 2). Nevertheless, findings by Soeters et al. (2011) in DR Congo suggest that PBF is possible in a low-capacity context.

What seems to be particularly important is the 'right' type and amount (not too little or too much) of capacity. Overstaffing may lead to a dilution of the incentives' power (Fox et al., 2014), while sharing incentives with unqualified, temporary lay workers may indirectly contribute and help to sustain such practices (Matsuoka et al., 2014). Insufficient staff numbers also increases the workload (Bhatnagar & George, 2016; Feldacker et al., 2017; Kambala et al., 2017; Rudasingwa & Uwizeye, 2017) which may downplay the motivation effect of the incentives and cause friction (Feldacker et al., 2017; Shen et al., 2017). However, it has also been observed that PBF may lead to a more pro-active human resource management: hiring specifically qualified health workers or asking support from

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neighbouring facilities (Mayumana et al., 2017; Paul et al., 2017). In Burundi the number of nurses increased and in Zambia and Cambodia a decrease in health worker turn-over was observed (Falisse et al., 2015; Matsuoka et al., 2014; Shen et al., 2017).

Although the focus of payment under a PBF scheme moves from inputs to outputs, appropriate and sufficient resources (drugs, materials) remain vital for good health outcomes (Khim & Annear, 2013; Matsuoka et al., 2014; Olafsdottir et al., 2014; Wilhelm et al., 2016). A lack of sufficient infrastructure (i.e. beds) to cope with the increased number of patients may hamper quality improvements (Kambala et al., 2017) and Skiles et al. (2013) explain why the Rwandan PBF was not "an effective pro-poor strategy" (p.830)<sup>34</sup> by referring to the lack of resources of health facilities in poorer communities and consequently the lower responsiveness to the poor people's needs and the inability of the Rwandan PBF setup to respond to this. At the same time, it has been observed that PBF significantly improved the working environment, inter alia the availability of drugs, equipment and supplies, the structures and care processes, the human resources and the hygiene and cleanliness (Anselmi et al., 2017; Bhatnagar & George, 2016; Binyaruka & Borghi, 2017; Brenner et al., 2017; Feldacker et al., 2017; Kambala et al., 2017; Mayumana et al., 2017; Ogundeji et al., 2016; Rudasingwa & Uwizeye, 2017; Seppey et al., 2017) and that this has an important effect on the observed improvements (Anselmi et al., 2017). The role of district managers is in this case important and incentivizing them may help limit drug stock outs (Binyaruka & Borghi, 2017). However, the observed effect is not always very stable (see Binyaruka & Borghi, 2017) which may point at unresolved barriers.

The general economic context also plays an important role. Uncertain and untimely payments due to insufficient funds can harm the credibility and PBF's impact (Ssengooba et al., 2012). However, a bad economic context at the level of the communities in which the health workers reside may have a positive effect on the acceptance of a PBF scheme as it is likely to increase the emphasis on extrinsic motivation and the desire to top up their salaries with incentives (Khim & Annear, 2013). At a later stage, economic recovery may secure the necessary domestic funds for implementation (Petrosyan et al., 2017).

Social and cultural attitudes are at least as important. Chimhutu et al. (2014) point to "the type of fairness principle that prevails in a particular culture" (p. 9) and its influence on the acceptance of meritocratic payment schemes. The social context can also have a more direct influence on PBF and the attainment of targets when behaviours are not socially or

<sup>&</sup>lt;sup>34</sup> However, it was not 'pro-rich' either (Skiles et al., 2013).

culturally embedded (e.g. giving birth in health facilities ) (Kambala et al., 2017; Olafsdottir et al., 2014) or when the community verification is not compatible with social norms and values (Turcotte-Tremblay et al., 2017). Moreover, traditional and community leaders can use their authority to support health facilities or not, which can have a strong influence on the facility's performance (Mabuchi et al., 2018).

Stakeholders not explicitly stated in the PBF scheme are also part of the context. Other health facilities or organisations may enter in competition for badly needed competent health workers (Khim & Annear, 2013) and patients (Mabuchi et al., 2018), while higher bonuses in other facilities may lead to discontent (Paul et al., 2014). Non-participating facilities are also influenced by PBF and have to be prepared to take up different tasks and increased pressure on the health system (e.g. increased referrals from PBF facilities) (Meessen et al., 2006) or, conversely, handle a decline of deliveries due to a shift toward PBF facilities (Van de Poel et al., 2016). Moreover, the involvement of the district level may have a positive spill-over effect on non-participating facilities (Brenner et al., 2017). Other stakeholders (like NGOs) may also support certain facilities and districts, increasing their performance and earned incentives (e.g. Sierra Leone (Bertone et al., 2016)).

Finally, it should be noted that according to Mabuchi et al. (2018)'s research those contextual and health system factors that block progress toward better performance can be mitigated by pro-active health facility managers.

## 2.6 Contract

Like every policy, all constituting aspects of a PBF scheme need to be well elaborated in what the analytical framework refers to as 'the contract'. This contract is important as it helps to clarify the health workers' tasks and responsibilities which has a positive influence on their performance (Bertone et al., 2016). As already stated, in order to strengthen the acceptance of the scheme, it should be developed through a participative and inclusive process, which needs sufficient time in order to be effective (Kiendrébéogo et al., 2017; Wilhelm et al., 2016).

The first important element of the contract is the institutional set-up or the governance arrangements. Research highlights that a difficult equilibrium must be found between strong and transparent structures to avoid fraud and corruption (Khim & Annear, 2013; Ssengooba et al., 2012) and enough space for participation and autonomy (Binyaruka & Borghi, 2017; Paul et al., 2014; Soeters et al., 2006; Soeters et al., 2011; Ssengooba et al., 2012; Van de Poel et al., 2016). Although a study in Tanzania found "less evidence of the effect of the increased facility financial autonomy" (Anselmi et al., 2017, p. 11), the

increased autonomy was seen by health workers as an important asset of the programme in Zambia and Tanzania (Mayumana et al., 2017; Shen et al., 2017). Another important issue is to include incentives for stakeholders at all levels in order to make sure everyone works towards the same goal (Binyaruka & Borghi, 2017). Keeping the PBF intervention outside the local healthcare system's structures will lead to frictions and fail to strengthen the system (Feldacker et al., 2017). Yet, at the same time, integrating it within the system may impede the implementation due to weak local institutional structures (Ridde et al., 2018).

A second element is the matrix of indicators and the quality measures. Using measures and objectives already established in national health plans positively influences the acceptance of the indicators (Lohmann et al., 2018; Seppey et al., 2017; Wilhelm et al., 2016). Alternatively, a participatory selection process is shown to design a set of indicators which are understood by the different stakeholders and/or adapted to the local context (Kalk et al., 2010; Wilhelm et al., 2016). Yet, stringent and too optimistic timeframes may undermine such a process and lead to the selection of a rigid matrix poorly adapted to a changing context and thus jeopardising the outcome (Ssengooba et al., 2012). A number of observations presented in the different studies may inform decisions regarding the matrix. Firstly, indicators that elicit the largest behavioural change concern services "over which the provider has greater control (e.g. prenatal care quality) and are less dependent on patients' health-seeking behaviour (e.g. timely prenatal care visits)" (Basinga et al., 2011, p. 1425) (see also Binyaruka et al., 2015; Skiles et al., 2013; Skiles et al., 2015). Secondly, a limited number of measures and an assessment process that is not too complex ensure that verification is tangible and helps to ensure a clear link between the desired actions and incentives (Fox et al., 2014; Janssen et al., 2015; Khim & Annear, 2013; Soeters et al., 2006). However, quality of care is a complex issue and is not easily captured by a limited set of measures. In Rwanda, the overall quality score dropped to the baseline every time the quality measures that composed it were modified (Janssen et al., 2015). This casts doubts on whether the measures were actually measuring the underlying construct of quality. Striking a balance between comprehensiveness and feasibility of the matrix is thus challenging but needed. Yet, a review of PBF in 28 countries showed that the average quality checklist had no less than 125 measures (Gergen et al., 2017; Josephson et al., 2017). The absence of sufficient and complete data can also prove problematic and the identification of correct denominators may be especially difficult (Khim & Annear, 2013). All this can lead to oversimplified measures that ignore complexity, and only succeed in capturing the most visible and most easy to measure parts of performance: about 57% of measures concern the availability of resources, 24% the facility management, only 11% clinical efforts, and 6%

knowledge and non-clinical effort; when divided according to the 'Donabedian framework' structure type measures account for 80%, process type measures 19%, and outcome type measures less than 1% (Josephson et al., 2017). Finally, some PBF programmes may opt for targets instead of a 'fee for service'-logic, in such cases it is important to take into account that targets that are not challenging enough or not sufficiently discriminatory may reduce the incentive to perform as well as possible (Bertone & Meessen, 2013; Peerenboom et al., 2014). However, finding the right target is not easy as setting different targets for responding to a difference at baseline may penalise already well performing facilities as they may find it harder to improve even more; while working with a fixed target for everyone, as in Benin, may lead to already higher performing facilities earning the most and increasing the existing inequality (Paul et al., 2017; Paul et al., 2014).

Thirdly are the monitoring and verification arrangements which in Cambodia helped to limit rent seeking behaviour and reduce absenteeism (Khim & Annear, 2013). By definition, and in order to be effective, monitoring, and to a lesser extend verification, needs to take place on a regular basis. Sound monitoring and verification systems thus entail a substantial increase in workload, funding, equipment, knowledge and human resources (Bhatnagar & George, 2016; Janssen et al., 2015; Khim & Annear, 2013; Matsuoka et al., 2014; Ssengooba et al., 2012). Hence, a lack of resources to perform the verifications may lead to delays in the PBF programme (Antony et al., 2017; Turcotte-Tremblay et al., 2017). Yet, recently, the idea has been ousted that verification should be done more selective (both at the level of facilities and the measures to verify) ('risk-based verification'), as research found that record keeping problems are centred in certain facilities and on certain indicators (Antony et al., 2017). This might also be a response to the complaint that the verification processes are too rigorous (Ridde et al., 2018; Rudasingwa & Uwizeye, 2017) and lead to frustration among the verifiers as it takes time away from other more interesting activities like one-to-one coaching and providing feedback (Antony et al., 2017). Although Ngo et al. (2017) found a negative impact on the monitoring of the delivery statistics, according to others the Health Management Information System (HMIS) can also benefit from PBF as it may improve the completeness of the data (Peerenboom et al., 2014) and increase its use for management purposes (Paul et al., 2014). However, it is not clear from these studies whether this concerns all the data or only those pertaining to the PBF scheme. This is probably conditional on close verification of reports, since difficulties can occur due to manipulation of the data (Meessen et al., 2006).

Once performance is assessed, rewards can be assigned. Health workers and researchers emphasise that rewards should take into account the extra costs and increased

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workload for health staff, but also the possible opportunity costs of ceased revenues due to possible new regulations as a consequence of the PBF programme (e.g. cessation of private practices) (Bhatnagar & George, 2016; Chimhutu et al., 2016; Feldacker et al., 2017; Fox et al., 2014; Janssen et al., 2015; Kambala et al., 2017; Khim & Annear, 2013; Soeters et al., 2011). When the incentives do not fully cover these costs, PBF is likely to face opposition (Feldacker et al., 2017; Paul et al., 2014). As different groups of health workers (doctors, nurses, etc.) bear different costs and efforts, they are motivated by different levels of incentives (Khim & Annear, 2013). Interestingly, the need for a clear link between performance and incentives is disputed by Chimhutu et al. (2014) who claim that the perception of this link may suffice to lead to the desired behavioural changes. However, we can question the sustainability of such a practice. Whether performance payments should be directed to the individuals, the facilities or via the facility to the individuals remains unclear and needs further comparative research, yet Lohmann et al. (2018) indicate that individual incentives might not be essential. Another issue is the relative level in comparison to other incomes. This differs between PBF interventions. PBF rewards accounted for less than 10 % in Malawi (Lohmann et al., 2018), Sierra Leone (Bertone et al., 2016), and Tanzania (Chimhutu et al., 2016), while payments in Rwanda (Basinga et al., 2011) and Burundi (Rudasingwa & Uwizeye, 2017) contributed for more than 30 % to overall salaries. In Cambodia, the incentives accounted for 42% of total income and larger increments of pay coincided with larger improvements on a motivation score (Khim, 2016). Finally, Khim (2016) unsurprisingly found that payments should be perceived as being fair as this affects motivation. Yet fairness is a very personal and thus difficult concept to assess. In Nigeria, Burkina Faso and Tanzania, research showed that each incentive sharing mechanism (individual incentives based on individual contribution vs. based on rank vs. team incentives based on team performance) triggered feelings of unfairness among a different group of health workers (Chimhutu et al., 2016; Ogundeji et al., 2016; Ridde et al., 2018). The transparent processes to allocate the bonuses were very much liked in Tanzania and may help to increase the perception of fairness (Mayumana et al., 2017). Although, focusing incentives on a specific group of health workers will probably always trigger frictions (Feldacker et al., 2017; Mayumana et al., 2017). In order to avoid too much friction and conflict within facilities, health workers sometimes ask for fixed guidelines on individual financial incentives (Lohmann et al., 2018).

When disputes arise concerning the eligibility of a reward, a dispute settlement mechanism may be useful. However, the only study that explicitly refers to such a mechanism is the study of Soeters et al. (2006); they point out that in Rwanda a committee

composed of all stakeholders is responsible for arbitration. However, as of yet, there is no detailed documentation on the precise functioning of such mechanisms, nor is there evidence regarding their impact. Nonetheless, many PBF schemes install sanctions when fraud is detected, however, these are not always implemented (Antony et al., 2017; Turcotte-Tremblay et al., 2017) and a dialogue is sometimes preferred, which according to Antony et al. (2017) may weaken the incentives' power and "render the verification process practically irrelevant" (p. 9).

The last ingredients of PBF schemes are the ancillary components. These are often undervalued in a description of what PBF is, yet they appear to be key when it comes to success (Janssen et al., 2015; Kambala et al., 2017; Khim, 2016; Khim & Annear, 2013; Lohmann et al., 2018). The most important agreement among health managers, health workers and researchers is that accompanying the financial incentives with qualitative feedback, training, coaching, peer-to-peer learning and formative supervision is essential in order to reach good results and motivate health workers (Bertone et al., 2016; Bertone & Meessen, 2013; Bhatnagar & George, 2016; Janssen et al., 2015; Kalk et al., 2010; Khim, 2016; Manongi et al., 2014; Matsuoka et al., 2014; Nahimana et al., 2016; Ogundeji et al., 2016; Paul et al., 2014; Rusa et al., 2009; Soeters et al., 2011; Wilhelm et al., 2016). The increased focus by the facilities' management boards on planning and better management is indeed seen as enhancing the health facilities' performance (Bertone & Meessen, 2013; Ngo et al., 2017; Soeters et al., 2011). Since not all managers are as creative in devising new strategies (see Ogundeji et al., 2016), idea sharing platforms were also seen as beneficial for both the actors at district and facility level (Wilhelm et al., 2016). Better planning and more precise PBF targets contribute to more clarity on the health workers' responsibilities and tasks, which in turn are perceived to generate a positive effect on their performance and motivation (Bertone & Meessen, 2013; Khim & Annear, 2013; Lohmann et al., 2018; Manongi et al., 2014). In Tanzania and Malawi, PBF resulted in more supervision (Anselmi et al., 2017; Brenner et al., 2017), however whether this resulted in better supervision is unclear as a study in Nigeria highlighted that the "performance feedback [was] tied to the incentives" (p.875) (Bhatnagar & George, 2016; see also Brenner et al., 2017 on Malawi). However, despite this focus on the incentives, health workers still perceived an improvement of the overall supervision in Nigeria (Ogundeji et al., 2016). Other important contributors to change are the funds given before the project starts to bring facilities to an acceptable level (Lohmann et al., 2018). A final ancillary component is the introduction of accountability measures like bank accounts for the facility which makes it easier to follow-up transactions (Bhatnagar & George, 2016). According to research in Benin, it was probably
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through these "other elements of its package" (Paul et al., 2014, p. 212) that the PBF scheme motivated health workers and Lohmann et al. (2018) question the importance of the individual incentives as the main motivator, yet also claim that they drive inherent motivation.

Just as important as a well-designed scheme is its implementation. Keeping to the timing turns out to be essential. Delaying a PBF project may cause health workers to forget the targets or the project as a whole (Ridde et al., 2018; Ssengooba et al., 2012), while an untimely or incorrect payment of the incentives can reduce the motivation and lead to distrust, uncertainty and difficulties to obtain the targets which undermines the project's credibility; it can also complicate bonus sharing as some health workers may already be transferred to another facility (Bertone et al., 2016; Bertone & Meessen, 2013; Bhatnagar & George, 2016; Chimhutu et al., 2014; Chimhutu et al., 2016; Fox et al., 2014; Lohmann et al., 2018; Ogundeji et al., 2016; Ridde et al., 2018; Rudasingwa & Uwizeye, 2017; Wilhelm et al., 2016). Clear rules and procedures that limit the complexity and the length of the procedures can help to overcome some of these problems (Antony et al., 2017; Khim, 2016). Interestingly, flexibility and the possibility for stakeholders to propose changes during the implementation were seen as important assets in Malawi and Armenia (Petrosyan et al., 2017; Wilhelm et al., 2016). In the absence of such an opportunity, health workers have been observed to make minor adaptations on their own (Paul et al., 2017; Ridde et al., 2018). Yet, stakeholders might first need some persuasion (with positive results) before they actively engage in the implementation, thus feedback is essential (Wilhelm et al., 2016). Moreover, giving stakeholders sufficient time to adapt and get to know the new arrangements before making more changes is crucial. A well planned and sequenced implementation is thus essential (Khim et al., 2017; Petrosyan et al., 2017; Sieleunou, Turcotte-Tremblay, Yumo, et al., 2017). Especially, since a flawed implementation is sometimes due to insufficient knowledge of the needed human, financial and technical resources and ignorance concerning the responses of stakeholders and institutions (Bertone & Meessen, 2013; Ridde et al., 2018; Ssengooba et al., 2012).

### 2.7 Effects

Notwithstanding the positive behavioural effects mentioned in the section on agents, the effects of PBF schemes on the targeted measures are mostly evaluated as mixed with positive results on some but little or no progress on others (e.g. Anselmi et al., 2017; Basinga et al., 2011; Binagwaho et al., 2014; Binyaruka et al., 2015; de Walque et al., 2015a; Falisse et al., 2015; Kalk et al., 2010; Manongi et al., 2014; Rudasingwa et al., 2017; Zeng et al.,

# OPENING THE 'BLACK BOX' OF PERFORMANCE-BASED FINANCING IN THE HEALTHCARE SECTOR OF WESTERN UGANDA

2014). The effects on health outcomes, although difficult to observe for any intervention, are equally mixed. Kalk et al. (2010) report a positive impact of the health sector reform (of which PBF is one component) on infant and under-five mortality rates in Rwanda. The link between PBF and better health outcomes is, however, difficult to prove in such complex reforms. Van de Poel et al. (2016) did not find any effect on neonatal mortality in Cambodia despite the rise in institutional deliveries; nor did Skiles et al. (2015) on morbidity from diarrhoea, fever, or symptoms of ARI in Rwanda. The shift of institutional deliveries from non-PBF facilities to PBF facilities in Cambodia and the persistence of demand-side barriers in Rwanda were depicted as the main reasons for this lack of effect (Skiles et al., 2015; Van de Poel et al., 2016). The study of Anselmi et al. (2017) shows that the lowered proportion of women paying for a delivery had an important effect on the number of institutional deliveries under PBF. Other studies (Bonfrer, Van de Poel, et al., 2014; Chinkhumba et al., 2017; Rudasingwa et al., 2015; Soeters et al., 2011) emphasize the importance of the quality of the increased output to reach better outcomes and show that PBF is able to improve this. Chinkhumba et al. (2017) claim that the by PBF induced quality improvement at the facility reduced the time to seek care for pregnancy related complications. However, the quality issue is mostly studied in a narrow and superficial way, confining it to certain clinical subcomponents of care or even to the quality of the physical infrastructure. As already mentioned, in Rwanda, the indicators that composed the quality score were adapted a few times, after which the quality scores dropped to the baseline level before they started climbing again (Janssen et al., 2015), which may hint at the indicators not 'indicating' overall quality. In Burundi, health workers linked the lack of effect on health outcomes to a lack of improvement in treatment knowledge and skills (Rudasingwa & Uwizeye, 2017), while in Malawi, Brenner et al. (2017) find "few positive effects on clinical processes" (p. 498). In short, because monitoring (and researching) quality is difficult and at times even simply ignored (see Chimhutu et al., 2014), PBF schemes' effectiveness as a quality improvement tool is unclear.

This also holds for the effect of PBF on equity in health services utilisation for which evidence is either lacking or inconclusive. In Rwanda, studies found that the PBF programme did not increase inequities; but it did not reduce them either (Skiles et al., 2013; Skiles et al., 2015). However, Binyaruka et al. (2015) and Binyaruka and Borghi (2017) found a 'potential pro-poor effect' in Tanzania on institutional deliveries and medicine stock-outs. This contradicts the findings of Lannes et al. (2016) and Bonfrer, Van de Poel, et al. (2014) who found a pro-rich effect in Rwanda and Burundi. In Burundi, the reverse was found for vaccinations (Bonfrer, Van de Poel, et al., 2014). A PBF programme in Northern Cameroon

targeted the poorest by giving them fee exemptions; although an evaluation found moderate results it also claimed that design and implementation problems and existing barriers for healthcare use led to continued under-coverage (Flink et al., 2016). Finally, Mabuchi et al. (2018) found in Nigeria that the gap between high and low performers widened after the initiation of PBF, which can be problematic if low performers are more present in poor areas.

The sustainment of behavioural changes and other effects is not a given, and the study of Seppey et al. (2017) shows that once the funding has stopped, the more costly routines and those that are not internalized by the different actors will probably not be sustained.

### 2.8 Costs and benefits

The only thorough and systematic cost-benefit analysis of PBF in a low income country has been performed in Tanzania (Borghi et al., 2015). It found that half of the start-up economic costs were spent on training. While the bulk of the recurrent economic costs (US\$ 2.3 million for thirteen months) were caused by the working hours used by the health workers to generate data (37%), the project management (28 %) and the verification (13%); the pay outs only accounted for a small part (22%). The transaction costs (costs other than the pay outs) are remarkably higher than those observed in other studies (Meessen et al., 2006; Paul et al., 2017; Soeters et al., 2006; Soeters et al., 2011) which never exceed the 50% as is the case in the Tanzanian study. This difference is related to the much broader approach to costs (including time spent by health workers and managers on PBF activities, the market value of all resources donated and used, the verification system, etc.) adopted in the Borghi et al. (2015) study. This administrative burden is also reported in Cambodia (Khim & Annear, 2013) and Benin (Paul et al., 2017; Paul et al., 2014). The verification cost in the World Bank PBF project in Benin was determined at 0,5 USD for each incentive of 1 USD (Antony et al., 2017) and managers questioned the value-for-money of the community verifications in Burkina Faso (Turcotte-Tremblay et al., 2017). These administrative costs may be tempered when large enough target populations are served (Soeters et al., 2006; Soeters et al., 2011) or when the PBF is fully integrated in the health system instead of implemented through technical support (Borghi et al., 2015). All in all, surprisingly little is known about the transaction costs and thus the efficiency of PBF compared to other performance improvement programmes. The negative (e.g. the rent-seeking behaviours) and positive (e.g. the improved data) externalities are difficult to account for which makes it even more difficult to decide on PBF's efficiency. Interestingly, Shen et al. (2017) find that the general job satisfaction increase in the PBF group was less pronounced than in the control group that received an equal amount of money through the input-based method, although not statistically significant, whereas the satisfaction with compensation is higher in the PBF group. A possible explanation is that health workers in PBF facilities were more frustrated with shortages and lack of infrastructure as it impeded them to attain more performance-based incentives (see Lohmann et al., 2018; Shen et al., 2017). This is a caveat for the comparison of health worker satisfaction across programmes.

# 2.9 Limitations of this review

An important limitation to this study is that it is not a comprehensive realist synthesis. Such a synthesis should be done at a lower level of abstraction (i.e. disentangling the different components/mechanisms of the PBF interventions), focus much more on the specific contexts of the studies/interventions, and conclude with a middle range theory (Pawson, 2006). We did however try to focus this review on an as coherent as possible intervention (cf. the operational definition of PBF used) and context (cf. focus on low- and lower-middle income countries) and aimed to collect a maximum of information on processes and effects that occur after the implementation of a PBF intervention and before the actual results occur. We are aware that this is still far from a good realist synthesis, as it was never meant to be one, and that the review therefore lacks analytical depth. It is, however, a useful descriptive review of the different mechanisms that can be initiated by the introduction of PBF in differing contexts and therefore a good starting point for the elaboration of a PBF theory as will be shown in Chapter 6.

A consequence of pursuing a certain level of conceptual coherence is that we were forced to be restrictive in the inclusion of studies. This has led to the exclusion of some interesting studies (e.g. Alonge et al., 2015; Witter et al., 2011) on initiatives which some experts (but not all) would classify as PBF. However, we also analysed the excluded studies and found that they would not introduce new issues nor contradict those already found.

#### **3.** Lessons learned and recommendations

In what follows we highlight the main lessons learned and recommendations for policymakers and researchers. Some may seem self-evident or already mentioned in Chapter 1 but the analysis of the articles nevertheless points to the relevance of reiterating them.

#### **POLITICS MATTER**

The first important lesson for policy makers (from donor and developing countries alike) is that politics and ideology matter. Discourse on development cooperation often tends to be technocratic, disregarding local political and democratic realities. However, there is no such thing as a neutral policy. Performance-based financing is not different and starts from some implicit assumptions about what is just and according to which philosophical vision(s) society should be structured (see Meessen, 2013). This is even more relevant as Chimhutu et al. (2014) emphasise the difference in acceptance of PBF between egalitarian and more economically liberal societies. Clearly, values and ideas should remain in the centre of policy decisions in order to find the solutions that fit specific societal contexts. In Chapter 9 we will elaborate on the policy process behind the implementation of PBF in Uganda.

Real inclusive democratic ownership is an important stepping stone to effective health policies. Moreover, under the assumption that PBF is a policy choice of the government and the local stakeholders, involving the different actors (health managers, health workers, patients etc.) can result in a more contextualised PBF arrangement which is more readily accepted and more faithfully implemented. Also, when governments are in charge, they can more easily harmonise different approaches, policies and incentives in order to limit unfair differences between facilities and ensure a coherent incentive strategy. By doing so, they facilitate possible national scale-up and avoid conflicting instructions and priority setting.

Finally, inclusive democratic ownership can help in keeping the focus of accountability towards the population instead of the donors. Another way to avert such 'misdirected or upward accountability' towards the donors is to incorporate representatives of the patients/population into the PBF scheme's governance structure. Importantly, the population should feel adequately represented by their peers and the latter should have enough power to represent them (see McCoy et al., 2012). Nonetheless, the complexity of many of the PBF schemes and the unacquainted PBF rationale can make it difficult for community representatives to participate. Therefore, intensive trainings may help these representatives to comprehend the intervention and participate fully.

#### **CONTEXT MATTERS**

As for any other programme in the health sector the context is an important factor in the effectiveness and appropriateness of a PBF scheme. Not only other policies and social and cultural configurations, but also the available capacities, the quality and structure of the health system, the economic situation, etc. interact with the different elements of a PBF scheme. Hence, good knowledge of the local context and of the various stakeholders' expectations is essential for a sound PBF design (see Ssengooba et al., 2012). Although policy makers are not always in the position to influence contextual elements, they should always take them into account when deciding on the PBF implementation (whether or not to implement and the modalities). This re-emphasizes the value of a systems thinking approach (Atun, 2012) (see Chapter 4).

In order to guide on-going decisions within a constantly changing context, the use of action-research methodology may also be appropriate (Stringer, 2014). Such a research setup, where researchers and implementers cooperate closely, requires M&E systems that are open to unplanned effects – be they positive or negative – and place equal emphasis on the E(valuation) as on the M(onitoring) dimensions. This is particularly relevant since it has been found that RBF mechanisms tend to favour monitoring to the detriment of evaluation (Liverani & Lundgren, 2007). Sufficient knowledge, authority and capacity to perform the 'M' and the 'E' are thus essential.

#### **EVERY COMPONENT MATTERS**

As stated in Chapter 1, the different case studies indicate that a PBF scheme is not a one-dimensional programme that can be copy-pasted into different settings. We distinguished six elements of a PBF contract (see also Renmans, Holvoet, Criel, et al., 2017; Renmans, Paul, et al., 2016 and Chapters 1 and 2), which all comprise a number of choices to be made and questions to address: how much autonomy; how to monitor; who will monitor; how (much) to pay; which targets; how to handle disputes; how much training, etc. Enough time should be invested in preparing a PBF scheme, taking into account lessons from other programmes/projects, yet at the same time being aware of the differences in context and objectives.

In preparing and studying a PBF scheme, the ancillary components should not be neglected. Indeed, an important finding of our review is that they can play an important role in motivating and improving health workers' performance. Paul et al. (2014) even claim that they may account for a very substantial part of the PBF success. These ancillary components should therefore not be at the margin of PBF research but rather be treated with as much attention as the incentives themselves (see also research pathway 2 'Understanding PBF').

A special case is the role of verification whereby policy makers should be wary of an approach which smacks too much of policing. The latter may conflict with and jeopardise the acceptability of formative supervision seen as an instrument for continuous training of health workers, certainly if both practices are conducted by the same person or the same body. Formative supervision is in essence a relational and qualitative approach, built on trust and mutual respect, and which entails dialogue, constructive feedback, problem-solving, training, etc. When performed well, both can strengthen each other and contribute to better healthcare quality.

Clearly defining and delineating the different components of the PBF scheme and consequently monitoring and reviewing their effects consistently may help to keep the implementation of PBF schemes flexible. Some studies found health workers engaged in practices that were detrimental for patients' health or that misguided the results; hence the need for adaptations to the scheme to counter these tendencies. Additionally, with context being in a constant flux (e.g. changing health priorities), a PBF scheme should be sufficiently responsive to change and new knowledge. Such adaptability of a PBF scheme should be written into its design. Starting from a more basic scheme instead of a fully-fledged complex intervention might be a way forward.

#### **RESEARCH MATTERS**

As follows from the abovementioned recommendations, research plays an important role in improving the implementation of PBF schemes. However, as already stated, research must not be a substitute for democracy. It is questionable whether everything that has proved its value should also be implemented. Nevertheless, research does have an essential role to play in informing policymakers. Despite the rise in studies on PBF some important research questions remain unanswered or even unexplored.

An important under researched issue is the influence of context on the effectiveness and acceptability of a PBF scheme; in particular the influence of other stakeholders, like other health facilities, pharmaceutical companies or international interest groups, is barely touched upon in the literature. Similarly, the focus of research is, understandably, mostly on health workers while the effect of PBF on the experiences of the patients is too often left out. The long-term effects on health workers' self-esteem, intrinsic and extrinsic motivation, capabilities, work relationships with colleagues and superiors, etc. also remain largely a blind spot. This lack of longitudinal research severely limits our knowledge of the durability of PBF

results and of the more structural effects. Another major gap is the lack of insight into the interactions between the incentives, the verification process, ancillary components and the wider context: e.g. the influence of verification on the more formative supervision (see Bosch-Capblanch & Garner, 2008) or the effect of the incentives on the implementation of other reforms (e.g. is the first a catalyst for the latter? (see Meessen et al., 2011)). Last but not least, the results reached by PBF schemes should be compared with other performance improving programmes on the basis of a thorough cost-benefit analysis, while keeping in mind that not everything is quantifiable and politics should remain central (Mills, 2014). From this vantage point, the study of Borghi et al. (2015) is a particularly useful example on how to move forward.

If we wish to provide answers to this (non-exhaustive) list of research gaps, then research should focus on opening the black box of PBF. Unlocking and unpacking the programme theory of PBF and mapping out the pitfalls, side effects, opportunities and consequently the desirability of this reform should be a responsibility of PBF researchers. The use of theory-based evaluation (Fitz-Gibbon & Morris, 1996), realist evaluation (Pawson, 2006, 2013; Pawson & Tilley, 1997), systems thinking (Adam et al., 2012; Atun, 2012; de Savigny & Adam, 2009) or a combination (Rogers et al., 2010) (see Chapter 4) can be illuminating.

In the next chapters it will become clear that this study will try to answer some of the abovementioned questions, using some of the proposed methodologies.

#### **CONSTRUCT VALIDITY MATTERS**

To finish this section, we return to what we started with in Chapter 1: in order to perform sound research it is important to clearly identify the constructs under study. Many studies label projects wrongly as 'PBF' when, for example, a contracting-out approach is being used (Zeng et al., 2013). This is a problem of construct validity, which in this case means that the 'failure to adequately explicate a construct may lead to incorrect inferences about the relationship between operation and construct' (Shadish et al., 2002, p. 73). Moreover, in this review we highlighted that PBF schemes may dramatically differ on the six constitutive elements of the contract. Considering PBF as an undifferentiated theoretical concept is therefore fictional. As already highlighted and discussed more elaborately in Chapter 1, this reality deserves more attention within research.

**CHAPTER 4** 

# A STRATEGY FOR UNWRAPPING THE BOX: REALIST EVALUATION AND SYSTEMS THINKING

Note: This chapter is based on a peer reviewed article: Renmans, D., Holvoet, N., & Criel, B. (2017). Combining theory-driven evaluation and causal loop diagramming for opening the 'black box' of an intervention in the health sector: A case of performance-based financing in western Uganda. *International Journal of Environmental Research and Public Health*, 14(9), 1007.

Changes were made to fit the storyline of this thesis and to adjust for new knowledge.

What if a dream was reality and reality was a dream? And as complicated as it seems, if things we imagined actually happened?

Kendrick Lamar - Dreams

By now we have defined the construct, created a general analytical framework and took stock of what is already known (Chapters 1, 2 and 3); it is time to move forward and start thinking about how to unwrap the box. Our refocusing of the PBF definition has a number of implications for the research/evaluation design (Chapter 1). The recognition that PBF is a package with several elements implemented differently in different settings puts into question the utility of evaluations that only focus on outcomes without investigating how the intervention was implemented, how it was perceived by the stakeholders and how it interacted with the context (called 'black box' evaluations). Such evaluations remain silent on the mechanisms that lead to the reported outcomes and give little information that is useful for reproducing the intervention elsewhere. This raises fewer problems if the evaluated intervention is unidimensional and the main mechanism can easily be assumed (as is the case with the narrow definition). However, the uncertainty about the main mechanisms increases together with the number of elements and the complexity of the intervention. Particularly, if researchers and policymakers want to learn about what works when, where, how and why, opening the black box is a conditio sine qua non. Mainstream evaluations tend to approach this problem of disentangling the elements by creating different treatment groups that differ in only one specific element. However, as discussed in Chapter 1, the different elements counteract and interact with each other (see Chapters 8 and 10). The separation of the elements in different treatment groups overlooks this interaction. However, they often are amongst the most important aspects to study.

This call for more attention for complexity is not new when it comes to PBF (Macq & Chiem, 2011) or health systems research/policy in general (Bossyns & Verlé, 2016; de Savigny & Adam, 2009) and has even long passed infancy within evaluation in general (Gerrits & Verweij, 2015). This has resulted in many different methodological responses: the defiance (Mustafa, 2017; Sanson-Fisher et al., 2007) and/or adaptation (Craig et al., 2008) of existing randomised controlled trial methodologies; the application of theory of change (Rogers, 2008); the rising prominence of realist evaluation (RE) (Pawson & Tilley, 1997) and, more generally, the use of theory-driven evaluations (Chen, 1990; Van Belle et al., 2010) and the introduction of systems thinking (Adam & de Savigny, 2012; de Savigny & Adam, 2009). Other relevant methods and methodologies that can be instructive in evaluating and researching this re-established complexity of PBF are, for example, process evaluations

(Oakley et al., 2006), process tracing (Bamanyaki & Holvoet, 2016), outcome mapping (Earl et al., 2001), causal loop analysis (Forrester, 1961; Senge, 1990) or qualitative comparative analysis (Ragin, 2014 [1987]; Schneider & Wagemann, 2012). The choice for one or more of these particular methodologies and/or methods<sup>35</sup> should be based on an evaluation of its appropriateness to answer the research question (Sanson-Fisher et al., 2007). In many cases, this will be through a mix of qualitative and quantitative methods and even methodologies (Brenner et al., 2014; Nimpagaritse et al., 2016).

In this PhD research, we will combine RE with systems thinking principles and use a tool called 'causal loop diagramming' (CLD) to tackle PBF's complexity and open the 'black box' of the BTC/Enabel PBF intervention (i.e. discover the mechanisms that lead to the observed outcomes).

In this chapter, we will explain in a more theoretical and philosophical way the methodological strategy. Discussing the underlying philosophies is especially essential to understand RE as it necessitates a completely different way of thinking. Its epistemology and ontology are different from the more commonly used positivist and relativist strands. It is exactly this difference that separates RE from other more traditional kinds of methodologies and other theory-based evaluations (Pawson, 2013). Likewise, systems thinking introduces different ways of thinking (Adam & de Savigny, 2012; de Savigny & Adam, 2009). The combination of the two methodologies also needs clarification. However, we start with discussing the issue of complexity which lies at the basis of these methodologies.

<sup>&</sup>lt;sup>35</sup> Methods are tools and techniques to perform research and collect and analyse data (e.g. interviews, surveys, statistical methods), whereas 'methodology' refers to the general research approach including the theoretical assumptions that inform which methods are the most appropriate (e.g. Qualitative Comparative Analysis, realist evaluation, randomized controlled trials, action research, ethnography).

# **1. COMPLEXITY**

The term 'complex' or 'complexity' has already been mentioned a few times in the preceding chapters. Our colloquial understanding of the term was up until now sufficient to grasp what was meant. For this chapter, we will need to be more specific. Complexity science is a dense field of inquiry, with many different frameworks and theories coming from almost all domains of science. Here, however, we will stick to the basics and to what is needed for understanding the remainder of the PhD thesis.

Glouberman and Zimmerman (2002) distinguish between simple, complicated and complex problems. They compare 'simple' problems with baking a cake. You do not really need to have a lot of cooking skills and the result is quite predictable if you follow the recipe well. A 'complicated' problem is more like launching a rocket. It is a combination of a multitude of simple problems, yet the challenge of coordination between many actors and tasks is added to that. It is also characterised by a need for high levels of expertise. 'Complex' problems are composed of 'simple' and 'complicated' problems and, in addition, they are context sensitive, interdependent, non-linear and adaptive to changes in the environment. Moreover, an important level of uncertainty remains, in the same way as having raised a first child successfully does not mean that raising the second child will go the same way.

The notions of non-linearity, interdependence, and unpredictability are commonplace when it comes to describing complexity (Braithwaite et al., 2017; Rogers, 2008; Sturmberg et al., 2016), however Pawson (2013, pp. 34-44), who is one of the founders of RE (see the next section), still approaches complexity slightly differently by listing seven characteristics of complex programmes: (1) the programme subjects have *volition* which makes programmes unpredictable to differing degrees<sup>36</sup>; (2) *implementation* chains are long and difficult to replicate; (3) *contexts* are an integral part of the programme which leads to an infinite number of interactions; (4) not only the context but also *time* influences the programme; for example, the programmes that preceded the current intervention influence the perception of the latter ('path dependency'); the time of the year affects certain mechanisms (e.g. rainy

<sup>&</sup>lt;sup>36</sup> This claim of absolute unpredictability is of course mainly theoretical. Several causal relations can be predicted with a certainty of almost 100% and in our daily handlings we can be quite confident about them. However, there will always be this small possibility that in a certain circumstance with certain people the outcome will be different. As we will see in 'Section 2', the realist approach tries to unravel why in that specific case the outcome is different than expected. Unravelling this will improve the accuracy of the prediction, which will approach the 100% accuracy mark yet never achieve it.

season or not); the moment in the development of an organisation affects the way it can be implemented (immediately after the start, after a few years or after a reorganisation); (5) numerous ways of measuring *outcomes* may lead to different conclusions and affect the programme under evaluation/study; (6) *rivalry* exists between different programmes in the same domain which makes attribution difficult; (7) programmes are prone to *emergence*, which means that the combination of several elements of the programme and the context may lead to new and often unpredictable behaviours at the level of the system.

The characteristics listed by Pawson (2013) do not differ that much from other descriptions; however, he does focus on complexity as a characteristic of programmes. In contrast, we agree with Sturmberg et al. (2016) that interventions are simple yet generate complexity when introduced into a system. We believe, however, that Pawson's position (2013) can also be interpreted in this way as he underlines that the context is an integral part of the programme: he is thus referring to already implemented programmes interacting with the existing system.

Such interacting systems are called 'complex adaptive systems' or 'CAS' (Paina & Peters, 2012; Plsek & Greenhalgh, 2001; Sturmberg et al., 2012). A CAS is "a collection of individual agents with freedom to act in ways that are not always totally predictable, and whose actions are interconnected so that one agent's actions changes the context for other agents." (Plsek & Greenhalgh, 2001, p. 625). Moreover, CAS include feedback loops, delays in effects and limits and are self-organised (Meadows & Wright, 2008). One of the consequences of such complexity and CAS is that effective interventions are not easily transferrable to other contexts (Sturmberg et al., 2016) (see Chapter 7). The discussed methodologies in Sections 2 and 3 (realist evaluation and systems thinking) try to solve this challenge.

Having shortly discussed what complexity and CAS entail we believe that based on what we discuss in Chapter 1 and observe in the literature as described in Chapter 3, it is safe to conclude that the implementation of a multi-component intervention like PBF in a healthcare system is best to be approached through a 'CAS' lens (Macq & Chiem, 2011).

# 2. REALIST EVALUATION<sup>37</sup>

We can make it easy to ourselves and the reader by claiming that realist evaluation (RE) can be described as a kind of evaluation that instead of asking the question 'What works?' asks the question 'what works for whom, in what context and why?'. This rephrased question is indeed central to RE and will help many to get a superficial understanding of the approach, yet only focusing on this aspect would do injustice to the ontological and epistemological paradigm shift that underlies RE. Moreover, not thoroughly discussing the philosophical underpinnings of RE may lead to methodological confusion about how to use it<sup>38</sup>. Indeed, with the rising popularity of RE, it becomes increasingly important to guard its borders and this means clearly explaining and strengthening the roots<sup>39</sup>. These roots are the ontological and epistemological positions of scientific realism that underlie the specific choices the approach makes in evaluation.

Therefore, this section will start with a short overview of RE's philosophical underpinnings. This is however not the time or place to give an exhaustive and in-depth discussion of 'scientific realism', nor of the other strands of philosophy mentioned in this chapter. Again, we will stick to the essentials needed to understand RE and the rest of the PhD dissertation. We then discuss what is often seen as the centre piece of RE, namely the 'context—mechanism—outcome configuration' (CMOC). We end the section by shortly looking at some general guidelines for performing an RE study.

# 2.1 Philosophical underpinnings

As discussed, we start by elucidating the 'realist' part in realist evaluation. Scientific realism is a philosophy of science and we will explore this by contrasting it with two other common philosophies of science (positivism and relativism)<sup>40</sup>. We then move on to the

 <sup>&</sup>lt;sup>37</sup> For a more thorough discussion of realist evaluation we refer to the seminal works of Pawson and Tilley: Pawson (2006, 2013); Pawson and Tilley (1997). Concise introductions which have also influenced this chapter can be found here: The RAMESES II project (2017); Westhorp (2014)
<sup>38</sup> See for example the discussion between Marchal et al. (2013) and Van Belle et al. (2016) on the one hand and Bonell et al. (2012, 2013) and Jamal et al. (2015) on the other hand on using randomized controlled trials (RCT) within a realist approach. The latter misunderstand the realist ontology which makes them claim that RE and RCT are compatible.

<sup>&</sup>lt;sup>39</sup> The RAMESES II project is an important actor that has taken up this task (http://www.ramesesproject.org/).

<sup>&</sup>lt;sup>40</sup> Here, our aim is not to give an extensive explanation of the different philosophical positions, instead we give a superficial overview to the extent that the fundamental tenets of realist evaluation become clear and logic.

important discussion of the realist view on causality. Causality is what evaluation study is all about. When evaluating interventions the aim is to study the effects of the intervention and how they are causally linked. The specific realist view on causality is what makes it different from mainstream evaluations and other theory-based evaluations.

### 2.1.1 THREE PHILOSOPHIES OF SCIENCE: POSITIVISM, REALISM, RELATIVISM

Philosophy of science is a sub-field of philosophy that studies the assumptions, the methods and the knowledge claims that can be made in science (Rosenberg, 2011). Although this might seem straightforward and universal, different streams exist with important repercussions for how research and evaluation should be performed. Indeed, as mentioned in the introduction to this section, the realist evaluator distinguishes him/herself from other evaluators exactly because of this different understanding of science.

Two fields of philosophy that are closely related to philosophy of science are ontology and epistemology. Ontology is the study of what is real, whereas epistemology studies how we can learn from this reality. In what follows, we will discuss the ontological and epistemological viewpoints of positivism, realism and relativism, yet, for reasons of simplicity, we will not distinguish between epistemology and ontology in our discussion.

We have chosen to compare realism with positivism and relativism because the latter two lie at the extremes of a continuum on which realism positions itself in the middle (Figure 5). On one end of the continuum, positivism<sup>41</sup> states that only one reality exists which is independent of our perception of it. This means that reality can be observed without personal characteristics (like the social background, age, personal history, nationality, culture, political views, etc.) influencing the observation. Moreover, the only thing that actually matters is what can be observed, as only the observable has real consequences. (Rosenberg, 2011)

<sup>&</sup>lt;sup>41</sup> For the very general and basic description we give here, several terms may apply: logical positivism, empiricism, verificationism, neopositivism.





Source: Author

On the other end of the continuum, relativism<sup>42</sup> claims that no reality exists that is independent of the mind of the observer. This means that for every observer there is a different reality and there is no way to come to a common understanding of reality. This is because the way we observe reality is always influenced by our social position, economic power, hierarchical position, culture, personal history and so forth. Therefore, relativists are mainly interested in perceptions, as people's actions are a response to how they perceive reality. Hence, only perceptions of reality have real consequences (Rosenberg, 2011).

Realism positions itself in between these two positions. It concedes that one reality exists, but at the same time we interpret this reality through our own experiences. Hence, both the observed and the perceived world are real and have consequences. The way we perceive the real world determines how we react to this world, yet the real world puts boundaries on our perception. For example, if a project gives incentives that are at the same level as a monthly salary, it will be difficult (yet not impossible) to perceive these incentives as small. Unlike relativists, realists believe that, by including more perspectives and doing more and better research, we can get a deeper understanding of reality. However, unlike positivists, realists do not believe that they can come to a point where they know everything or partial things with certainty. A level of uncertainty remains. This has important repercussion for their view on causality.

<sup>&</sup>lt;sup>42</sup> Again, our very basic and general description can be attributed to several other theories: social constructivism, interpretivism.

#### 2.1.2 DIFFERENT VIEWS ON CAUSALITY

In its essence, evaluation is about causality. Evaluation tries to study to what extent and in what way an intervention led to a change in a certain outcome variable. How causality is viewed is thus primordial for how an evaluation is performed. We can distinguish three views on causality: a successionist, a configurational and a generative view. We will see that the first view is related to the positivist philosophy, whereas the latter two are used in realism. In order to clarify the different strands we will use the example of a very small-scale, fictitious intervention in which students are promised five euros by a teacher if they run around the playground of the school.

The first and most well-known view on causality is the successionist view which is typical for positivism. It claims that A is a cause of B when it is more probable that B occurs with A than without A. In our example, the evaluator will observe that, after a study of different schools at different moments in time, it is more probable that the student runs around the playground when five euros has been promised. However, the correlation is not perfect and instances exist where a student is promised five euros yet does not run around the playground. The evaluator identifies factors that may help explain this: whether it is raining or not, whether the student does sports or not and whether the student comes from a rich or a poor family. These contextual variables 'C', 'D' and 'E' are seen as confounders of the initial causal relationship between 'A' and 'B'. Research designs and methods that help rule out the influence of these variables (like randomised controlled trials) or quantify their influence (like regression analysis) are preferred over others. Using a regression analysis, the evaluator may find that whether it is raining or not and whether the student does sports influence the outcome variable, while the effect of whether the student is rich may not be statistically significant.

The second view on causality is called the configurational approach. It is most prominent in the comparative approach and the basis of qualitative comparative analysis (Ragin, 2014 [1987]). Contrary to the successionist approach, the configurational view focuses on a combination of factors that lead to a certain outcome. The configurational approach is seen as case-oriented (Ragin, 2014 [1987]), whereas the successionist approach is referred to as a variable-oriented approach (see Figure 6). Case-oriented means that cases are studied separately and in their entirety as a combination of factors. It is the combination of factors 'A', 'C' and 'D' that leads to outcome 'B'. For example, the promise of five euros in combination with a student who does sports and good running weather will lead to the student running around the playground. Two concepts are relevant and import to understand here. Firstly, 'equifinality' means that the same outcome can be reached

through different pathways. For example, promising five euros to a student that does sports, who is from a rich family, when it does not rain, may lead to the student running around the playground. Yet, the student will also run around the playground when s/he is promised five euros, is not from a rich family and does not do sports and when it is not raining. A second important concept is 'multifinality', which means that one factor may lead to different outcomes given the context variables with which it interacts. For example, when promised five euros a rich student might go running around the playground when it is sunny outside, but may stay inside when it is pouring.



Figure 6: Depiction of the variable and case oriented approach

#### Source: Author

The third view on causality is called generative causation and is called the "signature argument" of realism (Pawson, 2006, p. 20). According to realism, causation "is not established by observing the regular succession of events" (Pawson, 2006, p. 66) as empiricists/positivists claim. It is an underlying mechanism that is unobservable. Hence, in contrast to the view of successionists and the oft-used statistical methods, "what causes something to happen has nothing to do with the number of times we observe it happening" (Sayer, 2000, p. 14). Gravity is probably the most popular example. It is not because every time I open my hand the ball falls on the ground, that me opening my hand causes the ball to fall on the ground. It is gravity and the absence of a countervailing force that pulls the ball down to the ground. In our example, the evaluator will try to explain why the student sometimes starts to run around the playground and why at other times she/he does not. The mechanism would be the incentivisation mechanism: someone will perform a certain act when this is compensated by something desirable (the five euros) to this person. Importantly, and we will discuss this further in the next section, this mechanism is not a fixed law and will only occur in the right circumstances (nice running weather), which is why it is called a 'demi-regularity' (The RAMESES II project, 2017). For example, when it is raining outside, the benefits of the five euros may no longer outweigh the costs of running around

in the rain. For someone who is not physically active, the task of running around the playground may be more challenging and thus have larger costs, which may have him/her decide not to run around the playground.

An important characteristic of this view on causality is that the causal power does not reside within the treatment or the intervention, but in the actors that respond to the intervention (teachers, patients, students, health workers, farmers, buyers, etc.). In several instances (when it rains, when the student is physically incapable, when the student does not feel like it, etc.), the five euros will not have any impact; the impact depends on how the student perceives the five euros and the task to run around the playground (more costs than benefits or more benefits than costs). This is different from, for example, medication, where the ingredients are active and trigger a biological reaction that helps the body recover and no action from a person (except for taking the drugs at the right time and in a correct dose) is needed for it to work. This is not to say that context does not have any influence on the medication; for some people, the medication will work, while for others it will not. However, the influence of the context is always the same, although not always well understood. In social programmes, it are the different actors (teachers, principals, health workers, police officers, social workers, etc.) that have to turn the given resources, guidelines and instructions into practice. Realism assumes that everybody may perceive reality, and thus the intervention differently; this leads to different possible responses. Moreover, human beings have volition, which means that they have the power to make choices according to their will and these choices are not always rational. In our example, a student may just not feel like running around the playground even though the weather is nice, he/she is in top shape and really needs the money or he/she may not be aware of the fact that he/she needs the money. Hence, even if we know all the influences of the context factors, the outcome may still be unexpected due to the unexpected behaviour of the agents. We can thus never have 100% certainty about the outcome of an intervention. This is not necessarily different from the successionist approach; however, the source of uncertainty is different. In the realist approach, this uncertainty is mainly caused by the irrational behaviour of the actors, whereas within the successionist approach, the uncertainty mainly comes from a lack of knowledge.

#### 2.2 Context-mechanism-outcome configurations

The philosophical underpinnings discussed in 'Section 2.1' have important repercussions for how an RE study should be performed. We now turn to the main ingredients of an RE study: the context, the mechanisms, the outcome and their

configuration. The context—mechanism—outcome configuration (CMOC) is the operationalisation of the described generative causation in 'Section 2.1' (Figure 7). Within a specific context, a mechanism leads to a certain outcome. An intervention triggers certain mechanisms (and thus outcomes) by providing new resources and structures to the agents in a certain context. In what follows, we discuss more thoroughly what should be understood by mechanism, context, outcome and configuration.



Figure 7: Visual depiction of generative causation: a CMO-configuration

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Source: Pawson (2006)
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#### 2.2.1 MECHANISM

Due to the fact that it is so crucial for the understanding of the generative causation and thus of RE we start by discussing the concept of a mechanism. After a scoping review of the literature on mechanisms, Lacouture et al. (2015) come up with a threefold definition of a mechanism: "a mechanism is hidden but real" (1), "is an element of reasoning and reactions of (an) individual or collective agent(s) in regard of the resources available in a given context to bring about changes through the implementation of an intervention" (2), "evolves within an open space-time and social system of relationships" (3) (p. 8).

The first part refers directly to the philosophical understandings of realism. Remember that, according to realism, both the physical and the non-physical (i.e. perceptions) worlds are real. Mechanisms are thus part of the non-physical world (and thus hidden and unobservable), but only possible because of resources coming from the physical world. Yet, we will come to that in the next paragraph. It is first important to highlight that mechanisms are not only hidden and unobservable but also always present and ready to be triggered (Astbury & Leeuw, 2010). For example, it is not because I am holding the ball in my hand and the ball is not falling on the ground that gravity is no longer present. Certain mechanisms are not observed to be working (e.g. incentivisation as a consequence of the promised five euros), because other mechanisms or factors are at the same time blocking it (e.g. the rain).

Indeed, whether a mechanism is triggered or not is dependent on the context (Astbury & Leeuw, 2010). Mechanisms are therefore difficult to predict and therefore RE does not call them regularities or laws but 'demi-regularities' (Pawson, 2013).

A second important aspect is that mechanisms are a result of the combination of resources, structures, institutions and the reasoning/reaction of the agents. These resources may come from the (pre-existing) context or the intervention. Dalkin et al. (2015) even make the case for an "explicit disaggregation of resources and reasoning" (p. 3). The incentivisation mechanism is thus not comprised of the promised five euros but of the promised five euros, the other relevant context variables and the student who perceives these five euros as more valuable than the cost of running around the playground. It is thus clearly different from a programme component.

The third part of the definition ties in well with our intention to combine RE with a systems thinking approach. Indeed, mechanisms exist within a complex and dynamic system of other mechanisms. Moreover, the earlier described characteristics of complexity (feedback loops, delays, etc.) are applicable; hence, over time, mechanisms may change the very elements of the context that made them possible (Pawson, 2013). An RE study should thus take into account not only the context in which they are performed but also the behaviour over time (see Section 3 on systems thinking).

A fourth important aspect of mechanisms is that they may consist of several other mechanisms. Likewise, a mechanism may be part of another mechanism. The level of abstraction applied depends on the focus of the evaluation/research.

#### **2.2.2 CONTEXT**

As already became clear from our discussion on mechanisms, the context is an essential factor to take into account when performing a realistic evaluation or any other evaluation for that matter. Importantly, RE has a specific view on the context. Given the close relationship between the context and the occurrence (or not) of a mechanism, the context is seen as "an integral part of a programme" (Pawson, 2013, p. 36). A mechanism can thus never be seen as separate from the context in which it has been observed.

But what can be seen as context? Given its intricate connection to mechanisms, context should be defined as the factors that (can possibly) have an impact on the mechanisms. In fact, "all of the characteristics of all participants plus all of its institutional, cultural and historical surroundings [should be seen as] part of the programme. All might be decisive in its success" (Pawson 2013 p. XV). Moreover, it is not these components of the

context per se but the "social relationships, rules, norms and expectations that constitute them" (The RAMESES II project, 2017, "Context operate.." Para. 3).

Finally, as already mentioned in the third point in the preceding section, this context is in constant flux and is being changed by the very mechanisms it is supporting and as such may transform from an enabling to a hostile context for certain mechanisms, an issue that will be further developed when discussing systems thinking.

#### 2.2.3 OUTCOMES

With all this emphasis on mechanisms and context, it is dangerous to lose the outcomes out of sight. Remember that the main question of RE still starts with 'what works' and its objective is to explain outcomes. Hence, outcomes are as vital as the context and mechanisms. However, again, the way that RE sees outcomes is a little bit different. Realists do not necessarily make a difference between outputs, outcomes or impacts and take a wide approach when it comes to the definition of outcomes. The latter can be any change for people and their lives, organisations, workers, governments and so forth and mainly depends on the objectives of both the intervention and the evaluation.

Moreover, in RE the focus is on outcome patterns (Pawson, 2006). Instead of looking for an unequivocal statistic with a significant p-value that indicates whether the intervention worked or not, realist evaluators look at disaggregated data to learn for whom the intervention worked and for whom it did not. This is called an outcome pattern (Westhorp, 2014).

#### 2.2.4 CONFIGURATIONS

When we bring these three elements together, we arrive at a context—mechanism outcome configuration or CMOC. This is not just a trendy acronym; it is an essential part of RE. As we will see in the next section, a CMOC is an explanatory causal framework. It is used as a heuristic to describe how the context (including the intervention) affects a mechanism that leads to (or not) certain outcomes. Ideally, this is a 'middle-range theory' meaning that its level of abstraction is somewhere between a working hypothesis rooted in the empirical data and a 'grand' theory that tries to explain big societal phenomena. A good CMOC should be "specific enough to clearly explain the phenomenon and general enough to apply across cases of the same type" (The RAMESES II project, 2017, Ch. "Theory" in RE, p. 3).

The fact that it are configurations is important as this means that the 'C', the 'M' and the 'O' should be linked to each other. Several so-called realist evaluations have concluded their study with a list of relevant elements from the context, a list of mechanisms and a list

of outcomes. However, without linking each 'C' with an 'M' and an 'O', the lists lack an important realist trait, the explanatory power. Table 8 gives an example of a bad and a good CMO configuration.<sup>43</sup> The good example clearly links the context conditions to the mechanisms and the outcome. Notice also that these contextual conditions are specified in relation to the mechanism, yet at the same time sufficiently abstract.

<u>Bad example</u>						
Context	Mechanism	Outcome				
- Socio-economic status	- Incentivisation mechanism	Running around the				
- Weather conditions	- Intrinsic motivation	playground				
- Physical preparedness	mechanism					
- Running fanatic						
Good example						
When a student is sufficiently physically capable (C), the weather conditions are acceptable						
for running (C) and s/he is in need of money (C), the student will perceive the financial						
incentive as a compensation for the costs and, in order to earn the extra money (M), will run						
around the playground (O) regardless whether s/he is a running fanatic or not (C).						
When the weather conditions are good for running (C), the student is in good physical						
condition (C) and s/he likes to run (C), the intrinsic motivation of the student will motivate						
him/her (M) to run around the playground (O) regardless whether s/he is given a financial						
incentive or not.						

Table 8:	Example	of a bac	l and a good	l CMO configurat	ion
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Source: Author

# 2.3 Realist evaluation in practice

Now that we have explained the essential philosophical underpinnings and the constituting elements of an RE, we turn to the nuts and bolts on how to perform an RE. Although RE is not a strict methodology but rather a way of thinking (Westhorp, 2014), some general guidelines can be discerned. Pawson (2013, pp. 86-111) lists seven organising principles of RE:

1. Theory: RE is part of the family of theory-based evaluation; hence, theory takes centre stage. Even more strongly, realists see interventions as theories (Pawson, 2013). This means that the programme theory is the intervention and the intervention is the programme theory; hence, evaluating the intervention is at the same time researching the theory behind it. The objective of an RE is not only to decide upon the effectiveness of the intervention but also to improve the underlying theory.

<sup>&</sup>lt;sup>43</sup> In order not to shame people we have not included actual examples of bad CMO configurations.

- 2. Abstraction: As already discussed, CMOCs are at a middle-range level of abstraction; this makes it possible to link interventions from one sector to similar interventions from another domain. For example, our example on incentivisation can be linked to evaluations on remuneration schemes of CEOs, on rehabilitation programmes for drug addicts, on motivation of sports(wo)men, on incentives in the health sector, and so forth.
- 3. Reusable conceptual platforms: As a result of this level of abstraction, conceptual platforms are created, which can be reused across different interventions. This way, an evaluation does not have to start from scratch and can use the lessons learned from other interventions from very different domains but with the same mechanisms. Intermezzo 1 gives an example of other interventions that carry similar mechanisms to PBF.
- 4. Model building: Using these conceptual platforms, our knowledge base expands. Eventually, the objective is to learn in which circumstances the programme theories hold and to build models that capture all of our knowledge and help future decision-making.
- 5. Adjudication: For every theory or hypothesis, there is an alternative stating the exact opposite; in order to advance our model building, we need to decide which of the alternative theories is correct (i.e. adjudicate between theories).
- 6. Trust: Due to the fact that an infinite number of factors may influence the intervention outcomes, an almost equal number of theories may give an explanation for these outcomes and the time and resources of an evaluator are limited, an evaluator has to choose his/her battles and concentrate on what she/he thinks are the most relevant. Pawson (2013) calls this the "trust-doubt ratio" (p. 86): the evaluator has to trust that the impact of certain factors is less crucial and that his/her focus is the most relevant one.
- 7. Organised scepticism: The 'trust-doubt ratio' and also all the other principles are strongly reliant on the input and judgement of the evaluator. It is therefore important that the larger community of evaluators and researchers closely scrutinises each and every decision taken by the evaluator and give constructive critiques.

Taking these principles at heart will not only make it possible for RE to bridge the chasm between evaluation and science, but also make those REs stronger, more embedded in science and at the same time more useful for policymakers.

But how can these principles be turned into practice? Marchal et al. (2010) distinguish four phases in conducting an RE: the formulation of a programme theory, the design of the study, the analysis and the reporting. In the first phase the first three principles need to be taken into account. Like all theory-based evaluations, RE starts with the iteration of a programme theory. As discussed earlier, such a programme theory should be created at a certain level of abstraction, namely at middle-range level, and include knowledge gathered in earlier evaluations and research. It can also use policy documents, interviews with key informants, existing theories or even 'folk theories' (Marchal et al., 2010). The programme theory can have only one mechanism or consist of several mechanisms. It is up to the evaluator to describe the several hypothesized mechanisms and their CMO-configurations. Doing so, she/he should use the CMO structure as a heuristic. Thus, it should not be applied too mechanically; it should in the first place remind the evaluator to focus on the interaction between the mechanism and the context that leads to a certain outcome. For example, in our 'good example' in Table 8, we developed a clear narrative without sticking too rigorously to the CMO sequence, as was done in the 'bad example'. Even more deviation from the CMO structure is possible as we will see in 'Section 4'. An evaluator may also want to create several alternative CMOCs between which she/he can adjudicate in order to improve further model building.

In the second phase, the evaluator aims to design the evaluation. Firstly, as put forward by the sixth principle, evaluators need to be selective in their scope. Secondly, RE is method-neutral. This means that it is oriented towards neither qualitative nor quantitative methods. The most appropriate research design and method (interviews, surveys, observations, analysis of secondary data or data from the management system, etc.) need to be used. However, it should be implemented within the philosophical framework of realism as described in Sections 2.1 and 2.2. The use of randomised controlled trials (RCTs) within a realist approach is therefore often criticised because the RCT methodology is based on assumptions that go against those of realism (Marchal et al., 2013; Van Belle et al., 2016). Proponents of such realist RCTs often forget the last part of the realist question (the 'how' question) and ignore the consequences for implementation fidelity (see Chapter 7) of some of the realist claims (see Bonell et al., 2013; Jamal et al., 2015). However, this does not mean

that RCTs as a method<sup>44</sup> cannot give us useful information, yet the realist approach tempers the knowledge claims that can be made based on them.

In the third phase, it is important to go from the relatively abstract middle-range CMOC to a more practical working hypothesis that can be tested with available empirical data. In this phase, Principle 5 (adjudication) plays an important role. Indeed, the analysis should try to answer the question of which of the proposed CMOCs have materialised or which unexpected CMOC emerged. Given its method neutrality, information from all kinds of sources can be used to make this decision. This phase should result in an updated program theory. The final phase (reporting) is important in order to make sure that Principles 4 (model building) and 7 (organised scepticism) can be put into practice. Clearly and transparently reporting the findings of the study will help future evaluators and other researchers to use these findings and build on them in order to improve evaluation and to further the building of models. This way, the evaluation can fulfil its role within the cyclical process of model and theory building. Moreover, a transparent and well reported study will make it easier for colleagues to scrutinise the quality of the evaluation and the decisions made and thus the trustworthiness of the presented results. Finally, (realist) evaluation is also an important instrument for policymakers to improve their interventions. It is therefore equally important to report extensively to the implementers and the policymakers in order to enable them to learn from the intervention.

These four phases are not to be implemented in a static way. An RE is an iterative process in which the evaluator goes back and forward between the first three phases. Preliminary study findings may give new insights which necessitate an adaptation of the initial CMOC and a reorientation of the study design. As described in Section 1, the implementation of social programmes is complex and only a flexible study approach can account for this complexity.

<sup>&</sup>lt;sup>44</sup> Notice the difference between methods and methodology.

# 3. SYSTEMS THINKING<sup>45</sup>

Systems thinking is, like RE, a different way of thinking and approaching problems. It shifts from the traditional, reductionist and probabilistic paradigm to a holistic, complex and context-sensitive approach that is specifically focused on systems and their behaviour (Adam & de Savigny, 2012; Peters et al., 2012; Swanson et al., 2012). It originates from the engineering (Forrester, 1961) and management (Senge, 1990) domains and only relatively recently found its way into health systems research (Adam & de Savigny, 2012; de Savigny & Adam, 2009).

Systems thinking defines a system as "a set of elements or parts that is coherently organised and interconnected in a pattern or structure that produces a characteristic set of behaviours, often classified as its 'function' or 'purpose'" (Meadows & Wright, 2008, p. 188). When applied to the healthcare sector, such elements are the health workers, the patients, the pharmaceutical companies, the communities, the bureaucrats at the MoH, and so forth. They are organised through the specific policies, guidelines and rules devised by the MoH and other governing authorities with the purpose of improving the healthcare outcomes of patients. Every system consists of sub-systems and is at the same time a sub-system on its own. For example, a health facility, a pharmaceutical company and a community-based organisation are all sub-systems of the healthcare system; the health sector, the district and the country are in turn systems in which the healthcare system resides. These different systems are open and influence each other and people are members of different systems at once. Every system also has its own function/purpose, which not always resonates with the system in which it is embedded (Meadows & Wright, 2008). This may lead to obstruction and unexpected outcomes. For example, healthcare system's purpose is to improve the health of the patients, whereas the purpose of the health facility sub-system also includes the generation of sufficient revenues to ensure the survival of the facility. At times this may lead to clashes between the two systems, for example the discussed rent seeking behaviours in Chapter 2 and 3.

This plethora of (sub-)systems and competing functions/purposes makes the healthcare sector a 'complex adaptive system' (CAS) that generates its own behaviour

<sup>&</sup>lt;sup>45</sup> As for realist evaluation we will only give a basic introduction to systems thinking. More information can be found on the following websites: systemsandus.com or thesystemsthinker.com or in the interesting books of for example Senge (1990), Forrester (1961), Meadows and Wright (2008), de Savigny and Adam (2009), de savigny et al. (2017).

(called emergence) (Paina & Peters, 2012; Plsek & Greenhalgh, 2001) (see Section 1). Recall that a 'CAS' is typically "self-organising, constantly changing, tightly linked, governed by feedback, non-linear, history dependent, counter-intuitive and resistant to change" (de Savigny & Adam, 2009, p. 40).

#### 3.1 Principles

Unlike with RE, a thorough discussion of the ontology of systems thinking is not needed to understand how it works<sup>46</sup>. We do, however, need to explain certain underlying principles that distinguish it from the traditional way of thinking.

Firstly, systems thinking entails a paradigm shift (Adam & de Savigny, 2012). Table 9 shows the skills needed for systems thinking and how they compare to the traditional way of thinking. The systems thinking approach is more holistic and entails taking a step back and looking at the bigger picture. It is not about knowing the details of every aspect of the system but about knowing the relationships between the different elements. It is thus more related to the earlier discussed case-oriented approach rather than the variable-oriented approach.

Usual approach	Systems thinking approach
Static thinking	Dynamic thinking
Focusing on particular events	Framing a problem in terms of a pattern
	of behaviour over time
Systems-as-effect thinking	System-as-cause thinking
Viewing behaviour generated by a system as	Placing responsibility for a behaviour on
driven by external forces	internal actors who manage the policies and
	"plumbing" of the system
Tree-by-tree thinking	Forest thinking
Believing that really knowing something	Believing that to know something requires
means focusing on the details	understanding the context of relationships
Factors thinking	Operational thinking
Listing factors that influence or correlate	Concentrating on causality and
with some result	understanding how a behaviour is generated
Straight-line thinking	Loop thinking
Viewing causality as running in one direction,	Viewing causality as an on-going process, not
ignoring (either deliberately or not) the	a one-time event, with effect feeding back to
interdependence and interaction between	influence the causes and the causes affecting
and among the causes	each other

#### Table 9: Skills needed for systems thinking

Source: Modified from Richmond (2000) (cited in de Savigny & Adam, 2009)

<sup>&</sup>lt;sup>46</sup> A clearly distinguishable epistemology and ontology is also absent.

Secondly, a systems thinking approach implies involving the stakeholders as they have a privileged view on how the system works and are the main actors that drive the system's functioning (de Savigny & Adam, 2009). They are thus important sources of information at the different stages of the evaluation. It is also important to involve them in order to make sure that lessons learned are taken up by the actors in the field. Indeed, systems thinking is a problem-driven approach and its research findings are directly useful for the policy implementers in contrast to more fundamental research (Olivier et al., 2017).

Thirdly, systems thinkers believe that a system is more than the sum of its parts and produces its own specific behaviour (Meadows & Wright, 2008). Such behaviour is the result of the creation and interaction of feedback loops as will be discussed in the next section. Therefore, research needs to look at the system as a whole in order to understand this behaviour, which often leads to unexpected and unwanted outcomes.

Fourthly, the holism of systems thinking is related not only to its scope, but also to the methods used and disciplines involved (Swanson et al., 2012). Multidisciplinarity is key in understanding how the system works as it is a result of the interaction between the different sub-systems. For example, a PBF intervention touches upon health financing which requires knowledge from health economics; it also concerns the quality of care which highlights the importance of the medical sciences; another domain it touches upon is the governance and the management of the health sector which opens up the field of the management sciences; the effect on the community and the interpersonal relations within the facilities is probably best studied through a sociological lens; whereas the motivation of the health workers needs a psychological approach. Systems thinking is also a multi-method approach with both quantitative and qualitative research methods playing an important role. However, unlike, RE, the domain of systems thinking has its own set of tools designed to analyse the data in a specific systems thinking way. Examples of such tools are Cynefin, soft systems methodology, network analysis, human systems dynamics, process mapping, systems dynamics, scenario technique, outcome mapping and CLD (de savigny et al., 2017)<sup>47</sup>. The latter tool will be used in this research and will be discussed in the next section.

# 3.2 Causal loop diagramming

Causal loop diagramming (CLD) is one of the tools from the system dynamics sub-field used to analyse systems and stems from industrial management research in the 1960s

<sup>&</sup>lt;sup>47</sup> For a comprehensible explanation of these tools see de savigny et al. (2017).

(Forrester, 1961) and organisational learning (Senge, 1990), but it also has some useful applications in the health sector (Deconinck, 2017; Rwashana et al., 2014; Sarriot et al., 2015; van Wietmarschen et al., 2016). A causal loop diagram is a "visual representation of a dynamic hypothesis and consists of causal linkages among elements of a system (or 'system structures') thought, over time, to generate a specific problem ('emergent behaviour')" (Tomoaia-Cotisel et al., 2017, p. 97). It is used to communicate the assumptions of a "mental model of a dynamic system" (Lane, 2008, p. 4). The latter is a "relatively enduring and accessible, but limited, internal conceptual representation of an external system whose structure maintains the perceived structure of that system" (Doyle & Ford, 1998, p. 19), i.e. a theory of the system/intervention at hand or a programme theory. While "words and sentences must, by necessity, come only one at a time in linear, logical order" diagrams show everything all at once and in all relevant directions, just like it happens in systems (Meadows & Wright, 2008, p. 5). Hence, by visualizing the assumptions of the mental model of a dynamic system, the approach aims to better understand the behaviour of the system and its agents. Another interesting use of CLD is the articulation and presentation of dynamic hypotheses (Tomoaia-Cotisel et al., 2017). In the latter usage, not only an outcome is hypothesized at a specific moment in time (e.g. at the end of an intervention) but the behaviour of a specific part of the system over a period of time.

In CLD, variables are presented and causally linked to each other using arrows (see Figure 8). Each arrow has a direction and polarity: "+" means that a change in the first variable in a certain direction causes a change in the second variable in the same direction compared to the situation without the change in the first variable, whereas "-" means that the change occurs in the opposite direction. Some causal effects take time to manifest and this delay is represented by a double line on the arrow (//). Central to causal loop analysis is the examination of the diagram in order to find feedback loops. Feedback loops are "closed chains of causal connections" (Meadows & Wright, 2008, p. 27) and can be either selfreinforcing, i.e. leading to exponential growth or a self-reinforcing decline, or balancing, i.e. self-correcting or stabilising behaviour leading to a system reaching equilibrium or resisting change. Whether a loop is balancing or reinforcing depends on its polarity that is determined by the polarity of the arrows composing the feedback loop. If the number of negative links is even or zero, then it is called a reinforcing feedback loop and is indicated with a '+' sign or the letter 'R' in the middle of the loop. If the number of negative links is uneven, then it is called a balancing loop, which is indicated with a '-' sign or the letter 'B' in the middle of the loop. The clockwise or counter-clockwise arrow around the loop-polarity-signs indicate the

direction of the feedback loop (Tomoaia-Cotisel et al., 2017). Box 1 explains how best to read a causal loop diagram.

# Figure 8: Example of a causal loop diagram with a delay mark, a balancing and a reinforcing feedback loop



Source: Author

#### BOX 1. How to read a causal loop diagram

Although the aim of causal loop diagrams is to visualise and clarify complex systems and their behaviour, the large number of arrows and variables that often populate causal loop diagrams can be overwhelming. However, just like reading words, one can learn how to read a causal loop diagram. Here are some tips to easily find your way in the maze of arrows, variables and loops.

- Causal loop diagrams are often a representation of a narrative of one or more pages. Reading a narrative takes time, so why not take your time to study the causal loop diagram? We are used to only taking a glimpse at figures that appear in a text. However, you have to give your mind the time to adapt to the logic of a causal loop diagram.
- Reading a causal loop diagram starts with identifying a starting point. Choose a variable that is of the most interest to you.
- Now follow the arrows running away from the variable. You should read these arrows as 'an improvement/increase of variable 'A' causes an improvement/increase of variable 'B'' when the polarity of the arrow is positive (+) and as 'an improvement/increase of variable 'A' causes a deterioration/decrease of variable 'B'' when the polarity of the arrow is negative (-).
- Keep on following the arrows until you encounter a variable with no outgoing arrows or you arrive at a variable you have already arrived at. In the latter case you have discovered a feedback loop.
- Feedback loops are indicated as shown in Figure 8; the arrow around the 'B' or the 'R' indicates the direction of the feedback loop (clockwise or counter-clockwise). The feedback loop is normally constructed more or less around the symbol and should be read in the indicated direction.
- Another possibility is to focus on one variable of interest (e.g. an outcome variable) and look at the different incoming variable to discover by which factors it is affected.
- If possible, use a pencil or a pen to indicate which arrows you already read.
- While reading the causal loop diagram, ask yourself the question of whether the proposed causal linkage is probable or not. Putting into question the assumptions of a causal loop diagram is essential to improve them.

The combination of several feedback loops leads to specific systems behaviour called archetypes. Several authors (Braun, 2002; Meadows & Wright, 2008; Senge, 1990)

distinguish different archetypes<sup>48</sup> which are nonetheless very similar and sometimes only differ in name. Here we highlight some of these archetypes that may be interesting for the remainder of the study:

- Growth and Underinvestment:

The growth within a system reaches a limit because the needed capacity investments are not being made. Performance standards are subsequently being lowered in order to justify the lack of investment which leads to lower performance (Kim, 1992).

- Drift to low performance or eroding goals:

When there is a difference between the performance goal and the reality, the appropriate response is to take corrective actions. However, due to a lack of confidence or capacity in reaching the goal the decision may be made to lower the performance goals. Eventually this may lead to slowly eroding goals, especially when there is a negative bias towards the perception of the ability to reach the goals (Kim, 1992; Meadows & Wright, 2008).

# - Success to the successful:

This kind of systems behaviour occurs when the winners of a competition receive the means needed to win the next competition (Meadows & Wright, 2008).

- Rule beating

This what we called in Chapter 2 'gaming'. Actions are put in place that give the impression that they are following the rules but in fact they are undermining the purpose of the system (Meadows & Wright, 2008).

<sup>&</sup>lt;sup>48</sup> Senge (1990) presents the following archetypes: Eroding Goals, Escalation, Fixes that Fail, Growth and Underinvestment, Limits to Growth, Shifting the Burden (to the Intervenor), Success to the Successful, Tragedy of the Commons, Balancing Process with Delay. While Meadows and Wright (2008) distinguish the following: Policy Resistance, Tragedy of the Commons, Drift to Low Performance, Escalation, Success to the Successful, Shifting the Burden to the Intervenor, Rule Beating, Seeking the Wrong Goal. Finally, Braun (2002) proposes: Limits to Growth (aka Limits to Success), Shifting the Burden, Eroding Goals, Escalation, Success to the Successful, Tragedy of the Commons, Fixes that Fail, Growth and Underinvestment, Accidental Adversaries, Attractiveness Principle.

#### **4.** THE BEST OF TWO WORLDS

While reading the discussion of the two approaches, the reader may have already noticed some important similarities. For example, in Table 9, we learned that systems thinking needs the skill of operational learning meaning to "[concentrate] on causality and understanding how a behaviour is generated" (de Savigny & Adam, 2009, p. 43). This indeed relates closely to the discussed generative view on causation of RE. Yet, whereas RE is being mentioned as an important approach to further systems thinking (de Savigny & Adam, 2009), in the other direction, Pawson (2013) is more critical of systems thinking's response to complexity. According to him, systems thinking increases complexity rather than solving it. Pawson (2013) turns the systems thinking axiom 'systems are greater than the sum of their parts' around by postulating that "one cannot understand system properties without a working knowledge of their parts" (p. 59). Indeed, you cannot appreciate the peculiarity of '1+1=3', without knowing what '1' means and that the outcome is normally '2'.

Pawson's main critique is that the holistic approach of systems thinking is unfeasible and when it is being applied, it is often done in a narrow way or related to a specific intervention. Because systems behaviour is created by the (inter)actions of the agents, it is not enough to analyse the behaviour of the system; rather, each and every component (actor) of that system needs to be scrutinised. It is therefore almost impossible for a single evaluator to complete the task.

When looked at more closely, the critique of Pawson (2013) is not a fundamental rejection of the ideas and insights of systems thinking. Indeed, Pawson recognises that systems have properties on their own and that systems behaviour should be taken into account in evaluations. In fact, one of the characteristics of complexity he puts forward (see Section 1) is exactly the occurrence of 'emergence', a typical systems thinking concept. We therefore believe that the critique of Pawson (2013) can be interpreted as not so much a rejection of systems thinking, but rather a plea for more 'realism' within the systems thinking approach. He states that "one has to have theories that link these wider interpretations of system dynamics to mundane activities of stakeholders" (Pawson, 2013, p. 60).

We believe that RE and systems thinking (and more specifically its tools) can strengthen each other in order to come to a better understanding of how interventions work or why not. Being part of the theory-driven evaluation approach, RE, as we saw in Section 2, emphasises the importance of an explicit programme theory (CMOC) as a hypothesis for evaluation/research (Pawson, 2013; Van Belle et al., 2010). The development of the programme theory necessitates an in-depth understanding of a context characterised by

complexity and dynamism. Rogers et al. (2010) believe that a systems thinking approach can help theory-based evaluations to deal with this issue of complexity and dynamism, and we feel that this also applies more specifically to RE. As a programme theory aims to uncover interrelations between the elements of the project and the pre-existing environment which are often dynamic, the CMOCs which are presented either in a narrative as in Table 8 or a simple diagram can benefit a lot from the visualisation tools from the sub-field of system dynamics (CLD in specific), in order to more accurately depict this complexity and dynamism (Williams, 2010). Indeed, whereas a narrative can become heavy and obscure when having to include many contextual conditions, a causal loop diagram can handle much more information while keeping it accessible. At the same time, it can account for changes in the conditions (i.e. the dynamism of the system) and can help to foresee the possible system behaviours (see Section 3.2). Moreover, as observed by Marchal et al. (2010), multicomponent interventions (like PBF) may elicit difficulties of attribution when using RE. We believe that the use of CLD may also help to overcome this as it is specifically designed to address the issue of multi-causality. Hence, using CLD, a well thought-out programme theory can be devised and presented clearly, taking into account the multiple intervention and context components, the changing conditions and system behaviour. In turn, hypotheses which feed into a theory-driven evaluation can be generated, leading to a more in-depth evaluation and knowledge of the mechanisms at play.

In Figure 9, we show in a causal loop diagram the CMOC described in Table 8. Notice that the CMO configuration is loosely used as a heuristic and not as a strict framework as discussed in Section 2.3. If the weather conditions are good, the need for money is high, the level of the incentive is high and the physical capacity is high enough, the perceived benefits will outweigh the costs and the student will run around the playground. Interestingly, as described earlier, the causal loop diagram allows to observe systemic behaviours. Two balancing loops are discerned: firstly, as the student runs more laps around the playground, she/he earns more money and his/her need for money goes down, which lowers the benefits compared to the costs. Secondly, while running more laps, the student gets tired and his physical capacity to run another lap decreases, which increases the costs and in turn lowers the benefits compared to the costs.


Figure 9: Causal loop diagram of our CMOC example<sup>49</sup>

Source: Author

# 4.1 Putting the ReSt approach into practice

In this section, we will show how we will put this approach that combines realist evaluation with systems thinking (ReSt approach) into practice. The use of a systems thinking approach in evaluating PBF was proposed several years ago, but with little follow-up (Macq & Chiem, 2011). Likewise, REs are, to our knowledge, non-existent in the published literature on PBF. The combination of the two methodologies is thus certainly not yet used in research on/evaluations of PBF. However, in other parts of health research, the two methodologies have been combined. For example, Dalkin et al. (2018) combine RE with soft systems methodology in order to strengthen the development of the programme theory. Prashanth et al. (2014) use RE through a systems thinking lens. Finally, Kwamie et al. (2014) use a causal loop diagram to explain the CMOC detected through RE.

Indeed, the approach used by Kwamie et al. (2014) seems to be the same as the ReSt approach. Yet, although it is very similar, we believe that our approach is still different.

<sup>&</sup>lt;sup>49</sup> It might be claimed that one of the limitations of CLD is that one can always imagine other variables that need to be added. However, rather than a limitation, this is a strength. CLD makes explicit the assumptions of the researcher, which is an invitation to other researchers to cricize them which is the basis of good scientific research. However, whether variables are included also depends on the timeframe and the focus of the study. For example, in the longer run the student might get better trained and its physical capacities will increase because of that. Finally, variables are included becaue the research showed that they were important? There thus needs to be an empirical basis for its inclusion.

Whereas Kwamie et al. (2014) use CLD at the end of the RE to clarify and visualise the CMOC, the ReSt approach integrates both methodological approaches. Not only is CLD used to visualise what the RE has found, but also it supports the generation of hypotheses and the analysis of the data y looking for feedback loops at the systemic level.

In the first phase of an RE (see Chapter 6), CLD helps in the definition and visualisation of the programme theory. Similar to the programme theory within RE, CLD relies partly on the inputs of relevant stakeholders, beneficiaries, key informants and earlier studies. As described in Section 2.3, we add 'folk theories', scientific theories and policy documents. Moreover, in our approach, we stress the fact that an intervention is implemented in a preexisting system/environment/context; we see the implementation of an intervention as a "critical event in the history of a system" (Hawe et al., 2009, p. 267). The intervention influences the context, not the other way around. We therefore start with the creation of a causal loop diagram of the local healthcare system before the intervention (see Chapter 6). We mainly rely on semi-structured interviews (SSIs), self-administered surveys with health workers and earlier studies. We then introduce the intervention into the causal loop diagram, based on SSIs with key informants (KI) who identify where and how they expect the intervention to bring about change (the programme mechanisms). This causal loop diagram can then be seen as the programme theory of this specific intervention. The causal loop diagram can also be used to look for feedback loops that generate system behaviour which act as working hypotheses during the evaluation.

In the second phase, the by the researcher generated programme theory and additional hypotheses guide the researcher towards the most relevant points of interest: which variables/conditions are key, which assumptions are critical (i.e. generate balancing or reinforcing loops) and what indicators are useful. The evaluator designs the study and decides upon the needed data collection tools (see Chapter 5).

The third phase aims to verify which parts of the hypothesised programme theory (i.e. the causal loop diagram which includes the theorised CMOC) have materialised, for whom, in what context and why (see Chapters 7 and 8). In this phase, it can be useful to create a separate causal loop diagram for each of the mechanisms in order to keep it readable and clear. Subsequently, the several causal linkages from the hypothesised causal loop diagram are to be scrutinised. Variables and linkages can be added or deleted on the basis of the findings from the data collection.

The last phase entails the reporting (see Chapter 10). From the specific CMO configurations in the third phase, we move to more abstract CMO configurations for each of the different mechanisms. Finally, the separate causal loop diagrams are again brought

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together in one big causal loop diagram, which again depicts the whole system. Both the separate and combined causal loop diagram are important outputs: the former are important because they can be used as 'reusable conceptual platforms', whereas the latter is the updated programme theory of the evaluated intervention.

#### 4.2 Limitations and looking forward: the ReSQ approach

This ReSt approach is of course not flawless and has several limitations. The first limitation is that it remains difficult to study all the aspects of a system in-depth. Certain parts may only be covered superficially. It is important to make a clear and informed choice on those parts of the system that will be investigated thoroughly and those that will only be discussed superficially. A systems perspective does not mean that every part of the system should be studied equally thoroughly; some parts are more important than others (e.g. those leading to systems behaviour). This relates to the principle of 'trust-doubt ratio' in RE.

Secondly, CLD is focused on feedback loops, but these are not the only points of interest and other types of relationships (e.g. linear, logarithmic, parabolic or conditional) deserve equal attention. However, CLD does not forbid the evaluator from looking at these other relations.

Thirdly, causal loop diagrams can be very messy and indeed increase complexity instead of reducing it. Moreover, a fourth limitation is that the causal loop diagram is not good at identifying or visualising the necessary and sufficient conditions. For example, in our example, the student may be very intrinsically motivated, which makes the level of the incentive irrelevant. This is, however, not shown in our causal loop diagram. One way to overcome these two issues is to introduce qualitative comparative analysis (QCA) into the methodology (Ragin, 2014 [1987]; Schneider & Wagemann, 2012). This is not the time or place to give an in-depth overview of QCA, nor of the resulting ReSQ approach<sup>50</sup>. Here it is sufficient to indicate that QCA may help to limit the number of variables in the causal loop diagram as it is a data analysis approach that aims to determine the sufficient and necessary conditions for a certain outcome. Moreover, it can help create a model and make the causal loop diagram more dynamic. The result of a QCA is called a solution. It indicates the conditions that are sufficient to produce a certain outcome. For example, ABd + aBE  $\rightarrow$  F, means that 'F' occurs whenever at the same time conditions 'A' and 'B' are present and

<sup>&</sup>lt;sup>50</sup> ReSQ stands for Realist evaluation/synthesis, Systems thinking, and Qualitative comparative analysis.

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condition 'd' is absent or whenever 'a' is absent and at the same time 'B' and 'E' are present<sup>51</sup>. In system dynamics, the causal loop diagram can be transformed into a stock and flow-diagram and made more dynamic by entering mathematical functions for each variable. This mathematical function indicates what the value of the variable is given the values of the variables that influence it. By changing the value of one variable, a stock and flow-diagram can help predict (or rather hypothesise) how the values of the other variable(s) will change over time. Substituting the mathematical functions for the solutions of the QCA makes it possible to perform a qualitative modelling exercise that takes into account what is sufficient and necessary.

<sup>&</sup>lt;sup>51</sup> A lowercase letter means that a variable is absent, while an uppercase letter means it is present. The '+' sign corresponds to the logical OR while a period or 'nothing' (i.e. the letters follow each other immediately) corresponds to the logical 'AND'. Here we introduce the 'crisp set' variant of QCA which works with dichotomous conditions (present or not). It is also possible to use fuzzy-set QCA, in which the conditions can take several qualitative positions (e.g. very high, high, medium, low, very low) (see Schneider & Wagemann, 2012).

# LOOKING FOR COMMON GROUND: PBF, PBB AND MFR

Note: This intermezzo is a shortened and slightly adapted version of a published article: Paul, E., & Renmans, D. (2017). Performance-based financing in the heath sector in low- and middle-income countries: Is there anything whereof it may be said, see, this is new? The International Journal of Health Planning and Management. doi: 10.1002/hpm.2409

In Chapter 4 we discussed the issue of 'reusable conceptual platforms' in RE (see also Pawson, 2013). Here we will look at an interesting example of a policy that has sufficient similarities with PBF to function as a source of such 'conceptual platforms': 'performance-based-budgeting' (PBB) which is part of the 'managing-for-results (MfR)' current in management theory.

MfR can be defined "as the use of formal performance information to improve public sector performance. [...] Often, this is linked with broader strategic planning models incorporating significant elements of private sector corporate planning practices" (Robinson, 2007, p. 3). One of the crucial elements of MfR is the use of extrinsic (financial) incentives based on performance and increased autonomy for managers (Robinson, 2007). Aimed at making public management systems more focused on effectiveness and efficiency, MfR encompasses a number of reforms related to budgeting, accountability mechanisms and human resource management (Robinson, 2007).

One particular avatar of MfR to which health PBF is very much akin is performancebased budgeting (PBB), which can be broadly defined as "public sector funding mechanisms and processes designed to strengthen the linkage between funding and results (outputs and outcomes), through the systematic use of formal performance information, with the objective of improving the allocative and technical efficiency of public expenditure" (Robinson, 2007, p. 1).

Both PBB and MfR show interesting *similarities* with PBF:

- 1. Conceptual fuzziness about what it actual consists of (see Chapter 1)
- 2. Common objectives: improving performance of organisations and agents
- 3. Linking funding to results
- 4. Same concerns as for performance information
- 5. Incentive effect of financial premiums
- 6. Need for more management freedom
- 7. Large set of ancillary components

Yet several distinguishing features between PBF and PBB remain:

1. Level of implementation (PBF vs. PBB):

At the health service provider/facility level or at the hierarchical structures of the healthcare sector vs. broader in scope (across sectors) and applied similarly to all sectors

- 2. Proportion of funding (PBF vs. PBB): PBF usually comes as an extra incentive complementing core input-type funding (although not always) vs. usually full budget of agencies, or only supplement to core funding (Robinson, 2007, p. 10)
- Setting of unit prices (PBF vs. PBB): Premiums are usually not directly linked to cost, but are set based on the importance and relevance of the service (strategic purchasing function) vs.

the "right price" (related to the cost) to be given to each indicator and henceforth put pressure on agencies to be efficient

- 4. Role of quality measures (PBF vs. PBB): Limited number of quantitative indicators, lot of emphasis on quality measures incorporated in the funding formula vs. emphasis on quantitative indicators, quality control dealt through extra measures
- 5. Behavioural incentives (PBF vs. PBB): Risk lies in task trade off due to the focus on certain indicators (tasks) at the expense of others vs. risk of reduced service quality originates in an attempt to save money from mean costs
- 6. Financial sanctions (PBF vs. PBB): PBF facilities do not "lose" money vs. budgetary sanctions for underperforming programmes

Despite these differences, the similarities make that lessons drawn from the PBB research current may help in devising the programme theory of PBF. Many of them have already been included in our analytical framework (Chapter 2).

Firstly, for agencies to perform better, one has to consider incentives (both financial and non-financial) at the level of individuals comprising it. As put by Paul and Robinson (2007, pp. 330-331), "to ask about the motivational impact on agencies is really to ask about the motivational impact upon individuals within the agency of objectives, measures and targets specified for the agency as a whole." This does not mean that individual financial incentives are a requirement, because when individuals identify themselves sufficiently with the facility then facility levels can be sufficient to motivate at the individual level. It does however, underline to give the agents a central place in our evaluations as RE does.

Secondly, the general empirical evidence with respect to the motivating power of money is relatively consistent and shows that financial incentives are associated with higher performance—at least with higher quantity. Yet, the available literature on impacts on performance quality is inconclusive.

The basic principal-agent model is clearly not sufficient to correctly apprehend the complexity of MfR/PBB and PBF due to its narrow assumptions and disregard of ancillary components beyond financial premiums (see Chapter 2). That is why lessons from behavioural economics, public administration, sociology and social psychology are so important (Paul & Robinson, 2007) (see also Chapter 1).

Thirdly, PBF involves many stakeholders beyond the "main principal" and a "representative agent". Integrating them in a principal-agent model results in a so-called "multi-principal" agency problem. Actors involved in PBF are, inter alia, verification officers and organisations in charge of counter-verification, patients, communities, donors, the ministry of health, the ministry of finance, district health management teams, local governments, etc. They all are interlinked in a network of relationships that are

characterised by asymmetric information, thus opening the door to strategic gaming and/or collusion (see Chapter 2).

Fourthly, the cost of performance information is a factor in determining the appropriate role of high-powered incentives (Paul & Robinson, 2007, p. 339).

Fifthly, the assumption of *homo economicus* used by the principal-agent theory according to which agents are (de)motivated only by financial rewards and sanctions (or their monetary equivalent) does not appropriately reflect reality (Bhatnagar et al., 2016; Serra et al., 2011).

Finally, the in-depth analysis of the complex incentive system facing health workers is necessary in all contexts. Financial incentives do not operate in isolation, but instead interact with other behavioural drivers, including value-based drivers. In the health sector, professional ethics play a very important role, so that perverse effects may be substantially mediated (Robinson & Brumby, 2005, pp. 36-42).

PART 2

**UNWRAPPING THE BOX** 

**CHAPTER 5** 

FROM STRATEGY TO ACTION: COLLECTING THE DATA

A Mastermind, sleeps at night real easy A Mastermind, cause everything he does is by the book A Mastermind, never do a thing irrational

Nas - Mastermind

In Chapter 4, we discussed the underlying methodology of the study which is a combination of realist evaluation (RE) and systems thinking (more specifically causal loop diagramming (CLD)). We will now discuss the methods used for answering the in the introduction discussed research question: What are the mechanisms initiated by the PBF intervention at the level of the health facility and more specifically from the perspective of the health workers? These tools are created to study the in the next chapter (Chapter 6) hypothesized and described mechanisms. As discussed in Chapter 4, RE is method-neutral and thus is open to the use of both qualitative and quantitative methods. In this study, we used quantitative surveys, performed qualitative in-depth interviews with key informants (KI) and health workers, made observations in the different health facilities and studied relevant documents such as the minutes of the health facility meetings and the policy documents concerning the healthcare sector and the PBF intervention. Table 10 shows the different methods used and the chapters which use findings obtained through these methods.

Mathad	Objective		End		Cha	pter	
Wethou	Objective	line	line	6	7	8	9
Quantitative survey	Retrieve information on the perception of the health workers on the work environment and the intervention	✓	√	√	√	√	
Key informant interviews	Retrieve information on the intervention and the policy process and the opinion on the intervention from key actors from the Ministry of Health, the Medical Bureaus and the BTC/Enabel	*	*	✓			✓
Semi-structured interviews	Retrieve information on the perception of the intervention and its implementation from the health workers	✓	✓	√	√	√	
Observations	Observe the functioning and possible changes at	$\checkmark$	~	$\checkmark$	$\checkmark$	$\checkmark$	

Table 10: Methods used, objectives and the chapters in which they are used

OPENING THE 'BLACK BOX' OF PERFORMANCE-BASED FINANCING IN THE HEALTHCARE SECTOR OF WESTERN UGANDA

	the health facilities						
Document search	Study how the intervention is being discussed in the HUMC meetings and how it fits within the general Ugandan health policies (policy documents)		✓	~		✓	✓
Causal loop diagramming	To get an overview of the local healthcare system and the intervention and of how the two interact	~	✓	✓	✓	V	

Source: Author

Initially, the study was set up to be a comparative case-study with elements of a casecontrol study. The non-accredited facilities were to be the control facilities. However, due to the delays of both the research process and the implementation of the intervention discussed in Section 1, we were forced to change the research design to a case-study design, with the intervention being the case.

In the following sections, we will first discuss how the data collection process developed, how we were presented at the facilities, what went wrong, which decisions were made, and so forth. From the second section onwards, we discuss the different data collection tools and how the retrieved data was analysed in the following chapters. The final section concerns some of the main limitations of this research, which need to be taken into account when reading through the thesis.

# **1. THE DATA COLLECTION PROCESS**

In this first section, we give an overview of the data collection process. We will discuss when and where data was collected, in what way, what the challenges were and how these affected the data. Transparency is key in science; data collection is hardly ever as neat as it is often presented in the literature. The research process is often messy with unforeseen downfalls that need to be fixed on the spot, delays, unanticipated events that threaten to derail the research process and unexpected 'context' features that influence the size and composition of the sample. Researchers need to respond to such validity threatening situations in a way that does the least scientific harm. Being fully transparent about the choices made gives colleagues the opportunity to give a sound judgement of the validity of the results and the claims made. We claim that, in qualitative social research, not reproducibility but rather transparency should be the main concern. Therefore, we will try to be as open as possible about the different caveats and limitations of this research.

Here, we will discuss three phases in the research process. The first phase is the preresearch phase which comprises the preparation of the protocol and the attainment of the ethical approval. The second phase is the baseline study which took place in August, September and October 2015. Two years later, we performed the end line study in April, August and September 2017.

#### **1.1 Pre-research phase**

The protocol was written to a large extent before the start of the PhD process in order to obtain a scholarship. It was refined during the first year of the PhD and submitted for ethical approval at the Institute of Tropical Medicine (ITM) (proposal code: 1003/15), the University of Antwerp (B300201525175) and the Makerere University School of Public Health (334). Whereas the ethical approval at the ITM and the University of Antwerp went without any noticeable problems, the approval at the Makerere University encountered some difficulties, which led to a delay of one month. This meant that less time was left to visit facilities, and we decided to limit our research to two districts, namely Kasese and Kyenjojo, which were the districts in Western Uganda with the most facilities participating in the intervention. Indeed, the reasoning behind the decision on the study context was pragmatic rather than methodological, theoretical or conceptual.

Before going to these two districts, we first performed a small qualitative pre-test of the quantitative survey in a public facility near Kampala. This entailed having several health workers filling in the questionnaire, after which we discussed with them the clarity of the

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questions and how they had understood them. After this, some small adaptations were made to the phrasing of some of the questions.

# **1.2 Baseline study**

The baseline study was performed from August 2015 until October 2015. We only visited the private not-for-profit (PNFP) facilities, as the project was at the time not implemented in the other facilities (see Chapter 6). Whereas the intervention was introduced in health centers (HC) at level III and IV and district referral hospitals, we focused on the HC III and IV because of their similarities and the significant difference between a health center and a hospital. Facilities were not sampled, each PNFP facility was visited in the two districts.

Two research assistants that knew the local language accompanied me to perform the data collection. The research assistants were trained on their specific tasks and received a short introduction about the project in general. The aim was not to give too much information about the research in order to avoid bias as much as possible. We visited each of the facilities for one whole day. The health coordinators of the relevant dioceses were informed about our visits to the facilities and were asked to inform the in-charges of these facilities. However, not every facility in-charge was aware of our visit when we arrived. Upon arrival, we would present ourselves to the in-charge and explain the objectives of our visit, underlining the fact that we were not evaluating the facility but the intervention and that we were not sent by the BTC/Enabel. Despite our efforts to distance ourselves from the BTC/Enabel, some health workers still saw us as coming from the BTC/Enabel. This may have created a bias towards more positive reporting about the state of the facility, although at this stage of the data collection most of the health workers were still unaware of the intervention.

After our introduction talk with the facility in-charge, we spread out in the facility: one of the research assistants performed observations of the consultations between the clinical/nursing officer and his/her patients. The other research assistant performed structured interviews with the patients on the basis of a quantitative survey. The results are not presented in this PhD thesis due to the limitations of the research sample as discussed in the next section (Section 1.3).

In the meantime, I, the main investigator, tried to observe as much as possible the work flow, the layout of the facility, the information on the message boards and the state of the equipment and infrastructure. By the afternoon, I would approach individual health workers to ask them to fill in the quantitative survey or the in-charge was asked to bring

together the available health workers. The aim was to have all the present health workers fill in the survey. In each contact with the health workers, I emphasised that we were from Makerere University and not from the BTC/Enabel, that no wrong answers existed, that everything would be treated anonymously and that the answer will not have an effect on their position or the facility. I also explained the survey extensively, especially the part on motivation. While the health workers were filling in the survey, I remained nearby so that they could ask questions when something was unclear, without staying too close and breaching confidentiality. When they finalised the survey, they were asked to put it in a brown envelope in order to ensure confidentiality.

I also approached health workers for a more in-depth interview. No monetary compensation was given to the respondents, only a soda. Interviews were performed in a quiet room at the facility whenever they finished attending to the patients. Again, before the interview, I emphasised our independence from the BTC/Enabel and the confidentiality of their answers. With the explicit permission of the respondents, the interview was recorded. After all the health workers filled in the questionnaire, the necessary interviews were performed and no new patients were arriving at the facility, we thanked the staff and left the facility.

One problem that arose during the data collection concerned the position of one of the research assistants. During the intake interview, she did not inform me that she was the in-charge of one of the facilities that we were visiting. In order to avoid bias, no qualitative interviews were performed at this facility, nor were there any patients interviewed or consultations observed. We did, however, hand out the quantitative survey. After inspection of the answers and checking whether they were different from those from other facilities, we decided to keep them in the sample.

#### **1.3 End line study**

We performed our baseline study under the pressure of the deadline of the start of the intervention, as we wanted to make sure that all the facilities were visited before the intervention was introduced at the facility. We were told that the intervention would start in November 2015, which would have given us the time to do a data collection round after one year and a final one after two years. However, due to changes in the political strategy as described in Chapters 6 and 9, the start of the intervention was postponed and it eventually only started in July 2016. We therefore did not perform a mid-term data collection and the end line study happened after one year rather than two years.

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This had a strong influence on our data. Initially we aimed to study the effect of the PBF intervention on the intrinsic and extrinsic motivation of the health workers, yet such effect needs time to settle down. Moreover, it also needs a clear exposure to the intervention, meaning that the health workers should be fully aware of the intervention and the financial incentives. Due to the delay and some of the implementation flaws (see Chapter 7), this did not happen. The health workers that were supposed to be in our treatment group were often hardly aware of the incentives or had not received them yet. Moreover, although the intervention was running for one year, not all the facilities were accredited from day one, which meant that they were still to receive their first financial incentives. All of this meant that the sample to investigate an effect on motivation and the behaviour during the consultation (measured through the observation of the consultation and the patient surveys) was too small<sup>52</sup> and too little exposed to the intervention. In the analysis we therefore focused more on the qualitative data. The unused quantitative data may still be used in the future when the intervention is further down the road and new data can be collected.

Nonetheless, our approach in the facilities during the end line study was the same as the one in the baseline study. We performed the same collection of data and presented ourselves in the same way. However, this time, the facilities that were accredited were visited twice; the rationale to do so was as follows: firstly, as we will see in Chapter 8, these facilities had much more patients and so were busier, and thus it was more difficult to get access to the health workers. Secondly, in these facilities, we started the day by looking into the minutes of the health unit management committee (HUMC) meetings, quality improvement meetings, and so forth, which meant that half a day of observation was lost.

During this end line study we also performed several unstructured interviews (USIs), with health workers, administrators, records assistants and so forth.

<sup>&</sup>lt;sup>52</sup> The observations and the patients surveys were also too few due to a lack of patients coming to the facilities during the baseline study\*. At some facilities only three patients came by during the whole day.

# 2. THE QUANTITATIVE SURVEY<sup>53</sup>

The quantitative survey<sup>54</sup> is meant to get population (the health workers) wide information about the work environment and the perception of the PBF intervention. It contained three (at baseline) and four (at end line) parts. The first part concerned the general information and the characteristics of the respondents as described in the next section. The second part consisted of the motivation questionnaire of Lohmann et al. (2017), which entails 33 Likert-scale questions on the reasons why the health workers are motivated to work. Perceptions on the work environment are asked for in the third part of the survey. These concern the health workers' view on their salary, the infrastructure and equipment at the facility, the quality of the supervision, the clarity of the role and the responsibilities. The surveys during the end line study also had a part on the PBF intervention, in which they were inter alia asked about the positive and negative aspects of the intervention.

As already mentioned, the surveys were extensively explained to the health workers and the confidentiality was ensured. Only clinical health staff with a salary were allowed to fill in the survey.

After the data collection, the surveys were scanned using EvaSys 6.1 (Electric Paper<sup>®</sup> Ltd., London, UK). The open questions were coded manually, whereas the other questions were analysed using IBM<sup>®</sup> SPSS Statistics version 23 (IBM Corp., Armonk, NY, USA).

Due to the difficulties described in Section 1.3, the results of these surveys could only be used to a certain limit. Too few respondents and too little 'exposure' to the intervention made it both methodologically and theoretically (i.e. attribution) inappropriate to use them for their initial purpose (i.e. an evaluation of the impact). Most of the quantitative findings were thus used for the description of the context rather than the analysis of the effect of the intervention.

#### 2.1 Respondent characteristics

The baseline survey was completed by 81 health workers from 17 facilities (15 HC III and 2 HC IV), whereas the end line survey reached 94 health workers from 16 facilities (14 HC III and 2 HC IV) (Table 11). This corresponds to a response rate of about 65% of the health workers working at the facilities and not on study leave. The health workers that were not

<sup>&</sup>lt;sup>53</sup> See Annex I for the health worker survey.

<sup>&</sup>lt;sup>54</sup> The full survey used during the end line study can be found in Annex I.

included in the survey were either on maternity leave or annual leave or worked at another moment when we were not present at the facility. Only two persons explicitly refused to fill in the survey without giving a reason (mainly because of shyness or because they did not feel like filling in a survey). Given the low number, we do not expect them to have a strong effect on the results. Working rosters are variable and every health worker has to do a night shift and a day shift. We thus have no reason to believe that there would be any kind of selection bias due to the absence of health workers on their night shift in the sample.

District	Facility (level)	Medical board	# of beds at IPD*	Baseline (%)	End line (%)
	Buhaghura (III)	UPMB	< 5	3 (3,7%)	1 (1,1%)
	Kanamba (III)	UPMB	< 5	2 (2,5%)	2 (2,1%)
	Kasanga (III)	UCMB	> 10	10 (12,4%)	9 (9,6%)
	Kinyamaseke (III)	UPMB	5 – 10	7 (9%)	7 (7,4%)
	Kitabu (III)	UCMB	> 10	4 (5%)	5 (5,3%)
Kasasa	Kyanya (III)	UPMB	< 5	1 (1,2%)	0
Nasese	Kyarhumba (III)	UCMB	> 10	4 (4,9%)	9 (9,6%)
	Maliba (III)	UPMB	5 – 10	4 (4,9%)	3 (3,2%)
	Musyenene (III)	UPMB	5 – 10	3 (3,7%)	5 (5,3%)
	Nyabugando (III)	UPMB	5 – 10	7 (8,6%)	3 (3,2%)
	Rwesande (IV)	UPMB	> 10	7 (8,6%)	13 (13,8%)
	StPaul (IV)	UPMB	> 10	10 (12,4%)	11 (11,7%)
	Total			62 (76,5%)	68 (72,3%)
	Kyakatara (III)	UCMB	> 10	3 (3,7%)	4 (4,3%)
	Kyembogo (III)	UCMB	> 10	5 (6,2%)	6 (6,4%)
Kyenjojo	Mabira (III)	UCMB	> 10	4 (4,4%)	4 (4,3%)
	Rwibale (III)	UCMB	> 10	3 (3,7%)	6 (6,4%)
	StAdolf (III)	UCMB	5 – 10	4 (4,9%)	6 (6,4%)
	Total			19 (23,5%)	26 (27,7%)

Table 11: Visited facilities and number and percentage of interviewees

Note: \*These are ad-hoc estimates which may differ slightly from reality. Source: Author

Table 12 gives an extensive overview of the survey respondents; unfortunately, we were not able to retrieve the same data for the whole research population. However, as already stated, we have no reason to believe that they are significantly different. A first important observation is that the respondents were very young, with a large majority being under 30 years of age both at baseline and at the end line. A possible explanation may be that older health workers might get promoted to higher facilities (HC IV or regional hospitals or District Health Office) or move to other sectors (e.g. the public sector or the NGO sector).

81 (100%)

94 (100%)

TOTAL

This is somewhat reflected in the occupation of the respondents with more lower cadres like nurses and midwives than higher ranked cadres like clinical officers or nursing officers. This distribution between cadres is very similar between the baseline and end line. In addition, six out of ten health workers in the surveys have less than five years of experience, and more than eight out of ten have less than five years of experience at the facility they work at for the moment. This is somewhat the same between the two data collection rounds except that the distribution during the end line study was more skewed to the group of less than one year at the facility. This may point to an increased turnover of human resources or of more new health workers being hired (it could not be determined whether this was due to the PBF project or not). This is an important observation as this means that almost 30% of the respondents from the end line study arrived at the facility *after* the initiation of the BTC intervention. Finally, all respondents were also religious, except for one respondent. In both Kasese and Kyenjojo, most of them see themselves as Roman Catholic or Anglican. The religious affiliation of the health workers is not directly linked to the religious affiliation of the facility they work at.

		Kasese			Kyenjojo				Total				
		Baseline		End line		Bas	seline	End	line	Bas	eline	End	l line
#	respondents	Ū	62	6	8		19	2	6	8	81	9	94
Se	ex	Ν	%	Ν	%	Ν	%	Ν	%	N	%	N	%
	Female	41	66,1	41	60,3	12	63,2	11	42,3	53	65,4	52	55,3
	Male	21	33,9	27	39,7	7	36,8	15	57,7	28	34,6	42	44,7
A	ge												
	16-25 years	11	17,7	22	32,4	8	42,1	12	46,2	19	23,5	34	36,2
	26-30 years	24	38,7	20	29,4	6	31,6	8	30,8	30	37	28	29,8
	31-40 years	17	27,4	18	26,5	3	15,8	5	19,2	20	24,7	23	24,5
	41-50 years	7	11,3	6	8,8	1	5,3	1	3,8	8	9,9	7	7,4
	>50 years	3	4,8	2	2,9	1	5,3	-	-	4	4,9	2	2,1
Ca	dre												
	Clinical Officer	8	12,9	7	10,3	5	26,3	7	26,9	13	16	14	14,9
	Nursing Officer	14	22,6	13	19,1	2	10,5	2	7,7	16	19,8	15	16
	Midwife	14	22,6	17	25	5	26,3	8	30,8	19	23,5	25	26,6
	Nurse	24	38,7	24	35,3	7	36,8	7	26,9	31	38,3	31	33
	Lab staff	2	3,2	6	8,8	-	-	2	7,7	2	2,5	8	8,5
	Theatre Ass.	-	-	1	1,5	-	-	-	-	-	-	1	1,1

Table 12: Characteristics of respondents of the quantitative survey

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Re	eligion												
	Anglican	26	41,9	29	42,6	5	26,3	3	11,5	31	38,3	32	34
	Muslim	-	-	1	1,5	1	5,3	1	3,8	1	1,2	2	2,1
	Roman cath.	31	50	33	48,5	9	47,4	19	73,1	40	49,4	52	55,3
	Pentecostal	1	1,6	-	-	2	10,5	1	3,8	3	3,7	1	1,1
	Not religious	-	-	-	-	1	5,3	-	-	1	1,2	-	-
	Other	4	6,5	5	7,4	1	5,3	2	7,7	5	6,2	7	7,4
Se	eniority												
	<1 year	6	9,7%	14	20,6	3	15,8	4	15,4	9	11,1	18	19,1
	1-5 years	28	45,2%	23	33,8	12	63,2	19	73,1	40	49,4	42	44,7
	5-10 years	10	16,1%	16	23,5	1	5,3	2	7,7	11	13,6	18	19,1
	>10 years	17	27,4%	15	22,1	3	15,8	1	3,8	20	24,7	16	17
	Missing	1	1,6%	-	-	-	-	-	-	1	1,2	-	-
Ti	me at Facility												
	<1 year	10	16,1%	20	29,4	6	31,6	7	26,9	50	19,8	27	28,7
	1-5 years	40	64,5%	36	52,9	10	52,6	17	65,4	9	61,7	53	56,4
	5-10 years	8	12,9%	10	14,7	1	5,3	2	7,7	5	11,1	12	12,8
	>10 years	3	4,8%	2	2,9	2	10,5	0	0	1	6,2	2	2,1
	Missing	1	1,6%	0	0	0	0	0	0	1	1,2	0	0

Source: Author

# 2.2 Motivation

This part of the survey is based on the work of Lohmann et al. (2017), who validated a questionnaire to measure the motivational composition of health workers. The underlying theory of this questionnaire is the self-determination theory (SDT) (Deci & Ryan, 2000; Lohmann et al., 2017). It focuses on the underlying reason of motivation rather than the level of motivation and mainly studies whether the motivation comes *from within* the person (internal regulated motivation) or rather *from the outside* (external regulated motivation). These are two ends of a continuum and a further distinction is made between three other kinds of motivation that can be placed alongside this continuum (see Figure 10 and Table 13). SDT assumes that each kind of motivation is at the same time present, but the importance of each may differ between individuals and over time.<sup>55</sup>

<sup>&</sup>lt;sup>55</sup> For a more elaborate explanation of the self-determination theory we refer to the works of Deci and Ryan (2000) and Gagné and Deci (2005). An interesting conceptual discussion drawing upon the SDT on the crowding out of intrinsic motivation in PBF interventions can be found in Lohmann et al. (2016).



Figure 10: Schematic illustration of the self-determination theory

Source: (R. M. Ryan & Deci, 2007)

#### Table 13: Definitions of the different kinds of motivation

External regulation	"behaviours are performed to satisfy an external demand or obtain an externally imposed reward" (Ryan & Deci, 2000: 61)
Introjected regulation	"people perform actions with the feeling of pressure in order to avoid guilt or anxiety or to attain ego-enhancements or pride" (Ryan & Deci, 2000: 62)
Identified regulation	"the person has identified with the personal importance of a behaviour and has thus accepted its [motivation] as his or her own" (Ryan & Deci, 2000: 62)
Integrated regulation	"identified [motivations] have been fully assimilated to the self" (Ryan & Deci, 2000: 62)
Intrinsic motivation	Motivation that stems from a source internal to the subject of the motivation. "Doing an activity for its inherent satisfactions rather than for some separable consequence" (Ryan & Deci, 2000: 56)

#### Source: (R. M. Ryan & Deci, 2000)

The questionnaire itself initially consisted of 33 statements about what motivates people to work. Each of the items can be categorised under one of the five types of motivation. Health workers were asked to rate on a Likert-scale from zero to ten how much the statements applied to them (see Figure 11). Unlike in the study of Lohmann et al. (2017), our questionnaire was self-administered. We extensively explained to the respondents how to interpret the questions on motivation and how to correctly complete this specific part of the survey. We emphasised that no wrong answers exist, that some reasons will be more important than others, that they should use the whole scale and that the question does not

concern whether the statement is important as such, but whether it is an important reason for them to be motivated. I remained in the room during the completion of the survey so that they could always ask questions. Notwithstanding, some confusion about the questions may have occurred as the reasons for motivation are not something people usually think of and it is not always easy to identify them.

# Figure 11: Example of a statement from the survey on motivation

Source: Author

In the final version of the scale, Lohmann et al. (2017) reduce the scale to 26 items after a theoretical analysis of the 33 items (i.e. analysing whether the items fit the factors and concepts to which they should refer) and further lower it down to 15 items after a statistical analysis (using a confirmatory factor analysis). They also combined 'integrated regulation' and 'identified regulation' and divided external regulation into a social and economic sub-factor (Table 14). However, our research was performed before the results of this validation exercise were known; we therefore used the 33-item scale in our survey. The scale was thus reduced during the analysis.

Type of motivation	Statement number in survey	Statement
Intrinsic motivation	3.8	"because I enjoy doing what I am doing at work every day."
Cronbach's Alpha: , 551	3.16	"because I enjoy my work tasks."
	3.32	"because the work that I do is very interesting."
Integrated/Identified regulation	3.23	"because being a health worker is a fundamental part of who I am."
Cronbach's Alpha: ,761	3.25	"because my work is extremely important for m patients."
	3.22	"because I want to make a difference in people's lives."
Introjected regulation	3.17	"in order to feel good about myself."
Cronbach's Alpha: ,419	3.28	"because my reputation depends on my work."
External regulation (Social)		"because of the appreciation I
Cronbach's Alpha: ,419	3.33	receive from my patients and the community."
	3.27	"so I don't let my team down."
	3.14	"so my supervisor recognizes and appreciates me."
External regulation	3.3	"because of the benefits that come

# Table 14: Scale as used by Lohmann et al. (2017), including statement number andCronbach's Alpha based on own survey and data

(Economic)		with my job."
Cronhach's Alnha: 578	3.9	"in order to be able to provide for my family "
		"because of the security my job
	3.31	provides me with."
	3.24	"in order to earn money."

Source: (Lohmann et al., 2017) and own calculations based on own data

Given the small sample size of our study (see Section 8), it was not possible to perform a confirmatory factor analysis that could result in a good model. Due to the fact that the use of the results is limited to the descriptive part of the thesis (Chapter 6), we restricted the analysis to a test of internal consistency of each type of motivation (i.e. Cronbach's Alpha)<sup>56</sup>. Using IBM<sup>©</sup> SPSS Amos version 22 (IBM Corp., Armonk, NY, USA), we performed a Cronbach Alpha test for each of the five types of motivation used in the 15 item scale of Lohmann et al. (2017) (see Table 14). The rule of thumb for evaluating Cronbach's Alpha is presented in Table 15 (George & Mallery, 2003).

Table 15: Evaluation of the value of Cronbach's Alpha

Cronbach's Alpha	Evaluation
0,9 ≤ α	Excellent
$0,8 \le \alpha < 0,9$	Good
$0,7 \leq \alpha < 0,8$	Acceptable
0,6 ≤ α < 0,7	Questionable
$0,5 \leq \alpha < 0,6$	Poor
α <0,5	Unacceptable

Source: (George & Mallery, 2003)

According to this rule of thumb, 'introjected regulation' and 'External regulation – social' have an unacceptable and 'Intrinsic motivation' a poor Cronbach's Alpha value. We therefore added some of the variables that were first excluded and deleted others in order to get better internal consistency. We also joined the two sub-factors on external regulation back together<sup>57</sup>. We subsequently ended up with the statements described in Table 16. The Cronbach's Alpha values now range from poor to acceptable.

<sup>&</sup>lt;sup>56</sup> Missing data were imputed through linear interpolation using IBM© SPSS Statistics version 23 (IBM Corp., Armonk, NY, USA).

<sup>&</sup>lt;sup>57</sup> Lohmann et al. (2017) advise researchers to use the 26 item-scale and make a new selection when applied in a new context.

Type of motivation	Statement number in survey	Statement
Intrinsic motivation	3.8	"because I enjoy doing what I am doing at work every day."
Cronbach's Alpha: , 779	3.5	"because I very much like doing this job."
Integrated/Identified regulation	3.23	"because being a health worker is a fundamental part of who I am."
Cronbach's Alpha: ,761	3.25	"because my work is extremely important for m patients."
	3.22	"because I want to make a difference in people's lives."
Introjected regulation	3.17	"in order to feel good about myself."
Cronbach's Alpha: ,557	3.28	"because my reputation depends on my work."
	3.7	"because my work makes me feel proud of myself."
	3.2	"because I would feel ashamed if I did not do so."
	3.13	"because it is my duty to care for my patients."
External regulation	3.33	"because of the appreciation I receive from my patients and the community "
	3.27	"so I don't let my team down."
	3.14	"so my supervisor recognizes and appreciates me."
	3.3	"because of the benefits that come with my job."
	3.9	"in order to be able to provide for my family."
	3.31	"because of the security my job provides me with."
	3.24	"in order to earn money."

Table 16: Scale as used in this study (Chapter 6), including statement number and Cronbach's Alpha based on own survey and data

Source: (Lohmann et al., 2017) and own calculations based on own data

# 2.3 Perceptions of the work environment

The third part of the survey consisted of questions concerning the health workers' perception of their work environment. On a 7-point Likert scale, with the possibility of indicating 'don't know', the health workers were asked whether keeping the records and supervision were important, whether the infrastructure and equipment were extremely bad or good, whether their tasks and responsibilities were clear and, finally, whether they viewed their salary as 'not enough at all' or 'more than enough'. Each of the questions was followed by an open question asking the respondents to explain why they felt this way.

The questions on the infrastructure and equipment were the only ones that were used for the analysis of the intervention, the reason being that the improvement of these aspects already started at the outset of the accreditation process, which implies it had a higher probability of showing a statistically observable effect and a larger group of respondents being affected by it. In Chapter 8, we show the results of a Mann–Whitney U test. We used this non-parametric test because the sample was not normally distributed. Although the Mann–Whitney U test is normally used for independent samples and our two samples (baseline and end line) are partly overlapping (with some respondents appearing in both samples), we still opted for the Mann–Whitney U test. This was mainly because we could not match observations between the baseline and the end line, which is necessary for a Wilcoxon signed-rank test. We did perform the latter test using the mean score at the level of the facility. This allowed us to match observations at the facility level, yet the source of our data (the health workers) remained partially dependent. Importantly, no differences were observed when comparing findings alternately using the Wilcoxon signed-rank test and the Mann–Whitney U test. In Chapter 6, we also performed a Mann–Whitney U test to analyse the differences between Kasese and Kyenjojo.

Concerning the question on record keeping we only focused on the answers to the open follow-up question. Respondents were asked to explain why they thought keeping the records was important (or not). Respondents could write down as many reasons as they felt necessary. Answers were analysed by coding them according to the two main functions of record keeping (instrumental use and accountability purposes) (see Gildemyn, 2011)<sup>58</sup>. In Chapter 6, we present the results with a 95% confidence interval. We also cross-tabulated the view on record keeping (instrumental versus accountability view) with the level of the cadre (i.e. higher (other, nursing officer and clinical officer) and lower (nurse and midwife) level) and calculated the odds ratio with a 95% confidence interval.

Our analysis of the question on supervision focused again on the open follow-up question. This time, the answers were coded using the open-coding technique, in which codes are created during the coding process. In Chapter 6, we give the frequency of each of the codes.

For the question on salary, we focused on the responses to the Likert scale. We compared the scores between the different age groups using the non-parametric Kruskal–Wallis H test, as the visual inspection of the distribution of the samples showed a similar

<sup>&</sup>lt;sup>58</sup> See Annex VI for the codes used for the survey questions on recordkeeping and supervision.

variability. We also performed a Mann–Whitney U test on the groups '16–40 years' and 'over 40 years'. The level of significance was as always set at 5%.

Finally, the responses to the 'tasks-and-responsibilities' question were not further analysed, the reason being that the scores obtained were already very high, and hence a statistically significant increase was very unlikely. Yet, this is what can be expected based on the qualitative findings.

# 2.4 Perceptions of the intervention

The last part of the survey was only present in the end line survey and concerned the perceptions of the intervention. We asked the respondents about their awareness of the PBF intervention, whether they received financial incentives, whether this was a substantial amount or not and whether they thought the PBF intervention was bad or good for the facility/health workers. We ended the survey with two open questions asking about the main positive and negative elements of the PBF intervention.

The findings related to the first two questions are discussed in Chapter 7. Inconsistent responses (e.g. a respondent who claimed to have received financial incentives from the intervention, but whose facility is not yet covered by the intervention) were filtered out of the data. The other four questions are discussed in Chapter 8. The open questions are again coded using the open-coding technique. Respondents were free to provide as many positive and/or negative elements about the intervention. The coding was performed in order to get as few categories as possible without losing consistency within the categories. An overview of the used codes can be found in Annex V.

As we mentioned in Section 1, some of the health workers might have seen us as representatives of the BTC/Enabel, which may have created a bias towards too positive reporting.

# **3.** THE QUALITATIVE INTERVIEWS

The aim of the qualitative interviews was to get a deeper understanding of the health workers perception on the work environment and the intervention. At each facility, we performed one, two or three interviews with the available health workers. They were purposefully selected as we tried to have a relatively balanced sample. The content of these interviews was different between the baseline and the end line. Whereas the interviews during the baseline study concerned the perception of the work environment, their motivation, their views on what can be improved and how, the interviews during the end line study were more focused on the evaluation and view of the intervention.

#### **3.1 Respondent characteristics**

We held 30 semi-structured interveiws (SSIs) with health workers during the baseline study and 29 SSIs and 11 unstructured interviews (USIs) during the end line study. Depending on the availability of staff and their willingness to participate, we interviewed one, two or three health workers at each facility (see Table 17). Respondents were purposefully sampled in order to get a more or less balanced representation of the different cadres. During the end line study, more interviews were performed in facilities that were accredited and part of the intervention. Table 17 also shows that there is a relatively good balance between the different cadres present amongst the respondents of the SSIs, although the nurses are the most present in the baseline study and the clinical officers are somewhat over-represented in the end line study. The lab technicians interviewed in the end line study are in most cases (former) staff representatives or heads of department, thus closely involved in the implementation and the meetings concerning the intervention. The USIs are less evenly distributed and were mainly done amongst non-clinical staff members.

Hoolth facility	Pacalina	End	line	Codro	Pacolino	End	line
Health facility	Daseime	SSI	USI	Caure	Daseime	SSI	USI
Kasese							
Buhaghura	2	-	-	Administrator	-	1	3
Kanamba	2	1	1	Clinical Officer	7	8	1
Kasanga	1	3	1	Nursing Officer	6	5	-
Kitabu	3	2	-	Nurse	10	6	2
Kinyamaseke	-	1	1	Midwife	5	6	-
Kyarhumba	2	3	1	Lab Technician	-	3	1
Maliba	1	2	-	Records assistant	2	-	1
Musyenene	1	1	-	Pharmacist	-	-	1
Nyabugando	3	2	1	Accountant	-	-	1
Rwesande	3	3	1	Group (Director, counsellor, 2 midwifes)	-	-	1
StPaul	2	2	-	Total	30	29	11
Kyenjojo							
Kyakatara	2	3	-				
Kyembogo	3	1	3				
Mabira	1	1	-				
Rwibale	2	2	-				
StAdolf	2	2	2				
Total	30	29	11				

Table 17: Number of interviews per facility and cadre of respondents of qualitative interviews

Note: SSI = Semi-structured interview; USI = Unstructured interview Source: Author

# 3.2 Baseline interviews<sup>59</sup>

The qualitative interviews with the health workers at baseline were mainly used to describe the context or rather the pre-intervention system in which the intervention would be implemented (see Chapter 6). The questions concerned the respondents' motivation for becoming a health worker and their vision on what it means to be a good health worker, on the role of recordkeeping and supervision, on their remuneration and on the work environment. We also asked about their opinion about certain facts and statements in order to get an indirect look into their view on the needs of the healthcare system. For example, we asked them about the main contributors to the high maternal mortality. We chose maternal mortality because of its systemic nature and for it being the focus of many PBF interventions on maternal healthcare (Das et al., 2016). Another question concerned what

<sup>&</sup>lt;sup>59</sup> The questions/themes of the semi-structured interviews can be found in Annex II.

health workers would do if they were to become the Minister of Health. Every interview ended with a less weighty question about the future plans of the respondent and whether they would prefer to work in the Private Not-For-Profit (PNFP) or the public healthcare sector and why. This last question often revealed the actual motivation and aspirations of the health workers.

The interviews were recorded and transcribed verbatim by one of the research assistants and controlled by myself. Afterwards they were coded using QSR Nvivo© 10 software (QSR International Pty Ltd., Doncaster, Australia) through open-coding.

# 3.3 End line interviews<sup>60</sup>

The interviews during the end line study mainly focused on the implementation and evaluation of the intervention. We asked about the health workers' knowledge of the intervention, the positive and negative elements, how the intervention has changed their work environment and what can be done to improve it. In line with the baseline study, the interviews were recorded and transcribed verbatim by the research assistants. The transcribed texts were subsequently coded using QSR Nvivo© 10 software (QSR International Pty Ltd., Doncaster, Australia). The coding focused on issues related to the implementation, challenges, results and evaluation of the intervention.

The USIs were ad-hoc interviews that spontaneously happened and often concerned specific questions or concerns from the health workers themselves. They were unplanned but gave interesting information about how the intervention got implemented at facility level. They were not recorded, yet notes of these interviews were taken and entered into a Word file immediately after the interview when everything was still fresh in the mind in order to complete the notes.

<sup>&</sup>lt;sup>60</sup> The questions/themes of the semi-structured interviews can be found in Annex III.

# 4. Key INFORMANT INTERVIEWS<sup>61</sup>

The aim of the KI interviews was to get a better understanding of the intervention and the policy process behind it and to get to know the program theory. The KI interviews were performed on different occasions. During the pre-research phase, we kept in contact with the BTC/Enabel programme manager and the BTC/Enabel health coordinator in Brussels in order to stay up to date about the intervention. At the time of the baseline study, we conducted interviews with the programme manager in order to receive the necessary information about the potential participating facilities, the timing of the intervention and the intervention's design. We also had discussions with the health coordinators of the medical bureaus at the level of the diocese/district. However, these interviews primarily concerned practical issues and were not recorded or transcribed.

More in-depth and substantive KI interviews were conducted in March 2017. Respondents were chosen purposefully in order to interview those most closely involved in designing and implementing the intervention. We performed 16 interviews with KIs, including high-level officials within the MoH (*inter alia* an assistant commissioner and a senior health planner), the BTC/Enabel (*inter alia* programme managers and financial managers) and Catholic and Protestant medical bureaus (*inter alia* the executive secretary and the vice-executive secretary), as well as key stakeholders from the district level (*inter alia* the district health officer and the district RBF focal person) (Table 18). Despite the relatively small number of respondents, the people closest to the policy process, design and implementation were interviewed.

BTC/Enabel	4
Ministry of Health	4
Medical bureaus (UCMB & UPMB)	6
District Health Office	2
TOTAL	16

Table 18: Overview of key informants interviewed

Source: Author

Questions were related to the respondents' view on PBF, their involvement in the design and the implementation, the policy process, the intervention's design and a first evaluation. Interviews were recorded, transcribed verbatim and coded using the open-coding technique in QSR Nvivo<sup>®</sup> 10 software (QSR International Pty Ltd., Doncaster,

<sup>&</sup>lt;sup>61</sup> The questions/themes of the semi-structured interviews can be found in Annex IV.

Australia). For the analysis in Chapter 9, the interviews were coded according to the framework presented in that chapter.

The findings in Chapter 9 were also presented at the 'Symposium on Health Financing for Universal Health Coverage in Low and Middle Income Countries' 16th–18th August 2017 in Kampala, Uganda and at the '10th European Congress on Tropical Medicine and International Health' 16th–20th October in Antwerp, Belgium. At both instances, respondents from the KI interviews were present and gave remarks, which were taken into account in the text. We also presented the results of our evaluation to senior staff of the BTC/Enabel headquarters in Brussels and again received remarks which were integrated in the text.

# **5. OBSERVATIONS**

Observations of the health facility were used to get a clear understanding of the work flow at the facilities and how the intervention may have changed things at the facility. They were unstandardized and mainly focused on getting a general impression of the work environment. This helped contextualise the responses from the health workers and served as a starting point for some of the questions during the interviews. During the baseline visit, pictures were taken from each of the facilities, which helped recognise progress during the end line visits.

Through the observations, I was able to verify the claims made by the health workers about the observed progress and gather information about how health facilities organised their work flow. Special attention was given to the information boards (with messages and graphs on them), the cleanliness of the facility, the waiting time of the patients, the number of patients attending the facility and the workload for the health workers. Data gathered from this data collection tool is being used in Chapters 7 and 8.

# **6.** DOCUMENT SEARCH

During the end line study, we asked at every facility to get access to the minutes of the meetings of the HUMC and of the quality improvement meetings and the annual business plans. The document search was used to get extra information that was not disclosed by the respondents (for example information on specific strategies or the budget). The aim was also to get insights on how the intervention was being discussed in the HUMC. During the morning of each visit, I went through all the minutes and reports starting from the year 2015 (i.e. when the first information about the intervention was given to the health facilities). Photographs were taken of the minutes and reports that mentioned the intervention. As with the observations, the role of these document searches was mainly to contextualise the findings from the interviews and to generate specific questions. The documents also gave some anecdotal evidence of how the intervention was being perceived and how the HUMC tried to bring the intervention into practice. Results of this part of the data collection can be found in Chapters 7 and 8.

We also reviewed the relevant policy documents. These were the implementation manual of the intervention and the National RBF Framework, which will be discussed in Chapter 6, and the various policy documents coming from the MoH aimed at structuring and analysing the healthcare sector discussed in Chapters 6 and 9 (see Table 19).

Institution	Year	Title	Source
Ministry of Health (MoH), Health systems 20/20, MAKSPH	2012	Uganda Health System Assessment 2011	(MoH et al., 2012)
Ministry of Finance, Planning and Economic Development (MoFPED)	2018	Sector budget documents	(MOFPED, 2018)
МоН	2006	Health Sector Strategic Plan II 2005/06 – 2009/2010	(MoH, 2006)
МоН	2010	2009 / 2010 Health financing review	(MoH, 2010a)
МоН	2010	Health Sector Strategic & Investment Plan: Promoting people's health to enhance socio- economic development: 2010/11-2014/15	(MoH, 2010b)
МоН	2010	The Second National Health Policy: Promoting People's Health to Enhance Socio-economic Development	(MoH, 2010c)
МоН	2011	Health Sector Quality Improvement Framework and Strategic Plan 2010/11-2014/15	(MoH, 2011)
МоН	2012	National policy on public private partnership in health	(MoH, 2012)
МоН	2014	The health management information system: Health unit and community procedure manual (Volume 1)	(MoH, 2014)
МоН	2015	Annual Health Sector Performance Report for	(MoH, 2015a)

Table 19: Consulted policy documents

		financial year 2014/15	
МоН	2015	Health Sector Development Plan 2015/16 - 2019/20	(MoH, 2015b)
МоН	2016	Health financing strategy 2015/16-2024/25	(MoH, 2016a)
МоН	2016	Health Sector Quality Improvement Framework and Strategic Plan 2015/16-2019/20	(MoH, 2016b)
МоН	2016	Human Resources For Health Information System: National District Health Staff Records	(MoH, 2016c)
МоН	2016	Strategy for Improving Health Service Delivery 2016-2021	(MoH, 2016d)
МоН	2016	Ugandan MoH result based financing implementation manual	(MoH, 2016e)
МоН	2017	Annual Health Sector Performance Report for financial year 2016/17	(MoH, 2017a)
МоН	2017	Sector grant and budget guidelines FY 2017/18.	(MoH, 2017b)
Ministry of Local Governments (MLG)	1997	Local Governments Act	(MLG, 1997)
MoFPED	2013	Summary of project support managed outside government systems: Financial year 2012/13.	(MoFPED, 2013)
MoFPED	2015	Millennium development goals report for Uganda 2015. Special theme: Results, reflections and the way forward.	(MoFPED, 2015)
Republic of Uganda	2015	Second National Development Plan (NDP II) 2015/16 – 2019/20	(Republic of Uganda, 2015)
World Bank	2010	Project appraisal document for a Uganda Health Systems Strengthening Project	(World Bank, 2010)
World Bank	2016	Project appraisal document on a proposed credit for a Uganda reproductive, maternal and child health services improvement project	(World Bank <i>,</i> 2016)

Source: Author
COLLECTING THE DATA

#### 7. CAUSAL LOOP DIAGRAMMING<sup>62</sup>

We use CLD as a way to summarize the information retrieved from the other data collection tools and to get a systemwide overview of them. However, it is also being used to detect reinforcing and balancing feedback loops caused by the intervention. In Chapter 4, we already discussed how a causal loop diagram works and how it needs to be interpreted. Here, we will elaborate on how we will construct and analyse our causal loop diagrams. We specifically focus on the diagram presented in Chapter 6, which is the basic causal loop diagram from which we derive the others.

We start the setup of our causal loop diagram by entering some basic variables, after which we add other variables and causal relations based on the collected data. The main objective and outcome variable is improved healthcare outcomes. Therefore, it is in the centre of the diagram (Figure 12). For the sake of this exercise, we assumed that the main contributors to better healthcare outcomes are health workers' performance, which comprises (yet not represented in the diagram) the health workers' attitudes towards the patients, appropriateness of the care provided and correct implementation of the treatment plan. The second and third contributors are the work environment (which entails the available equipment, infrastructure and drugs) and patient behaviour (which includes healthcare-seeking behaviour and therapy loyalty).

Taking another step back, the performance of health workers is influenced by their motivation and knowledge. The work environment is co-determined by the health facility budget and the capacity of the management to plan and implement. Patient behaviour is a result of patients' positive or negative perceptions of the facility, which are influenced by the healthcare outcomes and health workers' performance, patients' knowledge and beliefs and the accessibility of the facility, including financial, geographic, cultural and social accessibility.

<sup>&</sup>lt;sup>62</sup> A short yet interesting introduction to using causal loop diagramming can be found in Tomoaia-Cotisel et al. (2017)



Figure 12: The set-up of the causal loop diagram

Source: Author

The causal loop diagrams are designed using Vensim© PLE version 6.4 software (Ventana Systems Inc., Harvard, MA, USA). This software enables the user to easily create causal loop diagrams, but also to look for feedback loops with the click of a button. When a feedback loop gives relevant information, it will be highlighted as earlier discussed (with a 'B' or an 'A' with a clockwise or counter-clockwise arrow around it).

COLLECTING THE DATA

## 8. LIMITATIONS

Probably, the main limitation of our research is that it was a continuous learning process for the main researcher, which is of course not unusual for a PhD thesis. The combination of methodologies described in Chapter 4 only took shape in the second half of the four-year research and was a response to the earlier discussed difficulties with the quantitative data due to delays and subsequently a lack of exposure and a too small sample size. We therefore shifted our focus to the more qualitative data. As a consequence of this late turn towards RE combined with systems thinking, the research did not fully adhere to the best practices of such an evaluation study. For example, our initial hypotheses should have been more specific and should have guided in a more focused way the data collection. Due to the fact that the data collection tools were created before the hypotheses presented here (i.e. the programme theory) (see Chapter 6), not every hypothesis could be investigated as thoroughly as we would have wanted it. However, we believe that our data collection was broad enough to still gather relevant information.

This limitation is also related to another one, which concerns the broadness of the research. The lack of focus is probably not only due to the data collection tools but also due to the use of the systems thinking approach which encourages looking at the system as a whole. Pawson (2013) already warned against this caveat. Consequently, the analysis of the different mechanisms lacks some depth to a certain extent. However, unlike Pawson (2013), we feel that if we had the opportunity to do it all over again and refocus our data collection, a more in-depth analysis would have been possible. Notwithstanding these two important limitations, we do feel that our evaluation provides a good picture of what has happened, which mechanisms have been triggered and which have not. The advantage of having a broader vision made it possible to see interlinkages between the mechanisms and compare the relative importance of the mechanisms. This evaluation can be seen as a starting point and a basis for more in-depth studies into the mechanisms observed in this evaluation.

Another limitation is the short duration of implementation. At the time we did our data collection, the intervention was still in its infancy, and some of the observed problems may be due to the fact that there was still some learning to do from both sides of the facilities and implementers. At the same time, given the novelty of the intervention, health workers might still be enthusiastic, positive and hopeful and major frustrations, limitations and negative experiences may only surface when the intervention is a bit further in its implementation. However, the evaluation results are quite balanced, showing both the positive and the negative aspects of the intervention. Moreover, some of the observed

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drawbacks are systemic and, hence, will not simply disappear over the years without a specific intervention to overcome them.

Another bias that may have occurred is that health workers might have seen us as representatives of the organisation funding the intervention. Therefore, they may have been overly positive. However, the data shows that respondents did give very critical comments and that these comments were often reiterated by other respondents as well. Such a bias might also work in the opposite direction as health workers may be eager to list issues for improvement in the hope that they will actually be improved.

Notwithstanding these possible biases, the fact that the surveys were completely anonymous and that we constantly emphasised the confidentiality of both the interviews and the surveys, made us nonetheless confident that the results presented here are not overly biased.

A more important bias related to this research is our choice for the health workers as our units of observation. Results might have been different if the perspectives of the patient, the community (leaders), the district health team, the BTC/Enabel and so forth were used. However, the health workers are the first in line to deliver qualitative healthcare services. Hence, they occupy a privileged place within the healthcare system. Moreover, their perceptions guide their behaviour and are thus important not only from an information gathering point of view, but also for understanding the (future) behaviour of the health workers.

Finally, although we refocused our research on the qualitative data due to the earlier discussed delays and small sample size, we did use some of the quantitative data for our analysis (see Chapters 6 and 8). Although the trend is often clear, the small sample size limited the statistical power and the statistical significance of our findings.

**CHAPTER 6** 

# WHAT THE BOX LOOKS LIKE: THE CONTEXT AND THE INTERVENTION

Note: Sections 3 and 4 of this chapter are based on the peer-reviewed article: Renmans, D., Holvoet, N., & Criel, B. (2017). Combining theory-driven evaluation and causal loop diagramming for opening the 'black box' of an intervention in the health sector: A case of performance-based financing in western Uganda. *International Journal of Environmental Research and Public Health*, 14(9), 1007.

Changes were made to fit the storyline of this thesis and to adjust for new knowledge.

Did you hear about the rose that grew from a crack in the concrete? Proving nature's law wrong it learned to walk without having feet. Funny it seems, but by keeping its dreams, it learned to breathe fresh air. Long live the rose that grew from concrete when no one else ever cared.

#### Tupac Amaru Shakur – The rose that grew from concrete

In Chapter 1, we emphasised the importance of thoroughly describing the PBF intervention and the context in which it is being implemented. In this chapter of the dissertation, we do just that. In the first section, we give a short introduction to the recent history of Uganda and the current political situation. Next, we discuss the healthcare policies and the organisation of the healthcare sector. We also give a short overview of the main bottlenecks and the health statistics that characterise the Ugandan healthcare sector. In the third section, we focus on the local healthcare systems of Kasese and Kyenjojo. We start by comparing the health performance ratings as presented in the district league tables and the characteristics of the two districts relevant for our study. After that, we give the floor to the local health workers. Drawing upon qualitative interviews and quantitative surveys, we visualize the functioning of the local healthcare systems before the introduction of the intervention. We look at the health workers' perceptions on their salary, motivation, work environment, the role of the community, supervision and record keeping and inquire about their views on the main obstacle to lowering maternal mortality. This leads to a good picture of the health workers' work experience. As described in Chapter 4, we visualise this with a causal loop diagram. Finally, we present a thorough description of the BTC/Enabel PBF intervention. In line with our RE approach, we elucidate the programme theory on the basis of KI interviews, programme manuals and the literature review of Chapter 3. Subsequently, we introduce the different mechanisms into the causal loop diagram developed in the preceding section. The latter causal loop diagram will function as our programme theory. However, given the complexity of such a causal loop diagram, we highlight three feedback loops which exemplify systems behaviour. These will also be analysed during the evaluation in Chapter 8.

## **1. UGANDA. SHORT HISTORY AND POLITICS**

Uganda is an eastern African country that neighbours the Democratic Republic of Congo, South Sudan, Kenya, Tanzania and Rwanda (Figure 13). It is a landlocked country, but it borders Lake Victoria which is the second largest fresh water lake in the world. Uganda (241,038 km<sup>2</sup>) is about the same size as the United Kingdom (243,610 km<sup>2</sup>), their former colonisers under the form of a protectorate. A fertility rate of 5,7 births per woman, makes Uganda the fifth fastest expanding population in the world, which currently stands at about 40 million. Almost half of them are below 14 years of age. (CIA, 2018)



Figure 13: Flag, map and situation of the Republic of Uganda

Source: (CIA, 2018)

Uganda acquired its independence in 1962 from the British Empire. This was followed by many years of civil wars and dictatorships under Idi Amin (1971–1979) and Milton Obote (1966–1971 and 1980–1985). The transitions of power came about through the barrel of a gun rather than the ballot paper, most often with interference from neighbouring countries. The civil wars exposed a strong division within Uganda between different regions and different traditional kingdoms and between those kingdoms and proponents of a united Uganda. The last violent transition of power happened in 1986 when the current president Yoweri Museveni and his National Resistance Army (NRA), after 5 years of guerrilla struggle against Obote, took over Kampala and the presidency. The NRA changed its name to the National Resistance Movement (NRM), and Uganda entered a period of relative stability. The latter has been obtained through a process of decentralisation of power, the securitisation of the Ugandan society, the omnipresence of the NRM and the abolishment of other political parties or movements. However, regular uprisings in the north and the west of Uganda continued to expose, even up until today, a divided society (Mutibwa, 1992; Reuss & Titeca, 2017a).

In 2005, the government reinstalled multi-party politics and Museveni won the first presidential elections. Through gerrymandering (the creation of new or redrawing of the boundaries of existing districts in order to influence the outcome of elections<sup>63</sup>), patronage politics and a pool of legitimacy acquired through their five years of guerrilla struggle in the bush and the liberation of Uganda from dictatorship, Museveni and his NRM managed to keep the country together and to stay in power for over 30 years (Reuss & Titeca, 2017b). Importantly, this was only possible after several amendments to the constitution (abolishment of the term limit and more recently the presidential age limit). From 2015 onwards, the Freedom House Index<sup>64</sup> categorised Uganda as 'not free' (Freedom House, 2018b). The 2017 report justifies this score by claiming that the NRM "retains power through the manipulation of state resources, intimidation by security forces and politicised prosecutions of opposition leaders" (Freedom House, 2018b, 'Uganda 2017' Para. 1). In its latest report, Uganda re-joined the group of 'partly free' countries following an improvement of the score for civil liberties due to "the resilience of the media sector and the willingness of journalists, bloggers, and citizens to voice their opinions, though the political environment remained tightly restricted under the regime of long-ruling president Yoweri Museveni" (Freedom House, 2018b, 'Uganda 2018' Para. 1).

With three-fourths of the population being born during the reign of Museveni (called 'Museveni babies') and having never experienced the destructive nature of the civil wars in the pre-Museveni era, the earlier mentioned legitimacy derived from the bush war has become much less influential (Reuss & Titeca, 2017b). At the same time, socio-economic concerns moved up the agenda of the electorate. The government has responded to this with the 'Vision 2040' statement which puts forward the aim of transforming Uganda into a lower-middle-income country by 2020 and an upper-middle-income country by 2040 (Republic of Uganda, 2015).

<sup>&</sup>lt;sup>63</sup> See Martis (2008) for an interesting discussion on the origins of the term.

<sup>&</sup>lt;sup>64</sup> Freedom House is an independent watchdog organisation. Each year it publishes its 'Freedom in the world' report in which it assesses "the condition of political rights and civil liberties around the world" (Freedom House, 2018a, Para. 1). Each country receives a score from 1 (free) to 7(not free) on the political rights and the civil liberties enjoyed by the population. They are combined to create a freedom rating ('free', 'partly free', or 'not free').

Despite the questionable track record in the Ugandan government's dealings with democracy and the many corruption scandals, Uganda has been a 'donor darling' ever since Museveni came into power 30 years ago (Hitchen, 2016). Again, this can mainly be attributed to the stability that Museveni brought to Uganda and the smart international positioning of Uganda as an important actor for regional stability and an ally of the 'West' against international terrorism (especially in Somalia) (Hitchen, 2016). As we will see in the next section of this chapter, this privileged status has important consequences for the Ugandan health budget.

## **2.T**HE STATE OF HEALTH AND HEALTHCARE

#### 2.1 Policies

The politics behind the implementation of PBF in Uganda will be discussed more in depth in Chapter 9. In this section, we give a more descriptive overview and highlight the priorities of the healthcare system and describe its organisation, its financing and its performance.

Both the Second National Development Plan (NDP II) (Republic of Uganda, 2015) and the Second National Health Policy (NHP II) (MoH, 2010c) put the quest for better health firmly within the framework of economic improvement: "the health sector aims at producing a healthy and productive population that effectively contributes to socio-economic growth" (Republic of Uganda, 2015, p. 188). This points to a focus of the Ugandan government on economic development and an instrumentalist vision on health rather than a human rights approach. Nonetheless, in order to achieve this, *NDP II* focuses on the internationally recognised goal of universal health coverage (UHC). The long-awaited approval of the law on the Ugandan National Health Insurance scheme (NHIS) is to be viewed in this light. The same holds for the envisaged move towards a nationwide scale-up of PBF which is projected to help put in place the necessary structures for the NHIS (MoH, 2016e)<sup>65</sup>.

UHC is the policy underlying the *Health Sector Development Plan (HSDP) 2015/16-2019/20* (MoH, 2015b). More specifically, *HSDP* focuses on the four objectives outlined by the *NDP II*: (1) to contribute to the production of a healthy human capital for wealth creation through provision of equitable, safe and sustainable health services; (2) to address the key determinants of health; (3) to increase financial risk protection of households against impoverishment due to health expenditures and (4) to enhance the health sector competitiveness in the region and globally. In order to achieve these objectives, the *HSDP* priorities focus on the strengthening of the national health system.

For this study, the fourth specific objective is probably the most relevant. This objective claims to adopt a health systems approach in addressing the challenges in the following areas: (1) health governance and partnerships, (2) service delivery systems, (3) health information, (4) health financing, (5) health products and technologies, (6) health

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<sup>&</sup>lt;sup>65</sup>As has been proposed by Josephson (2017).

workforce and (7) health infrastructure. Through the lens of our definition of PBF adopted in Chapter 1, PBF cuts through all these areas.

The Health Sector Quality Improvement Framework and Strategic Plan 2015/16-2019/20 (QIF&SP 15/20) (MoH, 2016b) is a more specific policy which goal is "to ensure that by 2020, all people accessing the health care services in Uganda attain the best possible health outcomes and improving consumer acceptability and satisfaction" (p. 9). It is built around seven strategic objectives:

- 1. "To strengthen leadership capacity and support for quality improvement (QI) throughout the health sector.
- 2. To strengthen organisational capacity for QI implementation in the health sector.
- 3. To improve compliance to the health sector service delivery standards at all levels.
- 4. To strengthen patient/client centred care in healthcare at all levels.
- 5. To improve patient safety practices in all health facilities.
- 6. To strengthen the framework for documentation, reporting and sharing of QI processes and activities at all levels
- 7. To promote the implementation of innovative and evidence based models of care in Uganda." (MoH, 2016b, pp. 9-10)

Interestingly, several of these objectives concern aspects of the PBF project (see Section 5 in this chapter). For example, Objective 2 explicitly mentions results-based financing "to ensure those who achieve savings share in the gains" (p. 10). Objective 3 points to the need for a national accreditation system and quality of care assessment systems. Objective 6 concerns the monitoring and evaluation system.

A final important health policy is the *Health Financing Strategy 2015/16-2024-25 (HFS)* 

(MoH, 2016a), which focuses on six specific objectives (p. 24):

- 1. "To enable equitable, efficient and sustainable mobilisation of adequate resources .... ;
- 2. To establish and roll out a Social Health Protection system and reach 30% of the people in Uganda by 2025;
- 3. To increase effective pooling and strengthen strategic purchasing mechanisms ... ;
- 4. To develop new and strengthen existing institutional arrangements that will ensure effective accountability and transparency in resource management and use;
- 5. To strengthen mechanisms for harmonized and effective partnerships in financing and delivery of health services;
- 6. To strengthen systems for timely generation and production of health financing and expenditure information to guide policy and decision making."

Again, several of these objectives align closely with the introduction of PBF and the NHIS (e.g. Objectives 2, 3, 4 and 5). The implementation of the HFS is guided by seven important principles: (1) equity, (2) solidarity, (3) efficiency, (4) transparency and

accountability, (5) sustainability, (6) effective partnerships and (7) evidence-based policies. Strategic interventions are planned in the areas of revenue collection, risk pooling and strategic purchasing (see Figure 14). PBF appears in interventions concerning revenue collection as a way to use existing resources more efficiently; and in the strategic purchasing section as the "desired direction for the Government" (p. 35).



Figure 14: Linkages of the strategic interventions

Source: (MoH, 2016a, p. 26)

#### 2.2 Organisation

These policies can only be implemented in a well-organised healthcare system. The endorsement of the *Local Government Act* in 1997 (MLG, 1997) created, at least on paper, a decentralised Ugandan healthcare system. Although the MoH remains the leading actor when it comes to policies, standards, regulations, financing and so forth, the local governments are key partners in order to ensure "that the population has access to health services." (MoH, 2017b, p. 5).

Six important health actors can be distinguished within the governance at the district level (see Figure 15): the District Local Government level and its District Health Office, the health sub-district level organised around an HC IV or a general hospital which serves as a referral facility, the lower-level health facilities (HCs III and II) and the Village Health Teams. Their roles are described in Table 20.

Table 20: Roles of different health actors at the district level	
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Health actors	Role
District Local Government	Mobilizing and allocating resources, planning and budgeting for the services they are responsible for, approving district development plans and annual work plans and budgets, supervising and monitoring the overall performance of the district healthcare delivery system, Human resources for health (HRH) development management (recruitment, deployment, in- service- training, career development, payroll management, etc.), epidemic and disaster preparedness and response, advocacy for health, health systems research
District Health Office	Policy implementation and planning, human resource development management, support supervision and quality assurance, coordination and integration of health services, disease and epidemic control, monitoring and evaluation, advocacy for health services and health systems research.
Health Sub-District	Implementing the delivery of the Ugandan National Minimum Healthcare Package (UNMHCP), manage health services at this level and lower levels in terms of planning, implementation, monitoring and supervision of all basic health services. It is located at a HC IV (government-owned or a private not for profit) which is a referral facility which provides inpatient and emergency services on top of the services also provided by lower facilities to a target population of 100,000.
Health Centre III	Offers the following services 24 hours a day: preventive, promotive, outpatient, curative, maternity, inpatient and basic laboratory services to a target population of 20,000.
Health Centre II	Functions as the interface between the HSD and the community and collaborates closely with the Village Health Teams (VHT) and other community structures. It is open at least 8 hours a day and serves a target population of about 5,000.
Village Health Teams	Are key in sensitizing and helping the community participate in the healthcare system. They are being supported by a HC II or the nearest health facility.

Source: (MoH, 2017b, pp. 12-18)



Figure 15: Organisation of the Ugandan Healthcare system

Source: Author

Because of the insufficient coverage by the public sector, the Ugandan healthcare sector is very much reliant on the private sector, which consists of the PNFP, Private Health Practitioners and the Traditional and Complementary Medicine Practitioners (MoH, 2012). The PNFPs operate about 40% of the hospitals, and 20% of the lower-level health facilities are mainly run by the four faith-based medical bureaus (Catholic, Muslim, Orthodox and Protestant). They operate especially in rural and hard-to-reach areas (Boulenger & Criel, 2012; MoH, 2012). The *National Policy on Public Private Partnership in Health (NPPPPH)* (MoH, 2012) spells out the strategy for cooperation between the different health providers and recognises the important contribution of the private sector to the Ugandan healthcare sector. Specific roles for the private providers are as follows: to contribute towards policy development, planning, monitoring and evaluation; to mobilise resources for healthcare; to provide or participate in research, community and social mobilisation, advocacy, capacity building including human resources development, logistical support, technical assistance and other services at all levels and to ensure proper utilisation of resources and accountability (MoH, 2012).

The *NPPPPH* puts universal access to health and efficiency at the centre of its vision with the objective of achieving, *inter alia*, "a functional integration [...] of a pluralistic healthcare delivery system by optimising the equitable use of available resources" (MoH, 2012, p. 13). The policy is further built upon ten principles:

- 1. "Overall responsibility for health policy formulation and for the health status of the population is maintained by central government.
- 2. The private sector needs to regulate its providers and establish proper structures of representation, at central and district level.
- 3. Plans and operations of the private health sector shall support the HSSIP and must be integrated into district health plans.
- 4. The Decentralisation Policy, the NHP II, the HSSIP and MoH Guidelines for Provision of the UNMHCP guide responsibility for provision of health services to the population at different service delivery levels.
- 5. Government and private sector partners shall strive to rationalise and complement services rather than duplicating them.
- 6. The identity and autonomy of each partner shall be respected.
- 7. Government and private sector partners will ensure the equitable allocation of resources for health in accordance with the needs of the population.
- 8. Service provision by public and private providers shall focus on quality and efficiency to attain maximum benefits.
- 9. Inputs, outputs and outcomes relating to achievement of HSSIP goals and objectives shall be agreed, reported by and shared among the partners.
- 10. Sustainability of service provision to the population shall be central to the partnership for the purpose of continuity of care." (MoH, 2012, pp. 16-17)

These principles are important to highlight as they have implications for the PBF intervention, both its rationale and its effectiveness.

The religious- and facility-based<sup>66</sup> PNFPs cooperate particularly closely with the public sector due to their high level of institutionalisation under the aegis of the medical bureaus. In several districts (e.g. Kasese), the District Health Office decided to second government health personnel to the PNFP facilities in recognition of their important role in filling the gaps left by the public sector. However, this is not done in every district, for example, Kyenjojo. PNFP facilities also receive supplies and conditional Primary Healthcare (PHC) grants from the government with fixed budget lines (2–4 million Ugandan Shillings), but they are mainly reliant on user fees. In contrast to the government facilities which provide free services, PNFP facilities have no other option than to charge fees. Only some services are provided free of charge, like antenatal care and immunisations. Consequently, the salaries in the PNFP sector are lower than in the government sector, which leads to a high turnover of

<sup>&</sup>lt;sup>66</sup> PNFPs that own and operate from a facility.

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staff at PNFP facilities (Namakula et al., 2016). A positive consequence is that the reliance on user fees gives health facilities more autonomy on how to use their funds.

Another important source of income for the PNFP facilities are donations from (inter)national NGOs which give support in kind (e.g. medicines, equipment) or finance activities (e.g. facility meetings, outreaches). Such support can be relatively substantial; for example, Baylor Uganda supports several facilities with about 8 million Ugandan Shillings per quarter (own observation). However, this support is often restricted to a particular department (e.g. HIV/AIDS services) and only present in some facilities. Thus, it lacks sustainability, is volatile and is not structural at district level.

As a sign of integration into the public healthcare sector, all religious and facility-based PNFPs use the Health Management Information System (HMIS). The HMIS channels quantified information on performance up to the decision-makers at different levels of the system (from the facility level towards the MoH level) (MoH, 2014). Yet, poor data quality and a lack of a thorough analysis impede consistent use of data in the decision-making process (Holvoet & Inberg, 2014). The data collection starts immediately when a patient attends one of the departments of the facility. The patient is registered in the register book of that department and receives a number which he/she will keep when moving within the facility (e.g. a patient starts at the out-patient department (OPD) and receives a number; next, he/she proceeds to the lab and the pharmacy where he/she is again registered with the same number). This makes it possible to trace the patient flow and perform quality assessments. At the end of each day, week and month, a summary of the registers is compiled and depending on the urgency of the information, they are sent on a weekly, monthly, quarterly or annual basis to the health sub-district, which again compiles a report and sends it further up the hierarchy (MoH, 2014). Reports are mostly compiled on hard copies; the use of computers in HC III is very limited and often restricted to the reporting for donors in specific departments. HCs IV often have a computer, yet the hard copies are still being used. Overall, the focus is primarily on upward accountability rather than on accountability towards the community (Holvoet & Inberg, 2014).

Performance management is mainly centred around quantitative targets based on a standardised formula in relationship to the population within the catchment area (e.g. number of deliveries). Each facility has a QI team tasked to initiate and follow up QI interventions. Both the quantitative performance and the activities of the QI team are published on the walls in the facility in order to secure transparency and enhance accountability *vis-à-vis* patients. However, during our observation in some of the PNFP health facilities of Kasese and Kyenjojo districts, we noticed that these files were not always

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up to date, not displayed or displayed in a room where no patients came (e.g. meeting room).

Accountability towards the community is also organised through the day-to-day management of the facilities conducted by the HUMC. The latter includes members of the local government, the local community (e.g. church and school leaders, community health workers), the in-charge and the staff representative of the facility, the health coordinator of the medical bureau and the board of governors. They are responsible for the budget, salaries, investments, human resources, planning and so forth. They prepare yearly working plans; yet, the thoroughness of these working (or business) plans differs between facilities.

## 2.3 Financing

A healthcare system can only function when sufficient resources are injected into it. African governments pledged in the 2001 Abuja Declaration to allocate 15% of their budget to strengthen the healthcare sector (African Union, 2001). Very few countries have reached this target, yet some progress has been made (WHO, 2016a). Uganda's track record over the last years is mixed: the health budget almost tripled between 2010/11 (UGX 660 billion) and 2016/17 (UGX 1828 billion), yet its share of the overall government budget decreased from 8.9% to 6.9% (Figure 16).



Figure 16: Health expenditure by the Ugandan government (UGX billions, %)

## Source: (MoH, 2016d)

Importantly, the increase in nominal terms is mainly driven by the increase of budget development aid, which increased from 14 % in 2010/11 to 42% in 2014/15 of the health

sector budget. External funds indeed contribute significantly to the development of the Ugandan healthcare sector (Okwero et al., 2010). The approved budget of the financial year (FY) 2016/2017 shows that 49% comes from external sources (MOFPED, 2018) (Figure 17). The per capita public health expenditure in FY 2015/16 stood at US \$14, which is far below the US \$86 per capita target for core PHC services proposed by McIntyre et al. (2017). External funds are and will remain essential to fill the large financing gap.

Figure 17: Financing of the health sector budget according to the source of funding (government of Uganda or external financing)



Source: Sector Budget Performance Reports of the next financial year (MOFPED, 2018) Note: The graph is based on the approved budgets column. FY 2017/18 is not covered because no sector overview was provided in the report of FY 2018/19.

Despite healthcare services being free of charge in the public sector and although user fees are only charged in the private sector, out-of-pocket payments (OOP) (indicated as domestic private health expenditure in Figure 18)<sup>67</sup> are an important part of the total health expenditure (Figure 18). One explanation may be that private facilities are preferred over public facilities because of a higher perceived quality (Orem et al., 2011), even if 79% of the services are still offered in the public sector (MoH, 2017a). Other possible explanations are the existence of informal payments at public facilities and the reliance on private pharmacies when facilities face drug stock outs (Xu et al., 2006). OOP may lead to catastrophic health expenditure and has been found to impoverish 4% of Ugandans, underlining the need for financial protection systems like the proposed NHIS (Kwesiga et al., 2015).

<sup>&</sup>lt;sup>67</sup> OOP and domestic private health expenditure are not exactly the same as the latter may include *inter alia* insurance schemes.

OPENING THE 'BLACK BOX' OF PERFORMANCE-BASED FINANCING IN THE HEALTHCARE SECTOR OF WESTERN UGANDA





Source: Author's creation based on WHO (2018, n.p.)

#### 2.4 Performance

The Ugandan people have a life expectancy of 62.3 years, which is two years above the average of the WHO African region. Uganda also has a relatively high maternal mortality rate (MMR) (343 per 100,000 live births) even if it largely outperforms the average of the WHO African region (542/100,000). Globally, Uganda ranks 146th out of 194 countries. This high MMR is *inter alia* caused by the fact that only 57% of births are attended to by skilled health personnel (WHO, 2016b). Over the last 20 years, the MMR has fallen by 33%, which is lower than the global reduction of 45% (MoH, 2017a). Indicators on which the Ugandan healthcare sector underperforms compared to its counterparts in the WHO African region are the rate of 'new HIV infections amongst adults 15–49 years old' (5.12 versus 2.72 per 1,000 uninfected people), the 'proportion of married or in-union women of reproductive age whose need for family planning is addressed with modern methods' (44.7% versus 49.6%) and the 'adolescent birth rate' (140 versus 100.3 per 1,000 girls aged 15–19 years) (WHO, 2016b).

Uganda failed to reach most of the health-related Millennium Development Goals (MoFPED, 2015). However, in general, progress has been made on several indicators during the last 20 years: e.g. most of the mortality indicators (maternal, infant, under-five, but not neonatal), indicators on HIV/AIDS or emergency obstetric care. A lack of progress or a decline was found in the indicators on TB case detection, ITP2 coverage and in-patient malaria deaths, hence, falling short of the targets set out by the HSDP (MoH, 2017a; UBOS, 2017).

The lack of (sufficient) progress is partly caused by a dysfunction of the Ugandan healthcare system. One such obstacle is the management of the human resources. Problems arise from the low salaries, the understaffing, the heavy workload, the lack of health worker knowledge, the lack of good facility management and the absence of benefits other than the

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salary (e.g. housing support) (Ackers et al., 2016; Bouchard et al., 2012; Colenbrander et al., 2015; Kinnevey et al., 2016; Ogrodnick et al., 2011; Rockers et al., 2012; Rujumba et al., 2012; Shumba et al., 2017; Ssennyonjo, 2015; World Bank, 2010). Whereas the WHO recommends having at least 2.3 skilled health workers per 1,000 population (or 1 : 435), in Uganda, the ratios of doctors, nurses and midwives to the population are 1 : 28,202, 1 : 2,121 and 1 : 6,838, respectively. However, the situation is improving with the staff levels at HCs III and IV reaching 80% and 84% of the designated post filled, respectively, in financial year 2016/17 (MoH, 2017a). These human resource issues are important contributors to the observed low motivation, poor attitudes towards patients, absenteeism, suboptimal treatments and health education, fraud, theft, lack of communication and absence of patient empowerment (Bouchard et al., 2012; Chi et al., 2015; Conrad et al., 2012; Kabakyenga et al., 2011; Larsson et al., 2012; Rwashana et al., 2014; Shumba et al., 2017; Tweheyo et al., 2017).

Other likely causes of the at times insufficient progress are the lack of infrastructure, equipment and medicines (drug stock-outs), inadequate supportive supervision and suboptimal implementation of guidelines (Colenbrander et al., 2015; Conrad et al., 2012; MoH, 2017a; Orem et al., 2012; Rujumba et al., 2012; Rwashana et al., 2014; Shumba et al., 2017; Ssennyonjo, 2015). Regarding a basket of 41 essential medicines and health supplies (EMHS), only 55% of facilities had at least 95% of these EMHS available at the facility (MoH, 2017a). Research shows that appropriate equipment and infrastructure at the facility will not only make more qualitative services possible, but also motivate health workers to perform better (Ogrodnick et al., 2011; Rockers et al., 2012).

We should differentiate between the PNFP facilities (which are being studied here) and the public facilities. Notwithstanding the lower budget and lower salaries in the PNFP sector, the latter is considered to be delivering higher-quality services than the public facilities, mainly due to fewer medicine stock-outs and better equipment (Boulenger & Criel, 2012; Olivier et al., 2015). However, this does not necessarily lead to higher job satisfaction (Ogrodnick et al., 2011). Besides the lower salaries, other reasons for dissatisfaction (and transfers to the public sector) are the less interesting benefits (pension, study leave, etc.), the higher perceived workload at PNFP facilities and a specific organisational culture (i.e. hierarchical and non-participative) (Namakula et al., 2016; Shumba et al., 2017). Given their important role in delivering healthcare services to the general public (including the poor and rural areas), the Ugandan PNFP facilities are sometimes referred to as "quasi-public organiszations" (Dambisya et al., 2014).

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## 3. PERSPECTIVES FROM KASESE AND KYENJOJO: A SYSTEMS APPROACH

As already mentioned, this study will focus on two districts in Western Uganda: Kasese and Kyenjojo (Figure 19). Table 21 lists the most relevant differences. Importantly, a significant part of the health workers in the Kasese district are government-seconded staff paid according to the higher government scales, whereas all health workers in Kyenjojo district are paid from patients' user fees. In addition, the number of facilities that managed to qualify for the intervention (see below) differed significantly between the two districts.

## Figure 19: Map of Uganda



Source: Author

## Table 21: Differences between the two districts

	Kasese District		Kyenjojo District
•	694,992 residents	•	422,204 residents
•	17.4% urban population	•	15.4% urban population
•	Mountainous	•	More flat
•	Some government seconded staff	•	Staff paid by user fees
•	UCMB facilities: 3, UPMB facilities: 9	•	UCMB facilities: 5, UPMB facilities: 0
•	Facilities qualified *: 5/12	•	Facilities qualified: 1/5
•	Facilities qualified w/conditions: 1/12	•	Facilities qualified w/conditions: 4/5
•	Facilities not qualified: 6/12	•	Facilities not qualified: 0/5

\* Qualification according to a pre-intervention assessment of infrastructural quality sources: Uganda Bureau of Statistics (2016), own observations, personal communications As regards performance, the two districts are quite similar. In the district league table

of the annual health sector performance report 2016/17, Kasese achieved a score of 71.8% (21<sup>st</sup>) whereas Kyenjojo got 71.7% (23<sup>rd</sup>). Table 22 shows the more detailed district league

table, in which we highlight differences higher than ten percentage points. There are big differences (more than 20 percentage points) related to the auditing of maternal deaths, TB treatment success rate and patients diagnosed with malaria that are lab confirmed, but overall their performance is very similar.

Table 22: Detailed district league table of financial year 16/17 showing Kasese and Kyenjojo

District	ANC4	IPT2	Deliveries	HIV+ pregnant women initiated on ART	Fresh still births per 1000 deliveries	Maternal deaths	TB treatment success rate	Patients diagnosed with malaria that are lab confirmed	Total score	Ranking
	%	%	%	%	%	%	%	%	%	
KASESE	47.5	68.9	55.9	101.5	11.5	54.2	94.9	54.7	71.8	21
KYENJOJO	53.7	57.8	58.8	97.2	9.8	33.3	79.1	78.0	71.7	23

Source: (MoH, 2017a)

The two HCs IV which were under study and situated in Kasese performed a high number of caesarean sections (C/S) compared to the other HCs IV across the country: St. Paul ranks 4<sup>th</sup> out of 131 (3.69% C/S) and Rwesande 17<sup>th</sup> (1.46% C/S) (MoH, 2017a). Table 23 shows their performance on some other indicators in financial year 2014/15 (before the PBF project) and 2016/17 (the start of the project). This shows that, in terms of their quantitative performance, both facilities are somewhere in the middle and have increased their output over the years, amongst others, due to the BTC/Enabel intervention as we will see in Chapter 8.

Ranking (out of 184)	HC IV	Admissions	OPD	Deliveries	Total ANC	PNC	Total FP	Immunisations
127	St. Paul 14/15	2338	4777	975	1091	249	1021	2835
112	St. Paul 16/17	3452	5178	1324	2156	830	950	2849
140	Rwesande 14/15	2005	7642	525	1238	123	178	2969
80	Rwesande 16/17	4091	12 222	778	3410	1235	1293	3093

Table 23: Performance of HC IV Rwesande and St. Paul in 14/15 and 16/17

Sources: (MoH, 2015a, 2017a)

Thus, it seems that both districts are somewhat comparable and that the two HCs IV in Kasese show relatively good performance. We now turn to the health workers' perceptions on how the local health system functions and what the main barriers and enablers are for quality healthcare services.

As described in Chapter 5, we interviewed 30 health workers from Kasese and Kyenjojo on their perceptions on the local healthcare system and its challenges and needs. More specifically, we looked into their motivation and their views on salary, record keeping, supervision, community participation and the working environment. In order to obtain a

clear view of what they considered major dysfunctions in their healthcare environment, we interrogated them on the causes of one specific health problem, maternal mortality. This enabled us to divert from the theoretical needs of the healthcare system and forced the health workers to think about the real barriers to adequate healthcare. We chose the example of maternal mortality because maternal services are often targeted by PBF schemes (Das et al., 2016; Gergen et al., 2017), which also holds for this PBF intervention, and because it is a health issue known for requiring a system-wide approach. We subsequently poured the findings into a causal loop diagram, which depicts the causal linkages and state of the local healthcare system as viewed from the perspective of the healthcare workers.

## 3.1 Salary

As observed in other countries (Bertone et al., 2016; Bertone & Meessen, 2013; Chimhutu et al., 2014; Dieleman et al., 2003; Fox et al., 2014), almost all of the health workers from the qualitative sample (see Chapter 5) felt that they do not earn enough and feel de-motivated when salary payments are delayed. There was no difference between staff on government payroll and those paid from user fees, despite the difference in salary.

"I wouldn't say we are extremely happy with what we are paid." (Resp. 2 Clinical Officer)

The results from our quantitative survey show similar results. In Table 24 we see that the median of the satisfaction score (Likert scale 1-7) given by the respondents was for both of the districts '3', which means "less than enough".

District	Ν	Median	Age	N	Median
Kasese	61	3	16-25 years	18	3
Kyenjojo	19	3	26-30 years	30	3
Occupation	Ν	Median	31-40 years	20	3
<b>Clinical Officer</b>	13	3	41-50 years	8	4
Nursing Officer	16	3	>50 years	4	4,5
Midwife	19	4	Age_1	Ν	Median
Nurse	30	3	16-40 years	68	3*
Other	2	3	>41 years	12	4*
Sex	Ν	Median	Total	80	3
			* Chatiatian II at an if an at	difference be	twoon the two
Male	28	3	groups at .05 level. Man	n-Whitney U	test U = 556. z =

Table 24: Satisfaction with salary

Note: 1 = Not enough at all, 4=Just enough, 7=More than enough Source: Author We also did not observe differences between male and female health workers or between the different cadres. The age groups seem to show some difference with older health workers being more satisfied. However, a Kruskal-Wallis H test did not find a statistically significant difference between the groups ( $\chi 2(4) = 5.139$ , p = .273). This absence of a statistically significantly difference may be due to an insufficient sample size and low statistical power. To increase the statistical power, we regrouped the three lowest age groups and the two highest age groups which have a median that diverts from the other age groups and ran a Mann-Whitney U test. This showed that the median satisfaction score was statistically significantly higher in the '>41 years' age group (4) than in the younger '16-40 years' age group (3) (U = 556, z = 2.040, p = .041). This means that older health workers are more satisfied with their pay than younger health workers.

## 3.2 Motivation

In Chapter 5 we discussed extensively how we analysed the questions on motivation in the health worker survey. Figure 20 shows the means of the responses of all the health workers that filled in a survey during the baseline study. The maximum score was 11. It is clear that health workers gave overall very high scores, however, we can observe a distinction between intrinsic motivation and external regulation and there is a clear declining gradient going from the former to the latter. This might indicate that intrinsic motivation is more important than external factors.



Figure 20: Results of the questionnaire on motivation during the baseline study

Source: Author

Our qualitative interviews underscored this observation that the health workers' motivation is not only influenced by financial but also by non-financial incentives (see also

Dieleman et al., 2003; Franco, Bennett, et al., 2002; Hanson & Jack, 2010; Mathauer & Imhoff, 2006; Yé et al., 2014). Many of the health workers are intrinsically motivated by the tasks they perform; however, the recognition they receive from the community is also an important driver of motivation. On the other hand, a bad work environment works as an important de-motivator (see also Mathauer & Imhoff, 2006; Shumba et al., 2017).

"I feel good when I'm putting on my white... (LAUGHS) and the way I am serving patients and the way how the community is appreciating..." (Resp. 21 Nurse)

Financial incentives based on performance were not well understood by the health workers, but among the 10 who understood the concept, 7 thought that they would help motivate health workers.

"Those incentives are good. They are good, but we do not have them [...] They are good because they improve on one's motivation." (Resp. 14 Nurse)

Benefits, other than salary, that make the government sector more attractive are higher job security, pension and study leave opportunities.

"Of course government sector is the best because of their payment. They can also give you a study leave." (Resp. 21 Nurse)

## 3.3 Recordkeeping

Respondents listed a diversity of reasons for the importance of recordkeeping. Some highlighted its utility for planning at the health facility level, others thought it improves patient care, that it is useful for surveillance, informational purposes and accountability and that it can also trigger motivation. However, other studies have found that records are often neglected and not correctly used as a tool to improve quality (Pirkle et al., 2012; Wong & Bradley, 2009). Thus, our respondents may adhere to the principle in words, but not in practice. This is somewhat confirmed by our interviews; respondents highlighted that retrieving the history of patients is useful but they could not recall the last time that they did so.

"It helps us in planning. It helps us in making decisions—like we are able to know that we have such a number of patients [...] who will need such an amount of treatment or drugs." (Resp. 6 Nursing Officer)

"We have to keep it to show that we are working." (Resp. 20 Nurse)

"Interviewer: But you don't go and look into the books and see... Respondent: We don't, because it's hectic." (Resp. 28 Midwife)

These different uses for recordkeeping can be categorized under the two generic functions of monitoring/recordkeeping systems: the feedback/learning function or instrumental function (using it for planning at the facility level and patient care) and the accountability function (reporting to higher authorities or the community) (Gildemyn, 2011). These two uses were also identified in our quantitative survey. We asked our respondents why they thought recordkeeping was important. Table 25 shows that the instrumental perception of record keeping is more prevalent than the accountability view. Over 75 percent of the valid responses stated that record keeping is important for its instrumental function (multiple responses were possible). Similarly, 42% of the respondents (34 resp.) only highlighted the instrumental function while 11,2% (9 resp.) had a pure accountability informed view on record keeping (others referred to both functions or another function).

			Bootstrap for Percent <sup>a</sup>			
	Frequency	Percent <sup>b</sup>	Rias	Std.	95% Confid	lence Interval
	Frequency	Feiteni	DIdS	Error	Lower	Upper
Instrumental	58	78,4	-,1	4,7	68,9	87,8
Accountability	28	37,8	-,4	5,5	27,0	48,6
Other	19	25,7	-,1	5,1	16,2	36,5

#### Table 25: View on record keeping

a. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples

b. The total number of valid answers was 74. Respondents could give multiple answers.

#### Source: Author

We cross tabulated the view on record keeping (instrumental versus accountability view) with the level of the cadre, i.e. higher (other, nursing officer and clinical officer) and lower (nurse and midwife) level and calculated the odds ratio (Table 26). We see that the lower cadres are statistically significantly (cf. confidence interval 95%) more likely to report accountability as a reason why record keeping is important than the higher cadres. Concerning the instrumental function, the roles are switched with higher cadres more likely citing this function than lower cadres. Yet, this odd ratio is not statistically significant based on the 95% confidence interval.

Accountability						Instr	umental		
		No	Yes	Total			No	Yes	Total
Level of	High	24	7	31	Level of	High	4	27	31
occupation	Low	22	21	43	occupation	Low	12	31	43
Total		46	28	74	Total		16	58	74
OR(CI95%): <b>3,27</b> (1,16 – 9,19)				0	R(CI95%): (	<b>),38</b> (0,11	- 1,33)		

## Source: Author

Although the majority of the respondents stated that the recordkeeping is easy and does not impact the workload much, probably due to the low patient flow at the visited facilities, respondents highlighted that computerisation of the recordkeeping may simplify the work, especially if patient numbers increase. This is in line with Pirkle et al. (2012) who highlight that innovative technologies (e.g. ICT) can be important in improving the use of data in care processes.

"[O]nly sometimes the challenging part of it is when you are overloaded with work [...] but in general the data, the way we are collecting it, doesn't need much effort or time." (Resp. 11 Midwife)

#### **3.4 Supervision**

Almost all of the respondents (both in the quantitative and the qualitative sample) spontaneously highlighted the importance of quality supervision for health worker knowledge and performance (Figure 21).





Source: Author

As was found for example in Guatemala (Hernandez, 2014), the majority of the respondents from the qualitative interviews preferred formative and personal supervision over a cursory checklist verification of the data in the registers. Yet, in line with the study by Bosch-Capblanch and Garner (2008), we observed that the latter remains too often the reality. One respondent argued that this may be caused by too high of a workload for the supervisors. Although respondents were satisfied with the supervision by the district health management team, they felt that it should be more frequent. Yet, they were aware that this requires sufficient resources.

"Supervision helps us to improve on the quality of work." (Resp. 11 Midwife)

"Others [...] they just come and give you a talk and they go [without] even checking what has gone wrong and correct you." (Resp. 19 Nursing Officer)

Only 10% of the respondents spontaneously mentioned motivation as an important outcome of the supervision they currently receive. Such motivation comes mainly from close interactions with the supervisor and the feedback received, which emphasizes the importance of close and formative supervision.

"It is so encouraging like when I am doing work and they come in to supervise me and tell me I'm doing a good work." (Resp. 10 Clinical Officer)

#### **3.5 Community Participation**

The health workers who were interviewed highlighted three not mutually exclusive roles for the community within the health unit management committee: an informational role, which implies reporting of the concerns, needs and wishes of the community to the management committee and health workers with the aim to improve the appropriateness and quality of the health services provided; a dissemination role, disseminating information and helping with sensitisation within the community, yet the information does not necessarily relate to the facility's performance; and a decision making role. In general, the first two roles are welcomed by the health workers, whereas the capacity of the community to take on a decision-making role is doubted (e.g., in the case of the construction of a new building) (see also Wurie et al., 2016). The majority of the respondents felt that the main decision-making power should lie with the health workers who, according to the health workers themselves, have sufficient technical capacity and knowledge, unlike the community. The reluctance of the health workers towards "too much interference from the community" was also observed in Kenia and Benin, though the informational role was very much appreciated and perceived to enhance motivation (Mathauer & Imhoff, 2006).

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"No, they should have less [decision power] simply because they are not the technical persons." (Resp. 14 Nurse)

## **3.6 Working Environment**

While visiting the facilities during the baseline study, we found that very few patients (often <10 daily) attend them. Among the most likely explanations is the competition from government health facilities, which provide free healthcare. Moreover, given the rural context, patients have to travel greater distances to come to the facility and have fewer financial resources compared to more urban areas. This low number of patients is not only problematic for the health facility budget and consequently the work environment, but also for the health workers' motivation to be effectively present at the health facility.

"[T]oday I have seen only two people [...], so if there are supposed to be two health workers on duty, you cannot both come to see two people." (Resp. 5 Clinical Officer)

However, in facilities with several mothers coming in for antenatal care and many HIV patients coming in for treatment, both of which are free services (50 patients for two afternoons per week), there are complaints about the heavy workload due to the low staffing level (see also Rujumba et al., 2012; Shumba et al., 2017; Zakumumpa et al., 2016). This is especially evident in the maternity ward, where only one midwife is often responsible for all maternal health services. However, vacancy levels differ greatly between facilities and even departments (e.g., maternity and out-patient departments) (MoH, 2016c). Times of high workload have consequences on the health workers' performance and their motivation and puts pressure on the work environment (equipment, space, drugs, etc.). Yet, as Maestad et al. (2010) found, workload is a subjective concept and health workers might exaggerate it. A study in Ugandan PNFP hospitals found that there was a discrepancy between the health workers and the managers when it comes to the perception of workload (Shumba et al., 2017).

"I will give an example of the maternity ward. You find someone is attending to a mother in labor, soon you find that the one at [the delivery] is the one who is supposed to attend to those who have already delivered. So the work that should be done by four people is being done by one person." (Resp. 2 Clinical Officer)

Health workers also highlighted inadequate infrastructure (13 respondents) and equipment (16 respondents), including the lack of sufficient qualitative staff quarters,

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patient wards and appropriate equipment and drugs, which forces them to improvise or send the patients to private medical stores.

"[I]f those sets are not there we improvise with the [...] razor blade." (Resp. 17 Nurse)

Interestingly, the results of the quantitative survey are less pronounced. Especially in Kyenjojo, health workers gave rather positive scores to both the equipment and the infrastructure at the facility (Table 27). A Mann-Whitney U test showed that the scores for equipment and infrastructure for Kyenjojo (mean ranks = 57,53 and 49,47) were statistically significantly higher than for Kasese (mean ranks = 35,20 and 36,29). This corresponds to our observations during the visits.

District		Equipment	Infrastructure
Kasese	N	59	61
	Median	4,00	4,00
	Mean rank	35,20*	36,29**
Kyenjojo	N	19	19
	Median	6,00	6,00
	Mean rank	57,53*	49,47**
Total	N	78	80
	Median	4,00	4,00

Table 27: Scores on infrastructure and equipment

\* Mann-Whitney U test: U = 750, z = 2,329, p = .020

\*\* Mann-Whitney U test: U = 903, z = 3.837, p < .001

#### 3.7 Maternal Mortality

Demand-side barriers are the most referenced causes of maternal mortality. More than half of the respondents mentioned poverty or the lack of financial resources, as this leads to bad health conditions (malnutrition, sickness), increasing the risk of complications during birth. Moreover, the cost of transportation, the facility user fee and the consumables they have to buy, pushes poor women to deliver with a traditional birth attendant rather than at a facility, which is considered the safer option.

"[T]he crises of money [...] they get anaemia, malnutrition which can complicate labour, they can end up dying." (Resp. 13 Nurse)

Half of the health workers blame the ignorance of mothers. Traditional beliefs, a lack of knowledge and stubbornness are considered reasons why mothers deliver in the villages

Note: 1=Extremely bad; 4=Moderate; 7=Extremely good Source: Author

with the help of traditional birth attendants instead of at a health facility, or come to the facility when it is already too late.

"They have their traditional beliefs [...], they are those with a rigid mind even though you teach, they will become stubborn." (Resp. 19 Nursing Officer)

In addition to these demand-side barriers, the health workers also highlighted supplyside factors. An important issue highlighted by 16 respondents was the poor geographic accessibility of the health facilities. A problem compounded by the lack of ambulances at the facility level and the financial barriers to transport.

"[P]eople come from mountainous areas and you find the transportation itself being bad and ambulance services still low." (Resp. 11 Midwife)

The causes of maternal mortality pointed out thus far are based on the assumption that not delivering at the facility is detrimental to the outcome of the delivery. However, even when pregnant women manage to get to the health facilities, problems may still arise due to other obstacles, such as lack of equipment, infrastructure and qualified health workers (highlighted by 14 respondents). Sub-standard quality services caused by poor health worker attitudes are very likely an important contributing factor that tends to be underestimated by most health workers (only six respondents mentioned it).

"Also health workers, they are there who are quarrelsome to mothers. And you find that the mothers fear to express the way she is feeling." (Resp. 4 Midwife)

These barriers to the use of quality healthcare services, specifically maternal healthcare, highlighted by our respondents echoed those found by studies in Nigeria (Ossai & Uzochukwu, 2015), Malawi (Chodzaza & Bultemeier, 2010) and Vietnam (Graner et al., 2010).

Figure 22 shows the causal loop diagram obtained after assessing the needs of the healthcare environment as perceived by the health workers. As not all variables have an immediate effect, we included delay marks where needed. Importantly, the health facility budget only has a positive effect on the work environment and number of health workers from a certain level onward because an important part of the budget is reserved to cover recurrent costs.



## Figure 22: Causal loop diagram after assessing the needs of the healthcare environment as perceived by the health workers

Source: Renmans, Holvoet, and Criel (2017)

## 4. THE PBF INTERVENTION OF THE BTC/ENABEL

The Ugandan healthcare sector has been on the receiving end of several PBF projects (HPI International, 2015; Morgan, 2010; Ssengooba et al., 2012). The project of the BTC/Enabel is the most recent. Whereas the BTC/Enabel was already implementing a health system strengthening project in the PNFP facilities of the Rwenzori and West-Nile regions, the Ministry of Health (MoH) asked the BTC/Enabel to integrate a PBF scheme in its programme. With ownership being the guiding principle of the BTC/Enabel, they complied with this request and worked out a PBF scheme. However, by the time the project's manual of procedure was finished, the MoH changed its mind and wanted the BTC/Enabel to implement a nationally owned PBF framework instead of their own. Through intensive consultations and meetings, the MoH, the BTC/Enabel and the medical bureaus created a national PBF framework that serves as a first attempt to come up with a fully-fledged PBF scheme adapted to the national Ugandan healthcare system. The framework's objective is to streamline incoming donor-projects that focus on PBF, whose design should be as close as possible to the framework. Lessons learned from such projects can help improve the design before the MoH moves to a national scale-up of PBF (on national funds). Thus, this framework also formed the basis of the BTC/Enabel's PBF scheme and another scheme by the World Bank not being studied here. One year later than initially planned the project was ready to commence.68

The BTC/Enabel intervention is restricted to HCs III and IV and regional hospitals of the PNFP sub-sector<sup>69</sup>. Health facilities go through a pre-qualification/accreditation assessment which concerns infrastructural quality (e.g., presence of incinerator, waste bins, etc.), with three possible outcomes: (1) accreditation for the PBF intervention, (2) conditional accreditation (facility receives a minor investment according to a performance improvement plan aimed at achieving the criteria) and (3) re-assessment 6 months after implementation of an investment plan (without receiving funds from the intervention). Qualified health facilities are eligible to sign a PBF contract, receive a one-time investment for drugs and small equipment and receive quarterly extra funds based on their infrastructural quality and number of qualitative services provided (i.e. their performance). The latter means that

<sup>&</sup>lt;sup>68</sup> A more thorough description of the policy process can be found in Chapter 9.

<sup>&</sup>lt;sup>69</sup> See Annex VII for an extract of the implementation manual with more detailed information about incentives, measures, indicators, etc.

CONTEXT AND INTERVENTION

services were provided according to the Ugandan Clinical guidelines and the patient was not charged above a fixed maximum. For each visit to the facility the patient has to pay a flat fee which covers the consultation, lab tests, drugs and treatment and if needed an admission of less than three days. The level of the maximum fee is different for different groups of patients (e.g. under 5 at the OPD, patients on ART, etc.) (see annex VII). It is set by the intervention based on the expected costs and the funds given by the intervention. In reality, this means a strong reduction of the patients' cost, with for some patients a reduction by a factor of 4. Only patients that received the services according to the guidelines are allowed to be reported in order to receive funds from the project. The district health management team (DHMT) together with a member of one of the other medical bureaus verify whether the reported patients were according to the guidelines by taking a sample of ten patients. If more than two were not according to the guidelines the facilities are penalized (i.e. a reduction of funds).

The most important elements of the PBF intervention are (see also Chapter 7): (1) the pre-qualification assessment (accreditation), (2) the obliged lowering of the user fees and the introduction of case-based payment, (3) the introduction of detailed quarterly work plans based on the incentivized services and measures, which in turn are based on the MoH guidelines and (4) 25% of the budget received from the BTC/Enabel can be used for performance-based incentives for the health workers.

Table 28 gives an overview of the intervention and the context in which it has been implemented according to the descriptive framework introduced in Chapter 1.

Table 28: Description	of the PBF intervention and the contex	xt
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Context PE	F elements	
<ul> <li>Health workers do not receive specific financial incentives. Salaries are perceived as being too low. A difference in salary exists between health workers paid by the government and those paid by user fees from the facility.</li> <li>The PNFP facilities receive a small grant from the government with fixed budget lines (2 - 4 million UGX per quarter). NGOs often add resources to this budget either in kind (medicine, equipment) or by funding specific activities (meetings, outreaches). These funds can go up to 8 million UGX per quarter (Baylor Uganda), but are often restricted to one department (e.g. ART clinic). User fees complete the budget.</li> <li>Non-financial incentives exist in awards given at facilities by NGOs for good performance in a certain area (e.g. drug store management).</li> </ul>	ancial entives Three kinds of inc 1) Every intereste process/accredita 'Score > 85%' = th equipment and m order to attain 85 2) Quality bonus = quality score, each administrative lev IV = 2 million UGX 3) Quantity bonus recorded accordin the patient did no Depending on the UGX for HC III and Incentives are pai performance-base Quarterly paid aft Incentives are pai authorisation of the	entives (see also annex VII): d facility needs to go through a qualification tion in which they are scored based on structural measures. e facility is accredited and receives a first incentive (money for edicines). '65% > score < 85%' = facilities receive a small grant in %. 'Score < 65%' = not accredited, no financial support. e star rating (1* to 5*) for each facility based on a structural h star corresponds to a fixed lump sum grant depending on the el of the health centre (HC III = 1 million UGX per star rating; HC per star rating). = fixed incentive for each service that was performed and bg to the pre-defined Ugandan Clinical Guidelines of the MoH and t pay more than a fixed maximum fee. scores, the amount received per quarter can go up to 20 million 40 million UGX for HC IV. d to the facility, 25% of the funds received can be used for ed incentives for the health workers. er a reporting and verification process of about 6 weeks d on a bank account of the facility, yet the facility needs the he district accounting officer to access it.
Every facility receives monthly and yearly targets for different services from the MoH. In most cases these are displayed in the different departments or in the waiting room. Also, each facility has a Quality Improvement team, which also puts forward working points. However, these were not always very active before the project. NGOs also often have targets in specific areas (e.g. drug store management).	Service and quality measures	The pre-qualification measures correspond to infrastructure, equipment and human resources requirements. The quarterly qualification tool contains cross cutting issues of quality of service like hygiene and working environment, availability of medicines and consumables, staffing levels, use of guidelines and other management tools, implementation of performance improvement strategies, etc. Quality indicators and measures were drawn from the national guidelines, hence are per definition owned by the country. The timeframe of the measures is 3 months.
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Facilities are supposed to report in the HMIS books of the MoH and make a monthly report which is sent to the district. Most HC III do not have computers for the records office nor a specific records assistant. The HC IV and some HC III do have a computer and a records assistant. However, the hard copies are still needed which creates double work.	Monitoring and verification system	The facilities first perform a self-assessment of their own performance, they assess the infrastructural quality and report the number of patients treated according to the guidelines. They are subsequently visited by the extended-district health management team (E-DHMT = DHMT + representative from the concurrent medical bureau) for verification. They check the self-assessment and verify whether the reported patients were indeed according to the guidelines. This is done by taking a sample of ten from the reported patients. If more than 2 were not according the guidelines, the facility is sanctioned. Facilities are thus not allowed to report patients that did not receive services according to the guidelines or paid too much. Verifiers are not necessarily medical doctors. Performed each quarter. Quantity measures are drawn from the registers No extra costs are envisaged, yet the district receives incentives that can be used to cover the costs of the visits (e.g. car fuel).
The MoH is both purchaser and provider. Oversight is mainly done by the district health office, the sub- district and the local government. PNFP facilities are also answerable to their respective religious medical bureau which is the owner of the PNFP facilities.	Split of functions	The split of functions is limited. The MoH/MoFPED is envisaged to be the purchaser although in the project the BTC/Enabel is the fund holder/purchaser. The provision is being done by the facilities under the aegis of the medical bureaus. The health coordinators of the latter together with the DHMT are responsible for the verification. To avoid collision, the coordinators of the medical bureaus will not be present during the verification visits of their own facilities.

PNFP facilities have more autonomy than public facilities. Whereas services at public facilities are free of charge and these facilities thus receive all their funds from the government through fixed line budgets, the PNFPs receive only a small part of their budget from the government with fixed budget lines. They have full autonomy on the use of the received user fees and donations. Funds from NGOs are mostly earmarked, not giving any autonomy to the facility (e.g. Baylor Uganda).	Autonomy	<ul> <li>Facilities cannot use the budget for infrastructural investments or salary top ups with no link to performance.</li> <li>Facilities have to use the funds as fixed in the business plan, which they compose themselves with support from the district.</li> <li>The qualification bonus can only be used for medicines and small equipment in order to bridge the first quarter in which no funds are received yet. Only a fixed part of the received funds (25%) can be used for performance-based incentives for the health workers.</li> <li>In order to retrieve money from their bank account facilities have to justify to and get permission from the district accountancy officer.</li> </ul>
Information board often has statistics on the performance of the health facility, however, these are not always accurate or up-to-date. Accountability is mainly towards the health unit management committee (HUMC) and the district.	Accountability arrangements	Facilities are obliged to communicate their results, exact prices and the money received to the community via their information boards. Performance reports are send to the district which aggregates the data and sends it through to the national level.
The community is involved through their representatives in the HUMC. The UCMB has its own patient satisfaction surveys.	Community involvement	Community involvement is very limited. No new tasks were assigned to the community. The community is represented in the HUMC via their local leaders. The HUMC has to underwrite the business plan. No incentives are given to the community leaders, nor are their incentives based on the participation of the community. Patient-satisfaction surveys will be performed but incentives are not based on them, they are purely informative.
The activity of the HUMC differed strongly across facilities. However, no explicit business or strategic plan was used in most of the facilities.	Planning arrangements	The business plan is meant to set out how the facility aims to reach their goals using the expected PBF funds. It is focused on the PBF indicators and the three month timeframe. Misappropriation or misuse of funds is being sanctioned. Business plan is approved by the HUMC and the district health office.

All the facilities of the medical bureaus go through a light accreditation process. Workshops and meetings exist with mainly the in-	Ancillary components	Accreditation: every interested facility needs to go through a pre-qualification process in which it performs a self-assessment after which this assessment is being verified. Facilities with a score of 85% and above are allowed in the project. This is like an accreditation process.
The districts are seen to be lacking the capacities to really support the facilities in their functioning.		The in-charges of the facilities receive workshops on the specificities of the project which they have to communicate to their staff.
Health workers strongly appreciate the supervision received and often stated that they would like to welcome the supervisors more often.		The district PBF focal persons have quarterly meetings during which the performance of the different districts and facilities are being discussed and solutions are discussed.
The user fees at the PNFP facilities were seen as important barriers to access to care. Since services at public facilities are free, many patients divert to them instead of the PNFP facilities. This leads to a very low number of patients in the PNFP facilities.		Support supervision to the facilities from the district is being incentivized.
		Facilities are obliged to lower the user fees below a maximum. Patients should receive all care, lab tests and medication for this fee. It thus entails a shift from fee-for-service to case-based payment.

Abbreviations: PBF: performance-based financing; PNFP: private not-for-profit; NGO: non-governmental organisation; UGX: Ugandan Shillings; ART: antiretroviral therapy; MoH: Ministry of Health; HMIS: health management information system; HC: health centre; DHMT: district health management team; MoFPED: Ministry of Finance, Planning and Economic Development; BTC/Enabel: Belgian technical Cooperation; HUMC: health unit management committee; UCMB: Ugandan Catholic Medical Bureau

Source: (Renmans, Holvoet, & Criel, 2017)

# 4.1 The programme theory

As we describe in Chapter 4, a RE starts with the description of the programme theory. From the aforementioned discussion of the project, interviews with key informants<sup>70</sup> and the literature presented in Chapter 3, we distinguish nine mechanisms that the BTC/Enabel intervention will trigger in theory. Figure 23 shows how these mechanisms fit within the earlier described context. The dotted lines and underlined text in Figure 23 represent the anticipated direct influence of the PBF intervention. In the following list of mechanisms, the trajectory in the causal loop diagram is described between brackets.

We recall from the discussion on mechanisms in Chapter 4 that mechanisms are "hidden but real" (1), "elements of reasoning and reactions of (an) individual or collective agent(s) in regard of the resources available in a given context to bring about changes through the implementation of an intervention" (2), "evolve within an open space-time and social system of relationships" (3) (Lacouture et al., 2015). Moreover, any mechanism may consist of several other mechanisms. The second part of this definition is particularly important and in the following we will make explicit what the resources and the reasoning of the actors are.

- 1. Financial incentivisation mechanism: Central to every PBF intervention is the fact that it creates a link between pre-defined measures and the budget/salary. In our specific case, the PBF bonus to the health facility budget is based on the quality of the work environment, the performance of the health workers and the number of patients treated. 25% of the PBF bonus can be used for health workers' incentives (salary) based on individual performance. These financial incentives that are given to the health workers (resources) are meant to motivate (reasoning) them to work harder and to be more diligent, leading to better performance and more incentives (e.g. Lohmann et al., 2018; Matsuoka et al., 2014; Paul et al., 2014; Rudasingwa & Uwizeye, 2017; Shen et al., 2017).
  - → (Health worker performance, salary, motivation, health worker performance)

<sup>&</sup>lt;sup>70</sup> As discussed in Chapter 5, we interviewed 16 key informants from the BTC/Enabel, MoH, and the faith-based medical bureaus that were close to the design and the implementation of the BTC/Enabel intervention and/or the national PBF framework.

2. Non-financial incentivisation mechanism: Section 3.2 shows that extrinsic financial incentives are not the only motivators of health workers. For example, receiving appreciation after good performance gives them pride, which results in more motivation. Moreover, health workers are intrinsically motivated, and an improved work environment that enables them to perform better may also work as a motivator (see also Dieleman et al., 2003; Franco, Bennett, et al., 2002; Hanson & Jack, 2010; Mathauer & Imhoff, 2006; Yé et al., 2014). The accreditation phase, including the one-time investment when accredited and the performance-based funds during the intervention can be used to improve the work environment at the facility (resources) such improvements can give a feeling of recognition and competence and lead to more motivated staff.. Improving the facility performance or getting accredited (resources) is a form of appreciation and may generate pride (reasoning) and, again, increase motivation. Moreover, the prospect of earning more funds for the facility that may lead to an improvement of the work environment (resource) may also motivate health workers (reasoning).

 $\rightarrow$  (Health facility budget/one-time investment, work environment, motivation, health worker performance, health facility budget)

 $\rightarrow$  (Accreditation measures, One-time investment, motivation)

3. Management mechanism: The PNFP facilities already have autonomy over their resources, yet real autonomy is only possible when resources are available to spend. Of the above-mentioned bonus, at least 75% can be used for investments in the facility (resources), which increases the decision space of the HUMC (e.g. Anselmi et al., 2017; Brenner et al., 2017; Feldacker et al., 2017; Kambala et al., 2017; Mayumana et al., 2017; Ogundeji et al., 2016; Rudasingwa & Uwizeye, 2017). This may lead to better and locally adapted strategies (e.g. Manongi et al., 2014; Peerenboom et al., 2014). The coaching of the management, the introduction of the self-assessment tool and the "business plan" based on the performance measures increases the capacity of and the information available to the HUMC and helps them more confident and able (reasoning) to play a more active management role (Key Informants 5, 6, 9, 11, 13). Moreover, as being accredited gives certain advantages (resources) (e.g. one-time investment from the intervention in the work environment and admission into the project) the HUMC will be incentivized (reasoning) to invest in order to adhere to the accreditation standards (KIs 5, 6, 12, 15 and 16). This will improve the work environment. The increased funds (by some called the income effect) thus create a favourable context for the management mechanism to get triggered.

- → (Planning and management, work environment, accreditation measures, one-time investment, work environment)
- → (Management coaching/business plan/performance measures/autonomy, planning and management, work environment)
- → (Health worker performance/work environment/number of patients, health facility budget, autonomy, planning and management, work environment/staffing level)
- 4. Knowledge and saliency mechanism: The intervention supports financially the supervision performed by the district health management team (resources) which helps improve the knowledge of the health workers (reasoning) (KIs 13 and 15). Internal supervision and guidance from the verification team and the use of performance measures and tools like the self-assessment tool (resources) will likewise improve health workers' and health managers' knowledge and awareness of their tasks and the quality standards (reasoning) (Anselmi et al., 2017; Borghi et al., 2013; Lohmann et al., 2018; Mayumana et al., 2017; Ridde et al., 2018). On the downside, verification may lead to a predominance of the checklist logic and may limit the more supportive and learning aspects of supervision (KI 13) (Bhatnagar & George, 2016; Janssen et al., 2015; Schriver et al., 2017; Seppey et al., 2017). Moreover, the intervention introduces extra visits to verify the indicators which impacts the workload and resources needed (KI 12), which may again hamper the formative supervision.
  - → (Supervisor resources, quantity and quality of supervision, health worker knowledge)
  - → (Verification/performance measures/supervisor workload, checklist predominance/supervisor resources, quantity and quality of supervision)
  - → (Performance measures/self-assessment tool/supervision, health worker knowledge)
- 5. Financial accessibility mechanism: The project aims to lower the user fees (resources) which will increase the financial accessibility and enable more patients to come to the health facility (reasoning) (KIs 1, 4, 7, 8, 9, 11, 12, 13, 14 and 15).

 $\rightarrow$  (Accessibility, patient behaviour, number of patients)

- 6. Patients' feedback mechanism: Through patient satisfaction surveys, the patients will be able to give their opinion about the services (resources); when health workers become aware of this, they will get a better understanding of the needs and wishes of the patients (reasoning) and treat patients more responsively (Bhatnagar & George, 2016; Kambala et al., 2017). However, the intervention does not give a specific role to the community other than what already existed, namely 'co-managing' the facility in the HUMC (KIs 1, 2, 4, 5 and 11). The feedback mechanism may also work through the personal face-to-face interaction during the provision of services. This feedback may be more positive which may increase the motivation of the health workers.
  - → (Patient perception, patient satisfaction surveys, health worker performance, patient perception)

 $\rightarrow$ (Health worker performance, patient perception, motivation

7. Workload mechanism: If the intervention increases the number of patients, it will increase the workload (resources). Moreover, the importance of recordkeeping is also increased, and notwithstanding the intervention's use of the existing registers, we can still expect a small increase in the workload (resources) (Bhatnagar & George, 2016). Increased workload may decrease motivation when it exceeds a certain level (reasoning) and it also puts extra pressure on the available infrastructure, equipment and consumables (Kambala et al., 2017; Shen et al., 2017).

→ (Number of patients/recordkeeping, workload, motivation/work environment)



## Figure 23: Causal loop diagram depicting the intervention in the specific context

Source: Adapted from Renmans, Holvoet, and Criel (2017)

## 4.2 Identifying hypothetical feedback loops

Depicting these different causal linkages in one diagram results in a very complex and difficult to interpret tangle of arrows (see Figure 23), which nonetheless functions as our programme theory. However, as we discuss in Chapter 4 causal loop analysis is about discovering the reinforcing and balancing feedback loops within a system. These feedback loops exemplify system behaviour and correspond to the in Chapter 4 discussed systems archetypes. Using the appropriate command in the software easily lifts out these different loops. In this section, we will discuss three possibly relevant loops. To clarify the loops, we have simplified the general diagram by focusing on the specific loop, deleting some variables and arrows and bringing some variables together in one box. In Chapter 7 these feedback loops and the whole causal loop diagram is compared to what actually happened.

## 4.2.1 "SUCCESS TO THE SUCCESSFUL"

Figure 24 depicts two reinforcing loops (R1 and R2) that together resemble the "success to the successful" systems archetype (Kim, 1992). It starts with the one-time investment after accreditation improving the work environment (basic equipment and stock of medicine), this positively influences the motivation and performance of the health workers (Bhatnagar & George, 2016; Ogundeji et al., 2016; Shen et al., 2017). This leads to improvements in the health facility budget (R1), healthcare outcomes and patient behaviour (number of patients) (R2) (Anselmi et al., 2017; Lannes, 2015), with some delay in the latter. However, due to the improved financial accessibility, the number of patients improves immediately (KIs 1, 4, 7–9, 11–15) (Anselmi et al., 2017). The improved work environment and health worker performance combined with the increased number of patients increases the health facility budget, which can trigger further improvements in the work environment (KIs 1, 4, 5, 7, 8, 11–14), closing the reinforcing feedback loop. An important influencing factor of this loop is the ability of the management team to plan well and to use the newly received funds in an efficient and effective way (KI 2) (Bertone & Meessen, 2013; Ngo et al., 2017; Ogundeji et al., 2016).

Remark that this configuration of feedback loops is a combination of different mechanisms: management mechanism, financial accessibility mechanism, financial incentivisation mechanism, non-financial incentivisation mechanism.



Figure 24: Causal loop diagram of "success to the successful" hypothesis

Source: Adapted from Renmans, Holvoet, and Criel (2017)

## 4.2.2 "GROWTH AND UNDERINVESTMENT"

Figure 25 shows that this "success to successful" loop (R) may be hampered by two balancing feedback loops (B1 and B2); the increased number of patients also increases the workload, which puts both the work environment (B1) and motivation (B2) under stress (KIs 11, 12, 14, 15) (Kambala et al., 2017; Shen et al., 2017). This combination of loops corresponds to the "growth and underinvestment" archetype in systems thinking (Kim, 1992).



Figure 25: Causal loop diagram of "growth and underinvestment" hypothesis

Source: Renmans, Holvoet, and Criel (2017)

More specifically, the increased workload may reduce the quality of the work environment (B1) (KI 11). Though smaller investments can be covered by the increased resources, they may not be sufficient to tackle large-scale infrastructural improvements, such as a bigger ward (KIs 11, 14, 15) (Funds coming from the PBF project are not allowed to be invested in new infrastructure). With the wards becoming too crowded, the quality decreases, leading to fewer funds from the PBF. Fewer funds may jeopardize the investments needed in the work environment, leading to lower healthcare outcomes. However, the effect on patients' perceptions will be delayed and a high number of patients remain, but the facility will only receive the reduced user fees and not the PBF incentives, as the quality will not be high enough (KI 11). In the worst-case scenario, the quality will decrease even more, eventually keeping the patients away and reducing the workload again, making it possible for the facility to perform again, eventually leading to an oscillating effect. Another possible outcome is that the facilities will increase the user fees again.

The increased workload also has a negative effect on health worker motivation and, consequently, their performance (B2) (KI 14) (Bhatnagar & George, 2016; Kalk et al., 2010). If the health facilities do not have the opportunity to hire/receive more staff, the increased workload will serve as an important bottleneck.

In terms of mechanisms, the same mechanisms of the 'success to the successful' hypothesis are involved (i.e. the management, financial accessibility, financial incentivisation, non-financial incentivisation and workload mechanisms).

# 4.2.3 "THE SUPERVISION CONUNDRUM"

Figure 26 focuses on the supervision part of the causal loop diagram. Again, we can discern a balancing loop (B), which is fuelled in this case by external input from the intervention. Adding the verification task impacts the workload of the supervisors and the resources available and fuels the checklist rationale (KIs 12, 13, 15) (Antony et al., 2017; Khim & Annear, 2013; Matsuoka et al., 2014; Ssengooba et al., 2012). This may lead to less focus on the formative part of supervision (Antony et al., 2017; Janssen et al., 2015; Schriver et al., 2017; Seppey et al., 2017). Adding resources and reducing the workload may give more room for the formative part of the supervision (quality supervision), whereas strengthening the capacity of the verifiers will make them more capable of differentiating between their role as verifier and formative supervisor.

Figure 26: Causal loop diagram of "supervision conundrum" hypothesis



Source: Adapted from Renmans, Holvoet, and Criel (2017)

PART 3

LOOKING INTO THE BLACK BOX

**CHAPTER 7** 

HOW THE BOX GOT ASSEMBLED: THE IMPLEMENTATION OF THE INTERVENTION

J Cole – Love yourz

Before we move on to the evaluation of the mechanisms theorised in Chapter 6, we first analyse the implementation of the intervention and how this has affected the triggering or manifestation of the mechanisms.

Traditionally, implementation is defined as "the ways a program is put into practice and delivered to participants" (Durlak, 2015, p. 1124; Durlak & DuPre, 2008) and implementation research as "crucial for improving our understanding of the challenges we face in confronting the real world by broadening and deepening our understanding of these real-world factors and how they impact implementation" (Peters, Tran, et al., 2013, p. 12). In short, it is "the scientific inquiry into questions concerning implementation" (Peters, Adam, et al., 2013, p. 1). One of these questions concerns the implementation fidelity of a programme, namely, whether an intervention has been implemented according to the programme manual. Two issues to this question are particularly relevant.

The first matter is rather descriptive and concerns the issue of attributability and construct validity (see Chapter 1). Can we attribute the observed changes/outcomes to the theorised intervention or a generalised construct of the intervention? The possible occurrence of adaptations or flaws during the implementation process may lead to a 'type III error' in evaluation: "measuring something that does not exist" (Scanlon et al., 1977, p. 264). In other words, the measured negative and/or positive outcomes may not be due to a perfectly according to the programme manual implemented intervention, but may be caused by flaws and/or adaptations during the implementation. In the latter case, the theorised intervention (as set-out in the programme manual) never got implemented and outcomes can thus not be linked to it. Doing so would mean a 'type III error'.

The second issue is more analytical and concerns the implementation of evidencebased interventions that are implemented in a different context from that in which the evidence was generated. It concerns programme effectiveness and reproducibility: Was the intervention implemented according to the evidence-based programme manual? It relates to the frustration of evidence-based practitioners that "despite abundant evidence of the efficacy of affordable, life-saving interventions, there is little understanding of how to deliver those interventions effectively in diverse settings and within the wide range of existing health systems" (Peters, Tran, et al., 2013, p. 15). It stems from a positivistic concern for the reproducibility of evidence-based projects (see also Carroll et al., 2007; Pérez et al., 2016) and the effect of a lack of implementation fidelity on the effectiveness of the intervention. This second issue is thus also more normative.

The issue of construct validity in evaluations of/research on PBF, discussed in Chapter 1, already contributes significantly to the 'type III error' issue, hence the first issue. If every PBF scheme is different, then attributing change or a lack of it to a generalised common construct is not always correct and may lead to this 'type III error'. As the literature review in Chapter 3 illustrates, there are also guite some issues related to the implementation of PBF that may put into question whether the actual theorised PBF intervention was properly implemented and that undermined the outcomes and the incentivisation rationale (Bodson et al., 2018). Research indicated that payments were often incorrect or delayed, leading to lower motivation, distrust, diminished credibility of the project and difficulties to share bonuses (Bertone et al., 2016; Bertone & Meessen, 2013; Bhatnagar & George, 2016; Bodson et al., 2018; Chimhutu et al., 2014; Chimhutu et al., 2016; Fox et al., 2014; Lohmann et al., 2018; Ogundeji et al., 2016; Ridde et al., 2018; Rudasingwa & Uwizeye, 2017; Wilhelm et al., 2016). The verification process is also seen to be hampered by conflicts of interest, collusion and manipulation/falsification of reports (Bertone & Meessen, 2013; Chimhutu et al., 2014; Falisse et al., 2012; Kalk et al., 2010; Lohmann et al., 2018; Ridde et al., 2018; Schriver et al., 2017; Turcotte-Tremblay et al., 2017). Finally, a flexible PBF implementation open to adaptations by stakeholders was seen as an important asset in Malawi and Armenia (Petrosyan et al., 2017; Wilhelm et al., 2016)<sup>71</sup>. In the absence of such an opportunity, Paul et al. (2017) and Ridde et al. (2018) found that health workers tend to make minor adaptations on their own. Given this track record of regular adaptations and implementation flaws, a thorough study of the implementation is warranted.

In this chapter, we first explore how a realist perspective on implementation research looks like. We then turn to the analysis of the implementation of the different theorised mechanisms.

<sup>&</sup>lt;sup>71</sup> Notice that this makes the need for evaluation to look at what actually got implemented even more relevant.

## **1. A REALIST PERSPECTIVE ON IMPLEMENTATION FIDELITY**

As mentioned, the second issue related to implementation fidelity concerns the positivistic concern with reproducibility. This is interesting because the relevance of this concern can be seen as a consequence of the understandings of interventions highlighted by realists (see Chapter 4). Firstly, as we discuss in Chapter 4, the causal power of an intervention does not resort in the intervention itself, but rather the agents make the intervention work or not, and since the implicated agents differ, no two interventions can be the same. Secondly and similarly, as context is an inherent part of the intervention/implementation and contexts differ significantly over time and place, again, no two interventions can be identical. Hence, adaptations and diverging implementations are the rule rather than the exception, an observation that ties in well with findings from implementation research (Durlak, 2015).

However, philosophical underpinnings and the realist assumptions remain underappreciated in the main publications on implementation fidelity in health systems (Lucas & Zwarenstein, 2016; Peters et al., 2009; Peters, Tran, et al., 2013). Indeed, while Peters, Tran, et al. (2013) recognise the usefulness of 'realist review', they reduce the realist approach to its explanatory objective and leave aside the distinctive philosophical assumptions that make realist evaluation realist. It seems that the search for reproducibility, which implicitly holds that the causal power resides in the intervention and not in the agents (see Chapter 4, Section 2.1.1), is deep-rooted in implementation research. Fundamental adaptations to the programme manual are often seen as a threat to the effectiveness of the intervention (Elliott & Mihalic, 2004). It is, however, true that, within implementation research and also within the PBF community, there is an ongoing "fidelity/adaptation debate" (Dane & Schneider, 1998, p. 25) or an "implementation dilemma" (Lucas & Bloom, 2016, Ch. 4) between those who believe that any deviation from the programme manual may jeopardise the effectiveness of the intervention (Proctor et al., 2011) and those who see adaptation to the local needs essential to an intervention's success (Sundell et al., 2016). The pragmatic outcome of this debate is that implementation research should help identify the core elements of an intervention that cannot be modified without negatively affecting the effectiveness and those that may very well be adapted to suit the context (Carroll et al., 2007; Lucas & Bloom, 2016).

If the realist approach has not been sufficiently integrated in implementation fidelity research, what should then be the position of the realist evaluator? Despite the clear relatedness between implementation fidelity research and the realist approach, very little has been published. However, we believe that the realist evaluator should situate

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her/himself outside the earlier discussed normative fidelity/adaptation debate. From a realist perspective, adaptation is inherently linked to the implementation and its interaction with the context (the implementation/context nexus), thus an inherent part of the intervention (The RAMESES II project, 2017). Whereas the traditional view on implementation fidelity combines the two earlier discussed issues, from a realist perspective, there is a clear distinction between the study of adaptations to the implementation and the study of the adherence to an evidence-based programme.

Indeed, RE is about explaining change; adaptations to the intervention (the first issue) that elicited a change are automatically discussed in the RE of the programme itself (see Adams et al., 2016). Pawson (2013) even highlights that the implementation itself is ridden with "invisible mechanisms" (p. 115) that can explain particular outcomes (e.g. the effect of waiting time) (see also Masterson-Algar et al., 2014).

The second issue necessitates a re-conceptualisation of fidelity (The RAMESES II project, 2017). RE concerns the evaluation of programme mechanisms/theories rather than programme components. This is also how realist (in)fidelity should be perceived. The correct implementation of the programme components may fail to initiate the mechanisms as (implicitly or explicitly) put forward by the implementers due to context insensitivity and/or the absence of needed adaptations. From a realist perspective, this leads to implementation infidelity (we propose to call this 'realist infidelity'). Likewise, an implementation of the intervention that diverges from the theorised programme manual but nevertheless still leads to the theorised programme theory has been implemented with realist fidelity.

Thus, a realist understanding of implementation research does not specifically focus on the programme components, but on the role played by the implementation/context nexus in the (partly) non-triggering of the theorised programme mechanisms (Figure 27). It looks at explaining how, for whom, in what contexts and to what extent theorised programme mechanisms failed to get triggered (The RAMESES II project, 2017; Van Belle et al., 2017). Importantly, the 'how' part in this question is different from the 'how' question in the actual RE. The latter concerns the study of generative causation and mechanisms, whereas the former concerns factors related to the implementation but also to the context and the capacities of the actors that negatively influence the occurrence of such mechanisms. These can be, but are not necessarily mechanisms.

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# Figure 27: Traditional and realist view on fidelity

Traditional fidelity

Source: Author

Understanding and explaining are key in the realist approach. Poor implementation practices are one possible cause of realist infidelity. Other possible causes are the lack of capacities of important actors and the complex interactions that take place between the intervention and the context in which it is being implemented, which were not duly taken into account. Therefore, and because of the reasons discussed in Chapter 4, a systems thinking approach can contribute significantly to our understanding of realist infidelity. Hence, in looking for explanations of infidelity, we will use the systems thinking principles and ways of thinking as put forward in Chapter 4 (e.g. 'forest thinking' (de Savigny & Adam, 2009)). In order to clarify how certain factors work as barriers to the theorised mechanisms, we created causal loop diagrams based on the causal loop diagram presented in Chapter 6. In these causal loop diagrams the variables that are irrelevant for the explanation are omitted and others are added or adapted for the sake of clarity. No causal loop diagrams were prepared for Mechanism 6 (patients' feedback mechanism) as the programme component aimed at triggering this mechanism was not implemented and the 'General Barriers' because they are so straightforward that a causal loop diagram would complexify rather than clarify (Sections 2.6 and 2.8).

## **2. OBSERVING REALIST INFIDELITY**

In this section, we will look at instances of realist infidelity in the BTC/Enabel PBF intervention and try to explain them using the findings from our surveys and qualitative interviews with health workers, our KI interviews and our own observations as discussed in Chapter 5. The section is structured around the hypothesised mechanisms described in Chapter 6.

## 2.1 Financial incentivisation mechanism

As discussed in Chapter 1, the incentivisation of health workers is central to a PBF scheme. In Chapter 8, we show that health workers were indeed incentivised to a certain extent; however, the contribution of the individual incentives played a smaller role than could have been expected. Indeed, despite the pivotal role of the incentivisation mechanism, the intervention is being seen by health workers as mainly supporting the patients by reducing the user fees. In the minutes of one of the HUMC meetings, it was even stated that "BTC supports the patients not the facility".

"Me, what I normally say, actually, BTC[/Enabel] favours patients even if they give staff incentives, they are not enough but the main goal, me what I said, they favour patients."

(Resp. 22.17 Midwife)

When the staff were asked to describe the project, their incentives were almost always mentioned last and are thus not predominant. Several reasons that were also found in other PBF interventions can explain this: not all health workers were aware of the financial incentives or of how they would be shared (see also Fox et al., 2014; Janssen et al., 2015; Ogundeji et al., 2016; Paul et al., 2014; Ridde et al., 2018; Seppey et al., 2017; Ssengooba et al., 2012); the level of the incentives was perceived to be too low (see also Bhatnagar & George, 2016; Feldacker et al., 2017; Fox et al., 2014; Paul et al., 2014; Rudasingwa & Uwizeye, 2017); the focus was on other parts of the intervention (see also Lohmann et al., 2018; Paul et al., 2014; Shen et al., 2017); the payments were often delayed (see also Bertone et al., 2016; Bertone & Meessen, 2013; Bhatnagar & George, 2016; Bodson et al., 2018; Chimhutu et al., 2014; Chimhutu et al., 2016; Fox et al., 2014; Lohmann et al., 2018; Ogundeji et al., 2016; Ridde et al., 2018; Rudasingwa & Uwizeye, 2017; Wilhelm et al., 2018; Ogundeji et al., 2016; Ridde et al., 2018; Rudasingwa & Uwizeye, 2017; Wilhelm et al., 2016). We will further explore these reasons .

In order for an intervention to work as expected, it is important that the relevant stakeholders have sufficient knowledge about how it works. This is especially the case for

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PBF interventions whose main programme mechanism (i.e. the incentivisation mechanism) is about changing the health workers' behaviours. In Nigeria, Ogundeji et al. (2016) even found that "[p]articipants who understood the scheme appeared to be more highly motivated" (p. 959). The responses to the quantitative survey (Table 29) show that although a majority of the respondents claimed to be fully aware of what PBF entailed, at the same time, almost one third of the respondents from the facilities that were in the project were unsure about it or even never heard of it. This is significant as it probably is an underestimation given the social desirability to say that you are knowledgeable. When during the qualitative interviews respondents were asked how the PBF intervention differs from other interventions, health workers remained relatively vague. Although some highlighted that this intervention pays after results are achieved (hence referring to the name of the intervention), most of them highlighted the fact that the intervention did not focus on one department but was 'general' and included all the services provided.

"Because like, for Baylor, it is centred on HIV and RBF is generalized. For it is in all departments."

(Resp. 4.17 Nurse)

Status of facility	Fully aware of PBF		Heard of it but not sure		Never heard of it		No response		Total
	n	%	n	%	n	%	n	%	
Fully in	30	69,8%	10	23,3%	2	4,7%	1	2,3%	43
Accredited	25	78,1%	6	18,8%	1	3,1%	1	3,1%	32
Out	5	27,8%	7	38,9%	5	27,8%	1	5,6%	18
Total	60	63,8%	23	24,5%	8	8,5%	3	3,2%	94

### Table 29: Claimed awareness about PBF

Note: Fully in: accredited and financial incentives received at least once; Accreditation: Accredited but not yet received financial incentives; Out: Not accredited and thus out of the PBF component. Results of the end-line survey

#### Source: Author

Moreover, interviews show that the knowledge about how incentives are being distributed, and even whether they exist at all, is lacking. In some cases, a lack of communication within the facilities may be an important contributor. For example, a health worker who just started working at the facility received no information on the financial incentives he could earn. High turnover of staff and insufficient communication vis-à-vis newly recruited staff members exacerbate the knowledge gap (Ridde et al., 2018; Seppey et al., 2017).

"Interviewer: Did they explain to you that you can get financial incentives? No that one also I don't know." (Resp. 18.17 Clinical Officer)

The high level of confusion (respondents from the same facility contradicting each other), lack of knowledge and absence of transparency regarding the allocation of incentives, led to the demand for clear guidelines from the BTC/Enabel. This is similar to research findings from Malawi (Lohmann et al., 2018). However, notwithstanding the need for more detailed guidelines, the rationale of providing individual incentives on the basis of performance or effort was widely accepted.

"Interviewer: And do you know why the others got more? They were just favoured I think. [...] I don't know how someone knows that you have not worked

I don't know how someone knows that you have not worked or you have worked less than the other one."

(Resp. 10.17 Midwife)

"What to improve is to put clear guidelines on incentives,." (Resp. 21.17 Clinical Officer)

"[We] don't make [the allocation of incentives] uniform so that we can encourage this person who is not working so hard to put in effort." (Resp. 5.17 Clinical Officer)

Another reason why the effect of the individual incentives got tempered is their relatively low level. In the visited facilities, it ranged between UGX15,000 (€3.5) and UGX150,000 (€35) quarterly (mostly around UGX90,000 (€21)), compared to salaries that may range between UGX200,000 (€47) and UGX600,000 (€141) monthly. Hence, the incentives constituted about 10% of the health worker salary<sup>72</sup>. This is comparable to incentive levels in Malawi (Lohmann et al., 2018), Sierra Leone (Bertone et al., 2016) and Tanzania (Chimhutu et al., 2016). While payments in Rwanda (Basinga et al., 2011), Cambodia (Khim, 2016) and Burundi (Rudasingwa & Uwizeye, 2017) contributed more than 30% to overall salaries. However, the incentives in the Ugandan PBF intervention should also be viewed in comparison to the public sector salaries which are UGX200,000 - UGX400,000

<sup>&</sup>lt;sup>72</sup> The cited numbers are drawn from the qualitative interviews. A more thorough analysis as has been done by Bertone et al. (2016) in Sierra Leone is needed to get more accurate data.

higher. Of the survey respondents from the fully accredited facilities, 42% categorised the incentives they received as 'very little' (Figure 28).

"Interviewer: Do you think it's sufficient? No, but it is better than nothing, because I never used to get it. You know money can never be enough. I appreciate the little I get." (Resp. 23.17 Clinical Officer)

## Figure 28: Responses to "Do you receive financial incentives on top of your salary?"



## Source: Author

Finally, the payments of these top-ups were often delayed, which led to demoralisation amongst staff and even created friction between the health workers and the in-charge who might get accused of hiding the funds. These delays might eventually lead to facilities stepping out of the intervention.

"[W]hen the money comes late, there is this staff incentive and the staff will start complaining thinking the in charge has eaten the money or has used it otherwise. [...] And that's why some facilities want to give up with BTC[/Enabel]" (Resp. 28.17 Midwife)

"I want to leave this place, they are not giving us money and the staff are demoralised. Even we are scratching the head to pay their salary." (Resp. 9.17 Nursing Officer)

Figure 29 shows the barriers for the health worker incentivisation mechanism identified here. The dotted lines indicate the causal relationships that are most relevant for the analysis. The '#' indicates that the variable is a necessary condition: if the health workers are unaware of the incentives, then they cannot have an opinion on them and the incentives cannot motivate them. The role of effective planning and management becomes paramount as they are not only pivotal in communicating the guidelines of the intervention to the

health workers and thus, ensuring their knowledge of the intervention; they also have an important influence on the work environment, which influences the funds received from the intervention. More funds and thus a higher health facility budget may lead to higher incentives. The level of incentives in comparison with the salary gap and the delayed payments influence the perceptions of the incentives which in turn influences the motivation of the health workers.



Figure 29: Causal loop diagram visualizing the barriers to the financial incentivisation mechanism

Source: Author

## 2.2 Non-financial incentivisation mechanism

Receiving accreditation can be a motivator as it generates pride for the health workers. Yet, not all the facilities managed to get accredited partly because of the institutional setup which led to an increase of inequality between facilities. Moreover, the process was hampered by delays and a lack of information, which led to frustration and demotivation especially in those facilities that failed to qualify.

The first accreditation round was performed in mid-2016 with the first facilities qualifying and starting in July 2016. This round proved to go rather smoothly despite a low number of facilities able to qualify. Facilities that did not manage to qualify but only needed minor adjustments were granted the needed equipment in order to meet the requirements. However, the second round of accreditation did not go as smoothly. While some facilities at the moment of our visit were still awaiting this second round of accreditation without any knowledge about when the verifiers would come and why they did not come on the assigned

date, others were qualified but only got to sign the memorandum of understanding (MoU) six months later. While most of the facilities awaiting the MoU continued their work as before, others started to lower the user fees as requested by the intervention. However, as the MoUs were only signed during the months of May/June, the quarter January–March did not count and no top-ups were paid for those facilities without MoUs. This left these facilities in debts, which they were still trying to recover from.

"In fact we have got the equipment, but since we got the equipment we have never got any other assessment. [...] think it has been one year. It was last year around August or September [...] I have been writing to them, I have been contacting them, they promise that they are coming."

(Resp. 17.17 Clinical Officer IC)

These payment delays and lack of information led to frustration and demotivation among the health workers of those facilities that were affected by it.

Another source of frustration and more importantly of inequity was a result of the setup of the healthcare sector and was also observed in Benin (Paul et al., 2014). The efforts needed for accreditation were not the same in the different facilities. While some hardly had any difficulty in acquiring the needed equipment, others struggled and failed. Likewise, the needed human resources seemed to be problematic for some of the smaller facilities, especially facilities that did not receive government-seconded staff.

"They want other things which the facility cannot manage, like the other time they wanted a clinical officer, midwives, nurses, but the facility cannot employ those ones." (Resp. 1.17 Nurse)

The large disparity between facilities from the same administrative level is the paramount reason for this. Some health facilities have been upgraded to level III in order to make sure that the needed services are availed in a given catchment area. However, the funds, infrastructure and equipment have not always followed. At the same time, one may find very big level III health centres which are not being upgraded because they lack a theatre or because the district does not have sufficient funds to support the upgrade. Nonetheless, both HCs have the same requirements to fulfil in order to get accredited. Although the intervention gives extra funds and equipment to facilities that fell just short of qualifying, facilities that need bigger investments are left behind. This way, the accreditation mechanism strengthens the already existing inequities in the healthcare sector (see also Section 3).

In Figure 30 we show the discussed barriers with the influence of the institutional barrier visualised at the bottom of the figure: facilities with a small catchment population and/or competition from a government facility receive fewer patients, have a lower health facility budget, are thus less well equipped and have less staff, which makes it difficult for them to achieve the accreditation measures. Indeed, insufficient budget impedes the ability of the management to make use of their autonomy and make the needed changes to the facility. Furthermore, delayed visits and a lack of communication negatively influence motivation.



Figure 30: Causal loop diagram visualizing the barriers to the non-financial incentivisation mechanism

Source: Author

## 2.3 Management mechanism

One of the challenges that hindered the management mechanism was the limited positive effect on the health facility budget indicated by health workers, which minimises the possibility of making use of the autonomy for bigger investments. Several causes were highlighted.

Firstly, delays in the allocation of the funds created budget deficiencies, leading to the need to get loans in order to buy drugs and even salary arrears. An important part of the

delay of the funds can be attributed to the late verification process. While the quarter ended at the end of June, verification was still ongoing when we visited the facilities towards the end of July. As in Benin and other countries, this is partly caused by the reliance on the district health management teams who already have a filled work package (Antony et al., 2017; Gergen et al., 2017).

"As the BTC[/Enabel] delays to bring that money, we also go on some debts. And when it comes,[...] you find that we have a lot to pay for the drugs and that one might cause chaos so you do not have enough funds for the incentives." (Resp. 28.17 Midwife)

["We needed to get a loan for the drugs and there were salary arrears. Because the BTC[/Enabel] gave us drugs and sundries but they were quickly gone when the patients started coming in."] (paraphrased) (Resp. a7.17 Clinical Officer)

Secondly, ambiguity about how to declare cases to the BTC and how to apply the guidelines (we were more than once asked to give explanations about how to interpret them) caused many facilities to underperform during their first quarter in the project, leading again to budget problems. Such knowledge problems in the beginning of the project were also identified in Burkina Faso (Ridde et al., 2018) and Rwanda (Janssen et al., 2015).

Thirdly, the top-ups received from the BTC/Enabel do not always cover the costs according to the health workers. The cases for the case-based payment are defined rather broad (e.g. new >5-year OPD visits), and respondents suggested to make them more specific in order to make a better fit between the top-up given by the intervention and the cost incurred by the specific condition of the patient. Health workers observed that the costs related to simple malaria, complicated malaria or typhoid are not the same. Although cost recovery is usually not the goal of PBF, the obliged lowering of the user fees in this PBF intervention forces the use of incentives to cover the costs of the treatment. Yet, when the incentives are needed to cover the costs, it is important that they are actually covered. Otherwise, health workers will start showing 'gaming behaviour' as exemplified in Section 2.5.

"I would think case based payment could be better, e.g. if someone has a simple headache and would maybe need a pain killer it cannot be equated to someone who has like a sexually transmitted infection which maybe needs more than 3 antibiotics." (Resp. 23.17 Clinical Officer)

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[Income from OPD alone is not sustainable, maternity has to cover the losses of OPD. BTC/Enabel needs to increase what they give] (Paraphrased) (Resp. a2.17 Lab Technician, Staff Representative)

"[w]hen you calculate what the patient actually consumes and what the patient will pay for instance, it does not match with the total subsidies and the user fees we are able to collect. It is a little bit lower and the prices for drugs and sundries keep rising as well, so it becomes a bit of a challenge. Especially when you get some other complicated cases that would need a lot of drugs so you end getting some kind of loss."

(Resp. 23.17 Clinical Officer)

However, we need to take into account the fact that health workers have an incentive to exaggerate the budget problems experienced in order to increase the funds received. For example, the same respondent also highlighted that the funds were indeed insufficient to make big investments, yet the budget did increase.

"Respondent: It may be harder for us in the future to focus on capital developments because we may not have the budget for it given the expenditure we have e.g. we cannot think of constructing a new building. It means we are likely to maintain the current standards and not being able to advance.

Interviewer: Could you have some capital development before the PBF programme? Respondents: No, I won't say that. With the coming in of the PBF programme we are able to maintain the standards but previously the standards were so hard to maintain."

(Resp. 23.17 Clinical Officer)

Fourthly, part of the rationale behind the limited top-ups is that an increased number of patients due to the lower user fees would improve the economies of scale and increase the efficiency of the facility. However, as in Nigeria (Mabuchi et al., 2018), not all facilities saw an increase of the number of patients, mainly due to the competition (described in Chapter 6) from neighbouring government facilities that deliver free services.

["We lowered the fees which led to more patients but the number of patients remains rather low due to the competition from the government facilities, therefore the income remains low but we still have many staff which leads to insufficient funds."] (paraphrased) (Resp. a7.17 Clinical Officer)

Figure 31 visualises the observed barriers to the management mechanism. Mainly, the lack of funds and consequently decision space is being visualised here. Bad record keeping

may lower the funds received from the intervention, whereas the increased number of patients increases the costs incurred at the facility. Whether the funds from the user fees and the intervention can compensate the increased costs is partly dependent on the impact of the number of patients with more complicated diseases that need more resources (tests and drugs). Only if the facility budget has a financial surplus can the management fully use its autonomy to actively manage the facility.





Source: Author

# 2.4 Knowledge and saliency mechanism

Although the manual of procedures clearly states that after each verification process the facility will receive feedback and support on how to improve where they have gone wrong, this was not the case in all the facilities. This especially holds for the facilities from Kyenjojo district, which did not receive any feedback from the verifiers. According to the BTC/Enabel, this was due to the fact that the responsible person was new and probably not yet familiar with the procedure and it was emphasised that this would be rectified in the future. This, however, caused frustration amongst the health workers as was also observed in Rwanda (Janssen et al., 2015; Schriver et al., 2017).

In other facilities, it seems that the feedback was perceived as very useful, except that not all appropriate cadres were present in the verification team, limiting the possibility of giving valuable feedback (e.g. a nurse verifying the laboratory) as was already observed in another Ugandan PBF intervention (Ssengooba et al., 2012).

"[Y]ou find the person [who is] asking things [and] coming to the laboratory is not a laboratory personnel but is coming to ask things he does not understand." (Resp. 11.17 Lab Technician)

"Sometimes they advise us [on] indicators where we have not performed well and they advise us do this and this, so if there is an error they will advise us on what to do."

(Resp. 8.17 Lab Technician, Staff Representative)

"[W]hen you call the in-charge, the in-charge will say we have not received feedback yet, at least feedback [should be] immediate. But they do this [verification] and they go, for us we remain in darkness."

(Resp. 27.17 Clinical Officer)

As shown in Figure 32, the capacity of the verifier (including his/her knowledge of his/her tasks) is essential to give appropriate feedback. Both are quite different things, but the verification visits do try to incorporate some of the aspects of supervision (giving feedback and helping to overcome challenges).

Another challenge to this 'knowledge and saliency' mechanism is the lack of communication within the facility as described in Section 2.1, which is compounded by the high turnover within the PNFP facilities (see also Ridde et al., 2018). In Chapter 6, we describe the competition between public and PNFP facilities. The staff at the latter are paid from the user fees, which results in lower salaries compared to staff from the public sector. As discussed, the financial incentives are insufficient to close the gap, and when health workers get the chance, they move to the public sector. This leads to a high turnover at the facilities and means that the capacity building regarding the project and the correct guidelines needs to start over again every time new staff members are appointed. With this in mind, some respondents ousted that first salaries have to be raised before the incentives may have a real impact on motivation and retention. A similar claim has been made by health workers in Sierra Leone (Bertone et al., 2016).

["Staff are tasked to work better so you need to motivate them but some are paid very few. Also you need time to orientate new staff so you want to maintain staff by giving them more money."] (paraphrased) (Resp. a2.17 Lab Technician)

"The problem is on retention, they always look for greener pastures out and yet those incentives cannot attract them much here. I think the first important thing to handle is salary. I think if we can be able to go to the same salary scale with the government then the incentive would be added motivation. The only challenge is that we can't adopt the salary scale of government. So at times the incentives may not be felt so much, because they are like covering that gap. So they end up not being felt in real senses."

(Resp. 23.17 Clinical Officer)

Figure 32 shows that the role of the management team is very important to transfer the knowledge about the intervention to the health workers. Low salaries increase the turnover of staff, which increases the need for communication from the management team towards newly appointed staff. The lack of qualitative supervision/feedback also leads to low health worker knowledge of the intervention and eventually low health worker performance.





Source: Author

# 2.5 Financial accessibility mechanism

In Chapter 2, we discuss the issue of rent-seeking behaviour. One of the observed acts of such behaviour was the overcharging of patients. As we show in Chapter 8, an important aspect of the intervention was the financial accessibility mechanism: user fees have been lowered and a kind of case-based payment has been introduced. Each patient pays an upfront fixed fee and in return receives all the treatments, lab tests and drugs needed. This even includes a stay at the facility of less than three days. However, patients with more complicated diseases (e.g. complicated malaria) and in need of more drugs are sometimes being charged more than allowed for by the intervention. They are subsequently not declared to the intervention as this would lead to a penalty; however, the charged fee is higher than the top-up received from the intervention. Similarly, patients that have to stay for less than three days at the facility are hardly reported as out-patients<sup>73</sup>, as they should be according to the BTC/Enabel guidelines, because the facilities can earn more by charging them the user-fee of an in-patient compared to reporting him/her to the BTC/Enabel as an out-patient and receiving the intervention top-up. This means they are charged as an inpatient which is much more. A more aggressive form of overcharging can be seen at one of the facilities where the mothers were charged more when they did not attend all of the four antenatal care visits (ANC 4). Facilities do not receive funds for incomplete ANC 4, and that is why this facility decided to force the mothers to come for all four ANC visits.

"[W]e realized there were a lot of challenges simply because of what those in-patients require, they would consume a lot of drugs, sundries maybe electricity and all that, which we saw not really coming out if we would manage them as OPD only. So that is why we decided to leave in-patients."

(Resp. 23.17 Clinical Officer)

"You tell her 'you have paid high because you did not attend antenatal 4 times. You attended less, you did not test for urinalysis, you did not do this syphilis test. So that means according to [BTC/Enabel] standards of delivering you don't apply. Interviewer: So that's how you incentivize them to also come for antenatal care? Yes."

(Resp. 27.17 Clinical Officer)

<sup>&</sup>lt;sup>73</sup> Out-patients are patients that come to the facility for a consultation and go back home after being consulted. In-patients are those patients that are admitted to a health facility and have to stay overnight on one of the wards.

This overcharging, which is caused by (the perception of) a lack of health facility budget and leads to lower financial accessibility and may give a negative impression to the patients, is visualised in Figure 33.

# Figure 33: Causal loop diagram visualizing the barriers to the financial accessibility mechanism



Source: Author

# 2.6 Patients' feedback mechanism

No patient satisfaction surveys have been performed. This mechanism thus did not get triggered. This is most probably because there are no incentives linked to the patient satisfaction surveys in the design of the intervention. Hence, the role of the patient satisfaction surveys is not very clear, besides informing the facility about it during the 'Health Facility Quality Assessment of Care' (MoH, 2016e). Similarly, a study on the (traditional) implementation fidelity of an intervention in Burkina Faso found that the patient satisfaction survey was amongst the components with the largest implementation failures (Bodson et al., 2018). Even when performed, they are not always sufficiently analysed as observed in Benin (Antony et al., 2017).

## 2.7 Workload mechanism

This mechanism is very much facility-specific (see also Mabuchi et al., 2018). As we already mentioned, certain facilities did not receive more patients because of the competition of public health facilities that deliver care free of charge. At other facilities, the baseline was so low that the increased number of patients increased the workload without

making it problematic. However, in still other facilities, extra health workers were hired because of the intervention, which decreased the workload.

"Now for I think there is no extra work load only that I think now the patient have increased but not to an extended of if am supposed to work 8 hours then I will go beyond 8 hours because you find that the way you're seeing now by 4pm there will be nothing here." (Resp. 14.17 Clinical Officer)

"The other time, you used to work alone on the shift but since the BTC[/Enabel] started you find you are like three on a shift, which is better than the other time. [...] It has reduced on the workload." (Resp. 10.17 Midwife)

["We lowered the fees which led to more patients but the number of patients remains rather low due to the competition from the government facilities."] (Paraphrased) (Resp. a7.17 Clinical officer IC)

Figure 34 visualises how the competition with the government facilities may weaken the effect of the increased accessibility to the PNFP facilities and how an increased health facility budget may lead to more staff working at the facility and lower the workload although more patients are coming to the facility.

Figure 34: Causal loop diagram visualizing the barriers to the workload mechanism



Source: Author
## 2.8 General barriers

Besides these barriers that affect specific mechanisms, there are also some more general issues that led to discontent and demotivation, which in turn weakened the effect of most of the earlier mentioned mechanisms across the board.

A first issue that caused some friction was the too strict perceived verification by some, but not all (see also Ridde et al., 2018; Rudasingwa & Uwizeye, 2017). If one or two aspects were not recorded in the register, the case could not be declared to the BTC/Enabel. The need to have a clinical officer on duty 24/7, so that every patient was attended to by the appropriate qualified health workers, was also problematic for facilities with only one or two clinical officers.

["The rating system is too rigorous, if you don't reach one standard, you get zero immediately. So they should be more pitiful, it is illogical and difficult to pass. For example, if one patient has one thing not done, e.g. the weight has not been recorded, then we immediately get a zero score for this patient, which is very harsh."] (paraphrased) (Resp. a9.17 Nurse)

["It is a very strict analysis of the indicators, if you get one wrong you immediately get zero."] (paraphrased) (Resp. a10.17 Midwife)

In reaction to this strict verification, some facilities turned to the manipulation of reports, as observed in many other PBF interventions (Kalk et al., 2010; Lohmann et al., 2018; Ridde et al., 2018; Rudasingwa & Uwizeye, 2017; Turcotte-Tremblay et al., 2017). For example, it was found in one of the minutes of the HUMC meetings that health workers should put the name of the midwife in the register even if she was not the one who performed the delivery. This can have an effect on the eventual impact of the intervention on healthcare quality.

A final issue concerns the delays which we already discussed earlier. However, what made these delays (both as regards the accreditation visit and the reception of funds) worse is that there was a lack of clear communication about them. This made health workers demoralised and stressed. Better communication about the reasons behind the delays can mitigate some of the negative effects on motivation according to participants in Nigeria (Ogundeji et al., 2016). "[W]hen they sent us the questionnaire they said they would come, they had even set the day and the month, we don't know what happened." (Resp. 2.17 Nurse)

"We are just there in darkness we don't know what is taking place yet we have reduced the costs but we know there are two quarters that we are going to demand plus this one. It is demoralising the staff. We are just there in suspense [...] they are not paying us our money. We don't know the reason why they are not paying us, yet other health facilities they are already given."

(Resp. 9.17Nursing Officer)

## **3.** Design, capacity, or context?

Having discussed the different barriers to the achievement of full realist fidelity, the question arises whether these barriers are mainly related to the design of the intervention, to the context<sup>74</sup> in which the intervention is implemented (i.e. the structure of the healthcare sector, the relations with other facilities, the budgetary context) or to the lack of capacity within the local healthcare system. Is the design insufficiently strong, does it lack certain components, is it inadequately adapted to the context? Do the local actors have sufficient capacity to perform their tasks (verification, supervision, management, patient care and record keeping), are the human resources adequate, is everyone capable of understanding the intervention? Do barriers exist within the local healthcare system that impede the effective implementation of the intervention, do certain existing incentive systems conflict with the incentive system of the intervention, are power relations affecting the implementation? Do certain aspects of the intervention's design need to be adapted, are more trainings, workshops or resources needed, do certain aspects of the context need to be tackled first before the PBF intervention can be effective?

In line with our systems thinking approach, the answers are yes, yes, yes and yes. As could be expected from our discussion on CAS in Chapter 4, different factors from different corners of the system interact with each other and create barriers to the theorised mechanisms. Table 30 lists the different barriers that were observed and the mechanisms they hindered. The last column indicates whether the barrier was a consequence of elements from the intervention's design, the stakeholders' capacities or the context. It shows that the context has a very important influence on the intervention's effectiveness. More specifically, the large qualitative disparities between facilities from the same administrative level and the competition between the government and PNFP facilities impedes the intervention to be at its full potential. The lack of capacity and the ineffective management at the facility level (e.g. not communicating the intervention to new staff) and the district/implementer level (e.g. untimely payments) are also important contributors to realist infidelity. An important flaw in the design is the lack of a sound communication strategy that sets out how facilities and health workers need to be informed about visitations, delays, payments, results and how facilities and health workers can give feedback to the implementers.

<sup>&</sup>lt;sup>74</sup> As we see in Chapter 4 these are all the factors that are not directly part of the functioning of the mechanism.

	Barrier		Mechanism						Ge	Design Canacity
		1	2	3	4	5	6	7	n.	Context
1	Lack of knowledge about the intervention and the way incentives are distributed	~		~	~				~	Design Capacity
2	Low Level of incentives	✓								Design Context
3	Delayed payments, verification	~	✓	~					~	Design Capacity
4	Lack of communication within the facilities	~			✓					Capacity
5	Case-based payments are (perceived to be) not covering all costs	~		~		~				Design
6	Competition from government facilities	✓	✓	✓				✓	✓	Context
7	Lack of communication from the intervention		~						✓	Design Capacity
8	Large disparity between facilities of the same administrative level		✓	✓				✓		Context
9	No feedback given				✓					Capacity
10	Overcharging of patients					~				Design Context
11	High turnover of staff	$\checkmark$			✓					Context
13	No patient satisfaction survey performed						~			Design Capacity
14	Too strict perceived verification								✓	Design
15	Manipulation of reports								✓	Design
	Barriers	1	2	3	4	5	6	7	General	Design Capacity Context

Table 30: Observed barriers to realist fidelity, the mechanisms they affect and their sources

Mechanism 1: Financial incentivisation; 2. Non-financial incentivisation; 3. Management: 4. Knowledge and saliency; 5. Financial accessibility; 6. Patients' feedback; 7. Workload; Gen: General impact of the intervention

## Source: Author

In conclusion, our analysis of the realist implementation fidelity shows that the use of systems thinking principles not only is a useful asset for evaluation and research, but also should be the guiding framework for any intervention in the healthcare system (Adam & de Savigny, 2012; de Savigny & Adam, 2009). For example, implementing a coverage plan<sup>75</sup> that

<sup>&</sup>lt;sup>75</sup> Such a coverage plan was in the initial plans of the BTC/Enabel intervention but was eventually not implemented. Implementing a coverage plan is highly political and touches on the interests of many

sets out where a health facility is needed and which level and avoids creating competition between facilities would have avoided several of the above-discussed barriers.

stakeholders (more specifically the different owners of the facilities, i.e. the MoH and the faith-based medical bureaus) as some facilities would have to disappear and others would have to downgrade or end their ambition to upgrade. A systems thinking approach might have helped to convince the above mentioned stakeholders.

**CHAPTER 8** 

UNPACKING THE BOX: PERCEPTIONS, OUTCOMES AND MECHANISMS

#### If cash ain't king it's damn sure the incentive

Anderson Paak – The season/carry me

Chapter 7 shows the barriers to the triggering of the theorised mechanisms. We now turn to the analysis of the mechanisms that were at least partially triggered. We again structure the analysis on the basis of the programme theory as theorised in Chapter 6. Yet, we first start with an analysis of the health workers' perception of the intervention. In Chapter 4, we highlight that RE focuses on mechanisms, which are an interaction between the context, including the resources provided by the intervention, and the health workers. The latter perceive the resources in a certain way and act upon them. This is why the analysis of health workers' perceptions is so important. Here, we will focus on what they consider the main positive and negative parts of the intervention, how they define it and how they evaluate it.

In the second section, we look at the observed outcomes of the intervention. We identify these outcomes mainly drawing upon statements from the health workers, own observations and documents from the implementing agency (BTC/Enabel). Although these data sources do not have the same rigour as an impact evaluation, we feel that health workers are in a privileged position to observe changes. Moreover, some of the changes are so obvious that we can be relatively confident about them. For example, in some cases, the number of patients more than doubled, and this was clearly observable when we compared our visits before and after the start of the intervention. Attributing these changes with certainty to the intervention is of course not feasible, yet our theory-based approach and the input from the health workers surely improve the reliability of our attribution claims.

The third section will cover the different mechanisms. Whereas Chapter 7 outlines the main challenges of and barriers to fully triggering the theorised mechanisms, here we will study to what extent they were actually triggered, why, for whom and in what way they played a role in the outcomes. As in Chapter 7, we illustrate the findings using CLD.

These findings together with the findings from Chapter 7 are brought together in Chapter 10 to create our final CMO configurations and middle-range theory as explained in Chapter 4.

#### **1. PERCEPTIONS OF THE HEALTH WORKERS**

The findings from our survey suggest that like in other PBF interventions (Bertone et al., 2016; Bertone & Meessen, 2013; Bhatnagar & George, 2016; Chimhutu et al., 2014; Feldacker et al., 2017; Kalk et al., 2010; Lohmann et al., 2018; Manongi et al., 2014; Mayumana et al., 2017; Njoumemi & Fadimatou, 2013; Ogundeji et al., 2016; Paul & Renmans, 2018; Paul et al., 2014; Ridde et al., 2018; Rudasingwa & Uwizeye, 2017; Seppey et al., 2017; Shen et al., 2017; Wilhelm et al., 2016) the health workers are mostly positive towards the intervention. When asked whether they think the PBF intervention is good for them and the facility, they convincingly answered positively (Table 31). This positive evaluation is confirmed by the findings from the qualitative interviews. This can be partly due to one of the biases discussed in Chapter 5, namely, that health workers might have seen us as representatives of the donors and hence gave more positive answers.

Table 31: Answers to "I think that PBF is 'very bad' - 'very good' for us health workers/our health facility" on a Likert scale from 1 to 7

for us/our	Ν	Mean	Std. Deviation
Health workers	67	6,12	1,503
Health facility	69	6,30	1,332

Note: Only respondents from facilities that were accredited are included. Source: Author

Of course, the fact that the intervention brings in extra pay and that it was at the time of data collection still new and exciting is probably also an important part of the explanation. However, other aspects of the intervention have been found to be equally relevant (Bhatnagar & George, 2016; Lohmann et al., 2018; Paul et al., 2014). Figure 35 shows that more than half of the survey respondents indicated that the intervention's focus on the quality of care at the facility was one of the positive aspects. Of all the survey respondents, 43% especially appreciated the lowering of the user fees, making the services affordable for more people in the community and increasing the number of patients coming to the facility (see Section 2.5). Both show the earlier discussed health workers' perception of the intervention as supporting the patients and the community rather than the health workers or the facility (see Chapter 7, Section 2.1). Less than one-third of the respondents highlighted that the incentive received was one of the positive things, which is remarkably low given that the most popular assumed rationale behind a PBF intervention is exactly financially incentivizing and motivating health workers. The difficulties with the financial incentives discussed in Chapter 7 at least partly explain this. This observation, nonetheless, resonates with findings from Nigeria where health workers also did not rank the financial incentives as the most important change (Bhatnagar & George, 2016). Moreover, although PBF is often presented as a reformative intervention as opposed to an investment intervention, health workers focused very strongly on the improvements related to investments (drugs, extra funds and better equipment) (see also Bhatnagar & George, 2016; Kalk et al., 2010; Lohmann et al., 2018) whereas only a few respondents appreciated the new financing modality as such (i.e. paying based on performance). The low level of the latter is most probably related to the limited knowledge of the health workers about PBF and its rationale (see Chapter 7) (see also Ridde et al., 2018; Seppey et al., 2017).

Figure 35: Positive aspects of the PBF intervention according to survey respondents (percentage of respondents highlighting the issue)<sup>76</sup>



Source: Author

When looking at the negative points highlighted by the respondents (Figure 36), twothirds of the respondents mentioned one or more negative things about the intervention. However, given the earlier discussed positive evaluation of the intervention, it seems that the positive aspects tend to compensate the negative issues. Moreover, the negative aspects are mainly remarks to improve the intervention, rather than the rejection of it. Nonetheless, one-fifth of the respondents complained about issues that are specific to the PBF rationale, that is paying the facilities on the basis of performance and giving them the autonomy to buy things themselves (e.g. *"If the HF doesn't give good quality, no support from PBF"*) or desired things that went against this rationale (e.g. *"Failure to support areas of* 

<sup>&</sup>lt;sup>76</sup> See 'Annex V' for an overview of the coding exercise.

*infrastructure, staffing and equipment of facility*"). This, again, indicates that this rationale is far from entrenched in the health workers' minds. Another interesting finding is that almost one-fifth of the quantitative survey respondents (17%) were negative about the incentives, either because they were too low, because (they thought) they would not get them or because they were not happy with the way they were allocated, complaints that echo observations from other studies (Bhatnagar & George, 2016; Chimhutu et al., 2016; Fox et al., 2014; Rudasingwa & Uwizeye, 2017). This also partly explains the earlier mentioned low number of respondents highlighting 'health worker motivation' as one of the positive things of the intervention. The implementation (mostly the delays) and the design (mostly too low top-ups for the facility not compensating the costs) were some of the bigger concerns of the health workers (see Chapter 7). Despite the increased workload in some facilities, this was not often mentioned as something negative by the respondents, nor were other consequences of the intervention on the work experience (e.g. stress or conflict).

Figure 36: Negative aspects of the PBF intervention according to the survey respondents (percentage of respondents highlighting the issue)<sup>77</sup>



Note: Design issues = Low top-up for facility, issues with indicators, frequency of paying; Rationale of PBF: Proposing things that go against the pay for performance rationale, e.g. asking for scholarships, equipment, etc.; Implementation issues: lack of communication, delays; Issues related to incentives: too low, not for staff, concerns about the way they are shared; work experience: workload, stress, conflicts

Source: Author

<sup>&</sup>lt;sup>77</sup> See 'Annex V' for an overview of the coding exercise.

This evidence based on the survey's open questions is in line with the qualitative findings gathered through our semi-structured interviews with the health workers. In general the interview respondents were very satisfied with the intervention, although the many delays and the lack of communication sparked some tension and dissatisfaction as seen in Chapter 7. Even the requirements for accreditation were being perceived as needed and very useful. As observed in other studies (Lohmann et al., 2018; Seppey et al., 2017; Wilhelm et al., 2016), these measures received legitimacy from the fact that they were drawn from the Ugandan Clinical Guidelines (UCG).

"We [the health workers] are motivated. We are motivated more than before the BTC[/Enabel]. Because we are happy with BTC." (Resp. 16.17 Nursing Officer)

However, when respondents were asked in what way the BTC/Enabel could improve the intervention, our earlier comment that the PBF rationale is not well understood by the health workers was confirmed. Respondents asked for scholarships, help with constructing a new building or salaries for extra staff. This somewhat resembles the findings from studies in Benin and Burkina Faso, where the respondents approached the PBF project as "just another project" and did not fully comprehend the different underlying rationale (Paul et al., 2017; Ridde et al., 2018, p. 6).

Other more relevant comments relate to the earlier mentioned implementation flaws and challenges: increasing the top-ups, getting rid of delays and having more specific casebased payment. Two respondents also highlighted that it might be useful to first increase the salaries before providing incentives<sup>78</sup>, while the administrator of one of the facilities highlighted that the top-ups do not take into account the differences between the facilities. Facilities that have many staff members paid by the government receive the same amount of money or are allowed to charge the same user fees as facilities that have to use their own resources to pay staff. This was observed as being unfair.

"I think the first important thing to handle is salary. I think if we are able to go to the same salary scale with the government then the incentive would add motivation." (Resp. 23.17 Clinical Officer)

<sup>&</sup>lt;sup>78</sup> This was also mentioned in Sierra Leone (Bertone et al., 2016).

## 2. OUTCOMES

Our interviews with the health workers highlight that the intervention managed to spark improvements in some facilities' performance, yet less in others. This divergence between facilities is central to an RE and has also been observed in other settings (Mabuchi et al., 2018; Paul et al., 2017; Shen et al., 2017).

A first important observed outcome is the increase of the number of patients at most of the facilities. Such an increase in the number of patients, especially institutional deliveries, is often seen in PBF interventions (Anselmi et al., 2017; Binyaruka et al., 2015; Bonfrer, Soeters, et al., 2014; Bonfrer, Van de Poel, et al., 2014; Lannes et al., 2016; Rudasingwa et al., 2017; Seppey et al., 2017). However, facilities that were close to a government facility that provided free healthcare, did not experience the same increase in patients. Such a negative influence of 'competition' on individual facilities was also observed in some facilities in Nigeria (Mabuchi et al., 2018)<sup>79</sup>. Moreover, further research should look into whether these increased patient attendances in our study are a result of patients switching from no healthcare or traditional healthcare to the PNFP health facility, or patients trading the government facility for a PNFP facility, as was suggested to have occurred in Cambodia (Van de Poel et al., 2016). In the latter case, the benefits for the health situation at the population level might be limited if the healthcare quality in the two sectors is similar.

"[P]atients have increased" (Resp. 14.17 Clinical Officer)

["We have the same catchment area as a government facility and some other health clinics. So although the quality of the services is higher here, the services are free in the government facilities so patients go there and despite the lowering of the user fees the patients are still not very many, although there has been a small increase."] (paraphrased) (Resp. a7.17 Clinical Officer)

Secondly, some respondents claimed that the increased number of patients was partly a result of the increased quality of the services delivered<sup>80</sup>. The intervention brought about more equipment and fewer drug stock-outs, which themselves are important influencers and expressions of qualitative services. These changes may indeed have improved the

<sup>&</sup>lt;sup>79</sup> At the level of the district/population such competition need not be negative, as it may indicate that different facilities services different niches.

<sup>&</sup>lt;sup>80</sup> As was also put forward by studies in Malawi (Chinkhumba et al., 2017) and Burundi (Rudasingwa & Uwizeye, 2017).

perception of quality amongst the patients. Other studies confirm an improved work environment as a recurring positive consequence of PBF interventions (Anselmi et al., 2017; Bertone et al., 2016; Bhatnagar & George, 2016; Binyaruka & Borghi, 2017).

"Especially equipment for taking the vital observations has improved" (Resp. 9.17 Nursing Officer)

"There have been no stock outs now, because now drugs are being procured." (Resp. 14.17 Clinical Officer)

Although the findings from the quantitative survey show a small increase in the ratings for equipment and infrastructure in the facilities that were accredited, these were not statistically significant using the Mann Whitney U test<sup>81</sup> (see Table 32). However, this lack of statistical significance may be caused by the small sample size.

Table 32: Score on infrastructure and equipment before and after one year ofintervention analysed at health worker level

Mann Whitney U test		Baseline 2015	End line 2017	
	N	59	74	
<b>F</b>	Mean	4,92	5,12	
Equipment	Median	4	5	
	Mean rank	63,27*	69,97*	
	N	60	72	
	Mean	4,55	4,89	
Infrastructure	Median	4	4	
	Mean rank	61,08**	71,01**	

\* U = 2403,000; z = 1,043; p = ,297

\*\* U = 2485,000; z = 1,582; p = ,114

Note: 1=Extremely bad; 4=Moderate; 7=Extremely good Source: Author

When we performed the same analysis at the level of the facilities we obtained a similar result (Table 33). As explained in Chapter 5, we are now able to perform a Wilcoxon-Signed-Ranks test because the two samples are related. Again, although we observe an improvement, it is not statistically significant.

<sup>&</sup>lt;sup>81</sup> See Chapter 5 for a discussion on the use of the Mann Whitney U test in this case.

Wilcoxon Signed Ranks test		Baseline 2015	End line 2017	
	N	11	11	
Farrierant	Mean	4,91	5,19	
Equipment	Median	5	5,4	
		Z = -1,172, p = ,241		
	N	11	11	
1	Mean	4,64	4,93	
Infrastructure	Median	4,4	4,8	
		Z = -1,376, p = ,169		

# Table 33: Score on infrastructure and equipment before and after one year ofintervention analysed at health facility level

Note: 1=Extremely bad; 4=Moderate; 7=Extremely good

Source: Author

Third, respondents stated that they were working more according to the Ugandan Clinical Guidelines (UCG) which again may improve the quality of care. The impact of this increased adherence to the UCG should, however, be contextualised. Although respondents recognised the positive influence on prescription behaviour, the most substantial impact was probably on the taking of the vital signs and length and weight of every patient, the presence of certain qualified staff (e.g. clinical officer for each out-patient consultation) and the correct keeping of the records. This focus on the correct patient flow and the documentation of patients is probably caused by the fact that in the beginning of the intervention a lot of emphasis needed to be put on correct documentation as many funds were lost because of incorrect record keeping. Despite being important, the impact of documentation on healthcare outcomes can be questioned and if it is indeed limited, this may also put into question the cost-effectiveness of the intervention.

This improvement of the adherence to guidelines and protocols is one of the main goals of every PBF intervention and is common<sup>82</sup> (Antony et al., 2017; Bonfrer, Soeters, et al., 2014; Bonfrer, Van de Poel, et al., 2014). However, as discussed in Chapters 2 and 3, some caution is warranted as the adherence to such protocols/guidelines is only one part of what constitutes quality of care.

<sup>&</sup>lt;sup>82</sup> Yet, Brenner et al. (2017) find "few positive effects on clinical processes due to the scheme" (p. 498), possibly because the measures of the scheme were not necessarily focused on these clinical processes.

"The quality of services has also improved in the sense that we were taught to adhere to the standards especially the use of the Uganda clinical guidelines" (Resp. 23.17 Clinical officer In Charge)

"Like if it's a client with HIV everything of the parameters like taking height, taking weight, assessment of adherence, must be done and documented very well. In other words something which is not documented may not have been done." (Resp. 27.17 Clinical Officer)

"The main changes [...] the way we attend on the patient, from the time we receive a patient to the time the patient is discharged we have changed it. The documentation has also changed whereby every patent who has entered the health facility must be recorded. [...] and even the treatment algorithm, treatment guidelines have also changed. We used to treat like we could manage, but now we follow the guideline as the BTC[/Enabel] requirement." (Resp. 11.17 Lab Technician)

The increased flux of patients has also raised the costs and the stress on the infrastructure of some of the facilities. In some cases, this means new buildings are needed to accommodate them. This is necessary as 'floor cases' (patients condemned to sleep on a mattress on the floor) or beds that are too close to each other can cause cross-contamination and new conditions amongst the patients. However, as seen in Chapter 7, the funds received from the intervention are insufficient to invest in large infrastructure. As was observed in Malawi (Kambala et al., 2017), this leads to the 'growth and underinvestment' archetype discussed in Chapters 4 and 6<sup>83</sup>.

"You find people are getting recurrent conditions, they don't heal so fast, instead they get other diseases. You know people being many and congested and all that." (Resp. 10.17 Midwife)

"[W]e don't have enough space in the facility we are here using tents as wards for patients. These wards are not healthy, cold and we would even think of constructing a ward for some patients and try to improve anyway the whole infrastructure." (Resp. 17.17 Clinical Officer)

<sup>&</sup>lt;sup>83</sup> As explained in Chapter 4: The growth within a system reaches a limit because the needed capacity investments are not being made. Performance standards are subsequently being lowered in order to justify the lack of investment which leads to lower performance (Kim, 1992).

## **2. OBSERVED MECHANISMS**

## 2.1 Financial incentivisation mechanism

As discussed in Chapter 1, the financial incentives are the centre piece of PBF. Yet, in Chapter 7, we show that the effect of these financial incentives was hampered because of their low level, a lack of knowledge about them and confusion about the way in which they would be distributed. It is therefore unlikely that the individual incentives are the sole or even the main contributor to the perceived changes (see also Bhatnagar & George, 2016; Lohmann et al., 2018; Paul et al., 2014; Shen et al., 2017). However, notwithstanding the low level of the incentives, any extra money is welcome when people are in need of money. Therefore, the prospect of getting more incentives when being perceived to be working harder does seem to have increased the motivation of health workers, as observed, for example, in Sierra Leone (Bertone et al., 2016), Nigeria (Bhatnagar & George, 2016), Zimbabwe (Feldacker et al., 2017), Cambodia (Khim, 2016), Burkina Faso (Ridde et al., 2018) and Malawi (Wilhelm et al., 2016), yet not necessarily in a very focused manner.

"The health workers who do an extra assignment were rated up and those ones who do not do an extra assignment were rated down, so now low performing staff are also taking more responsibility. So next quarter they will improve." (Resp. a2.17 Lab Technician, Staff Representative)

"I have to be happy because it is not part of my salary. I will not complain when they give you a gift. A gift is a gift even though it is small but a gift is a gift. [...] [W]hen you are motivated then you can perform very well with a happy mind, a happy heart but when you have not received your salary you are thinking I don't have this, I don't have this, then you will work with a split mind you cannot work with a split mind you want to work with a comfortable mind then you can carry out your activities comfortably and smoothly" (Resp. 9.17 Nursing Officer)

"In brief they base on how much work you have done and the quality of work you have done for you to be awarded or to receive the funding, so you must work hard." (Resp. 14.17 Clinical Officer)

## 2.2 Non-financial incentivisation mechanism

It is not only the individual incentives that play a role: based on our research we believe that the accreditation and incentives received at the facility level were at least as important and also added more focus to the increased motivation. For example, some respondents highlighted that the teamwork improved as a consequence of the measures at the facility level as they needed everyone to cooperate in order to achieve them, which is in line with research from *inter alia* Nigeria (Bhatnagar & George, 2016). This counters the possible negative consequences of the delays on the relationship between the management and the health workers (discussed in Chapter 7). Admittedly, the incentives at the level of the facility are also financial. However, since the link between the increased funds for the facility and higher salaries was not necessarily clear (see Chapter 7), it is likely that the main motivator was to get accredited or to get a good score for the facility. Yet, more research is needed to clearly investigate the mechanisms at the health worker level triggered by incentives at the facility level.

"All staff know about the indicators of BTC[/Enabel] and all of us work as a team to meet the indicators of BTC[/Enabel] in order to improve on our performance. It is team work." (Resp. 14.17 Clinical Officer)

The fact that the measures are based on the UCG of the Ministry of Health and thus are being perceived as country-owned, is important for their acceptance and helps motivate the health workers (see also Lohmann et al., 2018).

"They are very relevant because those are the requirements of the Ministry of Health." (Resp. 9.17 Nursing Officer)

The motivational aspect of the accreditation process was also observable from the actions of the health facilities. They adapted the setup of the facility (see also Bhatnagar & George, 2016), purchased missing equipment and even postponed the payment of salaries in order to make the needed investments to succeed in getting accredited (see also Shen et al., 2017).

"At the beginning it was a bit challenging with us here because at first we didn't qualify but later we worked for accreditation by filling the gaps that we had and when they came back in October last year we were accredited." (Resp. 7.17 Administrator)

"We did a lot of changes in fact during those times we never got salaries we first saved that money because they told us if we qualify for BTC[/Enabel] it will improve your wellbeing here so you sacrifice." (Resp. 8.17 Lab Technician)

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Source: Author

## 2.3 Management mechanism

Being private facilities, the HUMC already had quite some autonomy over the use of the received user fees. However, the management mechanism was not really triggered, leading to an inactive management only trying to balance the budget. According to the respondents, the intervention has awakened the HUMC, which has become more active (e.g. increased internal supervision) and more aware of their role as investors, as was observed in *inter alia* Rwanda (Janssen et al., 2015; Kalk et al., 2010), Nigeria (Ogundeji et al., 2016) and Tanzania (Mayumana et al., 2017). Several elements of the intervention contributed to this. The intervention brought extra funds (though limited as we saw), creating some space to make use of their autonomy. In addition, the (self-)assessment tool and the (more regular) performance meetings at the departmental level (see also Bhatnagar & George, 2016) gave the HUMC guidance and more detailed information, which it did not have before. As Björkman Nyqvist et al. (2014) show, improved and more specific information may lead to more responsive management from the HUMC. The introduction of the business plan in facilities where this was not yet implemented helped guide and prioritise the investments.

"When BTC[/Enabel] came we pulled up e.g. quarterly meeting for staff members and monthly meetings, so that we ensure quality" (Resp. 16.17 Ass. Nursing Officer)

"No, it is not business as usual because now we are looking at how we can perform per indicators. The HUMC is all about how the performance can increase. What the HUMC would discuss was finances but now at least there is some element of performance that has to be discussed every HUMC meeting." (Resp. 23.17 Clinical Officer In-Charge)

"The BTC[/Enabel] has helped us to plan." (Resp. a1.17 Pharmacist)

["The HUMC did not know that this was there task, now they have an assessment tool they can use in order to manage the facility. Before only the health workers were technically skilled, but now also the HUMC has some technical knowledge.] (paraphrased) (Resp. a6.17 Administrator)

The accreditation process also played an important role in activating the HUMC and sparking investments as was also seen in Malawi (Lohmann et al., 2018). Facilities that did not manage to get accredited the first time, but failed with only a few percentage points, received extra equipment from the intervention in order to improve. Facilities that failed the first time and did not receive any help from the intervention to qualify tried nonetheless to make some adjustments with the limited amount of money they had. Facilities often used funds from other donors in order to improve the indicators that are taken into account in the PBF intervention.

"We are trying to squeeze here and there to at least make sure that those sub grants of Baylor [...] there is a component of tiding up. So that component is the one which we use." (Resp. 13.17 Lab Technician)

The prospect of joining the project was a strong motivator for the facilities to make the necessary investments. This is in line with the literature which states that attaching incentives or benefits to the accreditation process is important to sustain it (Galukande et al., 2016; Hinchcliff et al., 2013; Smits et al., 2014). Moreover, like other accreditation schemes in low-and middle-income countries the accreditation scheme is not just a way to categorise facilities; it is used as a quality improvement tool to upgrade those facilities that failed to reach the performance standards by investing in them (Smits et al., 2014). However, because facilities that were too far below the threshold were not helped with funds from the intervention, an already existing inequality is being reinforced.

Interestingly, the accreditation part of the intervention also complied with the four drivers of a good accreditation scheme as outlined by Hinchcliff et al. (2013): the used standards are considered relevant, the accreditation is well received by the health workers, the facilities are capable to comply or are helped to do so and the accreditation is supported by relevant incentives.

This increased involvement of the HUMC translated into investments that focused on improving the work environment and achieving a better quality score for the facility (i.e. investments in blood pressure machines, dust bins, thermometers, etc.). Improved investments in the work environment (especially vital signs equipment) are indeed often cited positive consequences of a PBF intervention (e.g. Anselmi et al., 2017; Bertone et al., 2016; Bhatnagar & George, 2016; Binyaruka & Borghi, 2017; Brenner et al., 2017; Kambala et al., 2017; Lohmann et al., 2018; Mayumana et al., 2017). According to Anselmi et al. (2017), an improved work environment played an important role in the observed outcomes in Tanzania.

"Especially equipment for taking the vital observations has improved [...] because it is like a law of RBF so there is no hesitating about it, they take the first priority when we are procuring." (Resp. 9.17 Nursing Officer)

In some accredited facilities, the number of staffs increased, as also observed in, for example, Burundi (Falisse et al., 2015), Mali (Seppey et al., 2017) and Rwanda (Kalk et al., 2010). One part of the explanation is that the facilities needed to have the right number of health workers in order to get accredited. Moreover, the requirement that out-patient consultations should be done by a clinical officer led to the need to have at least two clinical officers at the facility. Finally, the increased turn-up of patients in some facilities also required extra human resources. Thus, several facilities hired extra staff members because of the intervention. Although this is a positive thing from the perspective of the facility, it is unclear whether this had a positive impact at the population level as the distribution of the human resources in the short term is a 'zero-sum game'<sup>84</sup>. It also accentuates a pre-existing inequality between facilities that receive government-seconded staff and those who do not and may put extra budgetary stress on those facilities that have not experienced a strong increase of patients but still have to have two clinical officers to avoid one of them having to work 24/7. Thus, it benefits in a way the larger facilities.

"We were not having all the necessary staffs but because of the BTC[/Enabel] our directors have been forced to recruit more staff." (Resp. 9.17 Nursing Officer)

<sup>&</sup>lt;sup>84</sup> Unless this attracts trained health workers active in other sectors back to the healthcare sector.

"[There was a] need for more health workers to do the job because now [...] you need more to handle tasks very well because you know when you don't perform you will not get [funds] because we very well know that result based financing is result based." (Resp. 23.17 Clinical Officer)

["Before the BTC/Enabel we used to have affordable staff but now we need more staff to meet standards which is costly."] (paraphrased) (Resp. a7.17 Nurse)

Despite the introduction of the business plan and a more active role by the HUMC, not many new strategies to encourage people to come to the facility could be identified, in contrast to what was found in Rwanda (Nahimana et al., 2016) and Nigeria (Ogundeji et al., 2016). Like in Burundi, which had partially free healthcare (Falisse et al., 2015), this is probably due to the fact that the attendances already improved because of the lowering of the user fees. This reduced the felt need for strategies to attract new patients, which were thus limited to sensitising the community about the lowered user fees. Studies of other PBF interventions did observe new strategies (Bhatnagar & George, 2016; Bonfrer, Soeters, et al., 2014; Chimhutu et al., 2014; Janssen et al., 2015; Mabuchi et al., 2018; Mayumana et al., 2017; Ogundeji et al., 2016; Seppey et al., 2017).

"[P]atients have increased simply because we have reduced our costs and they get information through our community village team." (Resp. 14.17 Clinical Officer)

Only in the maternity department were some 'new' strategies being implemented: like giving a reward to Village Health Team members who bring in a pregnant woman for delivery or motivating pregnant mothers to come for the four ANC visits by giving them a MAMA kit (a kit with the necessary consumables for a delivery) at the fourth visit. As shown by other research, this is mainly due to the higher incentives related to maternal care (Basinga et al., 2011). This indicates the role played by the incentives in guiding the investments.

The management does, however, remain very much dependent upon the people that are part of it, and not every facility saw an increase in the activity of the HUMC (see also Mabuchi et al., 2018; Ogundeji et al., 2016).



Figure 38: Causal loop diagram of the 'management mechanism'

Source: Author

## 2.4 Knowledge and saliency mechanism

Respondents highlighted that the intervention had "awakened" them about the UCG (see also Bertone et al., 2016; Bhatnagar & George, 2016; Lohmann et al., 2018). Although the guidelines should be known, earlier research showed that in Uganda the dissemination of new guidelines is lacking (Orem et al., 2012). The PBF intervention managed to overcome this and guide the health workers' focus back towards the UCG. As found in other settings, the PBF intervention clarified the responsibilities and roles of the health workers, effectively putting the latter back on top of the priority list (Bertone & Meessen, 2013; Janssen et al., 2015; Khim & Annear, 2013; Lohmann et al., 2018; Seppey et al., 2017; Shen et al., 2017). This way, it managed to improve the capacities of the health workers (see also Anselmi et al., 2017; Levesque & Sutherland, 2017). Sato et al. (2017) and Hernandez et al. (2014) even show that clearer job responsibilities may improve motivation.

"[T]here were some Ministry of Health guidelines that have not been [followed-up] very well, so when it [the intervention] came, it has awakened us and we have followed them very well." (Resp. 6.17 Nurse)

["Staff is learning from the project."] (paraphrased) (Resp. a2.17 Lab Technician)

This "awakening" is very probably facilitated by the verifications performed by the extended District Health Management Team. Despite the challenges mentioned earlier (Chapter 7) and the fact that the setup of this kind of verification (focused on verifying adherence to a checklist) is not conducive for more supportive supervision, some respondents highlighted the benefits of these verifications. They corrected them where they made mistakes and informed them how to do it better in order to improve on the PBF measures. The possible positive effects of such verification visits on PBF measures and health worker motivation have been emphasised in other studies as well (Anselmi et al., 2017; Bertone & Meessen, 2013; Bhatnagar & George, 2016; Janssen et al., 2015; Lohmann et al., 2018; Ogundeji et al., 2016; Paul et al., 2017; Ridde et al., 2018; Wilhelm et al., 2016). However, these verification visits are strongly linked to the PBF measures (see also Bhatnagar & George, 2016; Hernandez et al., 2014; Mayumana et al., 2017; Schriver et al., 2017; Seppey et al., 2017; Ssengooba et al., 2012) and as we mentioned earlier, there is a strong emphasis on correct recordkeeping within the intervention and thus also within the verification. This makes the effect on the quality of care less straightforward. The positive perception of the verification visits should also be seen in light of the low quality of supervision to begin with (see Hernandez et al. (2014) for an example from Ghana). Therefore, the checklist may actually give guidance to the verifiers. Becoming more formative and comprehensive is a necessary next step though (Hernandez et al., 2014).

"Sometimes they advise us on what to do... on those indicators were we have not performed well... they advise us to do this and this, so if there is an error they will advise us on what to do, 'you don't give this drug to someone of this condition'." (Resp. 8.17 Lab Technician)

["When the verifiers come it is good because they come and appreciate they say "thank you" for the work done. They appreciate us with extra funds so the appreciation is welcome."] (paraphrased) (Resp. a7.17 Clinical Officer)

["The DHMT comes but mainly looks at the statistics."] (paraphrased) (Resp. a1.17 Pharmacist)

Moreover, in the study of Rudasingwa et al. (2015) it was observed that the evaluation tool could be seen as a "feedback-instrument" (p. 25), yet they found no effect of this in the control group which had the same tool without incentives. Hence, the linkage between a good score and increased funds is important. The incentives are an extra token of recognition, add value (not only monetary) to the measures and make health workers more focused on adhering to the guidelines as was also observed in Nigeria (Bhatnagar & George, 2016), Burundi (Rudasingwa & Uwizeye, 2017) and Malawi (Lohmann et al., 2018). It is also likely that the increased adherence benefits from the provision of the necessary equipment and drugs and the increased internal supervision (e.g. through self-assessments and monthly performance reviews) (see also Orem et al., 2012).

"You might know, but some issues may not be implemented so I think the issue was on implementation and adherence to those standards. [...] But because adhering to standards is coming in with an element of motivation and such kind of incentives, the adherence becomes good." (Resp. 23.17 Clinical Officer)

"Some people when they are on ground they don't practice what they learnt from school and sometimes [the needed equipment] may not be there. You may reach somewhere and you don't find what you're supposed to use." (Resp. 8.17 Lab Technician)

This 'knowledge and saliency' mechanism points to the possibility of the PBF scheme acting as a "regulatory framework [to] ensure quality and control pricing" as called for by Orem et al. (2011) aiming to integrate the private sector into the public sector.



Figure 39: Causal loop diagram of the' knowledge and saliency' mechanism

Source: Author

#### 2.5 Financial accessibility mechanism

As already mentioned in Section 1 and Chapter 7, many respondents saw this as one of the main positive aspects of the intervention. In most of the facilities it led to an increase in the number of patients as the user fees in the PNFP facilities were an important barrier for patients to access care (see also Ogundeji et al., 2016). This was expected as the abolition of the user fees in the public facilities in 2001 also saw a strong increase in patient numbers (Orem et al., 2011). The study of Anselmi et al. (2017) in Tanzania underlines the important role played by reduced user fees in mediating the effect of increased patient attendances. Facilities informed the community about the lower user fees through community outreaches. Such social marketing strategies were also observed in Nigeria (Bhatnagar & George, 2016).

"Why the patients have increased, is that you reduce the user fees, after reducing the user fee then they [patients] turn up of course." (Resp. 11.17 Lab Technician)

Interestingly, Falisse et al. (2015) put forward the possibility that the PBF intervention in Burundi interacted with and strengthened the selective free healthcare policy (or vice versa) by strengthening the (perceived) quality of the healthcare services. The lowering of the user fees in the evaluated intervention may thus also be triggering an interaction effect.



Figure 40: Causal loop diagram of the 'financial accessibility mechanism'

Source: Author

## 2.6 Patients' feedback mechanism

At the time of our visit, no patient satisfaction surveys had been performed. As in Benin, the lack of incentives linked to the surveys is probably the main cause of this nonimplementation (Antony et al., 2017). Whether the feedback from the patients towards the health workers improved and led to more motivation was not studied.

## 2.7 Workload mechanism

As discussed in Chapter 7, some difficulties occurred concerning which patients to report and which not. These difficulties and the need to track every patient in the books makes the declaring of the patients take quite some time (see also Bhatnagar & George, 2016; Khim & Annear, 2013).

"We sit and do that meeting, it takes some good time. Sometimes when we are coming for that, we don't even work. We select people to sit there in that round house there and do that for the whole day. [...]it can take the whole day, for the week, you find the thing is a heap. It's too much." (Resp. 11.17 Lab Technician) The congestion of some of the facilities due to the increased patient attendance also affected the health workers' workload. While in some facilities the extra staff allowed spreading the workload (see also Falisse et al., 2015), other facilities have seen health workers struggling and complaining (see also Bhatnagar & George, 2016; Flink et al., 2016; Kalk et al., 2010; Kambala et al., 2017; Lohmann et al., 2018; Shen et al., 2017). This difference between facilities has also been observed in other studies (Bertone & Meessen, 2013). However, interestingly, respondents from the same facility reported different experiences concerning the workload, which emphasises inter-departmental differences (especially between the maternity ward and the out-patient ward) and/or the subjective nature of it (see Maestad et al., 2010). In some cases, the received financial incentives were not considered as sufficient compensation for the increased workload, as was observed for example in Zimbabwe (Feldacker et al., 2017), Cameroon (Flink et al., 2016), Democratic Republic of Congo (Fox et al., 2014) and Benin (Paul et al., 2014).

"It has caused workload to the health workers and, hence, other people get poor services. In case you admit a lot of people, some might miss medication." (Resp. 21.17 Clinical Officer)

"Interviewer: Do you think it [the financial incentives] is enough or should you get more?

We should get more.

Interviewer: Because, why?

[...]Because we over work. The number of patients has increased because the billing was decreased, it is no longer how it was. So nowadays we are receiving very many patients, so we over work."

(Resp. 15.17 Nurse)



Figure 41: Causal loop diagram of the 'workload mechanism'

Source: Author

**INTERMEZZO 2** 

LESSONS LEARNED FOR PBF IN UGANDA

In this short intermezzo, we discuss eleven learned lessons about the PBF project. These lessons learned are to be taken into account when the PBF scheme is being scaled up or can help improve the current and future PBF projects in Uganda but also in other countries.

#### **1. COMMUNICATION IS KEY**

Our research shows that many frustrations from the health workers are linked to the lack of (correct) information from the implementers. Facilities that were not accredited were left in the dark regarding the next moment of verification, for which they were patiently waiting. Accredited facilities did not always receive feedback after the verification process, or information about when the funds would be released or why certain drugs were not delivered. There was also a lack of clarity concerning which cases to declare and which not.

Not only is the communication from the BTC/MoH/district to the facilities considered insufficient, but also within the facilities there was too little communication about the programme towards the (new) health workers. This led to confusion about the distribution or even the existence of individual financial incentives.

A strategy to communicate both downstream and upstream about the time schedule, rules, results, problems and distribution of financial incentives will give more stability to the facilities, avoid frustration and help strengthen the very mechanisms that the intervention tries to initiate (i.e. incentivisation).

## **2. WORRY ABOUT DELAYS**

Although good communication can help temper some of the frustrations caused by delays, our research shows that the consequences of such delays are real and may even cause budgetary problems. It is therefore important that a PBF scheme and its verification modalities are not made too complex in order to minimise the possibilities of delays. Long verification cycles with many collection points along the cycle should be avoided, while the use of ICT may help streamline the process.

#### **3. PBF** IS ONLY SPARSELY UNDERSTOOD

From our study, it became clear that the rationale behind PBF is only sparsely understood by the health workers. They often recommended changes to the intervention that go against its rationale, and they found it hard to distinguish it from other projects. This is probably partly because the incentive component was not the most prominent in this intervention, or at least not in the first months of its implementation, and may also be related to the lack of communication.

#### **4.** INVEST IN THE HEALTH UNIT MANAGEMENT COMMITTEE

The analysis of the different mechanisms and the barriers to their triggering in Chapters 7 and 8 shows the pivotal role played by the HUMC. They are crucial in communicating the intervention and its guidelines to the (new) staff members. They have the authority to decide on the needed investments to improve the work environment, which has an impact on the quality of care delivered at the facility. They decide upon the distribution of the individual incentives within the facility. They provide internal supervision in order to keep everyone on track and are central to the functioning of the health facility and thus also of the intervention.

Therefore, they should receive sufficient support, training and guidance in order to take up their role effectively. Giving (more) autonomy to the HUMCs does by no means mean that the role of the District Health Management Team should be lowered. To the contrary, giving more autonomy and a more important role to the health unit management team implies an even more active role from the District Health Management Team to give support and supervision.

## **5. B**E FLEXIBLE ON PERFORMANCE MEASURES

Although the performance measures are seen as very relevant because they are based on the UCG, they also receive some critique. In particular, the lack of flexibility of their verification is criticised. Health workers sometimes made convincing reasons for not adhering to some of the UCG. Making a distinction between essential and less essential elements might be useful when deciding whether the treatment of a patient is according to standards or not (the recording of the vital signs *vis-à-vis* the prescription of the right medicines).

The need to have all four ANC visits at the same facility is also seen as problematic and led to some unwanted behaviours (i.e. mothers who did not come for their four ANC visits had to pay more for their delivery). Therefore, instead of only subsidising the patient when the four visits were done at the same facility, one can choose to subsidise every visit. If at each subsequent visit a little bit more is paid, the health workers will be incentivised to motivate the mothers to come for the next visit as well. This is coherent with the fact that even one ANC visit has some benefit.

Also, questions were raised about the indicators concerning malaria and difficulties observed with the requirement to have a clinical officer on the job 24/7. This points to the need of the PBF scheme to be flexible when it comes to the indicators and to discuss them with the health facilities. Hiding behind the UCG is not an option as they may need refinement or are based on a non-existing ideal situation. Hence, it might be useful to work together with the facilities to realise this ideal situation before penalising them for not adhering to the guidelines.

#### **6.** FOLLOW UP THE COST STRUCTURE OF THE FACILITIES

The study also highlights some budgetary struggles within some of the facilities, which are partly due to delays in the payments, but also because the payments do not always cover the costs according to the health workers. It was noticed by some of the respondents that the cases were too generally defined, leading to the same payment for someone with simple malaria and another with complicated malaria. This led to acts of gaming where patients had to pay more when they were expected to generate more costs. The facilities were able to do this because they were not obliged to declare these cases to the BTC/Enabel; thus, they would not negatively affect their quality score. Hence, whereas PBF tries to put the 'financial risks and gains' at the level of the facility by making them responsible for results, this intervention (in some facilities) put the 'risks' at the level of the patients and the 'gains' at the level of the facility.

This can be resolved by being more generous when subsidising the facilities, by allowing higher user fees or by obliging to take every patient into account for the calculation of the PBF bonus. The first option will inflate the needed budget, the second option will undo some of the benefits of the lowered user fees and the last option is not an answer to possible budgetary struggles. However, in order to do such an exercise, it is important that PNFP facilities provide full transparency when it comes to their financial situation, which appeared to be not the case, according to one KI.

#### 7. TAKE A SYSTEMS APPROACH

Before any country tries to implement a PBF scheme, it is important to prepare the health system. The right capacities should be in place (e.g. basic quality and safety standards should be abided by), the institutions involved will need the appropriate resources and facilities should be able to achieve performance on a relatively equal basis. We found that the latter was not always the case. Substantial disparities exist between the different HCs III, with some having only one building to harbour all the departments and others having multiple buildings and prospects of becoming an HC IV. Yet, both had to achieve the same requirements (e.g. number of clinical officers or midwives), which was not always possible for the smaller HCs III.

Moreover, the 'competition' of nearby government facilities (with free services) leads to some facilities not being able to increase the attendances. This means that the costeffectiveness of the intervention in these facilities is very low as the intervention subsidises patients that are already coming to the facility. Government facilities are competing not only for patients but also for human resources as they pay higher wages than the PNFP facilities. This results in a high turnover amongst the staff of the PNFP facilities which, together with the earlier mentioned lack of communication, leads to badly informed health workers when it comes to the PBF intervention.

Thus, although it is a long and painstaking endeavour, it is important for the health sector as a whole to rationalise the distribution of the different health facilities, both as a matter of geography (not too many too close to each other) and as a matter of specialisation (no two HCs IV next to each other). The implementation of such a coverage plan would entail that some facilities will need to refrain from evolving to a higher level, others might have to disappear and still others will need to be strengthened. Both the public sector and the PNFP sector will have to make brave decisions in the public interest. The initial plan of the project foresaw the introduction of a coverage plan, but this was not implemented.

#### **8.** FURTHER INVESTIGATE THE ROLE OF HEALTH WORKER INCENTIVES

According to our study, the role of the financial incentives in this intervention was limited. Most of the respondents highlighted that the intervention mainly supported the patients and focused on the quality of care. Financial incentives to increase the motivation were only seen as a third important aspect of the intervention. In addition, several respondents were not aware of them or did not know how they were being allocated, while those who did, perceived them as being (too) small but at the same time very welcome. It is therefore unlikely that these individual financial incentives played an important role. This raises the question of whether these individual incentives should be removed from the design and be transformed into an increased salary, or whether their importance should be increased by making clearer guidelines at the level of the implementers and augmenting the amount.

## 9. ACCREDITATION: COMBINING 'PBF' WITH A NEEDS-BASED APPROACH

Our research highlights that the accreditation process plays an important role in improving the equipment at the facilities. It helps the facilities prioritise and do focused purchases. Given that being accredited was awarded with a one-time investment in drugs and equipment and the promise of earning more money through performance-based funds, we can consider it a kind of PBF. Moreover, this 'PBF approach' was accompanied by what we will call a needs-based approach: facilities that only needed a few extra percentage points to get accredited received funds or the needed equipment to raise the level of the
facility up to the required standards. This levelled out some of the initial disparities between facilities. This is a promising combination as the needs-based component addresses the inequity between facilities, while the PBF component ensures that the funds will be used appropriately.

However, facilities that were still far from being accredited received no extra funds. From a population health perspective, it is necessary to also improve these facilities as they deliver services to a significant part of the population.

### **10.** PUT OUTCOMES IN PERSPECTIVE

A systems approach should be used not only during the implementation, but also during the evaluation of the results. We observed an increase in the number of patients at the participating facilities, yet from a population health perspective, it is important to look at how many of these patients are actually new patients attending healthcare services and not patients who shifted from the public or the private-for-profit to the PNFP facilities. In the latter case, the cost-effectiveness of the intervention might be limited if we assume that the quality at the different facilities is the same. The use of indicators at the district level should be looked at as a viable option.

Moreover, it is important to see that the reason for the increase of the attendances was not due to the core components of the PBF scheme as such but mainly due to the lowering of the user fees. Within the PBF research community, it is mainly assumed that PBF can increase the attendances by either the development of particular strategies to attract more patients (including lowering the user fees) or the increase of the quality at the facility. However, from our research, we found very few new strategies to attract more patients; moreover, whereas the effect of the quality on increased attendances normally takes time to materialise, the increase of the attendances occurred immediately after the lowering of the user fees.

The relevant quality improvements (better equipment, availability of drugs) were also not necessarily related to the PBF scheme but rather linked to the accreditation process. Based on the information received from the health workers, we should also put into question the relevance of the improvements induced by the quality standards of the PBF scheme. Although they are based on the UCG, they were seen as mostly focusing on good reporting and taking the vital signs. While the latter are important, it is questionable whether they will significantly improve the healthcare outcomes. Again, we raise the issue of cost-effectiveness.

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### **11. IMPROVEMENTS HAVE BEEN PERCEIVED**

Despite the delays, flaws in communication and the observed shortcomings, the intervention did manage to spur some improvements at the health facilities. Most importantly, it 'awakened' both the health workers and the HUMC about their distinctive roles related to the UCG. Health workers were more aware of what the guidelines entailed and the managers took a more active stance in ensuring a conducive environment for the health workers to perform according to the UCG.

Together with extra funds from the intervention, this resulted in an improvement of the infrastructural quality and an increased number of human resources in those facilities that got accredited. Even in those facilities that did not manage to get accredited, the accreditation process sparked some changes. This shows that perhaps one of the most important levers of the intervention was the accreditation process and not the incentive component as such. The focus on quality of care and the lowering of the user fees were seen as the two most important positive things, with health worker motivation only coming in third. However, the prospect of receiving extra money and being allowed into the intervention was at the same time the driving force behind the accreditation process. As such, PBF (and, more specifically, the financial incentives) can be seen as a leverage for other reforms.

Most of the respondents were also positive about the intervention; however, at the same time, two out of three survey respondents highlighted one or more negative aspects. Nonetheless, these were mainly focused on design issues (like too little funds) and implementation flaws (like communication) and implied a demand for improvement rather than the rejection of the intervention.

From the perspective of the patients, the intervention had a positive effect on the financial accessibility of the services. However, the sustainability of this effect was questioned by several respondents as they did not know what would happen when the BTC/Enabel stops funding the intervention. If no other funds come in, the only option will be to raise the fees again.

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**CHAPTER 9** 

# HOW SUSTAINABLE IS 'THE BOX'? AN ANALYSIS OF THE POLICY PROCESS

Dr. Dre ft. Kendrick Lamar – Wesley's theory

Having analysed and evaluated the PBF project, we now shift our focus to the future. What is the likelihood that the current pilot project and the national PBF framework will become a nationally scaled-up and domestically owned and financed policy? In other words, what are the prospects of sustainability?

Whether a PBF intervention is sustainable is an increasingly crucial question given the discontinuation of PBF in Benin and Chad (Kiendrébéogo et al., 2017) and the limited number of countries that move on to nationally scaled-up interventions (Shroff, Bigdeli, et al., 2017). In addition, health workers in our sample of respondents highlighted the need for sustainability. They recalled the many instances in which a donor arrived and provided services to the community, but suddenly withdrew. In such cases, the health workers had the difficult task of explaining to the community what had happened or, worse, were even accused of lying or withholding benefits from patients. Health workers in the Ugandan pilot especially feared that with the PBF intervention lowering user fees, they would be accused of theft if they had to raise the fees again at the end of the intervention. Sustainability is thus crucial to the trust relationship between health workers and the community, among other things.

An oft-cited cause of PBF's deficient sustainability is the lack of ownership and the high reliance on external funds (Falisse et al., 2015; Gautier & Ridde, 2017; Peerenboom et al., 2014; Seppey et al., 2017; Wilhelm et al., 2016). Indeed, many PBF interventions are implemented by international donors and presented as pilot projects with predefined time frames. Although the aim is that these pilot projects eventually evolve into nationally owned PBF schemes, this transition does not happen automatically. Indeed, the literature on the sustainability of health interventions emphasizes the importance of politics and ownership as a determinant of the sustainability of health projects (e.g. Bossert, 1990; Shediac-Rizkallah & Bone, 1998).

However, a pilot project's sustainability cannot be conceptualized in the same way as a routine programme's sustainability. The former is implemented with the specific objective of generating knowledge about the implementation of a project in a short period of time. The lessons learned should then be put into practice into a wider, more institutionalized and preferably nationally owned intervention. It is in this sense that we conceptualize sustainability in the next section. Consequently, the role played by politics and decision makers who have to transform these lessons into policies is much larger than when an existing intervention simply needs to be

extended. Hence, the abovementioned important role of politics as a determinant of sustainability applies *a fortiori* where pilot projects are concerned.

In this chapter on sustainability, we explore in more depth the policy process behind the implementation of the PBF intervention and the creation of the national PBF framework. In doing so, we aim to formulate an educated guess about the likelihood of the intervention being transformed into a national policy. The policy process behind PBF has only recently received the attention it deserves from the research community. A special issue in *Health Systems & Reform* focused on the scale-up of PBF (Shroff, Tran, et al., 2017) and a number of interesting papers discussed the interactions between donors and the partner government (Barnes et al., 2015; Chimhutu et al., 2015; Gautier & Ridde, 2017).

In the next sections of this chapter we conceptualize sustainability, present an analytical framework, analyse the policy process accordingly and discuss the prospects of sustainability. A more descriptive overview of the policy process can be found in Chapter 6, while the methodology is discussed extensively in Chapter 5.

# **1. CREATING AN ANALYTICAL FRAMEWORK**

#### **1.1 Conceptualizing sustainability**

Different studies in the domain of public health conceptualize sustainability differently. Gruen et al. (2008) distinguish five "normative definitions of sustainability" (p. 1580): (1) the maintenance of health benefits, (2) the continuation of health programmes, (3) the institutionalisation of programmes within organisational systems and (4) the building of community capacity. A fifth conceptualisation sees sustainability as (5) a multi-dimensional process combining some or all of the four other elements. This disparity is not necessarily problematic; it does, however, make defining sustainability a crucial endeavour when studying it (Scheirer et al., 2008).

The choice of a certain conceptualisation should be in line with the objectives of the intervention being evaluated and the study as a whole. The BTC/Enabel intervention's objective is to formulate lessons learned (some of which can be found in Intermezzo 2) to inform the implementation of PBF nationwide and, as already stated, this chapter aims to look at the prospects of these lessons being taken into account as part of a nationwide policy that is domestically owned and financed. At first glance, the second and third conceptualisations ('the continuation of programmes' and 'the institutionalisation of programmes within organisational systems') seem to be the most appropriate for our work. Institutionalisation can be defined as "the process through which a set of activities, structures, and values becomes an integral and sustainable part of an organisation" (Franco, Silimperi, et al., 2002, p. 5) and is thus an advanced form of the second normative definition of sustainability. However, Pluye et al. (2004), who use the concept of institutionalisation, highlight three caveats to it: "it neglects actors; it does not address the issue of pilot projects; and it does not address the role of evaluation" (p. 128). The intervention under study is a pilot project, actors are central to our realist approach (see Chapter 4) and our analysis of sustainability is directly linked to the evaluation of the intervention. We must therefore address these caveats and be more specific about what we actually mean by 'sustainability'.

The most important issue to tackle is the observation that sustainability as institutionalisation is ill-suited for pilot projects. Some authors have conceptualized sustainability as capacity building (the fourth normative definition) in order to overcome this problem of pilot projects (Elsworth & Astbury, 2004), while others have focused on routinisation instead of fully-fledged institutionalisation (Seppey et al., 2017). The routinisation approach focuses on the continuation of specific elements and in a way addresses both the pilot project and evaluation issues. However, it still leaves out the importance of strategic actors. Therefore, we have decided

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to opt for a different approach and conceptualize the sustainability of pilot projects as a sub-form of the institutionalisation conceptualisation (the third normative definition). Here, sustainability means that 'the lessons from the pilot project are noted by the relevant policy actors and transformed into policy that is subsequently implemented using domestic resources'. We believe this operational definition addresses the three caveats highlighted by Pluye et al. (2004) but remains within the 'sustainability as institutionalisation' conceptualisation. Firstly, since "the process of programme institutionalisation is politically oriented" (Shediac-Rizkallah & Bone, 1998, p. 102), our conceptualisation puts policy actors centre stage in the sustainability process as it requires deliberate action in order for sustainability to occur (see also our discussion of the role of politics and the sustainability of pilot projects in the introduction to this chapter). Secondly, it explicitly takes into account the objective of pilot projects. Thirdly, by referring to lessons learned, it includes the possibility of discontinuing a pilot when evaluations are negative.

This definition also links research on sustainability to research on 'scaling up', which has been defined as: "deliberate efforts to increase the impact of successfully tested health innovations so as to benefit more people and to foster policy and programme development on a lasting basis" (WHO, 2010, p. 2). While these definitions clearly overlap, the notion of 'scaling up' puts more emphasis on scope and coverage, whereas 'sustainability' highlights duration and local integration. Here, we use the sustainability definition given the context of almost exclusively donor-funded pilots.

Finally, what are the realist and systems thinking perspectives on sustainability? To the best of our knowledge, no study has been published to date that explicitly looks at sustainability from a realist perspective. The most fundamental understanding of realist sustainability would be to focus on the continuation of programme mechanisms/theories instead of programme components. Interestingly, this ties in well with our conceptualisation of the sustainability of a pilot project. Indeed, the focus on lessons learned emphasizes the importance of context-sensitive adaptations in order to strengthen the programme mechanisms (see also Chapter 7). Hence, sustainability is not about continuing to do the same, but about ensuring that the desired outcomes continue being produced by adapting the intervention to the actors and context so that the mechanisms needed for the outcomes remain triggered<sup>85</sup>. The systems thinking approach, again, does not fundamentally change our conceptualisation of pilot project sustainability. It does, however, underscore the difficulty of sustaining an innovation in an established system and highlights

<sup>&</sup>lt;sup>85</sup> Thank you to jury member Prof. Bruno Marchal for this phrasing.

possible barriers and obstacles that should be taken into account. For example, one of the characteristics of systems is that they are "resistant to change" (de Savigny & Adam, 2009, p. 42); they will therefore respond to new innovations by attempting to return to their initial state. For example, incentives for health workers to arrive on time at the facility may work in the beginning, but health workers may subsequently avoid having to be at the facility while still receiving the incentive, such as by breaking and not fixing the time reporting machine, as was observed during a project in India (Banerjee et al., 2008). Again, this highlights the need for continuous monitoring and adaptation of the intervention in order to sustain the same programme mechanisms. Such adaptations, as we will see further in this chapter, are more easily made and recognized when local stakeholders and decision makers are closely involved in the intervention.

#### **1.2** An analytical framework

By definition, sustainability is to be assessed in the long term, yet its roots can be traced back to the planning stage at the very beginning of the project (Pluye et al., 2004; Pluye et al., 2005). It is a continuous process of learning and adaptation (Mog, 2004) whose determinants of success are at least partly embedded within the power relationships and roles of the stakeholders both inside and outside government (Mendes et al., 2016). As highlighted by our conceptualisation, the policy process is one of the key determinants of sustainability and although it is rarely the focal point of sustainability research, elements relating to the policy process can be found in most of the frameworks used in such research (Bossert, 1990; Gruen et al., 2008; Mendes et al., 2016; Mog, 2004; Schell et al., 2013; Shediac-Rizkallah & Bone, 1998).

Shediac-Rizkallah and Bone (1998) distinguished three groups of factors influencing sustainability: project design and implementation factors, factors within the organisational setting and factors in the broader community environment. Elements related to policy actors and to the process were included across all three categories. This was the case in all of the frameworks analysed for the purpose of this chapter, so we regrouped the categories in order to construct a clear analytical framework suitable for our specific study. After a short scoping review of the literature on the sustainability of health programmes, we identified seven popular frameworks that use the second and third normative definitions of sustainability<sup>86</sup> or give a general definition

<sup>&</sup>lt;sup>86</sup> We included frameworks from both conceptualizations because, as already mentioned, the

<sup>&#</sup>x27;institutionalization' conceptualization is an advanced form of the 'continuation' conceptualization.

Therefore, every factor that is essential for the continuation of health programmes will also be important for the institutionalization of health programmes.

of sustainability. It was interesting to note several recurring elements in the different frameworks, regardless of the approach taken. We also included one framework from the agricultural sector (Mog, 2004) in order to show that similar determinants are observed in different sectors. In addition, we included four frameworks that dealt specifically with scaling up, given the relationship discussed earlier. Table 34 provides an overview of relevant factors regrouped into three overarching themes.

		Source	Ownership (& alignment)	Capacity	Political will (perceived effectiveness)
Sustainability frameworks		(Schell et al., 2013)	Partnerships Strategic planning	Organisational capacity Programme adaptation	Political support Funding stability (Public health impacts) (Programme evaluation) (Communication)
	orks	(Shediac-Rizkallah & Bone, 1998)	Project negotiation process Community participation Integration with existing programmes Programme champion/leadership	Training Institutional strength	Project financing Socio-eco. and pol. considerations (Project effectiveness)
	ability framew	(Pluye et al., 2005)	Adaptation of activities Objectives fit Transparent communication Sharing cultural artefacts Integration of rules	Adequate investment of resources	Resource stabilisation
	Sustain	(Bossert, 1990)	Project integration Mutually respectful negotiating process Community participation	Institutional strength Training	Political factors Financing (Perceived project effectiveness)
		(Mendes et al., 2016)	Leadership capacity Strategic planning Social participation Advocacy and increased power of community constituents	Management capacity	Availability and allocation of resources Motivation of stakeholders and institutions (Comparisons with evidence and effectiveness)
		(Mog, 2004)	Cultural acceptability Organize communities	Facilitate learning and knowledge sharing Institutional flexibility/adaptability	Policy support Mobilize local resources

# Table 34: Analysis of frameworks on sustainability and scaling up

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	(Gruen et al., 2008)	Community participation Involvement of local stakeholders Integration with existing programmes	Institutional effectiveness Training	Evidence-based programmematic refinements (Report programme effectiveness)
ķ	(Shroff, Bigdeli, et al., 2017)	Political and technical leadership Adapted legislative and financing structures Expanded national ownership	Technical leadership	Domestic financial resources Expanded national policy influence
ıp framewor	(WHO, 2010)	Advocacy Organisational process (participatory or donor/expert- driven)	Monitoring and evaluation	Costs/resource mobilisation (Dissemination and advocacy)
Scaling-L	(Hartmann & Linn, 2008)	Incentives and accountability Policy space Cultural space Partnership space	Ideas and models Institutional capacity space Learning space	Vision and leadership Fiscal/financial spaces Political space (Learning space)
	(Hardee et al., 2012) (barriers to scale- up)	Laws, policies and regulations Cultural sensitivity or resistance	Weaknesses in infrastructure and support systems Lack of qualified managers and staff	Resource mobilisation challenges

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*Ownership & alignment.* Cramer et al. (2006) define ownership as "the authority and responsibility to take final decisions over the object or process which is owned" (p. 421). They further distinguish between 'recipient', 'national' and 'government' ownership. 'Recipient ownership' goes beyond the government to include other stakeholders, and is the definition we refer to here. The inclusion of the concerns of the community and other stakeholders is widely seen as essential to achieve sustainability (Brinkerhoff & Goldsmith, 1992; Mendes et al., 2016; Mog, 2004; Shediac-Rizkallah & Bone, 1998).

'Alignment' is strongly related to ownership and refers to "the extent to which donors use government's own systems and processes and channel their support through government's own programmes and strategies" (Söderbaum & Stålgren, 2008, p. 8). Integrating a pilot project within existing institutions, hierarchies and policies improves its prospects of being fully institutionalized, as it leads to a better fit between intervention and local context, produces more relevant lessons learned and implies the more active involvement of political stakeholders (Bossert, 1990; Mog, 2004; Pluye et al., 2005; Shediac-Rizkallah & Bone, 1998).

Capacity. Importantly, our use of the terms 'ownership' and 'alignment' is inherently relational, as we consider these things to be achievable only through cooperation: it takes two to own; it takes two to align. Hence, local partners should have sufficient capacity to actually own the intervention, while structures must be strong enough for donors to be able to align with them (Bossert, 1990). Again, capacity is not a straightforward notion and Develtere (2012) distinguishes three kinds of capacity: institutional, organisational and developmental capacity. Institutional capacity, according to Develtere, means that the government has sufficient resources (financial, human and institutional) and is capable of cooperating with the stakeholders in the field. Organisational capacity implies that the government is well organized and able to implement policies effectively. Finally, developmental capacity entails the ability to come up with effective policies and to redirect policies when needed. Strong institutions, sound organisational structures and good knowledge are thus essential (Brinkerhoff & Goldsmith, 1992; Schell et al., 2013). Capacity is something that can be built and it has been emphasized that interventions with training components have improved chances of being sustained (Bossert, 1990; Mog, 2004; Shediac-Rizkallah & Bone, 1998). One of the aspects that makes capacity such an important issue is the ever-changing context and the flexibility needed to adapt the policy when necessary (Mog, 2004).

*Political will.* According to Shediac-Rizkallah and Bone (1998), sustainability is about "generating goodwill for the continuation of a programme" (p. 102). Importantly, domestic

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financial resources need to be allocated to the intervention as policies that rely solely on foreign funds are difficult to sustain (Bossert, 1990; Gruen et al., 2008; Pluye et al., 2005; Schell et al., 2013; Shediac-Rizkallah & Bone, 1998). Research also shows that such political will is linked to perceptions of effectiveness (Bossert, 1990; Brinkerhoff & Goldsmith, 1992; Gruen et al., 2008). Interestingly, Bossert (1990) emphasizes that in five USAID-funded health projects in five different countries in Africa and Central America, it was not the objective evidence of effectiveness but the perception of it that was important. Hence the importance of looking at the framing of evidence and research findings by advocacy groups and the national and international community (Mendes et al., 2016).

Bossert (1990) also highlights that it is not one single aspect that determines sustainability but the combination of different factors. He concludes:

"[P]rojects should [...]: (1) demonstrate effectiveness ... ; (2) integrate their activities fully into established administrative structures; (3) gain significant levels of funding from national sources ... ; (4) negotiate project design ... ; and (5) include a strong training component." (Bossert, 1990, p. 1022)

Combining the information provided in this section produces an analytical framework that focuses on the policy process related determinants of sustainability (Figure 42). The framework also differentiates between different levels. 'Political will', for example, should mainly be studied at the level of political decision makers, whereas 'capacity' should be examined at the ministerial and the operation level (i.e. the service providers). 'Ownership' is a relevant aspect at all levels.



Figure 42: An analytical framework of the policy process determinants of sustainability

Source: Author

# **2.** ANALYSING THE THREE DETERMINANTS

As discussed in Chapter 5, we collected data using semi-structured interviews with 16 key informants from the MoH (4 respondents ), the BTC/Enabel (4 respondents), the district health team (2 respondents) and the faith-based medical bureaus (6 respondents). The respondents were selected purposefully in order to interview the actors closest to the policy process. We believe that, despite the small number of interviews, we did interact with the people most closely involved in the entire policy process. The questions covered the respondents' views on PBF, their involvement in design and implementation, the policy process, the intervention's design and the preliminary results. We also consulted relevant policy documents from the MoH, the World Bank, earlier pilot projects and the BTC/Enabel intervention.

In what follows we discuss the main findings of these interviews, structured according to the analytical framework described above.

# 2.1 Ownership

While no interviews were held with ministers or parliamentarians, the respondents did report that the performance-based logic is widely adhered to by decision-makers at the highest ministerial level (i.e. political level). Indeed, this is the case to such an extent that local government funding is to be transformed into results-based funding.

At the MoH level, the *Mid-Term Review of the Health Sector Strategic 2003* appears to be the first document to mention 'contracting' (PBF) as a possible means of improving efficiency (as cited in Morgan, 2010). However, the *Health Sector Strategic Plan II 2005/06 – 2009/2010* still firmly claims that "[i]t will be important to maintain [a] needs based approach"<sup>87</sup> (MoH, 2006, p. 73). Later, funding linked to results reappears in the situation analysis of the *Health Sector Strategic & Investment Plan 2010/11-2014/15* (MoH, 2010b), though mainly in reference to a World Bank study (Okwero et al., 2010). Moreover, performance-based financing is hardly mentioned in the strategy section, while quite some attention is paid to increasing the salaries and motivation of health workers. The *Health Sector Quality Improvement Framework and Strategic Plan 2010/11-2014/15*' (MoH, 2011) is

<sup>&</sup>lt;sup>87</sup> Such a needs-based approach means that resources are allocated according to the catchment population of the facility, the setting (rural or urban), the level of the facility, and/or certain health indicators.

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one year more recent and much clearer on linking funds to results. It states that "[c]onsideration should be given to providing incentives to facilities that meet goals and hold their gains" (MoH, 2011, p. 70). In subsequent documents, the principle of PBF is referred to in almost all MoH policy strategies. Moreover, the *National Policy on Public Private Partnership in Health (2012)* (MoH, 2012) explicitly mentions the implementation of an accreditation system in both private and public sectors, which is an important element of the PBF intervention (see Renmans, Holvoet, & Criel, 2017 and Chapter 8). The *Health Sector Quality Improvement Framework and Strategic Plan 2015/16-2019/20* (MoH, 2016b) both reiterate the need for an accreditation scheme and PBF. The *Health Financing Strategy 2015/16-2024/25* is the most unequivocal: "Uganda will need to move away from relying on mainly input-based purchasing towards more Results-Based Financing" (MoH, 2016a, p. 22). The strategy goes on to list several problems in the Ugandan health financing system related to input-based financing, problems which were not mentioned in an earlier review of the Ugandan health financing system (MoH, 2010a).

PBF thus becomes increasingly prominent in the MoH's policy documents over time, eventually culminating in a request for the BTC/Enabel to incorporate PBF in its Ugandan project (see also Chapter 6). Clear ideational ownership is therefore evident at the MoH level. However, this is influenced by the international trend towards PBF and the implementation of small-scale donor-funded and donor-implemented PBF projects in Uganda which were positively evaluated (e.g. Cordaid or NU health) (Buuka et al., 2015; HPI International, 2015). The World Bank also played a key role in promoting PBF, as evidenced by the World Bank study (Okwero et al., 2010) which put forward PBF as an important solution. This study was quoted in one of the earlier policy documents (*Health Sector Strategic & Investment Plan 2010/11-2014/15*). Moreover, the World Bank also financed study trips for Ugandan policymakers to Ghana and Zambia and provided technical assistance.

"The World Bank played a role [...]. They provided financing, they provided technical assistance, both internal and international technical assistance, different experts to look at what we have done. But they also provided us with money for the benchmark visits to other health units [to] look at how RBF is running, to Zambia and Ghana, which we thought was useful." (KI 3)

Additionally, the prospect of an investment by the World Bank's Global Financing Facility (GFF), the successor to the Health Results Innovation Trust Fund (HRITF), pushed the MoH to accelerate the creation of a national RBF framework (see quotation from Key

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Informant 10, below). The HRITF and to a lesser extent the GFF were specifically created to fund results-based financing interventions such as PBF (Fernandes & Sridhar, 2017). Given the resource constraints in the health sector of low- and middle-income countries, governments are understandably eager to implement such interventions. This raises questions regarding ownership. In this case, the MoH had already decided to pilot PBF, but the intention of the World Bank to implement its own project through the GFF accelerated the creation of the national PBF framework required by the GFF. As one of the interviewees put it:

"The World Bank under the Global Financing Facility had put a conditionality that they would finance based on an RBF framework. [...] [i]nternationally the direction was moving towards RBF and also the government was thinking of RBF so that's why this framework had to be accelerated [...]" (KI 10)

While the idea of PBF is largely supported and put forward by local decision makers (albeit with external influence), and thus indicates a level of country ownership, the design of PBF as observed in the national framework and the BTC/Enabel intervention is much less country-owned. However, at the same time, it is strongly aligned with the local healthcare system. The PBF intervention is very much integrated in and aligned with the local health system, in that it uses the Ugandan clinical guidelines, the existing health management information system and the district health management structures. PBF is also part of a wider strategy to initiate national health insurance, an idea that has also been put forward by Josephson (2017)<sup>88</sup>, and such integration is an important determinant of alignment and ownership.

The design of the national PBF framework and the subsequent BTC/Enabel intervention were also the result of a genuine participatory process that included both the ministerial level and sections of the operational level (i.e. the faith-based medical bureaus and the district level). However, this participation was mainly consultative and the main input concerning the content came from the BTC/Enabel.

<sup>88</sup> In short, the idea is that PBF interventions often require and fulfil similar functions as those that are necessary for national health insurance schemes (e.g. quality verifications, record keeping, purchasing). Instead of trying to implement all of the functions of a national health insurance scheme at once and increase coverage over time, this strategy first aims to implement the necessary functions gradually. In such a strategy, PBF is seen as an initial step towards the more advanced functions fulfilled by a national health insurance scheme.

The MoH took the lead in the creation of the national framework and made the final decisions, but the lack of MoH capacity concerning PBF and the fact that the BTC/Enabel already had a design (see Chapter 6) meant that the BTC/Enabel became the main architect of the Ugandan national PBF framework.

"MoH is in charge, we would listen to all input from all stakeholders and then we make decisions." (KI 8)

"[The design of] PBF is mainly donor-driven. As long as it brings in money, everything is good in Uganda. We [BTC/Enabel] propose something on paper and they are happy to sign. [...] The MoH and the World Bank had very little influence on the design of the project." (KI 2, own translation)

The influence of the other stakeholders was even more limited. The faith-based medical bureaus brought in extra expertise, as they own a large number of the facilities that were to be implementing the PBF intervention and also had previous experience of PBF. Yet, although they were consulted from the beginning, the medical bureaus played a limited role in the decision-making process. They did not see this as problematic, however, as they seemed genuinely convinced of the PBF rationale and eager to implement the PBF scheme and contribute to the learning process.

"We [the medical bureaus] participated a little bit in terms of consultation in the design phase. And all that was designed by consultants." (KI 16)

The World Bank's influence on the design was limited, and concentrated mostly on placing PBF higher up on the political agenda.

"[The World Bank] provided us with money for the benchmark visits [...] to Zambia and Ghana, which we thought was useful." (KI 3)

The health workers and the community had the least influence on the design, as they were not consulted and insufficiently informed. Interviews with health workers even showed that their knowledge of the PBF intervention and its rationale was very limited, even after one year of implementation (see Chapter 7), and far removed from a situation of 'ownership'. The community was involved even less and has only been informed about the lowering of user fees. It played no role whatsoever in the design of the PBF intervention (see Chapter 6).

"That could be the biggest weakness of our design: we did not look at the community involvement so much." (KI 1)

# 2.2 Capacity

The in section 2.1 described, lack of input from local stakeholders is caused not only by the donor imposing itself, but also by the partner country's lack of knowledge of the specifics of PBF and lack of capacity to come up with its own design. While the *Health Financing Strategy 2015/16-2024/25* puts PBF forward as a potential solution, it also highlights the "need to strengthen capacity across the system for successful national scale up" (MoH, 2016a, p. 23). Several PBF pilots have been implemented in the Ugandan health sector, yet the involvement of the MoH has been very limited (World Bank, 2016). Similarly, this project is mainly being run by the BTC/Enabel administration instead of by the MoH. Yet the creation of the National PBF Unit (funded by the World Bank), whose role is to provide oversight of the various Ugandan PBF pilots (including those of the World Bank and the BTC/Enabel), may help to improve the MoH's capacity.

"Sustainability will not be possible if there is dependency on technical assistance. I think technical assistance should come in but if you look at [...] these projects the technical advisors actually work like programme managers. [...] That model does not encourage sustainability." (KI 4)

It is equally important that other stakeholders besides the MoH (e.g. the medical bureaus, district teams and health workers) acquire the capacity to participate in the policy process and identify implementation problems without technical donor assistance. It is interesting to see that the medical bureaus have more capacity than the MoH. Indeed, previous pilot projects were mainly implemented in PNFP facilities in close cooperation with the faith-based medical bureaus. However, these pilots differed in design from the current PBF framework and the BTC/Enabel project; hence, lessons learned from these pilots are limited to PBF's general rationale and do not address the specific design aspects of the latter PBF intervention.

A similar situation is evident at the district level. A lack of exposure to PBF and a resulting lack of capacity makes it difficult for the district health management teams to implement PBF effectively. However, in this BTC/Enabel PBF intervention, building the capacity of the stakeholders is a genuine concern and the various actors are being involved in the implementation. This may lead to increased and appropriate capacity in the future.

"People from the World Bank were saying: why don't you hire a firm? [...] it's true they don't have capacity but we are better off building their capacity than hiring, for sustainability purposes as well." (KI 1)

"No, [there is] not much capacity. [...] there must be a component of capacity building,[...] even [for] us at the national level, [...] but also the district management teams, even the health unit management committees, there are capacity gaps everywhere." (KI 10)

Capacity not only concerns the quality of the technical expertise, however, but also the number of actors involved. The intervention is generally perceived by respondents from both the BTC/Enabel and its Ugandan counterparts as being complex and needing substantial human resources for implementation. This may jeopardize the intervention's sustainability, as neither financial nor human resources are available to replace the donor's technical assistants in the medium term.

"It is of course a very complex system. We have got 7 full-time technical assistants for 15 districts; however, Uganda has 167 districts. Scaling up will be very difficult." [Paraphrased and translated] (KI 2)

In Chapter 7 we note that health workers' knowledge of the rationale behind PBF and the intervention's specific design elements is very limited to non-existent. The lack of communication from the BTC/Enabel and within the facilities, in combination with a high staff turnover, can be seen as the most important causes (see Chapter 7).

# 2.3 Political will

All of the stakeholders we interviewed were confident about PBF's effectiveness, in spite of the very critical evaluation of Uganda's most thoroughly studied pilot project (Morgan, 2010; Ssengooba et al., 2012) and the lack of consensus at the international level (Paul et al., 2018; Renmans, Holvoet, et al., 2016; Witter et al., 2012). Our interviews revealed that other pilot projects (mainly in Uganda but also in other countries) and the advocacy of their implementers seem to have had a strong influence on this positive evaluation of PBF's effectiveness. A number of self-authored, very positive studies with sometimes questionable methodologies (e.g. HPI International, 2015)<sup>89</sup> added to PBF's

<sup>&</sup>lt;sup>89</sup> The intervention facilities were incomparable to the control facilities at baseline in relation to the

perceived effectiveness. The presentations of the BTC/Enabel intervention's preliminary results at conferences have been equally positive. Despite the uncertainty about PBF's effectiveness, and about the current PBF intervention specifically, all of the stakeholders we interviewed saw PBF as the way forward.

"There was already a project in northern Uganda, there was the Cordaid project in Jinja, there were previous projects in the past, [...] so many lessons. It was proven that RBF works." (KI 1)

PBF's effectiveness relates not only to specific health outcomes, but also to its impact on the healthcare system, such as the creation of institutions that fulfil the necessary functions in the preparation of national health insurance system (Josephson, 2017). This is ultimately what the Ugandan PBF is intended to achieve. Thus, given its high perceived effectiveness and the positioning of PBF as a stepping stone towards national health insurance, there is considerable political will at the MoH to transform PBF into a nationally scaled-up policy. The creation of the national PBF framework, the instalment of a PBF unit within the MoH and the adoption of legislation stipulating PBF as a route towards UHC and national health insurance all testify to this political will. However, the litmus test of political will is to ask for funding, and the prospects in this sense appear dim. The Health Financing Strategy 2015/16-2024/25 states: "In the short to medium term, prospects for increased resource mobilisation from both domestic and external sources remain limited" (MoH, 2016a, p. 23). Interestingly, the MoH sees the national health insurance not only as the end of the PBF scheme but also as a means of mobilizing financial resources. However, this is a circular argument and the lack of a broad economic basis from which to mobilize resources is problematic. Moreover, the funds invested by the BTC/Enabel go far beyond the MoH's current resources: for example, HCs III can earn up to 20 million Ugandan shillings per quarter, while the current primary healthcare grant to PNFP facilities is approximately 3 million Ugandan shillings per quarter. At present, the main donors are the BTC/Enabel and the World Bank, which is financing the establishment of the RBF unit within the MoH.

outcome variable, no difference-in-difference approach was used to counter this and it is unclear why certain improvements in the control facilities (which received the same amount of extra resources using input-based financing) have not received more attention.

"We think that by around 2020 we are going to be allocating resources from the government of Uganda using the RBF mechanism." (KI 3)

"The mere fact that there is this task force [PBF unit] in my view is a sign of good will." (KI 4)

"We think that by introducing health insurance we shall mobilize additional resources. This will help us finance [PBF]." (KI 10)

#### **3.** AN INTERNATIONAL COMPARISON

Whereas the previous section focused solely on the situation in Uganda, we now turn to an international comparison to see how the Ugandan case is different from other lowand middle-income countries.

The picture concerning ownership is mixed. As observed in other countries (Zambia, Tanzania, Cambodia, Chad, Benin, Armenia, Cameroon, DR Congo and Malawi) (Barnes et al., 2015; Barnes et al., 2014; Bertone et al., 2018; Chimhutu et al., 2015; Gautier & Ridde, 2017; Khim et al., 2017; Kiendrébéogo et al., 2017; Paul et al., 2017; Petrosyan et al., 2017; Shroff, Bigdeli, et al., 2017; Sieleunou, Turcotte-Tremblay, Fotso, et al., 2017; Sieleunou, Turcotte-Tremblay, Yumo, et al., 2017; Wilhelm et al., 2016), the World Bank and other international NGOs (Cordaid, DFID, etc.) have played an important role in advocating for PBF by setting up demonstration pilots, disseminating positive results and financing study tours (see also Ssengooba et al., 2015). Unlike in Chad (Kiendrébéogo et al., 2017) this led in Uganda to ideational ownership (i.e. stakeholders becoming convinced of the relevance and usefulness of PBF) at the different levels of the healthcare system. However, we should not close our eyes to the power issues related to 'problematisation' put forward by Bacchi (2016). She claims that, while policies are proposed in response to identified problems, the problems themselves are defined with the solutions in mind: "every policy proposal contains within it an implicit representation of what the problem is represented to be" (p. 1). With the framing of problems being the terrain of power politics (i.e. 'the power of the purse') (Koduah et al., 2016; Koon et al., 2016), an international environment focused on results (Paris Declaration, MDGs/SDGs) and influential donors (e.g. World Bank, WHO) pushing for PBF, the choice of PBF is hardly a choice at all for resource-scarce countries, which have been described as having less countervailing power (Barnes et al., 2015; Barnes et al., 2014; Bertone et al., 2018; Chimhutu et al., 2015; Khim et al., 2017). Thus, PBF is, to a certain extent, a solution looking for a problem. Indeed, in Uganda, the problem definition for the healthcare system shifted suddenly towards the use of input-based financing, whereas originally the lack of resources was seen as the main problem. Likewise, Bertone et al. (2018) highlight that few PBF schemes in fragile countries are justified by a thorough analysis of the specific local needs. Furthermore, our research confirms the various pathways through which donors influence national health policy processes: through the control of technical capacities and financial resources, both directly and indirectly (e.g. by financing study visits and specific research) (Khan et al., 2018).

Despite their apparent ideational ownership, local actors' actual input in the PBF design was very limited, which is similar to what is seen in other settings (Barnes et al., 2014; Gautier & Ridde, 2017). However, this was not due to a lack of MoH involvement, as was the case in earlier pilot schemes in Uganda (Ssengooba et al., 2015) and other countries such as Tanzania, Chad and Benin (Chimhutu et al., 2015; Kiendrébéogo et al., 2017; Paul et al., 2017). Instead, it was mainly the lack of capacity and of a genuine Ugandan perspective on PBF that forced the BTC/Enabel (or gave it the opportunity) to impose its model to the extent that it did (see also Shroff, Bigdeli, et al., 2017; Ssengooba et al., 2015). The low level of capacity impeding real ownership is a recurring issue (Barnes et al., 2014; Khim et al., 2017; Shroff, Bigdeli, et al., 2017). However, as Cambodia shows, this does not rule out the possibility of the government's taking over later in the process when capacity has increased (Khim et al., 2017; Van de Poel et al., 2016).

Low capacity not only affects local contribution to the design, but may also affect the extent to which local structures are used. For example, because of high complexity and technicality, some management and verification roles may be outsourced to international NGOs or performed by the donor (Antony et al., 2017; Bertone et al., 2018; Kiendrébéogo et al., 2017). In turn, a lack of lower level involvement may impede sustainability (Sieleunou, Turcotte-Tremblay, Yumo, et al., 2017). This is not the case with the Ugandan scheme, however, which makes maximum use of the local structures in order to build their capacity.

We have seen that the perception of effectiveness is crucial to nurturing political will. As in other countries (Barnes et al., 2014; Bertone et al., 2018; Shroff, Bigdeli, et al., 2017), Rwanda's success story and the positive evaluation of previous projects strongly influenced the positive perception of PBF. This is somewhat at odds with Rwanda's very specific context of a stronger focus on results in general, high government control in implementation, and so on. Furthermore, the only thorough evaluation of a Ugandan PBF project produced negative results (Ssengooba et al., 2012); the positive evaluations have since been judged to be of inadequate quality. Indeed, Barnes et al. (2015) observe a positive bias in the analysis of PBF which emphasizes the positive results and omits more critical voices, a trend which is also reflected in the Ugandan case. There is a belief that the Ugandan PBF scheme will be able to overcome the obstacles encountered in other PBF interventions, hence the large degree of political will.

Yet, political will is insufficient when it is not backed by financial resources. As in many other settings where PBF is in its infancy (Gautier & Ridde, 2017), funds are mainly coming from donors, which leads to concerns about sustainability once donors withdraw (Seppey et

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al., 2017; Shroff, Bigdeli, et al., 2017). The investments required and the lack of resources within the Uganda healthcare sector jeopardize sustainability.

#### **4. PROSPECTS OF SUSTAINABILITY**

On the basis of our study results, we can make an educated guess about whether or not PBF will soon be part of the Ugandan healthcare financing architecture. We use the term 'guess' explicitly to stress the contingent nature of reality and the limitations of the study. One limitation is that not all relevant actors were included in the sample of interviewees. For example, we did not interview parliamentarians or the Minister of Health. However, we do believe that we interviewed the people who were most closely involved in both the BTC/Enabel intervention and the creation of the RBF framework (e.g. the Ugandan and BTC/Enabel programme managers, negotiators from the faith-based medical bureaus and several members of the soon-to-be-established RBF unit). Another limitation is the fact that we were not present during the meetings and negotiations, which meant we were reliant on the information provided by our respondents. This information may be biased. For example, the MoH may have wished to overemphasize its role in order to appear more important. However, we attempted to overcome this bias by interviewing people from different stakeholders, namely the medical bureaus, the Ministry of Health and the BTC/Enabel. Finally, our analysis focuses primarily on the prospects of sustainability and not on the policy process itself. Analysing the policy process through a political economy lens would probably have provided more insights into the policy process and its power relations, though perhaps revealing less about the prospects of sustainability. Notwithstanding these limitations, it is feasible to make an educated guess. In this section, we present a dynamic model of the policy-related factors that contribute to sustainability. Re-evaluating this model in five to ten years will help us to improve our understanding of how policy-related factors affect the sustainability of a pilot project.

Kiendrébéogo et al. (2017) are right to stress "the critical role of political ownership and technical capacity [...] as key to a policy's sustainability beyond the mere availability of funds" (p. 87-88) (see also Seppey et al., 2017). Indeed, as Bossert (1990) already emphasized, our three determinants are important, but the discussion above also shows that the various determinants are linked to each other (Figure 43). The Cambodian case demonstrates that political will is influenced not only by perceived effectiveness but also by other political considerations such as ownership of the healthcare sector (Khim et al., 2017; Van de Poel et al., 2016). Increased ownership improves capacity, and this combined with additional knowledge influences perceptions of effectiveness (Shediac-Rizkallah & Bone, 1998). More capacity also creates opportunities for more advanced ownership (Gautier & Ridde, 2017), which may contribute to increased political will (Shroff, Bigdeli, et al., 2017). In turn, more political will may lead to a more involved local partner, increasing ownership. The reinforcing feedback loops within this dynamic framework show that once the sustainability process is started, it can accelerate quickly. At the same time, however, a barrier linked to one of the determinants (e.g. political will/funding) may block the entire process.



Figure 43: Dynamic policy process and actor-centred analytical framework

Source: Author

According to Ssengooba et al. (2015), the prospects of sustaining PBF in the Ugandan healthcare sector are "generally now better than ever before" (p.53). However, as Figure 43 shows, several important determinants are still at a low level. Capacity at both the ministerial and field levels (apart from in districts that have already been involved in PBF projects) remains very limited. Integrating the intervention into the local healthcare system (i.e. the district) will help to improve the field-level capacity. At ministerial level, it is important that the new RBF unit is involved in both BTC/Enabel and World Bank projects as much as possible. Ultimately, much will depend on whether the MoH has sufficient resources to actually implement the proposed PBF scheme throughout Uganda. Widespread implementation in turn increases local capacity. Hence, securing domestic resources could be a strong catalyst for the implementation of a PBF scheme which is fully nationally owned and implemented nationwide and which serves as a first step towards the national social health insurance scheme envisaged by the MoH.

PART 4

# **STACKING THE BOX**

**CHAPTER 10** 

ASSEMBLING THE CONTENT: TOWARDS A THEORY OF PBF

I'm just trynna stay alive and take care of my people And they don't have no award for that

Drake – Trophies

We have reached the last part of this PhD thesis. By now, we have set the scene for future research on PBF, tried to conceptualise PBF in a more comprehensive and accurate way, highlighted the main dimensions and issues related to PBF implementation, gave an overview of what is already known about PBF and discussed a methodological strategy to further investigate the unknowns of PBF. We subsequently studied a PBF intervention in Western Uganda implemented by the Belgian Development Agency BTC/Enabel using a combination of RE and systems thinking. We looked at the barriers that impeded the triggering of the mechanisms as they were depicted in the programme theory. We analysed the mechanisms that were triggered and to what extent. From these studies, we discerned some practical recommendations to improve the PBF intervention. Finally, in order to give a perspective on the sustainability of this PBF intervention, we analysed the policy process behind its implementation and the creation of the national PBF framework.

It is now time to bring everything together and conclude. In Chapter 4, we highlight that an RE study should end by adjusting the initial programme theory drawing upon the findings of our study. Here, we first describe the observed CMO configurations (i.e. combine for each of the mechanisms the findings from Chapters 7 and 8). We then combine them in a new causal loop diagram that depicts the updated middle-range programme theory.

# **1. CMO** CONFIGURATIONS

For each of the mechanisms discussed in Chapters 6, 7 and 8, we present the relevant context elements and outcomes as found in our evaluation study. For references to the literature, we refer to the literature review of Chapter 3 and the analyses in Chapters 7 and 8. For each of the CMO configurations, we also create a causal loop diagram to clarify it.

# **1.1 Financial incentivisation mechanism**

When health workers are aware of the individual financial incentives and what is expected of them to obtain them, then their motivation will increase. However, low incentives in comparison with the salary gap that exists between the PNFP and the public facilities, as well as the observed delays in the disbursement of the incentives (as a consequence of postponed verifications), push the individual incentives to the background, hamper the motivational effect and may even lead to friction within the facility.

Good communication within the facility is essential in order to keep the health workers informed about the opportunity to earn extra money and to inform them about the necessary guidelines. A high staff turnover increases the need to communicate well, especially with newcomers at the facility. Effective management and planning is crucial as it helps improve the work environment (infrastructure and equipment), which makes it possible for the health workers to perform better and obtain higher facility scores. A higher facility score leads to more funds, which makes it possible to increase the incentives, motivating health workers even more.



Figure 44: Causal loop diagram of the CMO-configuration for the financial incentivisation mechanism

Source: Author

# 1.2 Non-financial incentivisation mechanism

The financial top-ups at the facility level are also important for the incentivisation of the health workers. Health workers tend to associate themselves with the performance of the facility; hence, the top-ups and scores given to the health facility contribute to the motivation of the health workers. Given that the quality measures are widely accepted as they come from the MoH, the health workers are focused on reaching a good score, getting accredited and obtaining extra funding for the facility by trying to abide by the guidelines. This leads to better teamwork, better quality services as defined by the UCG and higher motivation.

Extra funding for the facility also makes it possible to invest even more in the work environment, which again motivates the health workers. However, not every facility is in a position to achieve the accreditation status, due to a lack of funds to make the investments needed. The latter is caused by a low turn-up of patients. At the basis of this are competition from a nearby facility and a lack of funding from the Ugandan MoH.



# Figure 45: Causal loop diagram of the CMO-configuration of the non-financial incentivisation mechanism

Source: Author

# 1.3 Management mechanism

The accreditation process and the structural quality component of the performancebased incentives awaken the HUMC and make them more active. The business plan and the self-assessment tool guide the HUMC, give them the necessary information about the needs of the facility and help them plan. The quality measures are accepted by the health workers and the HUMC because they are nationally owned (as they were based on the UCG), and the facilities are able to comply or are helped to do so. The prospects of joining the intervention and earning extra funds work as strong facilitators.

Delays in the disbursement of the funds, bad reporting at the beginning of the intervention and top-ups of the intervention that do not cover the costs of some of the patients result in frustration and only small increases in the budget. Moreover, when facilities are close to a facility that provides free healthcare services, the increase in the number of patients can be low, which again limits the budget increment. Bigger investments are not possible; however, the extra funds can still be sufficient to give extra decision space
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to the management and give them actual autonomy to spend. Nonetheless, individual competency of the managers remains an important determinant.

The small increase of funds can be invested in the work environment and the pharmacy in order to comply with the guidelines and keep drugs in stock. At some facilities, more staff need to be hired in order to adhere to the guidelines every moment of the day and the week (24/7), but also to cope with the increased workload. Investments are easier to be made by facilities that receive seconded staff from the government and those that see a significant increase of the patient numbers, and thus the facility budget. This may exacerbate existing inequities.

During the accreditation process, facilities that only slightly underperform receive extra funds, which consequently functions as an equaliser between facilities. However, facilities that are too far below the threshold are left out of the intervention, which in turn strengthened the inequity as it are those that are already understaffed (did not receive government-seconded staff) and underequipped (due to a lack of funds as a result of a lack of patients) that fail to get accredited and thus see only a limited effect of the management mechanism.

Despite the more active role of the HUMC and the increased decision space, not many new strategies are implemented when the need is not felt. The lowered user fees already contributed to a significant increase in the number of patients. Low perceived or actual marginal benefit of new patients can also explain this lack of strategies, because the only department which saw some strategies to attract patients was the maternity department because of the higher top-ups from the intervention.



Figure 46: Causal loop diagram of the CMO-configuration of the management

## 1.4 Knowledge and saliency mechanism

When the verifiers give adequate feedback (which depends upon the quality of the verifier) and the guidelines are correctly disseminated within the facility (also to new staff members that may be many due to a high turnover), the health workers are awakened about the quality standards and guidelines that they should follow. The PBF measures clarify the roles and responsibilities of the health workers, which increases their capacity and motivation. Linking these PBF measures to funds helps to give extra weight to them and motivate health workers to actually pay attention to them. The presence of the necessary equipment also improves the adherence to the guidelines.

For improving the knowledge and performance of the health workers, pure formative supervision remains the better option, but when supervision is unstructured and of low quality, then the introduction of the verification visits dominated by a focus on the checklist may still be perceived as an improvement. If the guidelines put a lot of emphasis on correct documentation, the verification visits will do as well. However, good record keeping is important but may only have a limited effect on the quality of care.





## 1.5 Financial accessibility mechanism

According to the health workers, this mechanism probably has the most substantial effect on the facilities. The lowering of the user fees leads to a substantial increase in the number of patients. Community outreaches help inform the public about the lowered prices. However, in facilities close to a facility providing free healthcare, the increase of patients can be very modest or non-existing.

However, lowered prices are often restricted to patients that have non-complicated conditions that do not use too many resources (i.e. drugs and lab tests). Patients for whom the costs of the full treatment (i.e. consultation, lab tests and drugs) exceed the user fees and the top-ups received from the intervention may be charged more. The perception that the top-ups of the intervention were insufficient and that the budget of the facility might come into jeopardy is at the basis of this 'rent-seeking behaviour' (see Chapter 2).





## 1.6 Patients' feedback mechanism

When the intervention gives no specific role to the patient satisfaction surveys and its results or its implementation is not linked to financial incentives, it is likely that it will not be implemented. This is related to the issue of 'task trade-off' discussed in Chapter 2, which entails that PBF emphasises the tasks that are incentivised to the detriment of non-incentivised tasks.

## 1.7 Workload mechanism

The triggering of this mechanism is very much dependent upon the facility, most importantly the number of patients that are attending the facility, which as we saw is *inter alia* determined by the vicinity of a facility delivering services at a lower cost, in addition to the number of staffs that are employed, which is influenced by the presence of governmentseconded staff at the facility. Differences exist between departments as well; for example, the maternity ward is often more busy and has less staff than other departments. Not only the number of patients but also the intensified record keeping influences the workload. A high workload in combination with financial incentives that are considered too low may trigger dissatisfaction and demotivation amongst health workers.



Figure 49: Causal loop diagram of a CMO-configuration of the workload mechanism

### **2.** THE PROGRAMME THEORY

Having discussed the different updated CMO configurations, it is now time to bring them together in one programme theory (see Figure 50). In order to make it more comprehensible, we left out some variables that were irrelevant to the explanation of the intervention and regrouped others that were sufficiently related and were caused by and contributed to the same variables. For example, 'patient behaviour' has been changed to 'number of patients at the facility'. 'Delays' and 'lack of communication' are bundled in the variable 'implementation flaws'. 'Health worker performance' and 'health facility performance' have been combined in one variable.

Importantly, this is only a model and thus a simplification of reality. More detailed information can be found in the CMO configurations which are nonetheless also simplifications. Despite being a simplification, the causal loop diagram of the programme theory still looks very complicated. We will therefore guide the reader through the maze of the causal loop diagram. In Box 1 in Chapter 4, we explain how to read a causal loop diagram.

In line with the intervention, we take off with the accreditation. At each of the facilities, there was a gap between reality and the standards required for accreditation (which were based on the UCG). This necessitated certain investments. Such investments are only possible when there is appropriate planning and management, which can be boosted by a responsive HUMC. This responsiveness was created through the link between the accreditation and the reception of extra funds through the intervention. The pre-existing autonomy of the PNFP facilities also contributed to this responsiveness. The investments lowered the gap between reality and the accreditation or no accreditation. As discussed in Chapter 6, in the case of a conditional accreditation, the facility received an extra investment to close the gap. However, when the facility fails to get accredited, it is left behind with no further investments. Such a failure may be due to a lack of funds needed to make the necessary changes. A lack of funds is partly caused by a low number of patients attending the facility, possibly because there is a trade-off between nearby public facilities that deliver services for free and partly by the low financing it receives from the MoH.

The upper-right hand of the diagram shows that the accreditation leads to an increased health facility budget. Indeed, accreditation means that the facilities get a one-time investment and most importantly are allowed into the PBF intervention, which enables them to receive quarterly top-ups from the intervention. These top-ups depend upon the

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performance of the health facility, including the quality of the work environment, the services and the number of patients. Firstly, the facility receives funds based on its quality. The structural quality score is influenced by the work environment, and the quality component of the case-based payments is determined by the health workers' adherence to the UCG. Again, the gap between reality and the quality measures concerning the work environment and the required staff level encourages further investments. The HUMC is being awakened by the self-assessment tool, the obliged business plan and the funds linked to achieving a good quality score. The pre-existing autonomy and increased funds coming from the intervention give them the possibility of investing where they feel is necessary. Such investments improve the work environment and subsequently the funds received from the intervention creating a reinforcing feedback loop. Increasing the number of staffs is more difficult given the bigger investment; however, facilities with many staffs supported by the government find it easier to comply with the human resources standard. This has important benefits for the facility. A sufficient number of staffs lower the workload, which has a positive influence on the motivation of the health workers. Subsequently, these health workers will be more motivated and have more time to perform according to the UCG.

The adherence to the guidelines is another important contributor to the performance of the facility and the funds it receives. The adherence is determined not only by the motivation of the health workers but also by their knowledge of the guidelines. Communication from the management, feedback during verification visits and the linking of incentives (at the facility and individual level) to the measures of the guidelines are important contributors to health workers' knowledge of the guidelines. In contrast, a high staff turnover may have a negative influence. The verification of the services can have a positive effect on health workers' knowledge if appropriate feedback is given to the health workers, which depends on the capacity of the supervisor. However, this verification exercise may also have a negative effect on the formative supervision which is important for the overall quality of the health services. Hence, whether an overall improvement of the supervision occurs depends on the initial quality of the supervision. If initially there is no real formative supervision, then the verification may improve the supervision by giving focus and guidance. However, quality formative supervision may be hampered by the narrow focus of the verifications.

We now jump back to motivation as this is an important determinant of health worker performance and adherence to the UCG. The incentives that are received at the individual level serve as a motivator for the health workers. However, the strength of the motivational effect depends upon the health workers' knowledge and perception of the incentives. Higher

incentives that are perceived to be fair will generate the highest impact on motivation. Moreover, implementation flaws like delays and bad communication can influence motivation negatively.

Not only are the funds obtained determined by the quality of the facility and the delivered services, but also the number of patients influences the level of funds. The number of patients is strongly influenced by the financial accessibility of the facility and the proximity of surrounding facilities with lower user fees, which can have a negative impact on the attendances. In turn, this influences the income from the facility. The performance level of the facility is another important influencing factor of the number of patients, yet without sufficient funds, it is difficult to improve the performance significantly. This therefore constitutes a reinforcing feedback loop (a vicious circle), which may eventually lead to the closing down of the facility if no external funds are introduced to keep it functioning. A (perceived) lack of funds may also lead to the observed overcharging of the patients, which may lower the financial accessibility of the facility.

Importantly, the increased number of patients also sets into action a balancing loop. It affects the workload which is also increased by the intensified record keeping. A higher workload puts pressure on the health workers' motivation when it is not responded to by an increase of human resources. Subsequently, lower motivation affects the performance of the health workers and the facility, which might push patients away from attending the facility. Moreover, increased workload also puts stress on the work environment and may cause overcrowding, a lack of medicine or unavailable equipment, which lowers the adherence to the UCG and the quality of the facility.

In relation to the number of patients, it is important to recognise that patients might move between the public/private and PNFP facilities. Therefore, an increase in the number of patients at the PNFP facilities does not necessarily mean an increase in the number of patients receiving healthcare services by medically trained health workers. It is thus important to not only increase the number of patients at the PNFP facilities but also reduce the number of patients that do not receive healthcare services by qualified health workers at all<sup>90</sup>. To do this, new strategies will have to be put in place by the facilities to reach new patients. New strategies need committed and innovative managers or health workers.

<sup>&</sup>lt;sup>90</sup> Assuming that although traditional medicine certainly has an important role to play, healthcare services provided by medically trained health workers is essential for good healthcare outcomes.

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However, given that the lowering of the user fees already increased the number of patients significantly, the need for new strategies was not so much felt.

From this discussion, it became clear that the different earlier described mechanisms are entangled and strengthen or sometimes weaken each other. For example, the 'knowledge and saliency' mechanism is closely tied to the management mechanism. The combination of the different mechanisms also creates specific loops, and we have seen several reinforcing loops that indicate the existence of the systems archetype 'success to the successful' discussed in Chapter 6. One of the other archetypes highlighted in Chapter 6 that were put forward as specific hypotheses was the 'growth and underinvestment' archetype. In the facilities that had experienced the largest increase of patients, we indeed observed that this led to so much stress on the infrastructure that patients had to lie on the floor. The third hypothesised archetype, the 'supervision conundrum', had to be revised as we saw in Section 1.4 of this chapter.





The overall objective of this PhD thesis was to open the black box of performancebased financing (PBF). We wanted to learn what mechanisms and effects are being triggered when a PBF intervention is implemented and contribute to the creation of a theory of PBF. In the Introduction, we pinpointed that this does not (only) stem from an academic curiosity to understand the world around us, but it might very well be essential to further the debate on PBF in the health sector of LMIC, and perhaps even beyond. It is only by gaining an in-depth understanding that we can improve the approach where needed and advise policymakers on whether and where to use it and how to integrate it with other health interventions and elements of the healthcare system.

We also made a plea for the use of realist evaluation (RE) as a way to study why PBF works (or not) for some measures, for some providers, in some contexts and stated that studying the observed mixed results of PBF (Basinga et al., 2011; Binagwaho et al., 2014; Mabuchi et al., 2018; Soeters et al., 2011) can help understand its programme theory. In the Introduction, we also highlighted the ongoing debate between opponents and proponents that would benefit from a better understanding of PBF mechanisms and an even more scientifically grounded argumentation.

As we claim that the lack of a clear and correct construct of PBF is at the basis of both the lack of knowledge and several of the disputes, we started this thesis with an elaborate discussion of the PBF concept. We made our objections against the 'narrow' definition that conceives PBF as a set of financial incentives that are paid after the performance has been verified and opted for a 'wider' approach which resonates better with how PBF is actually implemented:

"PBF is a supply-side reform package that is guided towards improved performance (defined as increased predefined services and improved quality measures) using performance-based financial incentives for health providers (facilities and/or workers) through internal contracting and strengthening this with most or all of the following elements: a separation of functions (purchaser, provider, regulator and verifier), (spending) autonomy for the health facilities, strict monitoring and verification of services, community involvement, result-based planning and accountability arrangements."

This wider definition opened up three important research pathways that have been explored in the thesis: describing PBF (see Chapter 6), understanding PBF (see Chapters 7, 8 and 10) and framing PBF (see Chapter 9). However, we first performed a comprehensive analysis of the literature to discover what elements of the PBF theory were already known (see Chapter 3). In order to structure the literature review findings, we created an actor-

centred analytical framework (Chapter 2). While the last years have seen a significant increase of research focusing on the mechanisms underlying PBF (among others De Allegri et al., 2018; Lohmann et al., 2018; Mabuchi et al., 2018; Paul et al., 2017), the theory of PBF is still insufficiently known. We therefore set out in this study to shed light on this issue.

We performed a study using RE and a systems thinking tool called causal loop diagramming (CLD) (see Chapter 4). RE is an approach towards evaluation that looks not only at 'what works', but also at 'what works for whom, in what circumstances and why'. It is based on the realist epistemology instead of the more common positivist (see Chapter 4). This means, *inter alia*, that within the realist approach we aim to study the underlying mechanisms that generate the observed outcomes. For example, it is not about studying gravity. We combined this realist approach with CLD which is a tool from the systems thinking approach. It visualises the causal linkages between the different elements of the intervention and the context and facilitates the analysis of feedback loops within the system. These feedback loops cause outcomes that might be unexpected because of their systemic nature (the behaviour is more than the sum of the parts of the system). We used these causal loop diagrams to visualise the initial programme theory (Chapter 6), the mechanisms that were detected during the RE study (Chapters 7 and 8) and the final programme theory (Chapter 10).

We applied this novel approach to a before-and-after (after one year in the intervention) case study of the implementation of a PBF intervention by the Belgian Development Agency BTC/Enabel in Uganda. The intervention was implemented in Western and Northern Uganda, but we focused on two districts in Western Uganda: Kasese and Kyenjojo. We collected data through 175 quantitative surveys (during the baseline study: 81, during the end line study: 94), 59 semi-structured (baseline: 30, end line: 29) and 11 unstructured (all at end line) interviews with health workers, 16 KI interviews with high-level officials within the MoH, the BTC/Enabel, the Catholic and Protestant medical bureaus, and key stakeholders from the district level, and observations at 16 health facilities during both the baseline and the end line study (see Chapter 5).

Based on the BTC/Enabel programme manual, the literature reviewed in Chapter 3 and the KI interviews, we discern in Chapter 6 a programme theory that consists of seven relevant mechanisms which are further analysed during the study in Chapters 7 and 8: the financial incentivisation mechanism, non-financial incentivisation mechanism, knowledge and saliency mechanism, financial accessibility mechanism, management mechanism, patients' feedback mechanism and the workload mechanism.

In this last chapter, we draw conclusions from this research at different levels. We first draw conclusions from the evaluation study of the intervention, which may help policymakers and implementers assess the intervention and improve it. We then move to the more abstract level and draw conclusions for the research on the theory of PBF. Finally, we draw lessons in relation to the methodological strategy used. We shortly reflect on the research and its limitations, before we end the thesis with some advice for future research.

#### **TAKE-HOME MESSAGES FROM THE INTERVENTION**

In the preceding chapters, we shed light into the black box of the BTC/Enabel PBF intervention in the districts of Kasese and Kyenjojo of Western Uganda. It is now time to give a final assessment of what we saw when we opened the box. In Intermezzo 2, we already gave some important lessons that were learned from the intervention. Here, we will try to give a more general assessment of the intervention.

Let us first look at some of the strengths of the intervention. The three strongest observed mechanisms were the management mechanism, the knowledge and saliency mechanism and the financial accessibility mechanism.

The management mechanism helped to significantly improve the work environment in almost all the facilities. The HUMC was awakened by the intervention and they became more active. The accreditation process, the self-assessment tool, the business plan and the structural quality measures gave guidance to the investments performed with the extra funds received from the intervention. The funds linked to accreditation and the structural quality measures were a strong motivator for the HUMC to get involved. Even those facilities that eventually did not achieve accreditation tried to make some important improvements. The PBF intervention started with an accreditation phase in order to determine which facilities would receive the financial incentives on the basis of performance. Facilities received a checklist containing the minimal standards based on the UCG in order to be accepted into the intervention. This checklist concerned the human resources, infrastructure and equipment at the facility. This guided the investments of the facility towards the quality standards. Facilities that managed to get accredited received a one-time investment and were admitted to the next phase of the intervention in which they receive quarterly top-ups. Facilities that almost reached the necessary score benefitted from some additional investments in order to get accredited during the second round of verifications.

The 'knowledge and saliency' mechanism is another strong mechanism that strengthened the health workers' awareness about the UCG. Again, by attaching incentives to the UCG, these guidelines received much more weight, value and importance in the eyes of the health workers and the management team. Interestingly, the incentives played a facilitating role in the triggering of both the 'management' and the 'knowledge and saliency' mechanisms. This role can be called the 'oil effect' of incentives.

A third important mechanism is the financial accessibility mechanism. In those facilities accredited by the intervention, patients paid a fixed user fee for their visit and in return received the needed treatment, laboratory tests and medication. If the given

healthcare services were according to the UCG, then the intervention would top up the user fees in order to match the costs of the facility. As the user fees are a strong barrier to many of the patients, lowering them and setting a fixed price for each visit to the facility led, according to the health workers, to a significant increase of the number of patients, at least in those facilities that did not experience competition from a nearby government facility providing free healthcare services.

There were however some weaknesses related to the intervention. Firstly, the many delays in the disbursement of funds and the verification visits caused frustration amongst the health workers and the HUMC. Whereas delays sometimes even caused budgetary problems, in particular, the lack of information about these delays worsened the situation. This lack of information was general and, as mentioned in Intermezzo 2, due to the absence of a clear communication strategy. It led to frustrations and demotivation amongst the health workers and hampered health workers' knowledge and comprehension of the intervention, which are key.

Secondly, the quality guidelines and measures have a strong bias towards correct documentation and record keeping. Hence, health workers often equated quality of care with good documentation. Despite being important, the effect of improved record keeping on healthcare outcomes is uncertain and probably limited. Hence, the improved performance on the quality measures may not lead to the expected improvement of healthcare outcomes.

A third weakness is that the BTC/Enabel did not manage to push through its initial idea to rationalise the coverage plan that sets out where which level of health facility is needed. Public and PNFP facilities enter in competition with each other because of their proximity and the difference in their user fees. In some districts (e.g. Kasese), the District Health Office pays health workers at PNFP facilities which hardly receive any patients because of the competition from the public facilities. These health workers are thus underutilised, yet paid. In addition, some facilities are an HC III only on paper; in practice, they are too small to perform the expected qualitative services. The underfunded facilities (partly due to the fact that they received few patients in the first place) had difficulties in achieving the required quality standards to get accredited. The many reinforcing feedback loops in the project (which makes the successful become more successful) exacerbate the consequences of this deficient coverage plan.

The project thus has some strengths and some weaknesses, but what should be the future of PBF and the current PBF design in Uganda? The answer to this question is of course very closely related to the objectives of the intervention. If the idea of the PBF intervention

is to improve the healthcare outcomes of the Ugandan healthcare sector, then a thorough cost-benefit analysis is warranted. Did the quality improvements spark genuine improvements in healthcare outcomes? The focus on documentation and record keeping may have little effect on the actual quality. Were the new patients coming to the PNFP facilities shifting from the public facilities or were they genuine new patients attending modern healthcare for the first time? These are important questions because they determine the cost-effectiveness of the intervention.

Improving healthcare outcomes is one possible objective of an intervention. However, according to the design and policy documents of the MoH (see Chapter 9), this PBF is seen as a step towards a national health insurance scheme<sup>91</sup>. In this sense, it is not necessarily relevant to discuss its usefulness in the light of improved health outcomes, but rather it should be evaluated by looking at the effective implementation of the necessary system functions. Thus, the effect of the programme can only be assessed after some more time when the dust of the first learning cycle has settled down. Based on what we know now, it might be useful to simplify the current design when it is being decided to scale it up to the rest of the country. The many delays and communication flaws show that even when implemented by a donor that mainly focuses on the project, the implementation is troubling. Moreover, the large budget invested by the donor might be too high for the Ugandan MoH to carry, which may impede the actual scale-up of the intervention. Finally, while the PBF design aims to treat public and PNFP facilities in the same way, this is not possible because of the specific setup of the health system (e.g. free services in public facilities, salaries paid by the government in all of the public facilities and some of the PNFP facilities but not in other PNFP facilities, large disparities in infrastructure between HCs III and absence of an effective coverage plan); it is therefore advisable to look in an even more systemic way at the organisation of the healthcare system (i.e. more clearly clarifying the relationship between the government and the PNFP facilities and taking into account the consequences of it) before going for a full scale-up.

<sup>&</sup>lt;sup>91</sup> This step from PBF towards a national health insurance scheme has also been put forward by Josephson (2017). In short, the idea is that PBF interventions often require and fulfil similar functions as those that are necessary for national health insurance schemes (e.g. quality verifications, record keeping, purchasing). Instead of trying to implement all of the functions of a national health insurance scheme at once and increase coverage over time, this strategy first aims to implement the necessary functions gradually. In such a strategy, PBF is seen as an initial step towards the more advanced functions fulfilled by a national health insurance scheme.

This last recommendation is closely related to our analysis of the sustainability of this pilot intervention in Chapter 9. There as well we emphasised the need to improve the capacity of the local stakeholders in order to ensure the effective taking up of the lessons learned. Continuous monitoring and evaluation of this and other interventions<sup>92</sup> will thus be crucial in order to ensure that the most effective and efficient PBF scheme gets scaled up. This will need to be done with explicit attention for the systemic effects and barriers; solutions need to be tailor-made and to be flexible enough to cope with the very different contexts of Ugandan districts<sup>93</sup>. In this light, it is positive that the design of the intervention is aimed at including as much as possible the local stakeholders in order to improve their knowledge. We can thus expect that the capacity of the local stakeholders will improve. Nonetheless, as mentioned, the financial investments of the donor are at a level that is almost impossible for the Ministry of Health to sustain without external support. We therefore do not expect that the pilot project as implemented will be transformed into a nationally scaled-up intervention with domestic resources anytime soon, unless the government decides to radically increase its funding of the healthcare sector.

<sup>&</sup>lt;sup>92</sup> The World Bank is also implementing a similar PBF intervention in other districts of the country.<sup>93</sup> For example, Cordaid staff informed me that their PBF intervention in Jinja did not experience the same problems at all. The PNFP facilities in Jina district received more patients than the public facilities despite the user fees because of the higher quality at the PNFP facilities. One explanation might be that since Jinja is more urban, the willingness to pay for healthcare services is much higher in Jinja than in the more rural districts of Kasese and Kyenjojo.

#### TAKE-HOME MESSAGES FOR THE THEORY OF PBF

The most important contribution of this research to the theory of PBF is the insight and illustration of the fact that the institutional context has a strong impact on the effectiveness of a PBF intervention. As stated, the lack of a rational coverage plan was a barrier for several of the health facilities. It also shows that the use of a systems thinking approach when evaluating and designing a PBF scheme is crucial. Not every time and place is the right environment for the introduction of a PBF scheme. Barriers other than those that can be solved by PBF may be the reason of the low performance, and these problems should be addressed first. If not done appropriately, a PBF intervention may exacerbate the existing difficulties as in our case, where it aggravated existing inequalities between facilities. This 'exacerbation' effect, in which the good facilities get better and the bad facilities get worse, is exemplified by the many reinforcing loops that can be found in the causal loop diagram of the intervention (see Chapter 10).

Another important contribution of our study is the confirmation of the role played by the 'knowledge and saliency' mechanism. As other research has found (e.g. Bhatnagar & George, 2016; Lohmann et al., 2018), PBF awakens the health workers and the health management team and brings their focus back on the clinical guidelines that they are trained to implement. A preliminary conclusion states that the linking of the financial incentives to the guidelines gives extra weight and authority to them and gives the necessary push for health workers to follow them. More research is, however, needed to confirm this role of the financial incentives.

The latter is important as we found evidence that the individual financial incentives are not necessarily the main contributors to the improvements (see also Lohmann et al., 2018). The incentives were not considered the most important aspect of the intervention; moreover, they were often perceived as being low and not every health worker was aware of their existence or of what they needed to do to receive them. This puts into question whether the individual financial incentives are actually necessary and whether it is not more useful to only keep the incentives at the level of the facility, especially in smaller facilities. The individual incentives can then be replaced by an over-the-board increase of the salary depending on the performance of the facility. This does not mean that the linking of the funds to the performance is not important, as we did find that health workers and members of the HUMC were more eager to fulfil the requirements because of the linking to funds.

Indeed, the HUMC (and especially the in-charge) is another crucial actor in achieving good performance at the facility level (see also Mabuchi et al., 2018). They decide upon the

investments, structure the facility and communicate the intervention to the health workers. Management tools like the self-assessment tool and the business plan are appreciated by the health workers and help them in planning (see also Manongi et al., 2014; Peerenboom et al., 2014).

Another take-home message is the importance of the demand side (see also Falisse et al., 2015; Lannes et al., 2016; Matsuoka et al., 2014; Rudasingwa & Uwizeye, 2017; Skiles et al., 2013). According to the health workers, the lowering of the user fees (the financial accessibility mechanism) played a significant role in the increased attendance at some of the facilities. High user fees are known to be an important barrier in rural areas and might be the main cause of low attendance. The combination of a PBF intervention that improves the quality of the health facility and an intervention that lowers the demand side barriers may thus work synergistically.

Finally, many PBF schemes start with some kind of selection process to select those facilities that are capable to provide standard quality and safe services. The rationale is simple, when you pay for certain services you need to be sure that the facility is at least capable of performing them safely and adequately. For example, it is imprudent to give incentives for deliveries to a facility that has no midwife. This selection process, even if no extra investments are given, may already lead to improvements in the infrastructure and equipment of the facility (Lohmann et al., 2018).

#### TAKE-HOME MESSAGES FROM THE METHODOLOGICAL STRATEGY

The used methodological strategy that combined RE with systems thinking proved its worth in helping to clarify the observed causal linkages and to analyse some of the observed effects. However, some difficulties remain. In Chapter 4, we already highlighted the impossibility of indicating sufficient or necessary conditions in the causal loop diagram. For example, health worker knowledge of the intervention is essential. If the health workers do not know that they can receive extra money, they cannot be financially incentivised. However, indicating this necessary condition is impossible in a causal loop diagram. We therefore already proposed in Chapter 4 the introduction of QCA into the methodological strategy, an addition that can hopefully be explored in the coming years.

Integrating QCA into the methodology might also help overcome another issue. The causal loop diagram is silent about the level or the value of the conditions included in the causal loop diagram. Is the level of the incentives high or low? Was the management before the intervention functional or deficient? This makes it difficult to predict what will happen after the introduction of an intervention, because although a causal loop diagram is able to show balancing loops, it does not indicate when the balance will be achieved. Adding information containing the level of each of the conditions (very high, high, low, etc.) to the causal loop diagram will make it possible to create a model and perform a simulation exercise when combined with the results of a QCA<sup>94</sup>.

Another limitation is that for some straightforward mechanisms, creating a causal loop diagram seemed to complexify rather than clarify the issue. Indeed, our choice for the complexity sensitive methodology of RE and CLD, should in no way be a rejection of more positivist methodologies like RCT. An analogy can be made with what happened about 100 years ago in the domain of physics at the end of the 19<sup>th</sup> century and the beginning of the 20th century<sup>95</sup> (see also Rosenberg, 2011). Renowned physicists like Einstein, Planck, Bohr, Schrödinger, Born, Pauli, and others worked on challenges and made discoveries that could not be explained by the classical physics, the reason being that they were working at the (sub)atomic level. They concluded that the laws at this microscopic level were different from those at the macroscopic level, which necessitated a new paradigm (i.e. quantum physics).

<sup>&</sup>lt;sup>94</sup> This is not the time and place to elaborate extensively on this. A more thorough explanation will be presented in a discussion paper.

<sup>&</sup>lt;sup>95</sup> Information on quantum physics is mostly from wikipedia (Wikipedia contributors, 2018).

Importantly, the correspondence principle of Niels Bohr states that, in the limit of large quantum numbers, their behaviour equals that of the behaviour determined by classical physics at the macroscopic level.

How does this tie in with research in social sciences? The macro- and microscopic levels correspond to the level of complexity and uncertainty of an intervention or issue to be researched. There exists a continuum between very complex and poorly predictable causal relations and complex yet relatively straightforward ones. The outcomes of a multi-component PBF intervention as described here is much more difficult to predict than an intervention with only one component (e.g. only financial incentives). Quantum physics can subsequently be compared to RE or other complexity-sensitive methodologies, whereas classical physics is at the level of the more positivist methodologies. It is thus important before every research to determine the expected level of complexity and uncertainty. First assuming a low level of complexity (and using e.g. an RCT) before deciding to use more complex sensitive methods can be a useful strategy to follow. Either way, the observed 'mixed results' of PBF (see Basinga et al., 2011; Binagwaho et al., 2014; Mabuchi et al., 2018; Soeters et al., 2011) clearly legitimise the use of complexity-sensitive methodologies.

#### **REFLECTIONS ON AND LIMITATIONS OF THE RESEARCH**

Looking back on the past few years that I spent on conducting this research, there are many things that I would have done differently. However, decisions in hindsight are easy and are not relevant. At the time of writing the first protocol, we aimed to study the effect of PBF on the intrinsic and extrinsic motivation of health workers, and this seemed to be a very feasible and well-thought-through design. The protocol we devised was a multi-method approach that would triangulate own observations with observations from the patients and self-declared views on the health workers' motivation. We were, however, not prepared for the low number of patients at the facilities, due to the competition from government facilities that deliver free services. Because of this lack of patients, the number of observations was not high enough. According to the research of Leonard and Masatu (2010), at least 15 observations are needed to overcome the Hawthorne effect. Yet, we were not able to perform more than 15 observations in any of the facilities during the baseline study. In addition, because of this lack of patients, we were not able to collect sufficient patient surveys in order to reach a satisfactory sample size.

A second problem was the delay caused by the ethical review at Makerere University School of Public Health. After having received ethical approval from two ethical review boards at the University of Antwerp and the Institute of Tropical Medicine, we assumed that the review at the Makerere University would confirm these approvals or only ask for some minor adjustments that could be handled on the spot. However, this was not the case and the delay meant that less time was left for visiting facilities, which made us decide to focus on two districts. In combination with the lower-than-expected number of health workers at the facilities, we were again stuck with a very small sample size for our health worker surveys.

A third concern that hampered our initial research was the delay in the implementation of the intervention, which started one year later than planned. This meant that, during the end line study, the health workers had been very little exposed to the new intervention. Moreover, due to implementation flaws they were also not fully aware of its different aspects. This meant that, theoretically, an effect on the intrinsic motivation was very doubtful given that reasons of motivation tend to change only over time. For all of these reasons, we decided to abandon the objective of studying the effect of PBF on motivation.

As already mentioned in Chapter 5, this PhD study was a learning process and during this process I increasingly learned about new methodologies and methods like RE, systems

thinking and CLD. It was thus only towards the end of the study that these research approaches were included (although theory-based evaluation was already present from the beginning). The research design presented in this thesis was thus created during the research process. However, the programme theory which functions as the hypothesis in an RE study, was constructed on the basis of the programme manual and discussions with the stakeholders. Hence, it was not influenced by us as researchers. Moreover, an RE study is always an iterative cycle in which researchers need to go back and forth to the theory, the hypothesis, the data and the analysis (Marchal et al., 2010; Pawson, 2013). Our late turn towards RE is thus not necessarily problematic.

One possible problem was the data collection which was done on the basis of the initial protocol. However, the way we collected our data was in coherence with the new research approach. This is because the way I was thinking about the study and the intervention was already in line with RE and systems thinking. I mainly lacked the correct concepts and systematic approach, which were later introduced to me by these approaches. The data was thus collected with a clear focus on the system and the mechanisms and the ways the programme components influenced the health workers and their environment. In particular, qualitative data were important data sources. Hence, the collected data was also useable for this new research approach.

However, there still remain some limitations within our research approach (see also Chapter 5). Our systems thinking approach guided us to look at the bigger picture. We were therefore unable to study the mechanisms in depth. This was also a consequence of the fact that we did not adapt our data collection specifically to the different mechanisms. However, the advantage of keeping it quite broad is that we were better able to see the interlinkages between the different mechanisms. Either way, we will always have to make a decision on the level of abstraction and every decision will have its advantages and disadvantages.

Another limitation is our focus on the health workers as a main source of information. Our analysis might have looked quite different if we would have incorporated views from the patients, the community and their leaders, the District Health Management Team, the BTC/Enabel, and so forth, although we did include some of them in the key informant interviews but not to the same extent as the health workers. However, we feel that the health workers occupy a privileged and pivotal role in the healthcare system and thus have specifically relevant and interesting information which legitimises our focus.

A final limitation is the short implementation of the intervention. As mentioned earlier, the intervention was implemented one year later than planned, and our end line study was performed after only one year of implementation instead of the planned two

years of implementation. As a result, bias may have gone into two directions. On the one hand, because the intervention was still in its infancy, many of the problems may have been due to the inexperience of the relevant actors, yet they may be resolved in the coming years. On the other hand, health workers might be overly excited, positive and hopeful because of the new intervention and may not yet be aware of the negative sides of the intervention.

#### **FUTURE RESEARCH**

We finish this PhD thesis by giving some advice on future research. The research pathways described in Chapter 1 remain of course pivotal. The first research pathway concerned describing the PBF scheme. The BTC/Enabel PBF intervention presented in this study is quite different from other PBF schemes in other countries<sup>96</sup>. It will be important to better map out the differences and similarities<sup>97</sup> in order to be able to compare PBF interventions.

Such comparative analysis will help us gain insights into the second research pathway concerning the understanding of PBF. In the Introduction and Chapter 1 we highlighted the importance of developing a theory of PBF that explains what mechanisms are being triggered in which circumstances and by which programme components. Future research will need to persistently move beyond the impact evaluations that fail to look in the black box. It needs to do this with appropriate methodologies adapted to the level of complexity at hand, as discussed earlier in this chapter. This can be RE, systems thinking, and also in some cases RCTs. Research should also take more advantage of the mixed results of PBF and find out why in some instances PBF why it produced certain outcomes in some cases and other outcomes in other cases(see for example De Allegri et al., 2018; Mabuchi et al., 2018). This may help us to obtain important information about the necessary and sufficient conditions for PBF to work.

In the case of the BTC/Enabel PBF intervention in Uganda, research should try to go more into depth in each of the mechanisms. Moreover, further clarifying the role of the financial incentives is primordial as it is the PBF component receiving the most critique. In addition, more systematically analysing to what extent the institutional setup is indeed an important barrier and how this exactly works will give relevant information for the Ugandan policy makers. Another important issue is the efficiency of the intervention: are the new patients at the PNFP facilities transferring from the government facility or from the nonmodern healthcare? Does an improvement in the quality measures also lead to an improvement of the quality of care? Is the verification done efficiently? What is the effect on

<sup>&</sup>lt;sup>96</sup> As has been observed in Benin, the BTC/Enabel PBF interventions tend to be somewhat different than those introduced by the World Bank (Paul et al., 2017).

<sup>&</sup>lt;sup>97</sup> See the works of Gergen et al. (2017); Josephson et al. (2017) on the mapping of the quality indicators used in the different PBF schemes.

the healthcare outcomes at the level of the district? Can the same effects be achieved by reducing the complexity of the intervention?

The third discussed research pathway is about the framing of PBF and was only discussed indirectly in this thesis (Chapter 9). Future research should continue looking at the political economy behind the implementation of PBF. Is it an end to a means or a means to an end (see Bemelmans-Videc et al., 2005)? What are the different objectives of the different PBF schemes? Do different ideologies lead to differently conceived PBF schemes?

If research succeeds in advancing on these three research pathways, we will be able to better understand how PBF works, better adapt it to the local context, better integrate it into the healthcare system and create synergies with other interventions, know when and when not to implement it, know where and where not to implement it, accompany it with other appropriate interventions and decide which components are necessary and which are sufficient. To do so, we will need cutting-edge research methods and methodologies. The methodological strategy proposed in this thesis showed some advantages but also some limitations. We proposed earlier in this chapter and thesis to introduce QCA into the strategy. Future research might want to further elaborate on this methodological strategy and study whether it is indeed fruitful. If so, I am convinced that using this methodological strategy, which we call the ReSQ methodology<sup>98</sup> in Chapter 4, will strongly improve our knowledge of the theory of PBF.

<sup>&</sup>lt;sup>98</sup> ReSQ stands for Realist evaluation/synthesis, systems thinking/dynamics and Qualitative comparative analysis.

# REFERENCES

- Ackers, L., Ioannou, E., & Ackers-Johnson, J. (2016). The impact of delays on maternal and neonatal outcomes in Ugandan public health facilities: the role of absenteeism. *Health Policy and Planning*, *31*(9), 1152-1161.
- Adam, T., & de Savigny, D. (2012). Systems thinking for strengthening health systems in LMICs: need for a paradigm shift. *Health Policy and Planning, 27*(suppl\_4), iv1-iv3. doi: 10.1093/heapol/czs084
- Adam, T., Hsu, J., de Savigny, D., Lavis, J. N., Rottingen, J.-A., & Bennett, S. (2012). Evaluating health systems strengthening interventions in low-income and middle-income countries: are we asking the right questions? *Health Policy* and Planning, 27 (Suppl 4), iv9-iv19. doi: 10.1093/heapol/czs086
- Adams, A., Sedalia, S., McNab, S., & Sarker, M. (2016). Lessons learned in using realist evaluation to assess maternal and newborn health programming in rural Bangladesh. *Health Policy and Planning*, 31(2), 267-275. doi: 10.1093/heapol/czv053
- African Union. (2001). Abuja Declaration on HIV/AIDS, Tuberculosis and other related infectious diseases. Abuja, Nigeria: African Union Retrieved from <a href="http://www.un.org/ga/aids/pdf/abuja\_declaration.pdf">http://www.un.org/ga/aids/pdf/abuja\_declaration.pdf</a>.
- Alchian, A. A., & Demsetz, H. (1972). Production, Information Costs, and Economic Organization. *American Economic Review*, 62(5), 777-795.
- Alonge, O., Gupta, S., Engineer, C., Salehi, A. S., & Peters, D. H. (2015). Assessing the pro-poor effect of different contracting schemes for health services on health facilities in rural Afghanistan. *Health Policy and Planning*, 30(10), 1229-1242. doi: 10.1093/heapol/czu127
- Anselmi, L., Binyaruka, P., & Borghi, J. (2017). Understanding causal pathways within health systems policy evaluation through mediation analysis: an application to payment for performance (P4P) in Tanzania. *Implementation Science*, 12(1), 10. doi: 10.1186/s13012-016-0540-1
- Anselmi, L., Lagarde, M., & Hanson, K. (2015). Health service availability and health seeking behaviour in resource poor settings: evidence from Mozambique. *Health Economics Review, 5*, 26. doi: 10.1186/s13561-015-0062-6
- Antony, M., Bertone, M. P., & Barthes, O. (2017). Exploring implementation practices in results-based financing: the case of the verification in Benin. BMC Health Services Research, 17, 204. doi: 10.1186/s12913-017-2148-9
- Antos, J. (2015). A Market Approach to Better Care at Lower Cost. *Academic Medicine*, *90*(11), 1434-1437. doi: 10.1097/acm.000000000000925
- Arrow, K. J. (1986). Agency and the market. In K. J. Arrow & M. D. Intriligator (Eds.), Handbook of mathematical economics (Vol. 3) (pp. 1183-1195). Amsterdam: North Holland.
- Astbury, B., & Leeuw, F. L. (2010). Unpacking Black Boxes: Mechanisms and Theory Building in Evaluation. *American Journal of Evaluation*, *31*(3), 363-381. doi: 10.1177/1098214010371972
- Atun, R. (2012). Health systems, systems thinking and innovation. *Health Policy and Planning, 27*(suppl\_4), iv4-iv8. doi: 10.1093/heapol/czs088

- Bacchi, C. (2016). Problematizations in Health Policy:Questioning How "Problems" Are Constituted in Policies. *SAGE Open, 6*(2), 1-16. doi: 10.1177/2158244016653986
- Baker, G. P. (1992). Incentive Contracts and Performance Measurement. *Journal of Political Economy*, 100(3), 598-614. doi: 10.2307/2138733
- Bamanyaki, P. A., & Holvoet, N. (2016). Integrating theory-based evaluation and process tracing in the evaluation of civil society gender budget initiatives. *Evaluation*, 22(1), 72-90.
- Banerjee, A. V., Duflo, E., & Glennerster, R. (2008). Putting a band-aid on a corpse: incentives for nurses in the Indian public health care system. *Journal of the European Economic Association*, 6(2-3), 487-500. doi: 10.1162/JEEA.2008.6.2-3.487
- Barnes, A., Brown, G. W., & Harman, S. (2015). Locating health diplomacy through African negotiations on performance - based funding in global health. *Journal* of Health Diplomacy, 1(3), 1-19.
- Barnes, A., Brown, G. W., Harman, S., & Papamichail, A. (2014). African participation and partnership in performance-based financing: A case study in global health policy. *Equinet Discussion Paper*, *102*, 1-49.
- Basinga, P., Gertler, P. J., Binagwaho, A., Soucat, A. L. B., Sturdy, J., & Vermeersch, C.
   M. J. (2011). Effect on maternal and child health services in Rwanda of payment to primary health-care providers for performance: an impact evaluation. *The Lancet*, 377(9775), 1421-1428.
- Bawo, L., Leonard, K., & Mohammed, R. (2015). Protocol for the evaluation of a quality-based pay for performance scheme in Liberia. *Implementation Science*, *10*(1), 9. doi: 10.1186/s13012-014-0194-9
- Bemelmans-Videc, M.-L., Rist, R. C., & Vedung, E. O. (Eds.). (2005). *Carrots, Sticks, and Sermons: Policy Instruments and Their Evaluation*. New Brunswick: Transaction Publishers.
- Bertone, M. P., Falisse, J.-B., Russo, G., & Witter, S. (2018). Context matters (but how and why?) A hypothesis-led literature review of performance based financing in fragile and conflict-affected health systems. *PLoS One*, *13*(4), e0195301. doi: 10.1371/journal.pone.0195301
- Bertone, M. P., Lagarde, M., & Witter, S. (2016). Performance-based financing in the context of the complex remuneration of health workers: findings from a mixed-method study in rural Sierra Leone. *BMC Health Services Research*, 16(1), 1-10. doi: 10.1186/s12913-016-1546-8
- Bertone, M. P., & Meessen, B. (2013). Studying the link between institutions and health system performance: a framework and an illustration with the analysis of two performance-based financing schemes in Burundi. *Health Policy and Planning, 28*(8), 847-857. doi: 10.1093/heapol/czs124
- Bhatnagar, A., & George, A. S. (2016). Motivating health workers up to a limit: partial effects of performance-based financing on working environments in Nigeria. *Health Policy and Planning*, 31(7), 868-877. doi: 10.1093/heapol/czw002
- Bhatnagar, A., Gupta, S., Alonge, O., & George, A. S. (2016). Primary health care workers' views of motivating factors at individual, community and organizational levels: a qualitative study from Nasarawa and Ondo states, Nigeria. *The International Journal of Health Planning and Management*, 17(1).

- Bhushan, I., Keller, S., & Schwartz, B. (2002). Achieving the twin objectives of efficiency and equity: contracting health services in Cambodia. *ERD Policy Brief Series, 6*.
- Bigirimana, E. (2018). Controverse sur le Financement Basé sur la Performance: une lecture différenciée des résultats. Retrieved from http://www.healthfinancingafrica.org/
- Binagwaho, A., Condo, J., Wagner, C., Ngabo, F., Karema, C., Kanters, S., . . .
   Bizimana, J. d. (2014). Impact of implementing performance-based financing on childhood malnutrition in Rwanda. *BMC Public Health*, 14(1), 1132.
- Binyaruka, P., & Borghi, J. (2017). Improving quality of care through payment for performance: examining effects on the availability and stock-out of essential medical commodities in Tanzania. *Tropical Medicine & International Health*, 22(1), 92-102. doi: 10.1111/tmi.12809
- Binyaruka, P., Patouillard, E., Powell-Jackson, T., Greco, G., Maestad, O., & Borghi, J. (2015). Effect of Paying for Performance on Utilisation, Quality, and User Costs of Health Services in Tanzania: A Controlled Before and After Study. *PLoS One*, *10*(8), e0135013.
- Björkman Nyqvist, M., De Walque, D., & Svensson, J. (2014). Information is power: experimental evidence on the long-run impact of community based monitoring. *World Bank Policy Research Working Paper, 7015*.
- Blomqvist, Å. (1991). The doctor as double agent: Information asymmetry, health insurance, and medical care. *Journal of Health Economics, 10*(4), 411-432. doi: 10.1016/0167-6296(91)90023-G
- Bodson, O., Barro, A., Turcotte-Tremblay, A.-M., Zanté, N., Somé, P.-A., & Ridde, V. (2018). A study on the implementation fidelity of the performance-based financing policy in Burkina Faso after 12 months. *Archives of Public Health*, 76(1), 4. doi: 10.1186/s13690-017-0250-4
- Bonell, C., Fletcher, A., Morton, M., Lorenc, T., & Moore, L. (2012). Realist randomised controlled trials: A new approach to evaluating complex public health interventions. *Social Science & Medicine*, 75(12), 2299-2306. doi: <u>https://doi.org/10.1016/j.socscimed.2012.08.032</u>
- Bonell, C., Fletcher, A., Morton, M., Lorenc, T., & Moore, L. (2013). Methods don't make assumptions, researchers do: A response to Marchal et al. Social Science & Medicine, 94, 81-82. doi: https://doi.org/10.1016/j.socscimed.2013.06.026
- Bonfrer, I., Soeters, R., Van de Poel, E., Basenya, O., Longin, G., van de Looij, F., & van Doorslaer, E. (2014). Introduction of performance-based financing in burundi was associated with improvements in care and quality. *Health Affairs*, 33(12), 2179-2187. doi: 10.1377/hlthaff.2014.0081
- Bonfrer, I., Van de Poel, E., & Van Doorslaer, E. (2014). The effects of performance incentives on the utilization and quality of maternal and child care in Burundi. Social Science & Medicine, 123, 96-104. doi: 10.1016/j.socscimed.2014.11.004
- Borghi, J., Little, R., Binyaruka, P., Patouillard, E., & Kuwawenaruwa, A. (2015). In Tanzania, the many costs of pay-for-performance leave open to debate whether the strategy is cost-effective. *Health affairs (Project Hope), 34*(3), 406-414. doi: 10.1377/hlthaff.2014.0608

- Borghi, J., Mayumana, I., Mashasi, I., Binyaruka, P., Patouillard, E., Njau, I., . . . Mamdani, M. (2013). Protocol for the evaluation of a pay for performance programme in Pwani region in Tanzania: a controlled before and after study. *Implementation Science, 8*(80). doi: 10.1186/1748-5908-8-80
- Bosch-Capblanch, X., & Garner, P. (2008). Primary health care supervision in developing countries. *Tropical Medicine & International Health*, *13*(3), 369-383. doi: 10.1111/j.1365-3156.2008.02012.x
- Bossert, T. J. (1990). Can they get along without us? Sustainability of donorsupported health projects in Central America and Africa. *Soc Sci Med, 30*(9), 1015-1023.
- Bossyns, P., & Verlé, P. (Eds.). (2016). *Development cooperation as learning in progress: dealing with the urge for the fast and easy* (Vol. 33). Antwerp: ITGPress.
- Bouchard, M., Kohler, J., Orbinski, J., & Howard, A. (2012). Corruption in the health care sector: A barrier to access of orthopaedic care and medical devices in Uganda. *BMC International Health and Human Rights, 12*(1), 5.
- Boulenger, D., & Criel, B. (2012). The relationship between faith-based health care organisations and the public sector in sub-Saharan Africa: The case of contracting experiences in Cameroon, Tanzania, Chad and Uganda. *Studies in Health Services Organisation & Policy, 29*.
- Braithwaite, J., Churruca, K., Ellis, L. A., Long, J., Clay-Williams, R., Damen, N., . . .
   Ludlow, K. (2017). Complexity Science in Healthcare Aspirations, approaches, applications and accomplishments: a white paper. Sydney, Australia:
   Australian Institute of Health Innovation, Macquarie University.
- Braun, W. (2002). The system archetypes. <u>https://www.albany.edu/faculty/gpr/PAD724/724WebArticles/sys\_archetype</u>s.pdf.
- Brenner, S., Muula, A. S., Robyn, P. J., Bärnighausen, T., Sarker, M., Mathanga, D.
  P., . . . De Allegri, M. (2014). Design of an impact evaluation using a mixed methods model an explanatory assessment of the effects of results-based financing mechanisms on maternal healthcare services in Malawi. *BMC Health Services Research*, 14(1), 180. doi: 10.1186/1472-6963-14-180
- Brenner, S., Wilhelm, D., Lohmann, J., Kambala, C., Chinkhumba, J., Muula, A. S., & De Allegri, M. (2017). Implementation research to improve quality of maternal and newborn health care, Malawi. *Bulletin of the World Health Organization*, 95(7), 491-502. doi: 10.2471/BLT.16.178202
- Brinkerhoff, D. W., & Goldsmith, A. A. (1992). Promoting the sustainability of development institutions: A framework for strategy. *World Development*, 20(3), 369-383.
- Buchanan, J. M. (1975). The Samaritan's dilemma. In E. S. Phelps (Ed.), *Altruism, Morality, and Economic Theory* (pp. 71-86). New York: Russell Sage Foundation.
- Buuka, G. Z., Anguyo, R. D. O., Govule, P., Mugisha, J. F., & Ayiko, R. (2015). The effects of Performance Based Financing on the Health Centres of Jinja Diocese, Uganda. *International Journal of Public Health Research*, 3(4), 162-167.

- Campbell, D. T. (1976). Assessing the Impact of Planned Social Change Hanover, NH: The Public Affairs Center, Dartmouth College.
- Carroll, C., Patterson, M., Wood, S., Booth, A., Rick, J., & Balain, S. (2007). A conceptual framework for implementation fidelity. *Implementation Science*, 2(40). doi: 10.1186/1748-5908-2-40
- Chen, H. T. (1990). Theory-driven evaluations: Sage.
- Chi, P. C., Bulage, P., Urdal, H., & Sundby, J. (2015). A qualitative study exploring the determinants of maternal health service uptake in post-conflict Burundi and Northern Uganda. *BMC pregnancy and childbirth*, 15(1), 18. doi: 10.1186/s12884-015-0449-8
- Chimhutu, V., Lindkvist, I., & Lange, S. (2014). When incentives work too well: locally implemented pay for performance (P4P) and adverse sanctions towards home birth in Tanzania - a qualitative study. BMC Health Services Research, 14(1), 1-12. doi: 10.1186/1472-6963-14-23
- Chimhutu, V., Songstad, N. G., Tjomsland, M., Mrisho, M., & Moland, K. M. (2016). The inescapable question of fairness in Pay-for-performance bonus distribution: a qualitative study of health workers' experiences in Tanzania. *Globalization and health*, 12(1), 77. doi: 10.1186/s12992-016-0213-5
- Chimhutu, V., Tjomsland, M., Songstad, N. G., Mrisho, M., & Moland, K. M. (2015). Introducing payment for performance in the health sector of Tanzania-the policy process. *Globalization and health*, *11*(38). doi: 10.1186/s12992-015-0125-9
- Chinkhumba, J., De Allegri, M., Mazalale, J., Brenner, S., Mathanga, D., Muula, A. S., & Robberstad, B. (2017). Household costs and time to seek care for pregnancy related complications: The role of results-based financing. *PLoS One, 12*(9), e0182326. doi: 10.1371/journal.pone.0182326
- Chodzaza, E., & Bultemeier, K. (2010). Service providers' perception of the quality of emergency obsteric care provided and factors indentified which affect the provision of quality care. *Malawi Medical Journal*, 22(4), 104-111.
- CIA. (2018). The world factbook. Retrieved 1 February, 2018, from https://www.cia.gov/library/publications/the-world-factbook/
- Colenbrander, S., Birungi, C., & Mbonye, A. K. (2015). Consensus and contention in the priority setting process: examining the health sector in Uganda. *Health Policy and Planning*, *30*(5), 555-565. doi: 10.1093/heapol/czu030
- Conrad, P., De Allegri, M., Moses, A., Larsson, E. C., Neuhann, F., Muller, O., & Sarker, M. (2012). Antenatal care services in rural Uganda: missed opportunities for good-quality care. *Qual Health Res, 22*(5), 619-629. doi: 10.1177/1049732311431897
- Consortium AEDES/IRESCO. (2012). *Performance Based Financing implementation* procedures manual: North-West region of Cameroon. Yaoundé: Ministry of Health, Cameroon.
- Craig, P., Dieppe, P., Macintyre, S., Michie, S., Nazareth, I., & Petticrew, M. (2008).
   Developing and evaluating complex interventions: the new Medical Research
   Council guidance. *BMJ*, 337(1655). doi: 10.1136/bmj.a1655
- Cramer, C., Stein, H., & Weeks, J. (2006). Ownership and Donorship: Analytical Issues and a Tanzanian Case Study. *Journal of Contemporary African Studies, 24*(3), 415-436. doi: 10.1080/02589000600976745

- Cuevas-Rodríguez, G., Gomez-Mejia, L. R., & Wiseman, R. M. (2012). Has Agency Theory Run its Course?: Making the Theory more Flexible to Inform the Management of Reward Systems. *Corporate Governance: An International Review, 20*(6), 526-546. doi: 10.1111/corg.12004
- Dalkin, S. M., Greenhalgh, J., Jones, D., Cunningham, B., & Lhussier, M. (2015). What's in a mechanism? Development of a key concept in realist evaluation. *Implementation Science : IS, 10,* 49. doi: 10.1186/s13012-015-0237-x
- Dalkin, S. M., Lhussier, M., Williams, L., Burton, C. R., & Rycroft-Malone, J. (2018). Exploring the use of Soft Systems Methodology with realist approaches: A novel way to map programme complexity and develop and refine programme theory. *Evaluation*, 24(1), 84-97. doi: 10.1177/1356389017749036
- Dambisya, Y. M., Manenzhe, M., & Kibwika-Muyinda, A. B. (2014). Faith-based health services as an alternative to privatization? A Ugandan case study. *Municipal Services Project: Occasional Paper*(25).
- Dane, A. V., & Schneider, B. H. (1998). Program integrity in primary and early secondary prevention: are implementation effects out of control? *Clin Psychol Rev*, 18(1), 23-45.
- Das, A., Gopalan, S. S., & Chandramohan, D. (2016). Effect of pay for performance to improve quality of maternal and child care in low- and middle-income countries: a systematic review. *BMC Public Health*, 16(1). doi: 10.1186/s12889-016-2982-4
- De Allegri, M., Bertone, M. P., McMahon, S., Mounpe Chare, I., & Robyn, P. J. (2018). Unraveling PBF effects beyond impact evaluation: results from a qualitative study in Cameroon. *BMJ Global Health, 3*(2). doi: 10.1136/bmjgh-2017-000693
- de Savigny, D., & Adam, T. (Eds.). (2009). *Systems thinking for health systems strengthening*. Geneva: Alliance for Health Policy and Systems Research,WHO.
- de savigny, D., Blanchet, K., & Adam, T. (2017). *Applied systems thinking for health systems researc: A methodological handbook*. London: Open University Press.
- de Walque, D., Gertler, P. J., Bautista-Arredondo, S., Kwan, A., Vermeersch, C., de Dieu Bizimana, J., . . . Condo, J. (2015a). Using provider performance incentives to increase HIV testing and counseling services in Rwanda. *J Health Econ*, 40, 1-9. doi: <u>https://doi.org/10.1016/j.jhealeco.2014.12.001</u>
- de Walque, D., Gertler, P. J., Bautista-Arredondo, S., Kwan, A., Vermeersch, C., de Dieu Bizimana, J., . . . Condo, J. (2015b). Using provider performance incentives to increase HIV testing and counseling services in Rwanda. *Journal* of Health Economics, 40(0), 1-9. doi: http://dx.doi.org/10.1016/j.jhealeco.2014.12.001
- Deci, E. L., Koestner, R., & Ryan, R. M. (1999). A meta-analytic review of experiments examining the effects of extrinsic rewards on intrinsic motivation. *Psychological bulletin*, 125(6), 627-668; discussion 692-700. doi: 10.1037/0033-2909.125.6.627
- Deci, E. L., & Ryan, R. M. (2000). The "What" and "Why" of Goal Pursuits: Human Needs and the Self-Determination of Behavior. *Psychological Inquiry*, 11(4), 227-268. doi: 10.1207/S15327965PLI1104\_01
- Deconinck, H. (2017). Understanding pathways of integrating severe acute malnutrition interventions into national health systems in low-income

countries : applying systems thinking to study the complexity of health systems. (Doctor in Public Health Sciences), Université Catholique de Louvain, Louvain-la-Neuve.

- Develtere, P. (2012). *How do we help? The free market in development aid*. Leuven: Leuven University Press.
- Dickinson, D., & Villeval, M.-C. (2008). Does monitoring decrease work effort?: The complementarity between agency and crowding-out theories. *Games and Economic Behavior, 63*(1), 56-76. doi: 10.1016/j.geb.2007.08.004
- Dieleman, M., Cuong, P. V., Anh, L. V., & Martineau, T. (2003). Identifying factors for job motivation of rural health workers in North Viet Nam. *Human Resources for Health*, 1(10). doi: 10.1186/1478-4491-1-10
- Doran, G. T. (1981). There's SMART way to write management's goals and objectives. *Management review*, 70(11), 35-36.
- Doyle, J. K., & Ford, D. N. (1998). Mental models concepts for system dynamics research. *System dynamics review*, 14(1), 3-29.
- Durlak, J. A. (2015). Studying Program Implementation Is Not Easy but It Is Essential. *Prevention Science*, 16(8), 1123-1127. doi: 10.1007/s11121-015-0606-3
- Durlak, J. A., & DuPre, E. P. (2008). Implementation Matters: A Review of Research on the Influence of Implementation on Program Outcomes and the Factors Affecting Implementation. *American Journal of Community Psychology*, 41(3-4), 327-350. doi: 10.1007/s10464-008-9165-0
- Earl, S., Carden, F., & Smutylo, T. (2001). *Outcome Mapping: Building Learning and Reflection Into Development Programs*. Ottawa: International Development Research Centre.
- Easterly, W. (2005). *How to assess the need for aid? The answer: Don't ask.* Paper presented at the 3rd AFD-EUDN conference, Paris.
- Eichler, R., Auxila, P., & Pollock, J. (2001). Performance-based payment to improve the impact of health services: evidence from Haiti. *World Bank Institute Online Journal*, 1-11.
- Eichler, R., Levine, R., & The Performance-Based Incentives Working Group (Eds.). (2009). *Performance Incentives for Global Health: Potential and Pitfalls*. Washington, DC: CGD Books.
- Eldridge, C., & Palmer, N. (2009). Performance-based payment: some reflections on the discourse, evidence and unanswered questions. *Health Policy and Planning, 24*(3), 160-166. doi: 10.1093/heapol/czp002
- Elliott, D. S., & Mihalic, S. (2004). Issues in Disseminating and Replicating Effective Prevention Programs. *Prevention Science*, 5(1), 47-53. doi: 10.1023/b:prev.0000013981.28071.52
- Elsworth, G., & Astbury, B. (2004). *Evaluating the sustainability of pilot projects in health promotion.* Paper presented at the European Evaluation Society Conference, Berlin, Germany.
- Engineer, C. Y., Dale, E., Agarwal, A., Agarwal, A., Alonge, O., Edward, A., . . . Peters, D. H. (2016). Effectiveness of a pay-for-performance intervention to improve maternal and child health services in Afghanistan: a cluster-randomized trial. *International journal of epidemiology*, 45(2), 451-459. doi: 10.1093/ije/dyv362

- Evans, R. (1984). Strained mercy: The Economics of Canadian Health Care, Canada: . Toronto, Canada: Butterworth and Co.
- Falisse, J.-B., Meessen, B., Ndayishimiye, J., & Bossuyt, M. (2012). Community participation and voice mechanisms under performance-based financing schemes in Burundi. *Tropical Medicine & International Health*, 17(5), 674-682. doi: 10.1111/j.1365-3156.2012.02973.x
- Falisse, J.-B., Ndayishimiye, J., Kamenyero, V., & Bossuyt, M. (2015). Performancebased financing in the context of selective free health-care: an evaluation of its effects on the use of primary health-care services in Burundi using routine data. *Health Policy and Planning*, 30(10), 1251-1260. doi: 10.1093/heapol/czu132
- Faure-Grimaud, A., Laffont, J.-J., & Martimort, D. (2003). Collusion, Delegation and Supervision with Soft Information. *Review of Economic Studies*, 70(2), 253-279. doi: 10.1111/1467-937x.000244
- Feldacker, C., Bochner, A. F., Herman-Roloff, A., Holec, M., Murenje, V., Stepaniak, A., . . . Makunike, B. (2017). Is it all about the money? A qualitative exploration of the effects of performance-based financial incentives on Zimbabwe's voluntary male medical circumcision program. *PLoS One*, *12*(3), e0174047. doi: 10.1371/journal.pone.0174047
- Fernandes, G., & Sridhar, D. (2017). World Bank and the global financing facility. *BMJ*, 358(j3395). doi: <u>https://doi.org/10.1136/bmj.j3395</u>
- Fitz-Gibbon, C. T., & Morris, L. L. (1996). Theory-based evaluation. *Evaluation Practice*, *17*(2), 177-184. doi: <u>https://doi.org/10.1016/S0886-1633(96)90024-</u> <u>0</u>
- Flink, I. J., Ziebe, R., Vagai, D., van de Looij, F., van 't Riet, H., & Houweling, T. A. J. (2016). Targeting the poorest in a performance-based financing programme in northern Cameroon. *Health Policy and Planning*, 31(6), 767-776. doi: 10.1093/heapol/czv130

Forrester, J. W. (1961). Industrial Dynamics. Cambridge, Mass.: M.I.T. Press,.

- Fox, S., Witter, S., Wylde, E., Mafuta, E., & Lievens, T. (2014). Paying health workers for performance in a fragmented, fragile state: reflections from Katanga Province, Democratic Republic of Congo. *Health Policy and Planning, 29*(1), 96-105. doi: 10.1093/heapol/czs138
- Franco, L. M., Bennett, S., & Kanfer, R. (2002). Health sector reform and public sector health worker motivation: a conceptual framework. *Social Science & Medicine*, 54(8), 1255-1266. doi: <u>http://dx.doi.org/10.1016/S0277-9536(01)00094-6</u>
- Franco, L. M., Silimperi, D. R., Veldhuyzen van Zanten, T., MacAulay, C., Askov, K., Bouchet, B., & Marquez, L. (2002). Sustaining quality of healthcare: institutionalization of quality assurance. *QA Monograph Series 2(1)*. Bethesda, MD: Published for the U.S. Agency for International Development (USAID) by the Quality Assurance Project.
- Freedom House. (2018a). About 'Freedom in the world'. Retrieved 1 February, 2018, from <u>https://freedomhouse.org/report-types/freedom-world</u>
- Freedom House. (2018b). Freedom in the world Uganda profile. Retrieved 1 February, 2018, from <u>https://freedomhouse.org/report/freedom-</u> world/2018/uganda
- Frey, B. S. (1993). Motivation as a limit to pricing. *Journal of Economic Psychology*, 14(4), 635-664. doi: 10.1016/0167-4870(93)90014-C
- Frey, B. S., & Jegen, R. (2001). Motivation Crowding Theory. *Journal of Economic Surveys, 15*(5), 589-611. doi: 10.1111/1467-6419.00150
- Frey, B. S., & Oberholzer-Gee, F. (1997). The Cost of Price Incentives: An Empirical Analysis of Motivation Crowding- Out. *The American Economic Review*, 87(4), 746-755. doi: 10.2307/2951373
- Fritsche, G. B., Soeters, R., & Meessen, B. (2014). *Performance-Based Financing toolkit*. Washington, D.C.: The World Bank.
- Gagné, M., & Deci, E. L. (2005). Self-determination theory and work motivation. Journal of Organizational Behavior, 26(4), 331-362. doi: 10.1002/job.322
- Galukande, M., Katamba, A., Nakasujja, N., Baingana, R., Bateganya, M., Hagopian, A., . . . Luboga, S. (2016). Developing hospital accreditation standards in Uganda. *The International Journal of Health Planning and Management*, 31(3), e204-e218. doi: 10.1002/hpm.2317
- Gautier, L., & Ridde, V. (2017). Health financing policies in Sub-Saharan Africa: government ownership or donors' influence? A scoping review of policymaking processes. *Global Health Research and Policy*, 2(1), 23. doi: 10.1186/s41256-017-0043-x
- Gaventa, J., & McGee, R. (2013). The Impact of Transparency and Accountability Initiatives. *Development Policy Review*, *31*, s3-s28. doi: 10.1111/dpr.12017
- George, D., & Mallery, P. (2003). SPSS for Windows Step by Step: A Simple Guide and Reference, 11.0 Update (4 ed.). Boston: Allyn and Bacon.
- Gergen, J., Josephson, E., Coe, M., Ski, S., Madhavan, S., & Bauhoff, S. (2017). Quality of Care in Performance-Based Financing: How It Is Incorporated in 32 Programs Across 28 Countries. *Global Health: Science and Practice*, 5(1), 90-107. doi: 10.9745/ghsp-d-16-00239
- Gerrits, L., & Verweij, S. (2015). Taking stock of complexity in evaluation: A discussion of three recent publications. *Evaluation*, *21*(4), 481-491. doi: doi:10.1177/1356389015605204
- Gertler, P. J., & Vermeersch, C. (2012). Using performance incentives to improve health outcomes. *World Bank Policy Research Working Paper, 6100*.
- Gildemyn, M. (2011). Towards an Understanding of Civil Society Organisations' Involvement in Monitoring and Evaluation: Unpacking the Accountability and Feedback Function of M&E. *IOB Discussion Paper, 03*.
- Glouberman, S., & Zimmerman, B. (2002). Complicated and Complex Systems: What Would Successful Reform of Medicare Look Like? *Discussion paper 8*.
   Commission on the future of health care in Canada.
- Graner, S., Mogren, I., Duong, L. Q., Krantz, G., & Klingberg-Allvin, M. (2010).
   Maternal health care professionals' perspectives on the provision and use of antenatal and delivery care: a qualitative descriptive study in rural Vietnam.
   BMC Public Health, 10(1), 1-10. doi: 10.1186/1471-2458-10-608
- Gruen, R. L., Elliott, J. H., Nolan, M. L., Lawton, P. D., Parkhill, A., McLaren, C. J., & Lavis, J. N. (2008). Sustainability science: an integrated approach for health-programme planning. *The Lancet*, *372*(9649), 1579-1589.

- Hanson, K., & Jack, W. (2010). Incentives could induce Ethiopian doctors and nurses to work in rural settings. *Health affairs (Project Hope), 29*(8), 1452-1460. doi: 10.1377/hlthaff.2009.0164
- Hardee, K., Ashford, L., Rottach, E., Jolivet, R., & Kiesel, R. (2012). *The policy dimension of scaling-up health initiatives*. Washington, DC: Futures Group, Health Policy Project.
- Hartmann, A., & Linn, J. F. (2008). Scaling up: a framework and lessons for development effectiveness from literature and practice. *Wolfensohn Center For Development Working paper, 5,* 1-68.
- Hawe, P., Shiell, A., & Riley, T. (2009). Theorising interventions as events in systems. *American Journal of Community Psychology*, 43(3-4), 267-276. doi: 10.1007/s10464-009-9229-9
- Hernandez, A. (2014). Enabling the performance of nurses in rural Guatemala: The role of relationships. (Doctor), Umeå University, Umeå.
- Hernandez, A., Hurtig, A.-K., Dahlblom, K., & San Sebastian, M. (2014). More than a checklist: a realist evaluation of supervision of mid-level health workers in rural Guatemala. *BMC Health Services Research*, 14(1), 112.
- Hinchcliff, R., Greenfield, D., Westbrook, J. I., Pawsey, M., Mumford, V., & Braithwaite, J. (2013). Stakeholder perspectives on implementing accreditation programs: a qualitative study of enabling factors. *BMC Health Services Research*, 13(1), 437. doi: 10.1186/1472-6963-13-437
- Hitchen, J. (2016). Steady progress? 30 years of Museveni and the NRM in Uganda. *African Research Institute briefing note*(1601).
- Holmström, B., & Milgrom, P. (1991). Multitask Principal-Agent Analyses: Incentive Contracts, Asset Ownership, and Job Design. *Journal of Law, Economics, & Organization, 7*, 24-52. doi: 10.2307/764957
- Holmström, B., & Milgrom, P. (1994). The Firm as an Incentive System. American Economic Review, 84(4), 972-991. doi: 10.2307/2118041
- Holvoet, N., & Inberg, L. (2014). Taking stock of monitoring and evaluation systems in the health sector: findings from Rwanda and Uganda. *Health Policy and Planning, 29*(4), 506-516.
- HPI International. (2015). NU Health Lessons learned report II. Kampala: NU Health Programme. <u>http://resources.healthpartners-int.co.uk/wp-</u> <u>content/uploads/2015/07/Lessons-Learned-II-Report NU Health2015.pdf</u>.
- Ireland, M., Paul, E., & Dujardin, B. (2011). Can performance-based financing be used to reform health systems in developing countries? *Bulletin of the World Health Organization, 89*(9), 695-698. doi: 10.2471/BLT.11.087379
- Jamal, F., Fletcher, A., Shackleton, N., Elbourne, D., Viner, R., & Bonell, C. (2015). The three stages of building and testing mid-level theories in a realist RCT: a theoretical and methodological case-example. *Trials*, *16*(1), 466. doi: 10.1186/s13063-015-0980-y
- Janssen, W., Ngirabega Jde, D., Matungwa, M., & Van Bastelaere, S. (2015).
   Improving quality through performance-based financing in district hospitals in Rwanda between 2006 and 2010: a 5-year experience. *Tropical doctor*, 45(1), 27-35. doi: 10.1177/0049475514554481

- Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305-360. doi: 10.1016/0304-405X(76)90026-X
- Josephson, E. (2017). National health insurance in low and middle income countries: A suggestion for a component-based sequencing. Retrieved from <u>http://www.healthfinancingafrica.org/home/national-health-insurance-in-</u> <u>lics-and-Imics-a-suggestion-for-a-component-based-sequencing</u>
- Josephson, E., Gergen, J., Coe, M., Ski, S., Madhavan, S., & Bauhoff, S. (2017). How do performance-based financing programmes measure quality of care? A descriptive analysis of 68 quality checklists from 28 low- and middle-income countries. *Health Policy and Planning*, *32*(8), 1120-1126. doi: 10.1093/heapol/czx053
- Kabakyenga, J., Ostergren, P.-O., Turyakira, E., & Pettersson, K. (2011). Knowledge of obstetric danger signs and birth preparedness practices among women in rural Uganda. *Reproductive Health*, 8(1), 33.
- Kalk, A. (2011). The costs of performance-based financing. *Bulletin of the World Health Organization, 89*(5), 319-319. doi: 10.2471/BLT.11.087247
- Kalk, A., Paul, F. A., & Grabosch, E. (2010). 'Paying for performance' in Rwanda: does it pay off? *Tropical Medicine & International Health*, 15(2), 182-190. doi: 10.1111/j.1365-3156.2009.02430.x
- Kambala, C., Lohmann, J., Mazalale, J., Brenner, S., Sarker, M., Muula, A. S., & De Allegri, M. (2017). Perceptions of quality across the maternal care continuum in the context of a health financing intervention: Evidence from a mixed methods study in rural Malawi. *BMC Health Services Research*, 17, 392. doi: 10.1186/s12913-017-2329-6
- Khan, M. S., Meghani, A., Liverani, M., Roychowdhury, I., & Parkhurst, J. (2018). How do external donors influence national health policy processes? Experiences of domestic policy actors in Cambodia and Pakistan. *Health Policy and Planning*, 33(2), 215-223. doi: 10.1093/heapol/czx145
- Khim, K. (2016). Are health workers motivated by income? Job motivation of Cambodian primary health workers implementing performance-based financing. *Global Health Action, 9*. doi: 10.3402/gha.v9.31068
- Khim, K., & Annear, P. L. (2013). Strengthening district health service management and delivery through internal contracting: lessons from pilot projects in Cambodia. Soc Sci Med, 96, 241-249. doi: 10.1016/j.socscimed.2013.02.029
- Khim, K., Ir, P., & Annear, P. L. (2017). Factors Driving Changes in the Design,
   Implementation, and Scaling-Up of the Contracting of Health Services in Rural
   Cambodia, 1997–2015. *Health Systems & Reform, 3*(2), 105-116.
- Kiendrébéogo, J. A., Berthé, A., Yonli, L., Béchir, M., Shroff, Z. C., & Meessen, B.
   (2017). Why Performance-Based Financing in Chad Failed to Emerge on the National Policy Agenda. *Health Systems & Reform, 3*(2), 80-90.
- Kim, D. H. (1992). Systems archetypes I: diagnosing systemic issues and designing high-leverage interventions. Waltham: Pegasus Communications. <u>https://thesystemsthinker.com/wp-content/uploads/2016/03/Systems-</u> <u>Archetypes-I-TRSA01\_pk.pdf</u>.
- Kinnevey, C., Kawooya, M., Tumwesigye, T., Douglas, D., & Sams, S. (2016). Addressing Obstetrical Challenges at 12 Rural Ugandan Health Facilities:

Findings from an International Ultrasound and Skills Development Training for Midwives in Uganda. *International Journal of MCH and AIDS*, 5(1), 46-52.

- Kiser, E. (1999). Comparing Varieties of Agency Theory in Economics, Political Science, and Sociology: An Illustration from State Policy Implementation. Sociological Theory, 17(2), 146-170. doi: 10.1111/0735-2751.00073
- Koduah, A., Agyepong, I. A., & van Dijk, H. (2016). 'The one with the purse makes policy': Power, problem definition, framing and maternal health policies and programmes evolution in national level institutionalised policy making processes in Ghana. *Social Science & Medicine, 167*, 79-87. doi: 10.1016/j.socscimed.2016.08.051
- Koon, A. D., Hawkins, B., & Mayhew, S. H. (2016). Framing and the health policy process: a scoping review. *Health Policy and Planning, 31*(6), 801-816. doi: 10.1093/heapol/czv128
- Kwamie, A., Dijk, H. v., & Agyepong, I. A. (2014). Advancing the application of systems thinking in health: realist evaluation of the Leadership Development Programme for district manager decision-making in Ghana. *Health Research Policy and Systems, 12*(29). doi: 10.1186/1478-4505-12-29
- Kwesiga, B., Zikusooka, C. M., & Ataguba, J. E. (2015). Assessing catastrophic and impoverishing effects of health care payments in Uganda. BMC Health Services Research, 15(1), 30. doi: 10.1186/s12913-015-0682-x
- Lacouture, A., Breton, E., Guichard, A., & Ridde, V. (2015). The concept of mechanism from a realist approach: a scoping review to facilitate its operationalization in public health program evaluation. *Implementation Science*, *10*(1), 153.
- Laffont, J.-J., & Martimort, D. (2002). *The Theory of Incentives: The Principal-Agent Model*. Princeton, NJ: Princeton University Press.
- Lane, D. C. (2008). The emergence and use of diagramming in system dynamics: a critical account. *Systems Research and Behavioral Science*, *25*(1), 3-23. doi: 10.1002/sres.826
- Langebrunner, J. C., & Liu, X. (2005). How to pay? Understanding and using payment incentives. In A. S. Preker & J. C. Langenbrunner (Eds.), *Spending wisely : Buying health services for the poor* (pp. 89-106). Washington, DC: The World Bank.
- Lannes, L. (2015). Improving health worker performance: The patient-perspective from a PBF program in Rwanda. *Social Science & Medicine, 138,* 1-11. doi: 10.1016/j.socscimed.2015.05.033
- Lannes, L., Meessen, B., Soucat, A., & Basinga, P. (2016). Can performance-based financing help reaching the poor with maternal and child health services? The experience of rural Rwanda. *The International Journal of Health Planning and Management*, 31(3), 309-348. doi: 10.1002/hpm.2297
- Larsson, E. C., Thorson, A., Pariyo, G., Conrad, P., Arinaitwe, M., Kemigisa, M., . . . Ekström, A. M. (2012). Opt-out HIV testing during antenatal care: experiences of pregnant women in rural Uganda. *Health Policy and Planning*, 27(1), 69-75. doi: 10.1093/heapol/czr009
- Lehmann, U., & Gilson, L. (2013). Actor interfaces and practices of power in a community health worker programme: a South African study of unintended policy outcomes. *Health Policy and Planning, 28*(4), 358-366. doi: 10.1093/heapol/czs066

- Leonard, K. L., & Masatu, M. C. (2010). Professionalism and the know-do gap: exploring intrinsic motivation among health workers in Tanzania. *Health economics*, *19*(12), 1461-1477. doi: 10.1002/hec.1564
- Levesque, J.-F., & Sutherland, K. (2017). What role does performance information play in securing improvement in healthcare? a conceptual framework for levers of change. *BMJ Open*, 7(8), e014825. doi: 10.1136/bmjopen-2016-014825
- Lim, S. S., Stein, D. B., Charrow, A., & Murray, C. J. (2008). Tracking progress towards universal childhood immunisation and the impact of global initiatives: a systematic analysis of three-dose diphtheria, tetanus, and pertussis immunisation coverage. *Lancet*, 372(9655), 2031-2046. doi: 10.1016/s0140-6736(08)61869-3
- Lipsky, M. (1979). *Street level bureaucracy* (Vol. 198): New York: Russell Sage Foundation.
- Liu, X., & Mills, A. (2007a). Agency theory and its applications in health care. In A. S. Preker, X. Liu, E. V. Velenyi & E. Baris (Eds.), *Public Ends, Private Means: Strategic purchasing of health services* (pp. 151-178). Washington, DC: The World Bank.
- Liu, X., & Mills, A. (2007b). Doctors' and patients' utility funcitons. In A. S. Preker, X.
   Liu, E. V. Velenyi & E. Baris (Eds.), *Public Ends, Private Means: Strategic purchasing of health services* (pp. 179-194). Washington, DC: The World Bank.
- Liu, X., & Mills, A. (2007c). Motivation and performance -related pay. In A. S. Preker,
   X. Liu, E. V. Velenyi & E. Baris (Eds.), *Public Ends, Private Means: Strategic purchasing of health services* (pp. 237-258). Washington, DC: The World Bank.
- Liverani, A., & Lundgren, H. E. (2007). Evaluation Systems in Development Aid Agencies: An Analysis of DAC Peer Reviews 1996—2004. *Evaluation, 13*(2), 241-256. doi: 10.1177/1356389007075226

Loevinsohn, B., & Harding, A. (2005). Buying results? Contracting for health service delivery in developing countries. *The Lancet, 366*(9486), 676-681.

- Lohmann, J., Houlfort, N., & De Allegri, M. (2016). Crowding out or no crowding out? A Self-Determination Theory approach to health worker motivation in performance-based financing. *Social Science and Medicine*, 169, 1-8. doi: 10.1016/j.socscimed.2016.09.006
- Lohmann, J., Souares, A., Tiendrebéogo, J., Houlfort, N., Robyn, P. J., Somda, S. M. A., & De Allegri, M. (2017). Measuring health workers' motivation composition: validation of a scale based on Self-Determination Theory in Burkina Faso. *Human Resources for Health*, 15(1), 33. doi: 10.1186/s12960-017-0208-1
- Lohmann, J., Wilhelm, D. J., Kambala, C., Brenner, S., Muula, A. S., & De Allegri, M. (2018). 'The money can be a motivator, to me a little, but mostly PBF just helps me to do better in my job.' An exploration of the motivational mechanisms of performance-based financing for health workers in Malawi. *Health Policy and Planning, 33*(2), 183-191. doi: 10.1093/heapol/czx156
- Lubatkin, M., Lane, P. J., Collin, S., & Very, P. (2007). An embeddedness framing of governance and opportunism: towards a cross-nationally accommodating theory of agency. *Journal of Organizational Behavior*, 28(1), 43-58. doi: 10.1002/job.402

- Lucas, H., & Bloom, G. (2016). Understanding the intervention. In H. Lucas & M. Zwarenstein (Eds.), *A Practical Guide to Implementation Research on Health Systems*. Brighton, UK: Future Health Systems and IDS.
- Lucas, H., & Zwarenstein, M. (2016). A Practical Guide to Implementation Research on Health Systems. Brighton, UK: Future Health Systems and IDS. <u>https://www.ids.ac.uk/publication/a-practical-guide-to-implementation-</u> <u>research-on-health-systems</u>.
- Mabuchi, S., Sesan, T., & Bennett, S. C. (2018). Pathways to high and low performance: factors differentiating primary care facilities under performance-based financing in Nigeria. *Health Policy and Planning, 33*(1), 41-58. doi: 10.1093/heapol/czx146
- Macq, J., & Chiem, J.-C. (2011). Looking at the effects of performance-based financing through a complex adaptive systems lens. *Bulletin of the World Health Organization, 89*(9), 699-700. doi: 10.2471/BLT.11.089920
- Maestad, O., Torsvik, G., & Aakvik, A. (2010). Overworked? On the relationship between workload and health worker performance. *Journal of Health Economics, 29*(5), 686-698. doi: 10.1016/j.jhealeco.2010.05.006
- Manongi, R., Mushi, D., Kessy, J., Salome, S., & Njau, B. (2014). Does training on performance based financing make a difference in performance and quality of health care delivery? Health care provider's perspective in Rungwe Tanzania. *BMC Health Services Research*, 14, 154. doi: 10.1186/1472-6963-14-154
- Marchal, B., Dedzo, M., & Kegels, G. (2010). A realist evaluation of the management of a well- performing regional hospital in Ghana. *BMC Health Services Research*, 10(1), 24. doi: 10.1186/1472-6963-10-24
- Marchal, B., Westhorp, G., Wong, G., Van Belle, S., Greenhalgh, T., Kegels, G., & Pawson, R. (2013). Realist RCTs of complex interventions An oxymoron. Social Science & Medicine, 94, 124-128. doi: <a href="https://doi.org/10.1016/j.socscimed.2013.06.025">https://doi.org/10.1016/j.socscimed.2013.06.025</a>
- Martis, K. C. (2008). The original gerrymander. *Political Geography, 27*(8), 833-839. doi: <u>https://doi.org/10.1016/j.polgeo.2008.09.003</u>
- Masterson-Algar, P., Burton, C. R., Rycroft-Malone, J., Sackley, C. M., & Walker, M. F. (2014). Towards a programme theory for fidelity in the evaluation of complex interventions. *Journal of Evaluation in Clinical Practice*, 20(4), 445-452. doi: 10.1111/jep.12174
- Mathauer, I., & Imhoff, I. (2006). Health worker motivation in Africa: the role of nonfinancial incentives and human resource management tools. *Human Resources for Health, 4*(1), 24.
- Matsuoka, S., Obara, H., Nagai, M., Murakami, H., & Chan Lon, R. (2014).
   Performance-based financing with GAVI health system strengthening funding in rural Cambodia: a brief assessment of the impact. *Health Policy and Planning, 29*(4), 456-465. doi: 10.1093/heapol/czt030
- Mayaka Manitu, S. (2018). Financement Basé sur la Performance: parlons-nous de la même chose ? Retrieved from <a href="http://www.healthfinancingafrica.org/">http://www.healthfinancingafrica.org/</a>
- Mayaka Manitu, S., Lushimba, M. M., Macq, J., & Meessen, B. (2015). Arbitrage d'une controverse de politique de santé : application d'une démarche délibérative au Financement basé sur la Performance en Afrique subsaharienne. *Santé Publique, 27*(3), 425-434.

- Mayaka Manitu, S., Meessen, B., Lushimba, M. M., & Macq, J. (2015). Le débat autour du financement basé sur la performance en Afrique subsaharienne : analyse de la nature des tensions. *Santé Publique, 27* (1), 117-128.
- Mayumana, I., Borghi, J., Anselmi, L., Mamdani, M., & Lange, S. (2017). Effects of Payment for Performance on accountability mechanisms: Evidence from Pwani, Tanzania. *Social Science & Medicine, 179*, 61-73. doi: <u>https://doi.org/10.1016/j.socscimed.2017.02.022</u>
- McCoy, D. C., Hall, J. A., & Ridge, M. (2012). A systematic review of the literature for evidence on health facility committees in low- and middle-income countries. *Health Policy and Planning*, 27(6), 449-466. doi: 10.1093/heapol/czr077
- McIntyre, D., Meheus, F., & Røttingen, J.-A. (2017). What level of domestic government health expenditure should we aspire to for universal health coverage? *Health Economics, Policy and Law, 12*(2), 125-137. doi: 10.1017/S1744133116000414
- Meadows, D., & Wright, D. (2008). *Thinking in Systems: A Primer*. White River Junction, VT: Chelsea Green Publishing.
- Meessen, B. (2009). An institutional economic analysis of public health care organisations in low-income countries. Université catholique de Louvain (UCL). Retrieved from Handle: <u>http://hdl.handle.net/2078.1/22763</u>
- Meessen, B. (2013). Financement basé sur la performance : structurons mieux le débat. Retrieved from <u>http://www.santemondiale.org/ihpfr/?p=4465</u>
- Meessen, B., Kashala, J.-P. I., & Musango, L. (2007). Output-based payment to boost staff productivity in public health centres: contracting in Kabutare district, Rwanda. *Bulletin of the World Health Organization, 85*(2), 108-115.
- Meessen, B., Musango, L., Kashala, J. P., & Lemlin, J. (2006). Reviewing institutions of rural health centres: the Performance Initiative in Butare, Rwanda. *Tropical Medicine & International Health*, 11(8), 1303-1317. doi: 10.1111/j.1365-3156.2006.01680.x
- Meessen, B., Soucat, A. L. B., & Sekabaraga, C. (2011). Performance-based financing: just a donor fad or a catalyst towards comprehensive health-care reform? *Bulletin of the World Health Organization, 89*(2), 153-156.
- Mendes, R., Plaza, V., & Wallerstein, N. (2016). Sustainability and power in health promotion: community-based participatory research in a reproductive health policy case study in New Mexico. *Glob Health Promot, 23*(1), 61-74. doi: 10.1177/1757975914550255
- Menya, D., Platt, A., Manji, I., Sang, E., Wafula, R., Ren, J., . . . O'Meara, W. P. (2015). Using pay for performance incentives (P4P) to improve management of suspected malaria fevers in rural Kenya: a cluster randomized controlled trial. *BMC Medicine*, 13(1), 268. doi: 10.1186/s12916-015-0497-y
- Miller, G., & Babiarz, K. S. (2013). Pay-for-Performance Incentives in Low- and Middle-Income Country Health Programs. *National Bureau of Economic Research Working Paper Series, No. 18932*. doi: 10.3386/w18932
- Mills, A. (2014). Health Care Systems in Low- and Middle-Income Countries. *New* England Journal of Medicine, 370(6), 552-557. doi: 10.1056/NEJMra1110897
- Minkler, L. (2004). Shirking and motivations in firms: survey evidence on worker attitudes. *International Journal of Industrial Organization, 22*(6), 863-884. doi: 10.1016/j.ijindorg.2004.03.003

- MLG. (1997). *Local Governments Act.* Kampala, Uganda: Ministry of Local Governments.
- MoFPED. (2013). Summary of project support managed outside government systems: Financial year 2012/13. Kampala, Uganda: Ministry of Finance, Planning and Economic Development.
- MoFPED. (2015). Millennium development goals report for uganda 2015. Special theme: Results, reflections and the way forward. Kampala, Uganda: Ministry of Finance, Planning and Economic Development.
- MOFPED. (2018). Sector budget documents. Retrieved 31 january, 2018, from <u>http://www.budget.go.ug/budget/sector-budget-</u> <u>docs?field\_document\_typebudgetdocs\_tid=All&field\_financial\_yearbudgetdo</u> <u>cs\_tid=All&field\_sectorbudgetdocs\_tid=22</u>
- Mog, J. M. (2004). Struggling with Sustainability—A Comparative Framework for Evaluating Sustainable Development Programs. World Development, 32(12), 2139-2160. doi: <u>https://doi.org/10.1016/j.worlddev.2004.07.002</u>
- MoH. (2006). *Health Sector Strategic Plan II 2005/06 2009/2010* Kampala: Ministry of Health, Uganda Retrieved from <u>http://siteresources.worldbank.org/INTPRS1/Resources/383606-</u> <u>1201883571938/Uganda HSSP 2.pdf</u>.
- MoH. (2010a). 2009 / 2010 Health financing review. Kampala, Uganda: Ministry of Health.
- MoH. (2010b). Health Sector Strategic & Investment Plan: Promoting people's health to enhance socio-economic development: 2010/11-2014/15. Kampala: Ministry of Health, Uganda.
- MoH. (2010c). The Second National Health Policy: Promoting People's Health to Enhance Socio-economic Development. Kampala: Republic of Uganda.
- MoH. (2011). Health Sector Quality Improvement Framework and Strategic Plan 2010/11-2014/15. Kampala: Ministry of Health, Uganda.
- MoH. (2012). *National policy on public private partnership in health*. Kampala: Ministry of Health.
- MoH. (2014). The health management information system: Health unit and community procedure manual (Volume 1). Kampala: Ministry of Health.
- MoH. (2015a). Annual Health Sector Performance Report for financial year 2014/15. Kampala, Uganda: Republic of Uganda.
- MoH. (2015b). *Health Sector Development Plan 2015/16 2019/20*. Kampala: Republic of Uganda.
- MoH. (2016a). *Health financing strategy 2015/16-2024/25*. Kampala: Ministry of Health, Uganda.
- MoH. (2016b). *Health Sector Quality Improvement Framework and Strategic Plan* 2015/16-2019/20. Kampala: Ministry of Health, Uganda.
- MoH. (2016c). Human Resources For Health Information System: National District Health Staff Records. Retrieved 25 October, 2016, from <u>http://hris.health.go.ug/</u>
- MoH. (2016d). *Strategy for Improving Health Service Delivery 2016-2021*. Kampala, Uganda: Ministry of Health.
- MoH. (2016e). Ugandan MoH result-based financing implementation manual. Kampala: Ministry of health.

- MoH. (2017a). Annual Health Sector Performance Report for financial year 2016/17. Kampala, Uganda: Republic of Uganda.
- MoH. (2017b). Sector grant and budget guidelines FY 2017/18. Kampala: Republic of Uganda.
- MoH, Health Systems 20/20, & Makerere University School of Public Health. (2012). Uganda Health System Assessment 2011. Kampala, Uganda and Bethesda, MD: Health Systems 20/20 project, Abt Associates Inc. .
- Mooney, G. (2012). *The Health of Nations: Towards a New Political Economy*. London: Zed Books.
- Morgan, L. (2010). Some days are better than others: Lessons learned from uganda's first results-based financing pilot. Washington: World Bank. https://www.rbfhealth.org/sites/rbf/files/RBF\_FEATURE\_Uganda.pdf.
- Musgrove, P. (2011). Rewards for Good Performance or Results: A Short Glossary. Washington, D.C: The World Bank. <u>http://www.rbfhealth.org/sites/rbf/files/documents/Rewards%20for%20Goo</u> <u>d%20Performance%20or%20Results%20-%20Short%20Glossary.pdf</u>.
- Mustafa, F. A. (2017). Notes on the use of randomised controlled trials to evaluate complex interventions: Community treatment orders as an illustrative case. *Journal of Evaluation in Clinical Practice, 23*(1), 185-192. doi: 10.1111/jep.12699
- Mutibwa, P. M. (1992). Uganda since independence: A story of unfulfilled hopes. London: Hurst & Company.
- Nahimana, E., McBain, R., Manzi, A., Iyer, H., Uwingabiye, A., Gupta, N., . . .
   Hirschhorn, L. R. (2016). Race to the Top: evaluation of a novel performancebased financing initiative to promote healthcare delivery in rural Rwanda. *Global Health Action, 9*(32943). doi: 10.3402/gha.v9.32943
- Namakula, J., Witter, S., & Ssengooba, F. (2016). Health worker experiences of and movement between public and private not-for-profit sectors—findings from post-conflict Northern Uganda. *Human Resources for Health*, 14(1), 18. doi: 10.1186/s12960-016-0114-y
- National Network of Libraries of Medicine (NNLM). (2016). Community Based Organization Defined. Retrieved 11 February, 2016, from <u>https://nnlm.gov/sea/funding/cbodef.html</u>
- Ngo, D. K., Sherry, T. B., & Bauhoff, S. (2017). Health system changes under pay-forperformance: the effects of Rwanda's national programme on facility inputs. *Health Policy and Planning, 32*(1), 11–20. doi: 10.1093/heapol/czw091
- Nimpagaritse, M., Korachais, C., Roberfroid, D., Kolsteren, P., Zine Eddine El Idrissi, M. D., & Meessen, B. (2016). Measuring and understanding the effects of a performance based financing scheme applied to nutrition services in Burundi—a mixed method impact evaluation design. *International journal for* equity in health, 15(1), 93. doi: 10.1186/s12939-016-0382-0
- Njoumemi, Z., & Fadimatou, A. (2013). Financement basé sur la performance pour le suivi-évaluation du système de santé au Cameroun. *African Evaluation Journal, 1*(1), 11.
- Oakley, A., Strange, V., Bonell, C., Allen, E., & Stephenson, J. (2006). Process evaluation in randomised controlled trials of complex interventions. *BMJ Clinical research*, *332*(7538), 413-416.

- OECD. (2005). *The Paris Declaration on Aid Effectiveness*. Paris: Organisation for Economic Cooperation and Development.
- Ogrodnick, A., Ron, I., Kiwanuka-Mukiibi, P., & Altman, D. (2011). Understanding Intrinsic Motivation and Performance Factors for Public Sector and Faithbased Facility Health Workers in Uganda. *Health Systems 20/20 Brief*.
- Ogundeji, Y. K., Jackson, C., Sheldon, T., Olubajo, O., & Ihebuzor, N. (2016). Pay for performance in Nigeria: the influence of context and implementation on results. *Health Policy and Planning, 31*(8), 955-963. doi: 10.1093/heapol/czw016
- Okwero, P., Tandon, A., Sparkes, S., McLaughlin, J., & Hoogeveen, J. G. (2010). Fiscal Space for Health in Uganda. Washington, D.C.: The World Bank.
- Olafsdottir, A. E., Mayumana, I., Mashasi, I., Njau, I., Mamdani, M., Patouillard, E., . . .
   Borghi, J. (2014). Pay for performance: an analysis of the context of implementation in a pilot project in Tanzania. *BMC Health Services Research*, 14(1), 392. doi: 10.1186/1472-6963-14-392
- Olivier, J., Scott, V., Molosiwa, D., & Gilson, L. (2017). Systems approaches in health systems research: approaches for embedding research. In D. de Savigny, K. Blanchet & T. Adam (Eds.), *Applied systems thinking for health systems research: A methodological handbook* (pp. 9-37). London: Open University Press.
- Olivier, J., Tsimpo, C., Gemignani, R., Shojo, M., Coulombe, H., Dimmock, F., . . . Wodon, Q. (2015). Understanding the roles of faith-based health-care providers in Africa: review of the evidence with a focus on magnitude, reach, cost, and satisfaction. *The Lancet, 386*(10005), 1765-1775. doi: 10.1016/S0140-6736(15)60251-3
- Orem, J. N., Mugisha, F., Kirunga, C., Macq, J., & Criel, B. (2011). Abolition of user fees: the Uganda paradox. *Health Policy and Planning, 26*(suppl 2), ii41-ii51.
- Orem, J. N., Wavamunno, J. B., Bakeera, S. K., & Criel, B. (2012). Do guidelines influence the implementation of health programs?—Uganda's experience. *Implementation Science*, 7(1), 98.
- Ossai, E. N., & Uzochukwu, B. S. (2015). Providers' Perception of Quality of Care and Constraints to Delivery of Quality Maternal Health Services in Primary Health Centers of Enugu State, Nigeria. *International Journal of Tropical Disease & Health, 8*(1), 13-24. doi: 10.9734/IJTDH/2015/16380
- Ostrom, E., Gibson, C., Shivakumar, S., & Andersson, K. (2002). Aid, Incentives, and Sustainability: An Institutional Analysis of Development Cooperation Stockholm: Swedish International Development Cooperation Agency.
- Paina, L., & Peters, D. H. (2012). Understanding pathways for scaling up health services through the lens of complex adaptive systems. *Health Policy and Planning*, 27(5), 365-373. doi: 10.1093/heapol/czr054
- Paul, E. (2006). Improving Public Outcomes in Developing Countries. Application of Incentive Theory to Foreign Aid and Public Resource Management. (Doctor), Université de Liège, Liège.
- Paul, E., Albert, L., Bisala, B. N. S., Bodson, O., Bonnet, E., Bossyns, P., . . . Ridde, V. (2018). Performance-based financing in low-income and middle-income countries: isn't it time for a rethink? *BMJ Global Health*, 3(1). doi: 10.1136/bmjgh-2017-000664

- Paul, E., Lamine Dramé, M., Kashala, J.-P., Ekambi Ndema, A., Kounnou, M., Aïssan, J.
   C., & Gyselinck, K. (2017). Performance-Based Financing to Strengthen the Health System in Benin: Challenging the Mainstream Approach. *International Journal of Health Policy and Management*, 7(1), 35-47.
- Paul, E., & Renmans, D. (2018). Performance-based financing in the heath sector in low- and middle-income countries: Is there anything whereof it may be said, see, this is new? *The International Journal of Health Planning and Management*, 33, 51-66. doi: 10.1002/hpm.2409
- Paul, E., & Robinson, M. (2007). Performance Budgeting, Motivation and Incentives.
   In M. Robinson (Ed.), *Performance Budgeting: Linking funding and results* (pp. 330-375). Basingstoke: Palgrave Macmillan.
- Paul, E., Sossouhounto, N., & Eclou, D. S. (2014). Local stakeholders' perceptions about the introduction of performance-based financing in Benin: a case study in two health districts. *International Journal of Health Policy and Management*, 3, 207-214. doi: 10.15171/ijhpm.2014.93
- Pawson, R. (2006). *Evidence-Based Policy: A Realist Perspective*. London: SAGE Publications.
- Pawson, R. (2013). The science of evaluation: A realist manifesto. London: Sage publications.
- Pawson, R., & Tilley, N. (1997). *Realistic evaluation*. London: Sage.
- Peabody, J., Shimkhada, R., Quimbo, S., Florentino, J., Bacate, M., McCulloch, C. E., & Solon, O. (2011). Financial incentives and measurement improved physicians' quality of care in the Philippines. *Health affairs (Project Hope), 30*(4), 773-781. doi: 10.1377/hlthaff.2009.0782
- Peabody, J., Shimkhada, R., Quimbo, S., Solon, O., Javier, X., & McCulloch, C. (2014). The impact of performance incentives on child health outcomes: results from a cluster randomized controlled trial in the Philippines. *Health Policy and Planning, 29*(5), 615-621. doi: 10.1093/heapol/czt047
- Peerenboom, P. B., Basenya, O., Bossuyt, M., Ndayishimiye, J., Ntakarutimana, L., van de Weerd, J., & European Commission. (2014). La bonne gouvernance dans la réforme du financement du système de santé au Burundi. Santé Publique, 26(2), 229-240.
- Pérez, D., Van der Stuyft, P., Zabala, M. d. C., Castro, M., & Lefèvre, P. (2016). A modified theoretical framework to assess implementation fidelity of adaptive public health interventions. *Implementation Science*, 11(1), 91. doi: 10.1186/s13012-016-0457-8
- Peters, D. H., Adam, T., Alonge, O., Agyepong, I. A., & Tran, N. (2013). Implementation research: what it is and how to do it. *BMJ : British Medical Journal*, 347. doi: 10.1136/bmj.f6753
- Peters, D. H., El-Saharty, S., Siadat, B., Janovsky, K., & Vujicic, M. (2009). *Improving Health Service Delivery in Developing Countries : From Evidence to Action*. Washington, DC: World Bank.
- Peters, D. H., Paina, L., & Bennett, S. (2012). Expecting the unexpected: applying the Develop-Distort Dilemma to maximize positive market impacts in health. *Health Policy and Planning, 27*(Suppl 4), iv44-53. doi: 10.1093/heapol/czs085
- Peters, D. H., Tran, N. T., & Adam, T. (2013). *Implementation Research in Health: A Practical Guide*. Geneva: World Health Organization.

- Petrosyan, V., Dzovinar, M. M., Zoidze, A., & Shroff, Z. C. (2017). National Scale-Up of Results-Based Financing in Primary Health Care: The Case of Armenia. *Health Systems & Reform, 3*(2), 117-128. doi: 10.1080/23288604.2017.1291394
- Pierce, W. D., Cameron, J., Banko, K. M., & So, S. (2012). Positive effects of rewards and performance standards on intrinsic motivation. *The Psychological Record*, 53(4), 561-579.
- Pirkle, C. M., Dumont, A., & Zunzunegui, M.-V. (2012). Medical recordkeeping, essential but overlooked aspect of quality of care in resource-limited settings. *International journal for quality in health care, 24*(6), 564-567. doi: 10.1093/intqhc/mzs034
- Plsek, P. E., & Greenhalgh, T. (2001). The challenge of complexity in health care. *BMJ*, 323(7313), 625-628. doi: 10.1136/bmj.323.7313.625
- Pluye, P., Potvin, L., & Denis, J.-L. (2004). Making public health programs last: conceptualizing sustainability. *Evaluation and Program Planning*, 27(2), 121-133. doi: <u>https://doi.org/10.1016/j.evalprogplan.2004.01.001</u>
- Pluye, P., Potvin, L., Denis, J.-L., Pelletier, J., & Mannoni, C. (2005). Program sustainability begins with the first events. *Evaluation and Program Planning*, 28(2), 123-137. doi: <u>https://doi.org/10.1016/j.evalprogplan.2004.10.003</u>
- Prashanth, N. S., Marchal, B., Kegels, G., & Criel, B. (2014). Evaluation of Capacity-Building Program of District Health Managers in India: A Contextualized Theoretical Framework. *Frontiers in Public Health*, 2, 89. doi: 10.3389/fpubh.2014.00089
- Proctor, E., Silmere, H., Raghavan, R., Hovmand, P., Aarons, G., Bunger, A., . . . Hensley, M. (2011). Outcomes for implementation research: conceptual distinctions, measurement challenges, and research agenda. *Adm Policy Ment Health*, 38(2), 65-76. doi: 10.1007/s10488-010-0319-7
- Puchalski Ritchie, L. M., Khan, S., Moore, J. E., Timmings, C., van Lettow, M., Vogel, J.
   P., . . . Straus, S. E. (2016). Low- and middle-income countries face many common barriers to implementation of maternal health evidence products. *Journal of Clinical Epidemiology, 76*, 229-237. doi: <a href="https://doi.org/10.1016/j.jclinepi.2016.02.017">https://doi.org/10.1016/j.jclinepi.2016.02.017</a>
- Ragin, C. C. (2014 [1987]). *The Comparative Method: Moving Beyond Qualitative and Quantitative Strategies*. Berkeley, CA: University of California Press.
- Renmans, D., Holvoet, N., & Criel, B. (2017). Combining theory-driven evaluation and causal loop diagramming for opening the 'black box' of an intervention in the health sector: A case of performance-based financing in western Uganda. *International Journal of Environmental Research and Public Health*, 14(9), 1007.
- Renmans, D., Holvoet, N., Criel, B., & Meessen, B. (2017). Performance-Based Financing: the same is different. *Health Policy and Planning*, 32(6), 860-868. doi: 10.1093/heapol/czx030
- Renmans, D., Holvoet, N., Orach, C. G., & Criel, B. (2016). Opening the 'black box' of performance-based financing in low- and lower middle-income countries: a review of the literature. *Health Policy and Planning*, 31(9), 1297-1309. doi: 10.1093/heapol/czw045
- Renmans, D., Paul, E., & Dujardin, B. (2016). *Analysing PBF through the lenses of the Principal-Agent theory*. IOB working paper. University of Antwerp. Antwerp.

- Republic of Uganda. (2015). Second National Development Plan (NDP II) 2015/16 2019/20. Kampala: Republic of Uganda.
- République du Tchad. (2011). *Manuel de procedures pour la mise en oeuvre du financement base sur les resultats au Tchad*. N'djamena: Ministère de la santé publique.
- Reuss, A., & Titeca, K. (2017a). Beyond ethnicity: the violence in Western Uganda and Rwenzori's 99 problems. *Review of African Political Economy, 44*(151), 131-141. doi: 10.1080/03056244.2016.1270928
- Reuss, A., & Titeca, K. (2017b). When revolutionaries grow old: the Museveni babies and the slow death of the liberation. *Third World Quarterly, 38*(10), 2347-2366. doi: 10.1080/01436597.2017.1350101
- Ridde, V., Yaogo, M., Zongo, S., Somé, P.-A., & Turcotte-Tremblay, A.-M. (2018). Twelve months of implementation of health care performance-based financing in Burkina Faso: A qualitative multiple case study. *The International Journal of Health Planning and Management, 33*, e153–e167. doi: 10.1002/hpm.2439
- Robinson, M. (2007). Performance Budgeting Models and Mechanisms. In Robinson M (Ed.), *Performance Budgeting: Linking funding and results* (pp. 1-18).
   Basingstoke: Palgrave Macmillan.
- Robinson, M., & Brumby, J. (2005). Does Performance Budgeting Work? An Analytical Review of the Empirical Literature. *IMF Working Paper WP/05/210*.
   Washington, DC: International Monetary Fund.
- Rochaix, L. (1989). Information asymmetry and search in the market for physicians' services. *Journal of Health Economics, 8*(1), 53-84. doi: <u>http://dx.doi.org/10.1016/0167-6296(89)90009-X</u>
- Rockers, P., Jaskiewicz, W., Wurts, L., Kruk, M., Mgomella, G., Ntalazi, F., & Tulenko, K. (2012). Preferences for working in rural clinics among trainee health professionals in Uganda: a discrete choice experiment. *BMC Health Services Research*, 12(1), 212.
- Rogers, P. J. (2008). Using Programme Theory to Evaluate Complicated and Complex Aspects of Interventions. *Evaluation*, *14*(1), 29-48. doi: doi:10.1177/1356389007084674
- Rogers, P. J., Williams, B., & FASID. (2010). Using Systems Concepts in Evaluation A Dialogue with Patricia Rogers and Bob Williams –. In N. Fujita (Ed.), *Beyond Logframe; Using Systems Concepts in Evaluation* (pp. 55-74). Tokyo, Japan: Foundation for Advanced Studies on International Development.
- Rosenberg, A. (2011). *Philosophy of Science: A Contemporary Introduction*. New York, USA: Routledge.
- Rudasingwa, M., Soeters, R., & Basenya, O. (2017). The effect of performance-based financing on maternal healthcare use in Burundi: a two-wave pooled crosssectional analysis. *Global Health Action*, 10(1), 1327241. doi: 10.1080/16549716.2017.1327241
- Rudasingwa, M., Soeters, R., & Bossuyt, M. (2015). The effect of performance-based financial incentives on improving health care provision in burundi: a controlled cohort study. *Global Journal of Health Sciences*, 7(3), 15-29. doi: 10.5539/gjhs.v7n3p15

Rudasingwa, M., & Uwizeye, M. R. (2017). Physicians' and nurses' attitudes towards performance-based financial incentives in Burundi: a qualitative study in the province of Gitega. *Global Health Action*, *10*(1), 1270813. doi: 10.1080/16549716.2017.1270813

- Rujumba, J., Tumwine, J. K., Tylleskär, T., Neema, S., & Heggenhougen, H. K. (2012).
   Listening to health workers: lessons from Eastern Uganda for strengthening the programme for the prevention of mother-to-child transmission of HIV.
   BMC Health Services Research, 12(1), 1-12. doi: 10.1186/1472-6963-12-3
- Rusa, L., Ngirabega Jde, D., Janssen, W., Van Bastelaere, S., Porignon, D., &
   Vandenbulcke, W. (2009). Performance-based financing for better quality of services in Rwandan health centres: 3-year experience. *Tropical Medicine & International Health*, 14(7), 830-837. doi: 10.1111/j.1365-3156.2009.02292.x
- Rwashana, A. S., Nakubulwa, S., Nakakeeto-Kijjambu, M., & Adam, T. (2014).
   Advancing the application of systems thinking in health: understanding the dynamics of neonatal mortality in Uganda. *Health Research Policy and Systems*, *12*(1), 36. doi: 10.1186/1478-4505-12-36
- Ryan, M. (1994). Agency in Health Care: Lessons for Economists from Sociologists. *American Journal of Economics and Sociology, 53*(2), 207-217. doi: 10.2307/3487223
- Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary educational psychology, 25*(1), 54-67.
- Ryan, R. M., & Deci, E. L. (2007). Active human nature: Self-determination theory and the promotion and maintenance of sport, exercise, and health. In M. S. Hagger & N. L. D. Chatzisarantis (Eds.), *Intrinsic motivation and self-determination in exercise and sport* (pp. 1-19). Champaign, IL: Human Kinetics.
- Sanson-Fisher, R. W., Bonevski, B., Green, L. W., & D'Este, C. (2007). Limitations of the randomized controlled trial in evaluating population-based health interventions. *American journal of preventive medicine*, 33(2), 155-161.
- Sarriot, E., Morrow, M., Langston, A., Weiss, J., Landegger, J., & Tsuma, L. (2015). A causal loop analysis of the sustainability of integrated community case management in Rwanda. *Social Science & Medicine*, 131, 147-155. doi: <u>https://doi.org/10.1016/j.socscimed.2015.03.014</u>
- Sato, M., Maufi, D., Mwingira, U. J., Leshabari, M. T., Ohnishi, M., & Honda, S. (2017). Measuring three aspects of motivation among health workers at primary level health facilities in rural Tanzania. *PLoS One*, *12*(5), e0176973. doi: 10.1371/journal.pone.0176973
- Sayer, A. (2000). *Realism and Social Science*. London: SAGE Publications.
- Scanlon, J. W., Horst, P., Nay, J. N., Schmidt, R. E., & Waller, J. D. (1977). Evaluability assessment: Avoiding type II and IV errors. In R. G. Gilbert & P. J. Conklin (Eds.), *Evaluation management: A sourcebook of readings* (pp. 264-284). Charlottesville, Virginia: Federal Executive Institute U.S. Civil service Commission.
- Scheirer, M. A., Hartling, G., & Hagerman, D. (2008). Defining sustainability outcomes of health programs: Illustrations from an on-line survey. *Evaluation and Program Planning*, *31*(4), 335-346. doi: 10.1016/j.evalprogplan.2008.08.004

- Schell, S. F., Luke, D. A., Schooley, M. W., Elliott, M. B., Herbers, S. H., Mueller, N. B.,
  & Bunger, A. C. (2013). Public health program capacity for sustainability: a
  new framework. *Implementation Science*, 8(15). doi: 10.1186/1748-5908-8-15
- Schneider, C. Q., & Wagemann, C. (2012). Set-Theoretic Methods for the Social Sciences: A Guide to Qualitative Comparative Analysis. Cambridge: Cambridge University Press.
- Schriver, M., Cubaka, V. K., Nyirazinyoye, L., Itangishaka, S., & Kallestrup, P. (2017). The relationship between primary healthcare providers and their external supervisors in Rwanda. *African Journal of Primary Health Care & Family Medicine*, 9(1), a1508. doi: 10.4102/phcfm.v9i1.1508
- Sen, A. (2004). Rationality and freedom. Cambridge: Harvard University Press.
- Senge, P. M. (1990). *The Fifth Discipline: The Art and Practice of the Learning Organization*. New York: Doubleday/Currency.
- Seppey, M., Ridde, V., Touré, L., & Coulibaly, A. (2017). Donor-funded project's sustainability assessment: a qualitative case study of a results-based financing pilot in Koulikoro region, Mali. *Globalization and health*, 13(86). doi: 10.1186/s12992-017-0307-8
- Serra, D., Serneels, P., & Barr, A. (2011). Intrinsic motivations and the non-profit health sector: Evidence from Ethiopia. *Personality and Individual Differences*, 51(3), 309-314. doi: <u>http://dx.doi.org/10.1016/j.paid.2010.04.018</u>
- Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). *Experimental and Quasiexperimental Designs for Generalized Causal Inference*. Boston, MA: Houghton Mifflin.
- Shediac-Rizkallah, M. C., & Bone, L. R. (1998). Planning for the sustainability of community-based health programs: conceptual frameworks and future directions for research, practice and policy. *Health Educ Res*, 13(1), 87-108.
- Shen, G. C., Nguyen, H. T. H., Das, A., Sachingongu, N., Chansa, C., Qamruddin, J., & Friedman, J. (2017). Incentives to change: effects of performance-based financing on health workers in Zambia. *Human Resources for Health*, 15(1), 20.
- Shroff, Z. C., Bigdeli, M., & Meessen, B. (2017). From Scheme to System (Part 2): Findings from Ten Countries on the Policy Evolution of Results-Based Financing in Health Systems. *Health Systems & Reform, 3*(2), 137-147. doi: 10.1080/23288604.2017.1304190
- Shroff, Z. C., Tran, N., Meessen, B., Bigdeli, M., & Ghaffar, A. (2017). Taking resultsbased financing from scheme to system. *Health Systems & Reform, 3*(2), 69-73.
- Shumba, C. S., Kielmann, K., & Witter, S. (2017). Health workers' perceptions of private-not-for-profit health facilities' organizational culture and its influence on retention in Uganda. *BMC Health Services Research*, 17(1), 809. doi: 10.1186/s12913-017-2763-5
- Sieleunou, I., Turcotte-Tremblay, A.-M., Fotso, J.-C. T., Tamga, D. M., Yumo, H. A., Kouokam, E., & Ridde, V. (2017). Setting performance-based financing in the health sector agenda: a case study in Cameroon. *Globalization and health*, 13(52), 1-15. doi: 10.1186/s12992-017-0278-9
- Sieleunou, I., Turcotte-Tremblay, A.-M., Yumo, H. A., Kouokam, E., Fotso, J.-C. T., Tamga, D. M., & Ridde, V. (2017). Transferring the purchasing role from

international to national organizations during the scale-up phase of performance-based financing in Cameroon. *Health Systems & Reform, 3*(2), 91-104.

- Simonet, D. (2008). The New Public Management theory and European health-care reforms. *Canadian Public Administration*, *51*(4), 617-635. doi: 10.1111/j.1754-7121.2008.00044.x
- SINA Health. (2015). Performance-based Financing in action: Theory and instruments (Version April 20th 2015). The Hague: SINA health.
- Sjöstedt, M. (2013). Aid effectiveness and the paris declaration: A mismatch between ownership and results-based management? *Public Administration and Development*, *33*(2), 143-155. doi: 10.1002/pad.1645
- Skiles, M. P., Curtis, S. L., Basinga, P., & Angeles, G. (2013). An equity analysis of performance-based financing in Rwanda: are services reaching the poorest women? *Health Policy and Planning*, 28(8), 825-837. doi: 10.1093/heapol/czs122
- Skiles, M. P., Curtis, S. L., Basinga, P., Angeles, G., & Thirumurthy, H. (2015). The effect of performance-based financing on illness, care-seeking and treatment among children: an impact evaluation in Rwanda. *BMC Health Services Research*, 15(1), 1.
- Smits, H., Supachutikul, A., & Mate, K. S. (2014). Hospital accreditation: lessons from low- and middle-income countries. *Globalization and health*, 10(1), 65. doi: 10.1186/s12992-014-0065-9
- Söderbaum, F., & Stålgren, P. (2008). *The Interplay between EU Member States and the EU: The Case of Development Cooperation in East and Southern Africa*. Paper presented at the EU in International Affairs Conference, Brussels.
- Soeters, R., & Griffiths, F. (2003). Improving government health services through contract management: a case from Cambodia. *Health Policy and Planning, 18*(1), 74-83. doi: 10.1093/heapol/18.1.74
- Soeters, R., Habineza, C., & Peerenboom, P. B. (2006). Performance-based financing and changing the district health system: experience from Rwanda. *Bulletin of the World Health Organization, 84*(11), 884-889.
- Soeters, R., Peerenboom, P. B., Mushagalusa, P., & Kimanuka, C. (2011). Performance-based financing experiment improved health care in the Democratic Republic of Congo. *Health Affairs*, 30(8), 1518-1527. doi: 10.1377/hlthaff.2009.0019
- Soucat, A., Dale, E., Mathauer, I., & Kutzin, J. (2017). Pay-for-performance debate: not seeing the forest for the trees. *Health Systems & Reform, 3*(2), 74-79.
- Ssengooba, F., Ekirapa, E., Musila, T., & Ssennyonjo, A. (2015). Learning from multiple results-based financing schemes: An analysis of the policy process for scale-up in Uganda (2003-2015). Kampala, Uganda: Makerere University School of Public Healht and Ministry of Health. <u>http://www.who.int/alliancehpsr/projects/Uganda.pdf</u>.
- Ssengooba, F., McPake, B., & Palmer, N. (2012). Why performance-based contracting failed in Uganda--an "open-box" evaluation of a complex health system intervention. *Social Science & Medicine*, 75(2), 377-383. doi: 10.1016/j.socscimed.2012.02.050

- Ssennyonjo, A. (2015). RBF in Uganda: ready for take-off this time? Retrieved from <u>http://www.healthfinancingafrica.org/home/rbf-in-uganda-ready-for-take-off-this-time</u>
- Stiglitz, J. E. (1987). principal and agent (ii). In J. Eatwell, M. Milgate & P. Newman (Eds.), *The New Palgrave: A Dictionary of Economics*. Basingstoke: Palgrave Macmillan.
- Stringer, E. T. (2014). Action research. Thousand oaks, California: Sage Publications.
- Sturmberg, J. P., Martin, C. M., & Katerndahl, D. A. (2016). It is complicated! misunderstanding the complexities of 'complex'. *Journal of Evaluation in Clinical Practice*, n/a-n/a. doi: 10.1111/jep.12579
- Sturmberg, J. P., O'Halloran, D. M., & Martin, C. M. (2012). Understanding health system reform - a complex adaptive systems perspective. *Journal of Evaluation in Clinical Practice*, 18(1), 202-208. doi: 10.1111/j.1365-2753.2011.01792.x
- Suh, S., Moreira, P., & Ly, M. (2007). Improving quality of reproductive health care in Senegal through formative supervision: results from four districts. *Human Resources for Health*, 5(26). doi: 10.1186/1478-4491-5-26
- Sundell, K., Beelmann, A., Hasson, H., & von Thiele Schwarz, U. (2016). Novel Programs, International Adoptions, or Contextual Adaptations? Meta-Analytical Results From German and Swedish Intervention Research. *Journal* of clinical child and adolescent psychology, 45(6), 784-796. doi: 10.1080/15374416.2015.1020540
- Swanson, R. C., Cattaneo, A., Bradley, E., Chunharas, S., Atun, R., Abbas, K. M., . . . Best, A. (2012). Rethinking health systems strengthening: key systems thinking tools and strategies for transformational change. *Health Policy and Planning*, 27(suppl 4), iv54-iv61. doi: 10.1093/heapol/czs090
- The AIDSTAR-Two project. (2011). The PBF Handbook: Designing and implementing effective Performance-Based Financing programs Version 1.0. Cambridge: Management Sciences for Health.
- The RAMESES II project. (2017). A realist understanding of programme fidelity. from <u>http://ramesesproject.org/media/RAMESES II Realist understanding progra</u> <u>mme\_fidelity.pdf</u>
- Tomoaia-Cotisel, A., Kim, H., Allen, S. D., & Blanchet, K. (2017). Causal loop diagram:s a tool for visualizing emergent system behaviour. In D. de Savigny, K. Blanchet & T. Adam (Eds.), Applied systems thinking for health systems research: A methodological handbook (pp. 97 114). London: Open University Press.
- Toonen, J., & van der Wal, B. (Eds.). (2012). *Results-Based Financing in healthcare.* Developing an RBF approach for healthcare in different contexts: the cases of Mali and Ghana. Amsterdam: KIT Publishers.
- Turcotte-Tremblay, A.-M., Gali-Gali, I. A., De Allegri, M., & Ridde, V. (2017). The unintended consequences of community verifications for performance-based financing in Burkina Faso. *Social Science & Medicine*, 191, 226-236. doi: <u>https://doi.org/10.1016/j.socscimed.2017.09.007</u>
- Tweheyo, R., Daker-White, G., Reed, C., Davies, L., Kiwanuka, S., & Campbell, S. (2017). 'Nobody is after you; it is your initiative to start work': a qualitative study of health workforce absenteeism in rural Uganda. *BMJ Global Health*, 2(4). doi: 10.1136/bmjgh-2017-000455

- UBOS. (2017). Uganda Demographic and Health Survey 2016: Key Indicators Report. Kampala, Uganda: Uganda Bureau of Statistics.
- Uganda Bureau of Statistics. (2016). The National Population and Housing Census 2014 - Main Report. Kampala, Uganda: Ugandan Ministry of Health.
- Van Belle, S., Marchal, B., Dubourg, D., & Kegels, G. (2010). How to develop a theorydriven evaluation design? Lessons learned from an adolescent sexual and reproductive health programme in West Africa. *BMC Public Health*, 10(1), 741. doi: 10.1186/1471-2458-10-741
- Van Belle, S., van de Pas, R., & Marchal, B. (2017). Towards an agenda for implementation science in global health: there is nothing more practical than good (social science) theories. *BMJ Global Health, 2*, e000181. doi: 10.1136/bmjgh-2016-000181
- Van Belle, S., Wong, G., Westhorp, G., Pearson, M., Emmel, N., Manzano, A., & Marchal, B. (2016). Can "realist" randomised controlled trials be genuinely realist? *Trials*, *17*(1), 313. doi: 10.1186/s13063-016-1407-0
- Van de Poel, E., Flores, G., Ir, P., & O'Donnell, O. (2016). Impact of Performance Based Financing in a Low Resource Setting: A Decade of Experience in
   Cambodia. *Health economics*, 25(6), 688\_705. doi: 10.1002/hec.3219
- Van Hecken, G., Kolinjivadi, V., Windey, C., McElwee, P., Shapiro-Garza, E., Huybrechs, F., & Bastiaensen, J. (2018). Silencing Agency in Payments for Ecosystem Services (PES) by Essentializing a Neoliberal 'Monster' Into Being: A Response to Fletcher & Büscher's 'PES Conceit'. *Ecological Economics*, 144, 314-318. doi: <u>https://doi.org/10.1016/j.ecolecon.2017.10.023</u>
- Van Olmen, J., Criel, B., Bhojani, U., Marchal, B., Van Belle, S., Chenge, F., . . . Kegels, G. (2012). The Health System Dynamics Framework: The introduction of an analytical model for health system analysis and its application to two case-studies. *Health Culture and Society*, 2(1), 1-21.
- van Wietmarschen, H. A., Wortelboer, H. M., & van der Greef, J. (2016). Grip on health: A complex systems approach to transform health care. *Journal of Evaluation in Clinical Practice*, n/a-n/a. doi: 10.1111/jep.12679
- Wendt, H., Euwema, M. C., & van Emmerik, I. J. H. (2009). Leadership and team cohesiveness across cultures. *Leadership Quarterly*, 20, 358-370. doi: 10.1016/j.leaqua.2009.03.005
- Westhorp, G. (2014). Realist impact evaluation: An introduction. *September*. London: Overseas Development Institute.
- WHO. (2010). Nine steps for developing a scaling-up strategy. Geneva: WHO. <u>http://www.who.int/immunization/hpv/deliver/nine\_steps\_for\_developing\_a\_scalingup\_strategy\_who\_2010.pdf</u>.
- WHO. (2016a). Public financing for health in Africa: from Abuja to the SDGs. Geneva, Switzerland: World Health Organization Retrieved from <u>http://apps.who.int/iris/bitstream/10665/249527/1/WHO-HIS-HGF-</u> <u>Tech.Report-16.2-eng.pdf</u>.
- WHO. (2016b). World health statistics 2016: Monitoring health for the SDGs, sustainable development goals. Geneva: World Health Organization.
- WHO. (2017). World health statistics 2017: Monitoring health for the SDGs, sustainable development goals. Geneva: World Health Organization.

- WHO. (2018). National health accounts database. Retrieved 31 January, 2018, from http://apps.who.int/nha/database/ViewData/Indicators/en
- Wikipedia contributors. (2018). Quantum mechanics. *Wikipedia, The Free Encyclopedia*. Retrieved 4th April, 2018, from <u>https://en.wikipedia.org/w/index.php?title=Quantum\_mechanics&oldid=834</u> 241333
- Wilhelm, D. J., Brenner, S., Muula, A. S., & De Allegri, M. (2016). A qualitative study assessing the acceptability and adoption of implementing a results based financing intervention to improve maternal and neonatal health in Malawi.
   BMC Health Services Research, 16(1), 398. doi: 10.1186/s12913-016-1652-7
- Williams, B. (2010). Systems Thinking and Capacity Development in the International Arena. In N. Fujita (Ed.), *Beyond Logframe; Using Systems Concepts in Evaluation* (pp. 35-54). Tokyo, Japan: Foundation for Advanced Studies on International Development.
- Wiseman, R. M., Cuevas-Rodríguez, G., & Gomez-Mejia, L. R. (2012). Towards a social theory of agency. *Journal of Management Studies, 49*, 202-222. doi: 10.1111/j.1467-6486.2011.01016.
- Witter, S. (2015). Growing pains (and gains): reflections on the current state of play and future agenda for performance based financing. Retrieved from <u>http://www.healthfinancingafrica.org/home/growing-pains-and-gains-</u> <u>reflections-on-the-current-state-of-play-and-future-agenda-for-performancebased-financing</u>
- Witter, S., & Bolton, L. (2015). Towards sustainability of RBF in the health sector learning from experience in high and middle income countries. *OPM report for World Bank*. Washington, D.C.: World Bank.
   <u>https://www.rbfhealth.org/sites/rbf/files/RBF\_Sustainability\_S\_de\_Witter.pd\_f.</u>
- Witter, S., Fretheim, A., Kessy, F. L., & Lindahl, A. K. (2012). Paying for performance to improve the delivery of health interventions in low- and middle-income countries. *Cochrane Database of Systematic Reviews*, 2, Cd007899. doi: 10.1002/14651858.CD007899.pub2
- Witter, S., Toonen, J., Meessen, B., Kagubare, J., Fritsche, G., & Vaughan, K. (2013).
   Performance-based financing as a health system reform: mapping the key dimensions for monitoring and evaluation. *BMC Health Services Research*, 13(1), 1-10. doi: 10.1186/1472-6963-13-367
- Witter, S., Zulfiqur, T., Javeed, S., Khan, A., & Bari, A. (2011). Paying health workers for performance in Battagram district, Pakistan. *Human Resources for Health*, *9*(3), 1-12. doi: 10.1186/1478-4491-9-23
- Wong, R., & Bradley, E. H. (2009). Developing patient registration and medical records management system in Ethiopia. *International journal for quality in health care*, 21(4), 253-258. doi: 10.1093/intqhc/mzp026
- World Bank. (2003). World Development Report 2004: Making services work for poor people. Washington D.C.: World Bank.
- World Bank. (2010). *Project appraisal document for a Uganda Health Systems Strengthening Project*. (53151-UG). Washington, D.C.: The World Bank.
- World Bank. (2016). Project appraisal document on a proposed credit for a Uganda reproductive, maternal and child health services improvement project.

(PAD1795). Kampala: World Bank Retrieved from

http://documents.worldbank.org/curated/en/854971471534008736/pdf/PAD -07182016.pdf.

- World Bank. (2018a, 8/1/2018). Country and lending groups. Retrieved 8th January, 2018, from <u>http://data.worldbank.org/about/country-and-lending-groups</u>
- World Bank. (2018b). RBF Health Projects. Retrieved 13th February, 2018, from https://www.rbfhealth.org/projects
- Wurie, H. R., Samai, M., & Witter, S. (2016). Retention of health workers in rural Sierra Leone: findings from life histories. *Human Resources for Health*, 14, 3. doi: 10.1186/s12960-016-0099-6
- Xu, K., Evans, D. B., Kadama, P., Nabyonga, J., Ogwal, P. O., Nabukhonzo, P., & Aguilar, A. M. (2006). Understanding the impact of eliminating user fees: Utilization and catastrophic health expenditures in Uganda. *Social Science & Medicine, 62*(4), 866-876. doi: https://doi.org/10.1016/j.socscimed.2005.07.004
- Yé, M., Aninanya, G. A., Sie, A., Kakoko, D. C., Chatio, S., Kagone, M., . . . Sauerborn, R. (2014). Establishing sustainable performance-based incentive schemes: views of rural health workers from qualitative research in three sub-Saharan African countries. *Rural and remote health*, 14(3), 2681.
- Zakumumpa, H., Taiwo, M. O., Muganzi, A., & Ssengooba, F. (2016). Human resources for health strategies adopted by providers in resource-limited settings to sustain long-term delivery of ART: a mixed-methods study from Uganda. *Human Resources for Health*, *14*(1), 63. doi: 10.1186/s12960-016-0160-5
- Zeng, W., Cros, M., Wright, K. D., & Shepard, D. S. (2013). Impact of performancebased financing on primary health care services in Haiti. *Health Policy and Planning*, 28(6), 596-605. doi: 10.1093/heapol/czs099
- Zeng, W., Rwiyereka, A. K., Amico, P. R., Avila-Figueroa, C., & Shepard, D. S. (2014). Efficiency of HIV/AIDS health centers and effect of community-based health insurance and performance-based financing on HIV/AIDS service delivery in Rwanda. Am J Trop Med Hyg, 90(4), 740-746. doi: 10.4269/ajtmh.12-0697

ANNEXES

# **ANNEX I: HEALTH WORKER SURVEY**

Γ			
Ev	aSys	Evaluation of Health worker motiva	tion 🥑 Electric Paper
Univers	sity of Antwerp F	Principal Investigator:	
Questi	onnaire D	Dimitri RENMANS	
2017			MAKERERE INTERNITY
Mark as	shown:	all-point pen or a thin feit tip. This form will be	e processed automatically.
Correctio	on:	e examples shown on the left hand side to h	eip optimize the reading results.
1. T	o be filled in by the research	her	
1.1	Number of survey		
			x0 x1 x2 x3 x4 x5 x8 x7 x8 x9
2. 0	Seneral information		
	These are some general question	s on your background, please put	a cross in the box next to the correct answer.
2.1	What is your sex?	□ Male	Female
2.2	What is your age? Choose the a	appropriate category.	
	16 - 25 years	26 - 30 years	31-40 years
	41 - 50 years	Older than 50 years	
2.3	Do you adhere to a religion and	d if so, which one do vou adhere	to?
	☐ Not religious	Roman Catholic	Evangelical
	Pentecostal     Other heliefe	Anglican	Muslim
2.4	At which health facility do you	work?	
	Iruhura	Kanamba	☐ Kasanga
		Kvembogo Holy cross	⊡ Kyakatara ⊡ Mabira St Martin
	☐ Maliba	□ Musvenene	□ Nvabugando
	Rwesande	Rwibale	St Paul
	□ St Adolf	Wekomire St. Thereza	Other:
2.5	What is your occupation at the	health facility?	
	Medical officer	Clinical Officer	Dental Officer
	Dental Assistant	Nursing Officer	Midwife
	Nurse	Anesthetic officer/assista	int Other:
2.6	For how long have you been wo	orking as a health worker?	
	<ul> <li>For less than 1 year</li> <li>More than 10 years</li> </ul>	☐ For 1 to 5 years	☐ For 5 to 10 years
2.7	How long have you been working	ng at <u>this</u> facility?	
	<ul> <li>For less than 1 year</li> <li>For more than 10 years</li> </ul>	Between 1 to 5 years	Between 5 to 10 years
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Evaluation of Health wor	ker motivation	Electric Paper
3. Questions on your personal motivation		
This part of the questionnaire contains questions related t on your answer. Remember, that your answers will be key answered.	to your work motivation. Please take you pt confidential and no one will ever know	r time to decide what you have
In the following we give you different reasons for which y will find that some are very important to you, while othe differ in their main reasons for being motivated at work, o It is important to understand that all reasons people mig than others. It is very important to our research that you might not be happy with your answer.	ou might be motivated to work as a hea ers might be less important for you per depending on their unique situations an ght have are equally valid, none are b a answer exactly as you feel, even if yo	ath worker. You sonally. People d personalities, etter' or 'worse' ou think that we
Please think of how you've predominantly felt in the past reasons, indicate whether these are important or not in which you work. Putting a cross under '10' means that that or even the most important for you, while '0' means that (least important). Giving a '5' means that it is only mode any number from 0 to 10, depending on how you feel ab	four weeks when answering. For each nportant in relation to the most import t particular motivation is something extre that particular motivation is not import rately important. For each statement, y out the statement.	of the following ant reasons for mely important ant to you at all you can choose
Before you begin, please take a minute and think about the	most important reasons for which you w	ork. Let's begin.
"I am motivate	ed to work"	
	Moderate	
3.1 "because my work is more than a job, it's a mission."	o → ∾ ພ ≱ ທັດ ⊲ ຜ ຜ Not ⊡ □ □ □ □ □ □ □ important to me at all	<ul> <li>Extremely important to me</li> </ul>
3.2 *because I would feel ashamed if I did not do so.*	o → N ພ ≱ ທ o √ o o Not □ □ □ □ □ □ □ □ □ important to me at all	important to me
3.3 " because of the benefits that come with my job."	0 1 2 3 4 5 6 7 8 9 Not DDDDDDDDD important to me at all	<ul> <li>Extremely</li> <li>important</li> <li>to me</li> </ul>
3.4 * because this job fits my personal values (believes, norms, etc.) very well.*	0123456789 Not DDDDDDDDD important to me at all	10 Extremely important to me
3.5 " because I very much like doing this job."	0123456789 Not DDDDDDDDD important to me at all	<ul> <li>Extremely important to me</li> </ul>
3.6 " so I don't fall out of a job."	0123456789 Not DDDDDDDDD important to me at all	10 Extremely important to me
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EvaSys	Evaluation of Health wor	ker motivation	Ciectric Paper							
3. Question	ns on your personal motivation [Contin	ue]								
"I am motivated to work"										
3.7 * bec	ause my work makes me feel proud of myself."	0 1 2 3 4 Not	M 6 7 6 9 10 DDDDDDE Extremely important to me							
3.8 ° bec every d	ause I enjoy doing what I am doing at work lay."	0 1 2 3 4 Not DDDD important to me at all	5 8 7 8 9 10 CODE Extremely important to me							
3.9 * in or	rder to be able to provide for my familly"	0 1 2 3 4 Not DDDD important to me at all	5 8 7 8 9 10 Extremely important to me							
3.10 ° in o	rder not to be excluded by my colleagues"	0 1 2 3 4 Not	5 6 7 8 9 10 DDDDDDEExtremely important to me							
3.11 ° bec	ause I like the challenges I face in my work"	o → N 00 ≱ Not □□□□□ important to me at all	ເທດ າ ແ ແດ້ Extremely important to me							
3.12 ° so l	don't forgo any benefits I may be entitled to"	0 1 2 3 4 Not DDDD important to me at all	5 8 7 8 9 10 Extremely important to me							
3.13 ° bec	ause it is my duty to care for my patients"	0 1 2 3 4 Not DDDD important to me at all	5 6 7 8 9 10 CORE Extremely important to me							
3.14 ° so n	ny supervisor recognizes and appreciates me*	0 1 2 3 4 Not 🗆 🗆 🗆 🗆 important to me at all	5 6 7 8 9 10 DDDDDDExtremely important to me							
3.15 ° beca	use it is expected of me to be there for my patients"	0 1 2 3 4 Not	5 6 7 8 9 10 DDDDDDExtremely important to me							
3.16 ° bec	ause I enjoy my work tasks"	0 1 2 3 4 Not DDDD important to me at all	5 6 7 6 9 10 DDDDDDExtremely important to me							
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	Electric Paper
3 Questions on your personal motivation [Continue]	
"I am motivated to work"	
0 1 2 3 4 M 8 7 8 9 10 3.17 " in order to feel good about myself" important to me at all tr	Extremely mportant to me
0 1 2 3 4 5 6 7 8 9 10 3.18 " because I can't see myself as anything else than a Not DDDDDDDDDDDE health worker" important ir to me at all ti	Extremely mportant to me
0 1 2 3 4 5 6 7 8 9 10 3.19 " in order to be eligible for promotion" Not important to me at all to	Extremely mportant to me
ဝ → လ ယ န ဟ ထ > လ ထ ခံ 3.20 " because I enjoy interacting with many people every day" Not □ □ □ □ □ □ □ □ □ □ □ □ important ir to me at all to	Extremely mportant to me
0 1 2 3 4 5 8 7 8 9 10 3.21 " because of the career opportunities my job offers to me" Not important to me at all to	Extremely important to me
0 1 2 3 4 5 6 7 8 9 10 3.22 " I do my work, because I want to make a difference Not DDDDDDDE in people's lives" important to me at all to	Extremely important to me
0 1 2 3 4 5 8 7 8 9 10 3.23 " because being a health worker is a fundamental Not DDDDDDDDDDDDDDDDDDDDDDDDDDD part of who I am" important ir to me at all to	Extremely mportant to me
0 1 2 3 4 5 8 7 8 9 10 3.24 " in order to earn money" Not DDDDDDDDD important to me at all to	Extremely mportant to me
0 1 2 3 4 5 8 7 8 9 10 3.25 " because my work is extremely important for my Not DDDDDDDDDDE patients" important ir to me at all to	Extremely mportant to me
0 1 2 3 4 5 8 7 8 9 10 3.26 " because my job allows me to achieve my goals in life" Not important to me at all to	Extremely mportant to me

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I			I						
EvaSys	Evaluation of Health wor	rker motivation	Electric Paper						
3. Question	3. Questions on your personal motivation [Continue]								
	"I am motivate	d to work"							
		ş							
		2 der							
		ately							
2.27 ° col	dan't let my team down"	o → N û Â û a √ a a	ö Estromoly						
3.27 501	contriet my team cown		important						
		to me at all	iu me						
0.00 5		0123456789	10 						
3.28 Deca	ause my reputation depends on my work		important						
		to me at all	to me						
		0 1 2 3 4 5 8 7 8 9	10						
3.29 " in o	rder to avoid negative consequences"	Not DDDDDDDDD important	Extremely important						
		to me at all	to me						
		0 1 2 3 4 5 8 7 8 9	10						
3.30 " bec: for my i	ause I wouldn't be me if I wasn't here to care patients"	Not DDDDDDDDD important	Extremely important						
		to me at all	to me						
		0 1 2 3 4 5 8 7 8 9	10						
3.31 " beca	ause of the security my job provides me"	Not DDDDDDDDDD	Extremely important						
		to me at all	to me						
		0123458789	10						
3.32 " beca	ause the work that I do is very interesting"	Not DDDDDDDDD	Extremely						
		to me at all	to me						
		0123458789	10						
3.33 " bec	ause of the appreciation I receive from my	Not DODDDDDDD	Extremely						
patients	s and the community	to me at all	important to me						



_			
Eva	aSys	Evaluation of Health worker motivation	Electric Paper
4 C	uestic	ons on the health care system	
	Here	are some questions on how you perceive your work environment. Let me remind yo	u that there are
		no wrong answers and that everything will remain confidential.	
4.1 4.2	Keepi of pati Can y	ng the records of the number Not DDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDD	Don't know
<b>-</b>		ou explain mily you reel and may:	
4.3	Super	vision by my superiors or Not DDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDD	Don't know
	others	is: important important important	
<b>4.4</b>	Can y	ou explain why you feel this way?	
45	<b>T</b> L - :-	→ N Q A G G	N
4.0	etc.) it	s bad	good good
4.6	Can y	ou explain why you feel this way?	
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Evaluation of Health worker motivation						C Electric Pap
Questions on the health care system [Continue]						
.7 The equipment at our facility are Extremely bad .8 Can you explain why you feel this way?		3 1 0	Moderate 4	5	6 🗆	Extreme good
			_			
.9 My tasks and responsibilities as a health worker are: Not clear at all .10 Can you explain why you feel this way?	1	а <mark>ф</mark>	Noderately dear 4	5 0	60	Extreme clear
.11 My salary (including rewards) is: Not enough at all .12 Can you explain why you feel this way?	100	а <mark>с</mark> а П	Just enough	5	60	More that enough

EvaSys	Evaluati	ion of Health wo	rker motivation					Electric Paper
4. Questio	4 Questions on the health care system [Continue]							
4.13 Are you aware of the results-based financing (RBF) project with financial incentives at your facility?  Yes Yes Yes No, I have never heard of it. what it actually is.								
lf	your answer was "NO" on que	estion 4.13, pl	ease do not a	nswer	the fol	lowin	g qu	estions.
4.14 Do you receive financial incentives on top of your salary?						y little	2	
D No,	I don't receive them							
4.15 I think t	that results-based financing (RBF	F) is	Very bad for us health workers	12 00	34 □□	56	) 7 ] []	Very good for us health workers
4.16   think t 4.17 Can vo	that results-based financing (RBF u give the main positive things al	F) is	Very bad for our facility project?	12	34	56	) 7 ] []	Very good for our facility
	a give are main positive anigo a							

4.18 Can you give the main negative things about the RBF project?

Thank you very much for your cooperation! Please put the survey in the envelope and give it to one of the researchers.

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# ANNEX II: PROTOCOL HEALTH WORKER QUALITATIVE INTERVIEWS AT BASELINE

## General information

Occupation: Have you always been .....? Where did you work before? Which facility do you prefer?

## Motivation (life story approach)

- When did you decide to become a health worker? And what was the reason?
- Being a health worker now, is it what you expected?
- Are you currently as motivated, less or more motivated than you were in the beginning? (Why?)
- You said that [answer question 1], is this still your main motivation or did your main motivator change?
- Has being a health worker yourself changed the way in which you look at other health workers?

#### Vision on role and the system

#### Role as Health Worker (HW)

Is it clear to you what is expected from you? What is expected from you as a health worker? Are there certain things that you have to pay special attention to? What are the goals and objectives of the health system? What does it mean to be a good health worker? Is it something that comes natural or do you explicitly have to pay attention to how you act?

## Monitoring and Evaluation (M&E)

Are you closely involved with the M&E? How does it function? What is its objective? Does it fulfil this objective? Is there feedback? Do you appreciate it? Should something be changed? If so, what?

#### Supervision

What is according to you the role of supervision? Is this the way supervision happens? Do you feel that the supervision is useful or not?

#### Working environment

Can you describe the atmosphere and relationship between the health workers? Can you give an example of how health workers have cooperated with each other successfully? An example of competition between different health workers? Is there anything that can be done to (further) improve the work environment?

#### Remuneration

Are you happy with what you are being paid? (Why not?) Do you think you deserve more? Why? What do you think of incentives?

#### Project

Have you heard about the BTC project? What do you know about it? What do you think of it?

#### **Opinion on facts and statements**

In this part I would like to know your opinion on a couple of facts and statements. May I assure you that no one will have access to the recordings and that the information you give me is strictly confidential and your name will not appear in any of the publications.

- When looking at maternal mortality ratios, there are 60 times more mothers dying as a consequence of giving birth than in my home country Belgium.

What do you think is the main contributor to this difference? Who is the main responsible? What can be done to improve this? What can this facility do to improve this?

- Many facilities have a lot of job vacancies, they seem to have difficulties attracting health workers?

What do you think is the reason for this? Does your facility have these problems too? Why (not)? Notwithstanding these problems, why did you still opt to come to work here?

- In February there are new elections.

What is the first thing that the new minister of health should do in the new governing period? What should be its priority?

In August the Minister of Health said that "Some health officials are born as thieves."

Why do you think he said this? Do you think he is right? Why do these malpractices exist? Have you witnessed such malpractices?

- Good healthcare for a small part of the population or mediocre healthcare for everyone.

What would you choose? Why?

## Ending

Do you hope to get promoted higher up the chain to be able to make these decisions? Or do you have other future plans outside this health facility or even the healthcare sector? What is your dream for the future?

# ANNEX III: PROTOCOL HEALTH WORKER QUALITATIVE INTERVIEWS AT END LINE

## **General information**

Sex: Age: Health facility: Occupation: Have you always been .....?

## Motivation (life story approach)

- When did you decide to become a health worker? And what was the reason?
- Being a health worker now, is it what you expected?

## Vision on role and the system

Role as Health Worker (HW)

What is expected from you as a health worker? What does it mean to be a good health worker?

## Supervision

What is according to you the role of supervision? Who supervises (external and internal)? How often? Can you describe how it works? Do you feel that the supervision is useful or not?

## Working environment

Can you describe the atmosphere and relationship between the health workers? Can you give an example of how health workers have cooperated with each other successfully? Is there anything that can be done to (further) improve the work environment?

#### Remuneration

Are you happy with what you are being paid? (Why not?) Do you think you deserve more? Why?

## **Opinion on facts and statements**

- When looking at maternal mortality ratios, there are 60 times more mothers dying as a consequence of giving birth than in my home country Belgium.

What can be done to improve this? What can this facility do to improve this?

## <u>RBF</u>

Have you heard of the RBF project of the BTC?

Is your facility participating in it?

Can you explain it to me?

What positive things can you say about the RBF project?

What negative things?

How has the project changed your work and your work environment?

What has the facility done to improve the indicators?

How is this project different from others?

Do you think it is a good project?

How can they improve on it?

# Ending

What is your dream for the future? Public or private?

Thank you very much!

# ANNEX IV: PROTOCOL KEY INFORMANT INTERVIEW

#### Introduction

#### Questions

## The project

Had you heard about PBF before the project? How? Was this project as you expected it would be? Could you explain how the PBF project in the PNFP-sector of Western Uganda looks like? How were you involved in the preparation of the project?

## **Implementation**

How was the project communicated to you? What did you do to implement the project? Did you encounter any problems in implementing the project? How did you or the project respond to these problems? Was the financing received sufficient? How were the facilities monitored? Did this always happen correctly? What was done with the information collected during the monitoring?

#### **Evaluation**

How would you evaluate the PBF project? If the Ministry of Health would ask your opinion, would advise to scale-up this project nationwide? Are there things you would do differently? Are their things that others could have done differently?

## <u>Ending</u>

What do you think is the way forward to improve the health of the Ugandan population? What should be prioritized?

# ANNEX V: CODING OF HEALTH WORKER SURVEY QUESTION ON POSITIVE AND NEGATIVE ASPECTS OF THE INTERVENTION

<u>N°</u><u>Facility</u>

Positive aspects of the intervention

Negative aspects of the intervention

1	St. Paul	/	/	/	NR
2	St. Paul	Promoted quality care for patients	QoC	The billing of patients was made low, so a facility may enter into losses so it needs ot be revised	Low top-up
		Provided motivation	Motivation		
3	St. Paul	Has led to high turn-up of patients at the health facility due to the low costs that they pay	Low user fee	Low and little funds paid or provided by the RBF to pts and facility as a whole	Low top-up
4	St. Doul	Patients are able to receive quality services.	Low user fee	None	None
4	St. Paul	Knowledge and skills improved	QoC		
5		It helps on payments of the pts	Low user fee	None	None
	St. Paul	Helps in providing drugs to patients through health units	Drugs		
6	St. Paul	It has helped us improve on quality improvement. At least all health service provision required for pts in attempted	QoC	Not yet observed	None
7	St. Paul	RBF project helps even a poor person to get services from a health facilityn hence increasing the number of people who come to the facility	Low user fee	It only funds the pts minus considering the staff	Not 4 staff
		Helps health workers to work according to MoH guidelines. Helps in quality service improvmeent	QoC	It does not consider those people who are unable to pay a single coin	Not free
		RBF has increased patient turn-up at our facility	Low user fee	Created alot of more workload	Workload
8	Rwesande			and yet as health workers we do not see any incentive () only manager receives	Not 4 staff
		Helped to reduce the hight cost to the patients	Low user fee	but has created a lot of workload to us the health workers	Workload
----	-----------	--	-----------------------	--	---------------
9	Rwesande			with very little incenite compared to the work offere and working extra hours	Low incentive
				RBF focuses only at paying for quality without considering the output. I wish health workers should also be considered for output other than quality only.	Indicators
10	Rwesande	Pts billing has reduced	Low user fee	/	None
11	Rwesande	Helped the facility because there are no drug stock outs now	Drugs	None	None
		and number of pts has increased	Low user fee		
12	Rwesande	There is a big increasein the n° of pts visiting the facility	Low user fee	Scholarships not catered for	Scholarship
12	Duverende	It makes us provide quality work	QoC	If no work done no financing	RBF
13	Rwesande	Financing is paid and based on work provided	RBF		
14	Rwesande	It has helped the community alot due to the reduction of user fee	Low user fee	Sharing the incentive is not all equally	RBF
15	Rwesande	The incentive given to staff has motivated them to perform to their best	Motivation	As per now I don't have any negative remarks	None
16	Rwesande	It gives equally according to service	RBF	Nothing at all	None
17	Kanamba		Nev	er heard of it	
18	Kanamba		Nev	er heard of it	
19	Maliba		Not	clear to me	
20	Maliba	I	Not in the project bu	t heared good things about it	
21	Buhaghura		ot in the proje	ect but acts as if s/he is	
22	Maliba		Nev	er heard of it	
23	Musyenene		Nev	er heard of it	
24	Musyenene	RBF is more focusing on how much you perform. Wotk big, money big.	RBF	If the workload is of under stafffing	Workload
				it means good performance may not be realistic	QoC

25	Kasanga	Payment depends on performance/score	RBF	If you don't work quality you don't earn	RBF
26	Kasanga		Neve	er heard of it	
77	Kasawaa	It improved the quality of healthcare services	QoC	It unequal distribution of finances to the beneficiaries	RBF
27	Kasaliga	It motivates healthcare providers	Motivation		
28	Kasanga	It provides money to us	Money	It delays its money	Delay
20	Kasaliga	and we buy drug for our pts	Drugs		
		Improving quality of care	QoC	It has not been able to look at the capacity building of HW	Scholarship
29	Kasanga	Motivation of HW	Motivation	Quarterly funding should be revised to monthly	Freq.
		Availability of equipment	Equipment		
		and drugs at the unit	Drugs		
30	Kasanga	It has helped HW improve in their work especially on promoting health	QoC	Only centered on the pts and less on the HW	Not 4 staff
				It should also look at where teh patient is worked on	Indicators
24	Kasanga	It helps the health unit to get more funds to be able to work efficiently	Money	/	None
31		It increases supervision	Supervision		
		and staff motivation as incentive	Motivation		
		RBF provides motivation	Motivation	None	None
32	Kasanga	and increases quality and high output by workers	QoC		
		Pts are getting medication at a reduced cost	Low user fee	Sometimes delayed release of funds	Delay
33	Kasanga	Other equipment at the health facility have been processed	Equipment		
		It has led to improved service delivery	Qoc	RBF wants to find everything i place yet it has to come to support	RBF
34	Nyabugando	there has been some staff motivation	Motivation		
		Some infrastructural develoment at the unit	Equipment		

		It helps us to improve on the services we offer to patients	QoC	I have not seen the main negative thing about RBF	None
35	Nyabugando	for example, when drugs are available	Drugs		
		equipment available	Equipment		
36	Nyabugando	RBF project guides us healht workers to do quality work hence best result for our pts	QoC	RBF should put a policy on money distribution among staff, especially the ward which has scored highly	Incentive rule
37	Kinyamaseke		Knows it l	out not accredited	
38	Kinyamaseke		Not	clear to me	
39	Kinyamaseke		Not	clear to me	
40	Kinyamaseke	Refers to the accred	ditation phase: RBF b	prought equipment and has improved their skills	
41	St. Paul	It helps poor patients to get all health services and prevention of patients morbidities and mortalities	Low user fee	Not there	None
		It pays patient bills	Low user fee	Delay in paying money	Delay
42	St. Paul	It donates the facility with items like drugs	Drugs		
		Equipments like computers, bed, etc.	Equipment		
43	St. Paul	/	/	/	NR
11	St. Paul	It helps by buying for us drugs at the facility	Drugs	They did not give as many in the first quarter	Low top up
44		They are providing with us equipment	Equipment		
45	Kyarumba	It has helped to improve the services of the facility	QoC	/	none
46	Kyarumba	It is a project that is responsible for funding health facilities in Uganda	/	Delay in providing services to the facilities	delay
47	Kyarumba	They facilitate health worker to perform their duties succesfully	QoC	It doesn't meet the needs for most HW and other people at large	Low incentive
40	Kuanumha	It has made HW to handel patients, treat pts accoring to the MoH guidelines	QoC	The money allocated to some indicators esp. OPD is not enough and needs to be increased	Low top-up
48	Kyarumba	It has made staffs to like their job because of the motivation given to them	Motivation		

49	Kyarumba	It is a project which is helping in funding health facilities for the good doing of their needs	/	/	NR	
50	Kyarumba		Never heard of it			
51	Kyarumba		Neve	er heard of it		
52	Kyarumba		Not	clear to me		
53	Kitabu	Helps us to get a lot of patients	Low user fee	But we don't know whether we can get salary or not because our bills are very little	Low top-up	
54	Kitabu	It follows both rich and poor people	Low user fee	It does not follow health workers to some extend because what you would be getting as an incentive you get it as salary because the user fee does not favour us to raise salary	Low incentive	
		It enables us to deliver quality work and services to pts	Qoc			
55	Rwesande	They have built some building		Not well motivated during the sharing of the money		
55	Rwesallue	Not clear to me				
56	Rwesande	It helps to increase quality, it has increased handwashing by staff	QoC	Haven't of enough motivation	Low incentive	
57	Rwesande		Not	clear to me		
58	Rwesande	It has enabled service delivery to come to the poor community	Low user fee	Not one for now	None	
59	Kinyamaseke		Not	clear to me		
60	Kinyamaseke	Not clear t	o me, but answers h	owever, there is no PBF in Kinyamaseke		
61	Kinyamaseke	Not clear to me, but answers however, there is no PBF in Kinyamaseke				
62	Musyenene	Never heard of it				
63	Musyenene	/	/	/		
64	Musyenene		Not	clear to me		
65	Mabira	Not eligible				

		Ensures quality in nature of doing work	QoC	Funds are provided late	Delay
66	Kitabu	Promises staffing level by ministry of health standards	Staff	Indicators that have not met the standards are scored zero even when costs ahve been reduced leading to losses	RBF
		Helps in turn up of patients	Low user fee	Has led to stock outs of some medicine in case you do not score well	RBF
67	Kitabu	And cared for	QoC	and there is delay in the release of the funds	Delay
		Helps in stocking of medicines	Drugs		
68	Kitabu	Financial support to the facilities	Money	We have never received our RBF grant on time. Now we are demanding two quarters. Since we reduced bills of pts we have a burden of drug debts and our pts and staff have no drugs and salary. No salary for July because no money to pay the staff and no money to buy drugs. may you help us and put that money on the facility account otherwise we are soon running away from the RBF project.	Delay
_		Stricked on provision of quality service and recording system	QoC		
69	Kyakatara	It really helps the facility to improve in terms of finances	Money	It creates negative ideas between the incharge and the health workers due to the part that is reserved as performane appraisal. Or rate of work which has no concrete improvement	Incentive rule
		and improves the well-being of health workers	Motivation		
		Increase in patient attendance	Low user fee	staff incentives though just not enough	Low incentive
70	Kyakatara	Increase in the quality of services	QoC	The subsidy per indicator doesn't match with the current prices of inputs (drug and sundries)	Low top-up
		Motivation through staff incentive	Motivation	Delayed release of quarterly RBF fund paralyses activities	Delay
71	Kvakatara	Increasd number of pts	Low user fee	Poor per pts, that cheap lead to poor service	Low top-up
/1	куакатага	Topped-up our salary	Motivation	Reluctany of HW	motivation

72	Kyakatara	Its all about giving quality of care to pts	QoC	The user fees they put is too low and can easily put the facility into losses	Low top-up
		on reduced price	Low user fee		
73	St. Adolf	It seems there is financial support with RBF project [doesn't really know what it is]	money	It has increased workload	Workload
		RBF will help clients on their bill to be reduced	Low user fee	If the HF doesn't give good quality, no support from RBF	RBF
74	St. Adolf	HF workers will get motivation by topping on their salaries	Motivation		
75	St. Adolf		Ν	ot eligible	
76	St. Adolf	Because it has made me know the errors I have been doing	QoC	None	None
77	St. Adolf	It helps improve on the quality services	QoC	/	None
		It will motivate our personnel	Motivation	If RBF is little can cause conflicts	conflict
78	St. Adolf	and it will helps us work in norms hence perfecting our work	QoC	RBF is stressful, can have to work hard in order to get something but if I fail I may lose money from clients	Stress
				and loose RBF too which can lead to a big loss	RBF
79	St. Adolf	They facilitate HC with funds	money	RBF project send money but lower cadres we don't receive it	Not 4 staff
80	Kyembogo		Neve	er heard of it	
01	Kuomhaga	Just started don't know how good it will be for HW	/	The money delay after assessment	Delay
81	Kyembogo			The list of drugs for mgmt of malaria should be added a lot, only	Indicators
82	Kyembogo	Help client or people access medical care at an affordabble cost with equality and equity	Low user fee	The project is to stay for a short time	sustainability
83	Kyembogo	RBF has improved health serice delivery to the community	Low user fee	rating mechanism is difficult to pass	Indicators
		It enhances quality of care to pts/mother	QoC		None
84	Kyembogo	through funding and reduction of facility bills to be paid by them	Low user fee		

85	Rwibale	Partly finances the health facility	money	There is always emotion of what is expected from the health worker/facility	Workload
		It also motivates teh HW	Motivation		
		It helps the facility to be in order and doing quality services to the clients	QoC	Little money is provided to the health facilities	Low top up
86	Rwibale	even staying in a clean environment	Environment	and even it delays to come. This delays the service delivery or the health workers loose hope to continue. It demands a lot.	Delay
		It helps the poor people to access medical care, thus improving mortality and morbidity	Low user fee	When they are coming for supervision they don't communicate.	Communicat
87	Rwibale			For some pts they are underpaying the facility	Low top-up
				sometimes collecting data for submission is very tiresome and stressy	workload record
		they help us to impmrove on the care given to pts	QoC	They don't ususally communicate earlier	communicat
00	Rwibale	Provision of drugs	Drugs		
00		equipment	Equipment		
		and support in fianncial incentives	Motivation		
89	Rwibale	our facility was supported with equipment as regarded by MoH standards	Equipment	No clear work plan known to HF staff	MGMT
90	Mabira	It has let us health workers to know our mistakes and solving it	QoC	None	None
91	Mabira	Fianncing HF in promoting service delivery to patient	Low user fee	Not really	None
		by giving financial incentive to HW	Motivation		
		Ir increases effectivity in reporting	reporting		
92	Mabira	making clear diagnosis and standard following MoH guideline, therefore enhances standards of MGMT of disease	QoC		None
93	Mabira	Improves and promotes quality services and high yields of the outccome	QoC	None	None

94	Kyembogo	I hope RBF will increase delivery of services through quality to pts	QoC	RBF is strictly on the delivery of quality services when they have not given clients transport in order to visit health facilities when appointment dates are given to clients. This has let down smooth running of quality	transport RBF
		I hope HW will get motivation in form of finance on top of their salaries	Motivation		
95	Rwibale	Its a great motivation to let one do well on his work	motivation	If in case it lacks equality or get off it becomes a great demotivator	RBF
		High pts turn up	Low user fee	delayed release of funds	delay
96	Kyarumba	Improved quality of services	QoC	insufficient RBF subsidy for pts compared to the amount of pts are supposed to top-up	Low top up
				Failure to support areas of infrastructure, staffing and	RBF
				equipment of facility	Environmnt

# <u>Analysis</u>

No PBF	18
PBF	76
Total	94 (+2 not eligible)

	Positive responses	Negative responses	
Answered	64	Answered	65
No response	2	No response	3
Not know	7	Not know	7
Answer not in line with quesiton	3	Answer not in line with question	1

Code	Number	<u>%</u>	<u>Code</u>	Number
Quality of care	33	51,6	None	20
Low user fees	27	42,2	Low top-up	11
Motivation	18	28,1	RBF	12
More drugs	9	14,1	Delay	11
Improved equipment	8	12,5	Low incentive	5
Increase of money	7	10,9	Not for staff	4
PBF rationale	3	4,7	Workload	4
Supervision	1	1,6	Indicators	4
Staff	1	1,6	Scholarship	2
Environment	1	1,6	Incentive rule	2
Reporting	1	1,6	Frequency of paying	1
			Reluctancy of HW	1
			Conflict if RBF is little	1
			MGMT	1
			Stress	1
			Sustainability	1
			Communication	2

Recoding of p	ositive codes			
	Combination of codes	<u>New code</u>	<u>Number</u>	<u>%</u>
	None	Nothing negative	20	30,8
	Low top-up + indicators + frequency of paying	Design issues	16	24,6
	RBF + Scholarship	Rationale of PBF	14	21,5
	Delay + Communication	Implementation issues	13	20,0
	Low incentive + not for staff + incentive rule	Issues related to incentives	11	16,9
	Workload + stress + conflict	Work experience	6	9,2
	Reluctancy of HW + MGMT + Sustainability	Other	3	4,6





# ANNEX VI: CODING HEALTH WORKER SURVEY QUESTIONS ON RECORD KEEPING AND SUPERVISION DURING BASELINE STUDY

# **Record keeping**

• Coded 'instrumental':

- 1. Know how much effort is needed to reduce these diseases in patients (1)
- 2. Know when patients are improving or not (3)
- 3. History of the facility, development of the facility and government. Follow-up of patients. Helps in research. Surveillance. (4)
- 4. Assists us to know the number of patients we receive and the diseases which we treat commonly. Conditions which needs notification (5)
- 5. Helps to plan my services govt. Uses the same records to plan for the health programmes (6)
- 6. To identify disease outbreaks (8)
- 7. It helps to track down the disease prevalence (9)
- 8. For better management of the conditions (11)
- 9. Important for the purpose of [...] research important for the purpose of planning (12)
- 10. Can be for study purposes (13)
- 11. Helps us to attain the workload and the disease patterns in our community. Helps us in planning and making decisions on the type of drugs and personnel. (16)
- 12. Helps in making plans at the unit (17)
- 13. Follow-up of patients. To intervene in case of outbreaks. (18)
- 14. Because of evaluation ... improve on problems (19)
- 15. Helps to track disease incidence and prevalence. Helps identify gaps. Helps to plan and budget for the health unit (21)
- 16. For proper planning ... for forecasting (23)
- 17. Important for disease surveillance important when making \*\*\*\*\*\* of patients. Important when making research. For proper planning and budgeting of the health centre. (24)
- 18. Makes me plan for patients. Makes me [...] help [the patients] accordingly depending on their needs (25)
- 19. For research purposes in case of comparisons with the past medical history (26)
- 20. Helps us to know the no. Of patients who have presented the same disease, such that we consider it as an epidemic and provide more security to the community (27)
- 21. Helps to know what type of disease is commonly affecting the people and the number of patients suffering from it so as to give preventive measures and treatment (28)
- 22. Helps to know anything concerning the patient in case he/she comes back with the same complaints or diseases (31)
- 23. Helps for evaluating yourself. Helps to plan for the facility and community at large then guides you to find some solutions to problems (32)
- 24. Accuracy, follow up (36)
- 25. To care for patients, to serve appropriately as a nurse and according to the ethics of my professional. (37)
- 26. To allow to plan for my work (40)
- 27. To identify diseases affecting people most. To intensify surveillance. Determines workload on health workers available. Plan for intervention. (41)
- 28. For future reference when a patient comes back. Can also be used for surveillance (42)
- 29. These represent the patients and in case of any follow up and reference this helps much. To track common disease (43)
- 30. It helps in proper planning (45)
- 31. For research. They help in planning for the patients (46)
- 32. For study purposes and research and for better diagnosis in case of relapse. All this will lead to quality improvement in the facility. (47)

- 33. Helps in identifying the most diseases that affect the people in this specific area; and how many come for services at the health unit (48)
- 34. For easy monitoring of patient progress. Differentiate between disease patterns (51)
- 35. Important for determining the outbreak of epidemics within the community important for planning (52)
- 36. Helps in planning (54)
- 37. Keeps information and events for years and years. It improves the planning (55)
- 38. For references in case of a certain disease that occurred in the past years (56)
- 39. Helps in planning (57)
- 40. Will be able to report how many patients i receive so as to help the government to plan for drugs and other thing needed (58)
- 41. Proper management of patients. For research. Surveillance of some diseases. (60)
- 42. Guide on disease prevalence in certain communities e.g. Increase of disease outbreaks. Helps you to know how many patients you see in a day and the different diseases (61)
- 43. Helps in knowing of a new outbreak of a disease. For research (62)
- 44. Very important for planning (63)
- 45. Because patient eligibility. Because of any outbreak that comes these record may help (64)
- 46. So as to plan properly to the patients and the community at large (65)
- 47. Indicates you who you are treating and what she/he gets with correct treatment (66)
- 48. Help me to sum up what new diseases that had come up (68)
- 49. I can assess if there is improvement or not (69)
- 50. For security purposes. For follow-ups. For lobbying logistics (70)
- 51. To know the disease burden. In case of outbreak of a disease, we can easily report to the concerned person (71)
- 52. Helps follow ups of clinical outcomes of patients. (72)
- 53. Helps us to know the disease that might be affecting people the most within the community (73)
- 54. Know where there could be an outbreak of disease and take action before it... help the moh to plan for patients. It helps us health workers to plan for patients (75)
- 55. Helps us on how to target on reducing on the number of patients and infections (77)
- 56. Important for data collection, [...] retrieval of prevalence of disease. Important for [...] review, evaluation after planning (78)
- 57. Easy way to identify the disease pattern of the catchment population. Help in identification of gaps during service delivery helps in decision making. [...] helps in identifying the appropriate intervention (80)
- 58. It helps me when the patient comes back in the next month or next time (81)
  - Coded 'Accountability':

- 1. If any mistakes are done in the patient, it can be traced (2)
- 2. Report at the end of the day, week, month and acquire the statistics (4)
- 3. How they [disease outbreaks] have been managed at our facility (8)
- 4. Easies the work of weekly and monthly reporting (11)
- 5. The patient will have confidence in health workers (13)
- 6. Helps to make accountability (14)
- 7. Helps in evaluation work done (17)
- 8. For accountability (23)
- 9. Helps in monitoring the performance of the health facility (24)
- 10. Sometimes we get visitors at our unit asking for the number of patients we heard some months ago and it helps us so much (30)
- 11. Helps in auto update of information if of need by higher offices (33)
- 12. Proper accountability. For assessment (36)
- 13. For purpose of accountability (38)

- 14. Health facility can make annual report with the number of patients seen and common diseases (39)
- 15. If i don't put what i have done in writing, i've been doing nothing (44)
- 16. It helps in proper [...] reporting (45)
- 17. For proper accountability (49)
- 18. For easy accountability (50)
- 19. Easy accountability (51)
- 20. If anything wrong happens to the patient and no record is kept, i will be imprisoned (53)
- 21. Helps in monitoring and evaluation after implementing (54)
- 22. How it was treated (56)
- 23. Helps in monitoring, implementing and evaluation (57)
- 24. For proper accountability (60)
- 25. It helps in report writing (62)
- 26. Help me giving out accountability in reports to the ministry of health and other organisations (68)
- 27. Helps in monthly surveillance reporting (72)
- 28. Helps us as the health workers in data collection and making reports (76)
  - Coded 'Other':

- 1. Also for references in the future (6)
- 2. Helps me to remember where necessary (7)
- 3. Important to save our life (10)
- 4. It is important for the purpose of [...] future reference (12)
- 5. Extremely important because of future reference (13)
- 6. For references (15)
- 7. Because the records are well kept (20)
- 8. ... (22)
- 9. Used for future reference, if any data is needed (24)
- 10. For reference (29)
- 11. List of available statistics (34)
- 12. Because of my way of understanding (35)
- 13. It motivates me because i know the i have worked on (40)
- 14. For future reference when a patient comes back (42)
- 15. It helps in [...] future references (45)
- 16. Very important for future reference ...(47)
- 17. For future reference (49)
- 18. For reference purpose (50)
- 19. Future reference (55)
- 20. Future reference (59)
- 21. For future reference (60)
- 22. Helps for reference or for future \*\*\* (62)
- 23. For future reference(70)
- 24. ... (74)
- 25. That means that the patients are appreciating the work we are doing (67)
- 26. To maintain culture and norms of the unit (70)
- 27. Important cause every patient need confidentiality on his/her condition (79)

#### **SUPERVISION**

• Coded 'Improve quality' (70/81; 86,4%)

- It help me to recognise my weakness and correct them. Helps me to do my work consciously (1)
- 2. Because this helps me to be effective in whatever i do (2)
- 3. It helps improve \*\*\*\* \*\*\*\* (4)
- 4. Because if am supervised i will be informed about the areas which needs improvement in my services so that i can provide better services to patients (5)
- 5. Correct where things have gone wrong (6)
- 6. It helps me to know how far i have reached and also where i have done wrong and good (7)
- 7. We get to know how much efforts we are putting in and correct any mistakes. It also improves on the working system of our facility. (8)
- 8. Because it helps \*\*\*\* the gaps that exist (9)
- 9. More skills are acquired (11)
- 10. For: supporting in areas of weakness (12)
- 11. It helps to bridge gaps in services delivery (14)
- 12. Because you learn from weaknesses and strengths (15)
- 13. To correct me in any case (16)
- 14. Helps me realize my weaknesses and strengths so that i can improve where necessary (18)
- 15. To identify where there is problem (19)
- 16. Helps improve on the gaps identified (21)
- 17. Makes me acquire knowledge of what i don't know (22)
- 18. Make corrections or remember (23)
- 19. It's important for corrections where errors are made; learning is \*\*\*\*\* process, through supervision i learn new things; it encourages team work no frustration at work; it yields quality health services (24)
- 20. Supervision on some situations helps in correction of some mistakes and hence improving service provided to my clients (25)
- 21. To correct where i fail so that i improve on how i work (26)
- 22. The supervision is important because it makes us to remind other things (27)
- 23. Supervision is important because it gives room for improvement in case of weakness (28)
- 24. For proper improvement of the quality of services offered as well as training and mentorship (29)
- 25. It's good to be supervised because it helps you know your weaknesses and good things you do (31)
- 26. Supervision is very important, will show activities done and not done. Also to identify some other problems that may occur. (32)
- 27. Supervision helps in identification of negative findings and provide solutions to foster improvements.(33)
- 28. In order to be corrected in areas that i need improvement. (34)
- 29. To find my strength and weaknesses. It helps to bridge the gaps and improves my performance. (36)
- 30. It's extremely important because i achieve more knowledge concerning health and gaps for improvement. (37)
- 31. Helps me to sustain good work and improve appropriately. (38)
- 32. This can help identifying gaps (39)
- 33. Corrections from my superiors. (40)
- 34. Helps to identify gaps for improvement and promotion (41)
- 35. This helps one to know the gap in my working system (43)
- 36. Nobody is perfect, corrections can be done (44)
- 37. It improves the quality of work (45)
- 38. It helps me to improve where i don't perform well. It helps on quality improvement (46)
- 39. It helps to find out the weakness you are undergoing in the facility so that you may know the \*\*\*\* that need improvement. (47)
- 40. Promotes and improves skills by correcting poorly done procedures (48)
- 41. Reminds you of your responsibilities and where to improve where necessary (49)
- 42. It will help me to improve in areas where i am not working perfectly as expected (50)

- 43. Every consultation where possible, to \*\*\*\*\* whether what i am doing is beneficial or not. (51)
- 44. Above all it improves performance (52)
- 45. Because if am not supervised, i will not know how i am working(good/bad) and i will not know the mistakes (53)
- 46. It helps me to perform better and improve where i am advised (54)
- 47. If you are not supervised you cannot learn and improve on areas less performant; improves on skills.(55)
- 48. This it develops my skills (56)
- 49. It improves y working skills (57)
- 50. This will help me to improve where i have gaps in all procedures as told by my supervisor (58)
- 51. For correcting where things are not good and appreciating the good ones (59)
- 52. Helps in identification of gaps where to improve (60)
- 53. This helps to improve on areas you have problems \*\*\*\*\* supervision (61)
- 54. Because it will help me improve on my weakness and acquire more skills (62)
- 55. Because if the supervision is not done the work will not be good (63)
- 56. You get to know your weakness and improve; also learning new things from them. (65)
- 57. The superiors are needed to supervise because i cannot trust myself that i am 100% correct. More heads are needed than one. (66)
- 58. The supervision is very important because through supervision. I can know what i don't know and i can be \*\*\*\*\* learn more. (67)
- 59. This is because they will tell my failure, where to improve, and where it is good and this will help me to lift the standard of the health unit. (68)
- 60. This is important because i get to know or learn more new things to improve services (69)
- 61. This helps the work to focus on their duties and tasks assigned. (70)
- 62. I am corrected in areas where i am not doing well (71)
- 63. Makes health workers \*\*\*\*\* their work in case someone has done wrong (73)
- 64. It is very important because you can learn what you have not been knowing and filling gaps that you had left blank (75)
- 65. It is good because they help us to know more on what i don't know (76)
- 66. Because i am corrected where there could be a mistake (77)
- 67. Help to expertise, learning and understanding what was not understood prior. (78)
- 68. This is important because it's through supervision that i get to know my mistakes and to learn new things (79)
- 69. Supervisors help to identify gaps and where necessary they provide the appropriate intervention through experience sharing thus improving service delivery. (80)
- 70. Because they correct me where i have gone wrong (81)
  - Coded 'Control' (6/81; 7,4%)

- 1. Because sometimes people don't come to work when the superiors are not around, but me i am able to work even if the superiors are not around (3)
- 2. To identify workers who are not working (17)
- 3. To identify the worker who is not there (19)
- 4. This helps us so much to work very hard for our patients because sometimes other try to dodge so we work under supervision (30)
- 5. Supervision is good because somewhere there is relaxation (35)
- 6. It's for checks and balances (52)
  - Coded 'Planning' (4/81; 4,9%)

- 1. It helps me to plan for the facility & government (4)
- 2. Able to plan as a team (6)

OPENING THE 'BLACK BOX' OF PERFORMANCE-BASED FINANCING IN THE HEALTHCARE SECTOR OF WESTERN UGANDA

- 3. Helps to plan for both facility and community and also for health workers (32)
- 4. Helps the in-charge to have proper decision making (70)
  - Coded 'Motivation' (8/81; 9,9%)

#### Count Response (Survey number)

- 1. It helps me for positive support (4)
- 2. It gives courage for the work to move on smoothly (11)
- 3. Motivates me, especially appreciate when it is good (21)
- 4. I am motivated to work better (24)
- 5. This improves commitment on job (48)
- 6. Supervision makes me feel motivated (60)
- 7. Because i like being appraised by my superiors; because i like being motivated at my work due to what i am doing about my job so that i can upgrade for further studies. (64)
- 8. Because i am encouraged (77)
  - Coded 'Evaluation' (2/81; 2,5%)

## Count Response (Survey number)

- 1. This helps me to know how well i am performing (16)
- 2. Evaluation of the health workers (17)
  - Coded 'Information' (4/81; 4,9%)

#### Count Response (Survey number)

- 1. I am able to learn new policies (6)
- 2. Updating on new things coming in (23)
- 3. It is important because i got updates from them (40)
- 4. Supervision may lead to getting updates at work (47)
  - Coded 'Better infrastructure' (1/81; 1,2%)

#### Count Response (Survey number)

- 1. To know the missing equipment to the facility (73)
  - Coded 'Work relations' (3/81; 3,7%)

#### Count Response (Survey number)

- 1. Creates good/friendly relationship between i the nurse and my supervisor (48)
- 2. Promotes teamwork (60)
- 3. Because it promotes teamwork (73)
  - Coded 'Don't come' (1/81; 1,2%)

#### Count Response (Survey number)

- 1. They don't come normally for supervision (20)
  - Coded 'Not useful' (2/81; 2,5%)

- 1. Because i can work well without supervision (42)
- 2. Because they look for issues based on administration other than my personal problems and clinical issues (72)
  - Coded 'Nothing' (3/81; 3,7%)

- 1. It is give us health (10)
- 2. ... (13)
- 3. My superiors or others have tried their very best to see that supervision is closely done as recommended (74)

# ANNEX VII: SELECTED EXTRACT FROM THE IMPLEMENTATION MANUAL OF NOVEMBER 2016 (P. 8-46)

In this annex we give a selected extract of the implementation manual of the national RBF framework. This framework is thus the basis of the BTC/Enabel intervention. Importantly, this is the manual as of November 2016, however the intervention is constantly being adapted and thus the arrangements in this manual may be outdated In order to keep it concise and readable we have only kept the most relevant parts and have deleted words, phrases and paragraphs which we thought were less important to understand the intervention and/or the research (findings).

# 1. RATIONALE AND OBJECTIVES FOR THE RESULT BASED FINANCING

RBF has been acknowledged as a purchasing mechanism that can promote more efficient use of resources. By paying for the output, the Government and the HDPs transfer money directly where it belongs. The increased spending autonomy that is often associated with RBF also promotes the innovative use of these resources to improve the utilization and delivery of health services and makes stakeholders at local level more responsible and accountable. RBF proposes strategic action on revenue collection, risk pooling and strategic purchasing of cost effective services.

During the development of the RBF implementation manual, the disadvantages of RBF have been considered and steps have been taken to mitigate them by selecting design features that will minimize negative consequences.

# 1.1 OBJECTIVES OF THE UGANDA RBF PROGRAM

The goal of the National RBF Program is to contribute to the reduction of morbidity and mortality by improving access to an affordable and quality package of essential health care services to the people in Uganda, with equal rights and opportunities.

The objectives of the National RBF Program are

- 1. To enhance the utilization, efficiency and quality of health services while improving equitable access to health services.
- 2. To increase the strategic purchasing of cost effective services.
- 3. To increase effective pooling of resources and to facilitate the transition to national health insurance.

# 1.2 STRATEGIES AND PRINCIPLES OF THE UGANDA RBF PROGRAM

# **Complementary interventions**

It shall not be implemented as a vertical program. The RBF will support the **elaboration of District health coverage** plans to improve access to UNMHCP without loss of efficiency in resources allocation. - Setting up an **accreditation process** as recommended by the "Quality Improvement Strategic Plan" (MoH, 2010) for public and PNFP health facilities.

The output subsidies as recommended by the NHP II and the HFS may contribute to reducing financial barriers. The development of a national RBF framework is an opportunity to introduce a comprehensive **strategic purchasing** mechanism and establish a **third party payment mechanism** in Uganda's health sector. With a focus on indigents and most vulnerable populations. Moreover, it may prepare the ground for the establishment of a trust fund, and in the long run, the introduction of community insurance and a National Health Insurance Scheme (NHIS) as planned in the Health Financing Strategy.

# **RBF** Principles

The main Principles of RBF implementation in Uganda include

## 1) Simplicity of the RBF framework

Although a purchaser-provider split is commonly recommended often with the involvement of independent purchasing agencies, the RBF program in Uganda will be implemented by government agencies with a separation of functions - regulation and purchasing, fund holding, verification and service provision - between the key actors.

# 2) Transparency in the health sector

The transparency in the use of funds in the health sector will be improved in several ways including i.a.:

- Direct allocation of RBF funds to the health facilities and other entities and disclosure of the funds transferred;
- 3) Autonomous management of health facilities.
- 4) Targeting facilities and not Health staff:

To enhance teamwork, the RBF model in Uganda will target facilities and not health staff directly. On the other hand, increased autonomy of health facilities in the human resources management and distribution of incentives may promote innovations by health services managers.

## 5) Promoting Public-Private partnerships.

PNFP and PHP providers that meet the norms and standards defined by the MoH are eligible for the RBF subsidies when they complement the provision of services by the public sector and increase access to health services.

## 6) Improving the referral system

Shifting tasks away from 'higher-level' facilities to 'lower-level' facilities should be taken into consideration when defining the package of services to be subsidize by RBF program, in order to improve the referral system, hence efficiency of health care.



# 2. RBF IMPLEMENTATION AT FACILITY LEVEL

The introduction of RBF at facility level goes through three phases<sup>99</sup>.

# 2.1 THREE PHASES

# 2.1.1 Prequalification process (Accreditation)

# **Eligibility of health service providers**

Health facilities that offer the required package of services, registered and recognized by the DLG and included in the district coverage plan, with a clearly defined catchment population are eligible for inclusion in RBF program if they meet the selection/prequalification criteria. Nevertheless, only public and PNFP facilities are eligible in the first phase of the RBF program.

# Prequalification assessment

For the health facilities that have expressed interest, pre-qualification assessment is conducted by the National RBF Unit and the DHMT. The health facilities are selected on the basis of infrastructure, equipment and human resources requirements, according to their designated levels of service.

Basic structural standards to ensure that citizens are not harmed or exposed to hazards when they enter a health facility are extracted from the Health Facility Quality of Care Assessment tool developed by the MOH Quality Assurance department, adapted and used for the prequalification assessment. In the following box you find some measures that are part of the assessment.

- The facility has annual work plan or operational plan, approved by Health Unity Management Committee
- Availability of at least one of each of the HMIS tools required for facility reporting
- Existence of TB patient Waiting Shelter separate from the triage area.
- The Health Care Waste is segregated according to National Standards
- The facility has guidelines and job aids for educating lactating women on breast feeding
- The facility has a qualified staff to manage the laboratory
- Maternity ward has at least two separate rooms
- There are qualified staff on duty in OPD: one (1) clinical officer, one (1) Registered Nurse and one (1) enrolled nurse

Three scenarios are envisaged:

# I. Selection of the facilities into the RBF program.

All facilities that score 85% and above (4 and 5 stars) will be included in the RBF program. Nevertheless, a health facility may be rejected because it does not fit in the health coverage plan of the district even if it obtained a favorable score<sup>100</sup>.

<sup>&</sup>lt;sup>99</sup> In the thesis we use the more appropriate terms: accreditation phase, quality-based payment and output-based payment.

<sup>&</sup>lt;sup>100</sup> This was eventually dropped from the intervention.

# II. Conditional selection of health facilities

Facilities that score between 65 % and 84 % are granted conditional acceptance. They will submit a performance improvement plan that includes explanation on how they expect to raise their prequalification quality score to 85% and above.

# III. Re-assessment for the prequalification after implementation of investment plan

Facilities that score below 65 % will not be accepted into the RBF program. It will be up to the owner to improve the facility infrastructures and Human resources, and to formulate a request for re-evaluation after six months.

# 2.1.2 The accreditation process (Quality-based payment)

On a quarterly basis, the E-DHMT will assess in detail the quality and the organization of the health facilities that are pre-qualified to join the RBF program, using a specific checklist which consist of optimal but achievable standards. Like the prequalification tool, the quarterly quality assessment tool derived from the Health Facilities Quality Assessment developed by the MoH. It covers cross cutting issues of quality of service like hygiene and working environment, availability of medicines and consumables, staffing levels, use of guidelines and other management tools, implementation of performance improvement strategies, etc.

Health facilities will receive the checklist in advance, for them to conduct their self-assessment.

After quality assessment, the E-DHMT calculate the quality performance score. The health facility is ranked into five different grades represented by a star.

The following box gives examples of the used quality measures at heath center III level:

- Monitoring graphs of key departmental performance indicators are display on the notice board
- There is evidence the staff individual performance was discuss at least once during the quarter
- At least 80% of the reagents and consumables requested by the laboratory were delivered
- The duty Rosters include daily details of staff who are meant to be on duty
- The incinerator is functional
- There is evidence Department performance against set targets is discussed during the monthly meeting
- The procedure register filled with operation details is up to date
- The temperatures has been maintained between +2 and +8°C during the previous month
- The stock card is up to date and quantities tally with physical stock for injectable contraceptives
- 100% of magnesium sulphate requested during the quarter were delivered

- The vacuum extractor is functional

# 2.1.3 Output-based payment

The third component in the RBF scheme consists of **quantitative output assessment** that is organized with the quarterly quality assessment. Output based payment intended to prepare the country for the roll-out of the strategic purchasing mechanisms as outlined in the Health Financing strategy.

Composites quantitative indicators have been developed to enhance evaluation of responsiveness of health services, efficiency, patient safety, holistic care, continuity and integration of care. The quantitative indicator will be corrected to reflect real quality performance before paying for results.

# 2.2 RBF VERIFICATION AT HEALTH FACILITY LEVEL

To avoid creation of parallel processes and undue administrative burden for health workers, the RBF program use and strengthen the existing data sources. A penalty will be applied for misreported data to discourage falsification of the data: A 10% or more discrepancy will result in penalties for a particular indicator as specified in Calculation of Total Payment to the service provider.

Verification of the quantity and quality of services is done every quarter by the E-DHMT and the Regional RBF Teams through reconciliation of the reported data with primary data from facility registers.

For the verification of quantitative indicators, the verifying team takes a sample of patients or clients for each activity for counterchecking. In case of discrepancies between the reported and the observed data, penalties are imposed after clear explanations to the health facility team.

More time should be spent discussing any indicators where the full score has not been attained. Recommendations for improvement should be made and the facility team given systematic structured feedback on how to improve their performance.

# 2.3 PROVIDER PAYMENT PROCESS

# Incentive for prequalification (accreditation)

Pre-qualified health facilities receive an initial complementary stock of drugs and other consumables to join the RBF program under optimal conditions. If a health facility that is part of the district coverage plan is qualified with conditions, implementation of the quality improvement plan is supported with minor investment by the Government, the District Local Government or any HDP.

# Incentive for quality improvement (quality-based payment)

In accordance with the quarterly quality score and star rating, the facility receives a quarterly quality incentive corresponding to its specific level.

Quarterly quality score	Health Centre III	Health Centre IV	General Hospital	
< 65% (0 to *)	0 UGX	0 UGX	0 UGX	
65% to 75% (**)	2.000.000 UGX	4.000.000 UGX	8.000.000 UGX	
75% to 85% (***)	3.000.000 UGX	6.000.000 UGX	12.000.000 UGX	
85% to 95% (****)	4.000.000 UGX	8.000.000 UGX	16.000.000 UGX	
> 95% (*****)	5.000.000 UGX	10.000.000 UGX	20.000.000 UGX	

# Compensation for the quantity of services delivered (output-based payment)

Payment for the services provided by a facility in a quarter depend on the total quantity of services (indicators) delivered and the unit fee for each indicator. This quantity payment will be <u>adjusted for quality</u>. In the following box we give two examples of the quantitative indicators and the quality measures to which they have to abide.

#### INDICATOR 01: Number of new U5 OPD visits

The total of patients under 5 years who received consultation, relevant investigations and treatment (both medical and minor surgical cases, include 3 days of admission when applicable and/or complete wound dressing) at the OPD during the quarter.

DATA VERIFICATION: ALL THE RESPONSES MUST BE YES OTHERWISE SCORE ZERO (0) General observations.

- Was consultation services provided by an appropriately qualified Health worker (Clinical officer or Medical doctor)
- Were vital observations (at least weight) of the child taken?

If any laboratory test was prescribed:

• Are the patient's laboratory results registered?

For all these patients:

- Were the prescribed medicines dispensed to the patient (check the pharmacy register)?
- Was the prescription done following Uganda clinical guidelines or MoH SOP (flow chart displayed in the consultation room)?
- In case of malaria, verify that the diagnosis was confirmed by laboratory investigations (RDT or Microscopy) and patient treated according to the MoH SOP (oral ACTs for 1<sup>st</sup> line and artesunate for 2<sup>nd</sup> line in correct dozes).
- For children with diarrhoea, check if ORS and Zinc supplementation were provided.
- In case of diagnosis of pneumonia: if children from 2 months to 5 years, check if Cotrimoxazole or Amoxicillin or PPF & Vit. A was provided

# INDICATOR 07: Number of cases of complete Antenatal Care (ANC 4)

Count the number of pregnant women who received the mandatory 4 ANC visits from the facility that received the 4<sup>th</sup> ANC service within the quarter. Only cases that attended all the visits at the facility will be considered.

DATA VERIFICATION: ALL THE RESPONSES MUST BE YES OTHERWISE SCORE ZERO (0)

General observations.

- Were the ANC services provided by an appropriately qualified Health worker (Midwife, Clinical officer or Medical doctor)?
- Has the client completed 4 ANC visits?
- Is there evidence she received an HIV test, Syphilis test and urinalysis during the 1<sup>st</sup> ANC visit?
- Was the client's BP taken and a urinalysis done at each visit?
- For Hospitals and HC IVs
- Has HIV negative mother got a re-test for HIV during the 4<sup>th</sup> ANC visit?
- Has the mother received ultrasound scan between 20 to 25 weeks?

If diagnosed with syphilis infection or urinary tract infection;

• Was appropriate treatment given in correct dozes as indicated in the SOPs? Malaria prophylaxis;

• Did the woman received IPT1 in the 2<sup>nd</sup> trimester and IPT2 in the 3<sup>rd</sup> trimester? Neonatal tetanus prophylaxis;

• Did the woman received TT1 during the 1<sup>st</sup> ANC visit and TT2 during the 3r visit if applicable? If HIV positive (Where an HIV positive mother was not part of the sample, purposively select 2 HIV positive mothers from the ANC register)

• Was the client started on ART (TDF/3TC/EFV for eMTCT)?

The estimation of the price will take into account the estimated cost of the service provided. In the facilities that do not receive PHC wage grant, the RBF fees per unit output (P) will be 40% more than the fees set in the facilities that benefit this specific input financing. Both user fees and RBF fees are case based payments (flat fees) to encourage efficiency, risk sharing, but also to prepare a smooth introduction of a third party payment mechanism as foreseen in the country HFS.

An example of the payments for selected indicators can be found in the table below:

#### OPENING THE 'BLACK BOX' OF PERFORMANCE-BASED FINANCING IN THE HEALTHCARE SECTOR OF WESTERN UGANDA

NI <sup>0</sup>	• First Level indicators		Urban	Maximum
IN			HC IV	user fees
1	Number of new U5 OPD visit	5.000	4.000	10.000
2	Number of new OPD visit > 5 years	3.000	2.500	20.000
3	Number of new visit for Moderate and acute malnutrition (MAM)	5.000	4.000	1.000
4	Number of visits of patients on ART	2.000	1.500	0
5	Number of new visits and re-attendance for Chronic non-communicable diseases: Diabetes mellitus, Hypertension, epilepsy, sickle cell	10.000	8.000	10.000
6	Number of complete treatment for sub-acute infectious diseases: TB, leprosy, sleeping sickness	5.000	4.000	0
7	Number of cases of complete Antenatal Care (ANC 4)		6.000	0
8	Number of institutional deliveries (include basic obstetric and newborn 50 care)		50.000	100.000
9	Number of postnatal clinic visit		7.000	0
10	) Number of complete immunization		3.000	0
11	11 Number of new acceptance of modern family planning method 10.000 8		8.000	0
12	12Number of re-attendance for a modern family planning method2.5002.000			

# Calculation of Total Payment to the service provider

The total payment for the facilities will be calculated as indicated below:

# **\*** Total RBF subsidies to facilities = Quality Incentive +Total Quantity Payments due

> Quality incentive:  $Qi = QS\lambda$ 

# □ **Q**= Quality incentive Unit

This unit is defined (on yearly basis) by the BSTWG according to the RBF program budget and the sustainability of the funding.

□ *S*= *Quarterly Quality score* attributed by the verification team.

 $\Box$   $\lambda$ = Level of Health Facility

The coefficient attributed to calculate the PHC grant are used for quarterly quality incentive: 1 unit of quality incentive for the HC III, 2 units for the HC IV and 4 units for a GH.

For HC III  $\rightarrow \lambda = 1$ ; For HC IV  $\rightarrow \lambda = 2$  For GH  $\rightarrow \lambda = 4$ 

# Quantity payments due

- □ N= Number of cases per indicator
- □ *P*= *RBF* fees per unit output (case) (see table above)

# □ *k*= Quality adjustment for the output/indicator

k=0	if	20%	$\leq \frac{number of Declared Case-Number of verified Case}{Number of declared case} * 100$
k=0.5 20%	if	10%	$\leq \frac{number of Declared Case-Number of verified Case}{Number of declared case} * 100 \leq$
k=1	if	10%	$\geq \frac{number of Declared Case-Number of verified Case}{Number of declared case} * 100$

Total Subsidies = 
$$QS\lambda + \sum_{n=1}^{n} (k_1N_1P_1 + k_2N_2P_2 + \cdots + k_nN_nP_n)$$

# 2.4 USE OF RBF FUNDS BY THE HEALTH SERVICE PROVIDER

## Conditions attached to the use of RBF funds

The RBF funds are paid directly to the institutions that have signed contracts with the MoH or the District Local Government. These funds are additional to the funds that the facility receives from other sources. They will be expected to abide by a few conditions:

- a) RBF funds received quarterly should be displayed on the facility notice boards.
- b) The funds should be used in line with Government of Uganda financial regulations as stipulated in the *public finance management act (2014).*
- c) All funds received should be accounted for every quarter in accordance with accounting regulations for the GoU. A copy of the accountability should be available at the health facility and at the District Finance Office
- a) If the staff incentives are to be paid:
  - i. All health workers (including support staff) should benefit.
  - ii. Guidelines for the performance incentives shall be elaborated by the health facility management team, approved by the DHO and display on the health facility notice board
  - iii. Payment of health workers should be made according to the individual performance score
  - iv. Criteria for measuring individual performance should be approved by the facility staff
  - v. Health workers should participate in the scoring of their performance
  - vi. Individual performance score of the facility in charge or medical superintendent should never be superior to the quarterly quality score of the health facility.

# 2.5 PENALTIES AND SANCTIONS

Penalties will be applied if the facility is found to be involved in any of the activities listed below:

- 1) Misreporting or falsifying records
- 2) Delays in reporting or invoicing
- 3) Poor quality of health services:

The health facility will be suspended from the RBF program if it's scores less than one star for two consecutive quarters for the quarterly quality assessment.

4) Poor financial access to health services:

The facility is excluded from the RBF program for one year if it continue to charge higher user fees than the authorised amount or does not introduce flat fees.

- 5) Misappropriation or misuse of funds.
- 6) Obstruction of verification activities or external audits

# 2.6 PERFORMANCE MANAGEMENT

#### Internal supervision

The supervisor will check at least once a week, the discrepancies between the registered (HIMS) cases and the proposed declared cases and provide onsite training to the staff for quality improvement.

# Medical and clinical audits

Medical and clinical audit guidelines will be provided by the DHMT with the support of the MoH Department of Quality Assurance. At least once a week, a specific topic shall be presented during a meeting attended by at least 80% of medical and clinical officers in HC IV and GH.

# Strategic plan and performance improvement plan

Facilities and districts will be required to develop strategic plans, annual work plans and performance improvement plans under the guidance of the DHMT and the Regional RBF Team. The performance improvement plan should be developed in collaboration with key stakeholders in the catchment area of the facility

# Health worker performance management tool

For each staff of the health facility, management expectations shall be well articulated and included in a customized job description.

Facility managers are encouraged to discuss with their staff how performance should be evaluated so that they identify acceptable criteria.

# **Output monitoring**

Every unit in the health facility shall hold a monthly review meeting to analyze the HIMS data and provide feedback to the staff and the management team.

# 3. OVERSIGHT AND STEWARDSHIP OF THE RBF PROGRAM AT DISTRICT LEVEL



# 3.1 DISTRICT RBF STEERING COMMITTEE

The members of the DTPC include i) the Chief Administrative Officer ii) the District Health Officer iii) the Chief Finance Officer, iv) the internal auditor. When the District Technical Planning Committee meets on quarterly basis to discuss RBF matters, vi) a representative of the Regional Performance Monitoring Team, vii) a representative of the Regional Referral

Hospital, viii) a representative of the PNFP subsector, ix) a representative of the beneficiary Communities and x) one Assistant District Health Officer are invited.

These roles include, i.a.:

- a) Coordination of RBF implementation at district level
- b) Approving District Development Plans (DDP), annual work plans, health facility quality improvement plans and budgets
- c) Settling any conflicts arising during the RBF implementation process at district level with the support of the Regional RBF Unit

## 3.2 EXTENDED DISTRICT HEALTH MANAGEMENT TEAM (E-DHMT)

The extended DHMT is a multisector group that consists of various stakeholders: members of the DHT, representatives of sub-districts, and regional coordinators of PNFP medical bureau.

The roles of the expanded DHMT include i.a.:

- a) Providing support to health facilities: coaching facilities to develop and use performance improvement plans, ....
- b) Conducting support supervision, identifying bottlenecks and solving them
- c) Verifying the quantity and quality of services on a quarterly basis
- d) Organizing training, dissemination and sharing meetings of the lessons learned with various stakeholders

# 4. RBF AT CENTRAL LEVEL

## **4.1 REGULATION AND OVERSIGHT**

As the regulator the MOH is responsible for developing policies, standards, guidelines and contracts for the management of the RBF within the health sector. It's also responsible for the overall management of the RBF within the country. Oversight is provided by the Health Sector Budget Technical Working Group (HSBWG) at the National level.

#### Health Sector Budget Working Group as National RBF Steering Committee

It consists of representatives from, i) Ministry of Justice and Constitutional Affairs, ii) Ministry of Finance, iii) Ministry of Public service, iv) Ministry of Local Government, v) National Planning Authority. vi) Health Development Partners (HDPs), vii) Medical Bureaus and viii) Professional councils are invited.

Their key responsibilities include:

- a) Provision of oversight to ensure that RBF activities at national, regional, district and facility levels are implemented as planned.
- b) Liaison with MoH and its partners to ensure that relevant solutions to bottlenecks that hinder RBF implementation are identified and addressed.

## 4.2 FUND HOLDER

#### Ministry of Finance, Planning and Economic Development<sup>101</sup>

The main responsibilities of the MoFPED as the fund holder will include:

<sup>101</sup> In the project this task is taken up by the BTC/Enabel

OPENING THE 'BLACK BOX' OF PERFORMANCE-BASED FINANCING IN THE HEALTHCARE SECTOR OF WESTERN UGANDA

- a) Mobilizing resources for RBF in collaboration with the MoH and HDPs.
- b) Transferring RBF grant to the beneficiary institutions (health facilities, DHMT and RBF Units)
- c) Providing technical assistance for the management and roll out of the RBF.

# 4.3 STEWARDSHIP OF THE RBF PROGRAM

The MoH is the purchaser of services from the public and private facilities that meet the selection criteria. The MoH will be assisted in these activities by a National RBF Unit. Therefore, the purchasing function is executed by a National RBF Unit on behalf of the Directorate of Planning and Development.

# National RBF Unit

The National RBF Unit will comprise a mix of civil servants and technical assistants.

The National RBF unit is i.a. responsible for:

- a) Review and development of tools
- b) Organize national level dissemination and learning meetings for RBF
- c) Ensure monitoring and evaluation of the RBF process

# Regional RBF teams

The regional RBF teams will be responsible for:

- a) Verification of quantity and quality of services provided under the RBF program.
- b) Validation of invoices submitted by the districts and submission to the National RBF Unit.
- c) Coordination and supervision of the district teams to ensure that all RBF activities are implemented as planned.
- d) Technical support to the districts in all activities related to RBF.
- e) Organizing regional level dissemination and learning meetings for RBF.

# 4.4 PURCHASING OF SERVICES

# Counter verification and submission of invoices to the National RBF Unit

For every district, the regional RBF team will verify both the quantity and quality of services in a sample of health facilities. The selection of those facilities will be based on a risk assessment. The eventual consequences of the counter verification visits will be reflected in the payment of the next quarter.

#### Submission of invoices to the National RBF Unit

The Regional PBF team submits the District performance report and the invoices to the National RBF unit within **6 working days** upon the reception from the Districts.

# Submission of request of payment to the Fund Holder

The National RBF Unit review district request for payment and submit them to the Fund Holder within **5 working days** upon receipt.

# Payment of RBF subsidies

Based on the request for payment, and after verification of fulfilment of contractual obligations the Fund Holder transfers the funds directly to the bank account of the health facilities and/or the District Health Office within **10 working days** after receipt of the consolidated report from the RBF unit.

# **4.5 CAPACITY BUILDING**

Sensitization of key stakeholders, coaching and provision of technical assistance to the implementers is critical to ensuring buy-in for the program. Therefore, all key implementers at national, district and facility levels are to be trained during the preparatory phase.

Capacity building will be done by the MoH in collaboration with its HDP's. The district health teams and other local district based stakeholders will be trained to provide trainings, supervision and coaching with minimal external support. Capacity building activities should include the following;

- a)Training of DTPC and HUMC in analyzing information, validating invoices and evidence based decision-making.
- b) Training of health facility staff on specific topics including assessment of partographs, entering data in RBF system and analyzing information, conducting medical and clinical audits, etc.

During the first year of implementation, at least one third equivalent full time technical assistant shall be committed to support the launching of the RBF operations per district. The technical assistant will support the planning process, the verification and the implementation of quality improvement initiatives at district level.