A study on the Factors that Influence Performance-Based Financing toward Universal Health Coverage in Muramvya Province of Burundi

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A Study on the Factors that Influence Performance-Based Financing toward Universal Health Coverage in Muramvya Province of Burundi

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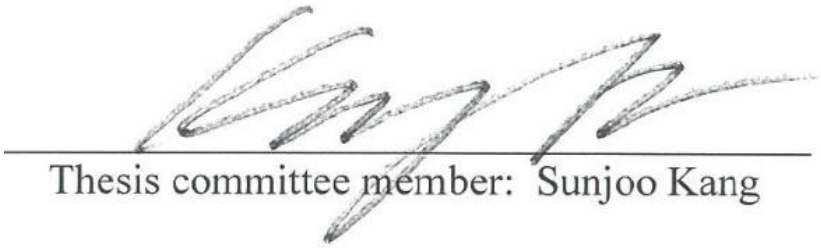

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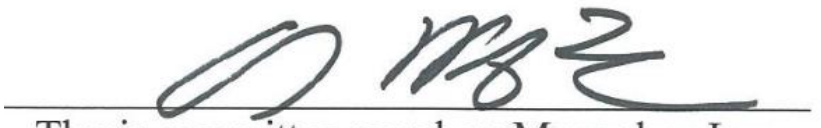

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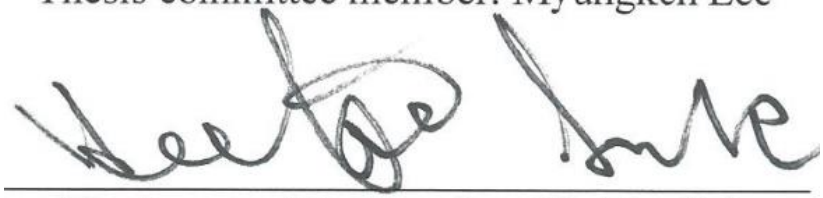

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DECLARATION

I, **Innocent Yandemye**, hereby declare that the research "**A Study on the Factors That Influence Performance-Based Financing Toward Universal Health Coverage in Muramvya Province of Burundi** " is submitted as a thesis for the Master's Degree program in Health Policy and Financing Capacity Building at Yonsei University, Seoul. It comprehensively results in my investigation. All references, ideas, and content have been acknowledged. I also certify that the results of this study have not been submitted in any degree and neither currently submitted by a candidate of any degree.

Innocent Yandemye

Seoul, December 13th, 2021

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF ABBREVIATIONS

UHC	Universal Health Coverage
PBF	Performance-Based Financing
AIDS	Acquired Immunodeficiency Syndrome
MCHC	Maternal and Child Health Care
ECVMB	Enquête Nationale sur les Conditions de Vie des Ménages du Burundi
CHC	Community Health Center
LIMCs	Low-and-Middle Income Countries
P4P	Pay-for-Performance
DRC	Democratic Republic Of Congo
ANC	Antenatal Care
NGOS	Non-Governmental Organizations
HF	Health facility

ABSTRACT

Introduction: Under the same goal to advance toward Universal Health Coverage and after evidence from international non-governmental organizations and Rwanda's experience, performance-based financing (PBF) has been introduced in low and middle-income countries, primarily in Africa, including Burundi. Available evidence showed a mixed result from the PBF scheme with an increase of most contracted services and no increase of non-contracted services. However, many health experts have considered PBF a pillar of strengthening the Burundi health system. Moreover, some evidence revealed a possible adverse effect of PBF to weaken the health system.

Purpose: We aimed to study the Factors that Influence Performance-Based Financing toward Universal Health Coverage in Muramvya Province of Burundi.

Materials and Methods: We conducted a cross-sectional study to investigate the factors influencing performance-based financing toward universal health coverage in Muramvya province of Burundi. We used an online self-administrative questionnaire tool that included socio-demographic characteristics, satisfaction on PBF implementation, and its effect on health service coverage and the number of services provided.

Results: Results revealed education level to be the most significant factor associated with health professionals' satisfaction on the scheme, such as satisfaction on payment level of

non-maternal and child healthcare services (x2=7.734, df=2, p=.021), satisfaction on availability of drugs, and other medical consumables (x2=7.188, df=2, p=.027), and health workers availability (x2=6.971, df=2 p=.031). Then, results revealed experience as the factor associated with satisfaction on health workers availability (x2=6.971, df=2p=.027) and satisfaction on the working environment (x2=6.090, df=2, p=.048). Moreover, results revealed facility level to be the factor associated with health professionals' satisfaction on the increase of health services provided by the PBF scheme (x2=9.500, df=2, p=.009), profession to be the factor associated with satisfaction on availability of health workers (x2=7.204, df=4, p=.046).

Conclusion: A study on the factors that influence PBF toward universal health coverage in Muramvya Province of Burundi. This study revealed a need for regular training on the PBF scheme among health workers. In addition, however, there is a need for the motivation of health workers to face a high level of brain drain in health workers in Burundi.

Keywords: Universal Health Coverage, Performance-based financing, health service, structural quality, Burundi

CHAPTER ONE: INTRODUCTION

1.1 Background

Despite the tremendous efforts to advance towards Universal Health Coverage, the accessibility to health care services in developing countries remains a primary public health concern. World Health Organization and World Bank reported that around 400 million people lack essential health services. Health spending pushed 6% of people in low- and middle-income countries into extreme poverty, including Burundi, in 2017(Ghebreyesus, 2017). Burundi is still a long way from meeting millennium and Sustainable Development goals in the health service coverage index. Indeed, Burundi has achieved only 42 percent on the essential health services coverage index with a service capacity access of 13% in 2019(Organization, 2021). A national survey on household expenditure (ECVMB 2014) found that poverty was the main reason for not consulting health care while it is needed at 56.3% in Burundi (DUNIA and BUKURU; Schreiner, 2017).

Health Financing plays a vital element in advancing UHC (Jowett et al., 2020; Organization, 2017). For example, in their overview on 47 African countries, Sambo et al. (2014) have found a positive relationship between primary health services accessibility and health expenditure. (Sambo and Kirigia, 2014). Likewise, Dieleman et al. (2018) have revealed a pooled funds are significantly associated with performance on the UHC index (Dieleman et al., 2018).

Different health financing mechanisms are implemented by governments supported by international organizations and donors of health-related aid funds (Eichler, 2006; Ifeagwu

et al., 2021; Kutzin, 2008). Under the same goal of improving health service quantity and quality by rewarding health providers on health services provided and quality improvement, different performance- incentive schemes have been implemented worldwide (Organization, 2010b). Many governments in low- and middle-income countries promoted and executed performance-based financing, mainly in Africa, mostly after its evidence from many initiative programs and Rwanda experience (Fritsche, Soeters, and Meessen, 2014).

Burundi launched Performance-Based Financing in 2006 in three pilot provinces over 18 provinces following the recommendations from a general meeting (Les Etats Généraux de la santé) organized by the government in 2004. It pointed many challenges that faced the Burundi health system, such as the high prevalence of infectious diseases and malnutrition, high mortality rate, lack of qualified staff, low quality and quantity in healthcare services, and lack of leadership. On the other hand, in the same year 2006, the government set a free healthcare policy for pregnant women and children under the age of five, representing 4% and 18% of the whole population. As a result, the government reimbursed healthcare bills for health services provided to pregnant women and children under five through policy. However, in 2010, various challenges related to that selective free healthcare policy's implementation such as shortage of medicines and other medical consumables in health facilities, lack of adequate medical equipment and qualified health providers. As a result, it delays bills′ reimbursement. According to the good results of Performance-Based-

Financing from pilot Provinces, the government and its partners have signed a PBF nationwide extension with coupling PBF scheme to free healthcare policy pregnant women and under-five children. Therefore, the government has shifted from input-based to output-based bills′ reimbursement for under five age year children and pregnant healthcare services. They also paid incentives to providers for all contract services while promoting health facility autonomy on health revenue utilization specified in PBF tools. Therefore, it was a relief for health facilities to resolve the challenges related to free healthcare policy. From that moment, Performance-Based financing scheme became a pillar of Burundi's health system development with a notable improvement in maternal and children health indicators (Bank, 2009; Bigirimana et al., 2016; Burundi, 2010; DE LA LUTTE CONTRE, 2021; Ministère à la Présidence chargé de la Bonne Gouvernance et du Plan 2017; Peerenboom et al., 2014).

There is a lack of rigorous evidence of Performance-Based Financing impact rolled out in developing countries. For example, in Rwanda, Priedeman et al. (2013) has found that PBF has increased incentive services such as institutional delivery by 10 percent (Priedeman Skiles et al., 2013). Another study by Skiles and al. (2015) has shown that PBF has improved equity by increasing treatment of children in low-income families by 45 percent; however, no significant effect of PBF on care-seeking was shown (Skiles et al., 2015). In Burundi, Rudasingwa et al. (2017) have found PBF has improved only institutional delivery only by an increase of 39.5 percent, while Falisse et al. (2015) have found no

substantial positive impact of PBF on maternal and children health services (Falisse et al., 2015; Rudasingwa, Soeters and Basenya, 2017b).

There is a lack of evidence of PBF impact from health professionals in Burundi. However, health workers play an essential role in advancing Universal Health Coverage (Organization, 2018).

We conducted "A study on the Factors that influence Performance-Based Financing toward Universal Health Coverage in Muramvya Province of Burundi."

The study has assessed the factors that influence PBF satisfaction among health professionals in Burundi

1.2 Study Purpose

The study aimed to assess the factors that influence Performance-Based Financing toward Universal Health Coverage in Muramvya province of Burundi.

1.3 Specific Objectives

Specific objectives of this study were:

1. Identify the factors associated with the health workers' satisfaction with the PBF scheme as a primary health care intervention in Burundi.
2. Investigate the factors of the PBF scheme and its influence on primary health care coverage in Burundi.

3. Describe the challenges that are associated with the implementation of the PBF scheme in services delivery in Burundi.

1.4 Research Questions

The main research questions that this project will respond to include

1. What factors are associated with the health workers' satisfaction with the PBF scheme as a primary health care intervention in Burundi?
2. What are the factors of the PBF scheme and its influence on primary health care coverage and the quantity of service provided in Burundi?
3. What are the challenges associated with implementing the PBF scheme in services delivery in Burundi?

1.5 Operational Definition of Critical Terms

- Universal health coverage (UHC) is defined as all people receiving quality health services that meet their needs without being exposed to financial hardship in paying for the services (Organization, 2014).

- Pay-for-performance" is defined as a "transfer of money or material goods in exchange for performing a measurable action or meeting a predetermined performance target (Eichler, 2006).

- Structural quality: structural was defined as the attribution of settings in which care occurs, such as material resources, human resources, and organization structures (Donabedian, 1988).

CHAPTER TWO: LITERATURE REVIEW

2.1 Burundi Health System

Burundi has a centralized health system with the Ministry of Health and Fight Against AIDS at the central level in charge of policies and interventions setting, as well as elaborating and evaluating health care service standards at a high level, then provincial health office in each province over 18 provinces in charge of coordinating health activities at the local level as intermediate level and health district as peripheral level comprising health district office, district hospitals, and health centers. The health district office coordinates implementation activities in health centers, district hospitals, and community health levels. CHCs provide limited promotional and preventive services and collaborate strongly with health centers. Health centers provide primary Health care services, including curative, promotional, and preventive services are the basis of health care service provision, the district and regional hospitals for secondary care services, and national hospitals for tertiary health care service.

Burundi accounts for 1182 health centers and 149 hospitals, including 44 districts, five regions, and seven national hospitals. Most of the Burundian population use public and faith-based health facilities, with respectively 55.66% and 12.18% for health centers and 34.22% and 18.8 % for hospitals (DE LA LUTTE CONTRE, 2021)

2.2 Burundi Health Financing System

Burundi health financing knows many actors such as government (payment of the salaries of the majority of healthcare providers in public health facilities and subsidies of some operational expenses), country partners(aid), Performance-based financing (government and its partners), Mutual of Public Function insurance scheme(Mutuelle de la Fonction Publique) for civil servants with 10% of Burundian population, Medical Assistance Card (Carte d′Assistance Médicale) for the informal sector population with around 15%, private insurances. With 2% of coverage and out-of-pocket payment. In 2019/2020 and 2021, health expenditure was respectively 10.8%, including 45.4% from external resources, and 13.6% in 2021, including 53.2% from external resources. (Bank, 2009; Burundi, 2010; DE LA LUTTE CONTRE, 2021).

2.3 Performance-Based Financing Scheme Features

Several pieces of evidence have shown that performance-incentive schemes world widely implemented, such as Pay-for-performance, Performance-based contracting, Performance-based Financing, and Result-Based financing, are associated with positive outcomes in developed countries (Elovainio, 2010; Jowett, Shishkin and Organization, 2010; Shishkin, Kacevicius and Ciocanu, 2008). Also, it is the same in developing countries (Basinga et al., 2011; Das, Gopalan, and Chandramohan, 2016; Rudasingwa, Soeters, and Basenya, 2017a; Skiles et al., 2015; Tawfiq, Desai and Hyslop, 2019; Zeng et al., 2013).

Most people confuse "Performance-based financing" and "Result-based financing." However, there is a big difference based on the two words "result" and "Performance." "Result" is related to quantitative measurement, while "performance" relies on quantitative and quality measurement. The basic concept of PBF is "Pay-for-performance"; however, this concept was accused as not evident by including only monetary payment while excluding non-monetary incentives. "Performance-based financing" is the most consensual approach used among performance-incentive methods and promoted in developing countries (Organization, 2010a, 2010b). Performances-Based financing distinguishes five drivers to improve quantity and quality of health services defined in PBF tools such as P4P, health facility autonomy, incentive, Individual monthly performance evaluation, and quality and quantity evaluation in revenue utilization defined in PBF tools.

- **Pay-for-Performance**: There is a lack of rigorous evidence on P4P. In a systematic review of 59 studies rolled out in LMICs on P4P to improve the delivery of health interventions, Diaconu et al. (2021) have found that P4P may improve delivery and targeted services with the mixed result on MCHCs, a negligible impact on no targeted services, PBF has improved overall quality of services, mixed effect on equity with a gain of some indicators and no improvement for others (Diaconu et al., 2021).

- **Health facility autonomy revenue Utilization**: Health facility autonomy gives freedom to health managers who are close to health workers and the population to make decisions

likely to improve health service quality and utilization. Therefore, the health facility has the freedom to hire or fire humans, autonomy management of health facility assets, supply procurement, and decision-making for quality and quantity improvement (Fritsche, Soeters, and Meessen, 2014). A study in DRC has shown that PBF has increased annual per capita revenue per cash, which was associated with quality improvement of health services; however, there was an increase in household health care expenditure (Soeters et al., 2011). Therefore, the need for a strong monitoring-evaluation of health facility autonomy in revenue utilization affects health services, coverage, and financial burden distribution was suggested (Organization, 2000b).

-Monitoring-evaluation: An analysis report of Royal Tropical Institute on PBF implementation has found the PBF has improved the quality and quantity of services. However, according to some possible negative impacts of PBF, the authors have suggested that PBF must be correctly implemented to achieve its goals (KIT et al.). PBF requires, therefore, a clear statement of rules and involves a robust information system and monitoring to prevent possible preserve effects such as oversupply of unnecessary services, data manipulation, overloaded or focusing on high-rewarded services while neglecting low rewarded services (Ireland, Paul, and Dujardin, 2011; Kalk, 2011; Miller and Babiarz, 2013; Paul and Renmans, 2018).

-**Incentive and reward payment strategy**: Incentive payment to health workers is a particular payment intended to achieve a specific change of behavior. In the health sector, incentive payment is used in health facility management and funding mechanism. Many health organizations have promoted incentive and reward payment to promote efficiency and effectiveness (Organization, 2000a). Health care industries are required to work 24 hours to encourage healthcare accessibility; however, in many settings, primarily in LMICs, that requirement faces many challenges such as lack of staff and lower salary. To meet this issue, incentive payment to health workers on sensitive services has been promoted in the funding mechanism. However, there is a need for a good policy to choose providers who contribute to goals and who do not (Organization, 2000b). To be effective, incentive and reward payment must be congruent with health system organization, country context, and specific objective. There is little evidence on the impact of incentive payment strategy in healthcare; however, incentive payment may change health workers' awareness to improve the working environment, work hard, and take pride in providing better services in their community (Bhatnagar and George, 2016). A study in Haiti has shown that an increase of incentive payment by 6% was associated with a rise in health services by 39%, while the addition of funds by 39% has increased health service by 35% (Zeng et al., 2013).

-**Individual monthly performance evaluation**: Under the PBF scheme, each health worker signs a motivation contract with his health facility committee. The agreement defines each worker's role to improve quality and services. Then, the health facility

manager assesses the individual monthly performance evaluation using a performance evaluation tool that contains the health worker's indices value (Fritsche, Soeters, and Meessen, 2014).

2.4 Structural Quality Component

Quality concepts and quality assessment approach still being a source of concern. Quality concepts and quality assessment approaches remain a source of the problem. Different quality assessment tools have been defined based on other quality concepts.

Donabedian and Lee described healthcare service delivery as a continuum that includes structures, processes, and outcomes and assert that the quality of care is an end product when the designs are translated to results through the processes. There are, therefore, three approaches for quality assessment such as result-based assessment, process-based assessment, and setting with instrumentalities such as the adequacy of facilities and equipment; the qualifications of medical staff and their organization; the administrative structure and operations of programs and institutions providing care; fiscal organization (Donabedian, 1988; Lipworth, Lee and Morris, 1963).

Recently Das et al. argued two quality approaches: structural quality and process quality. Structural quality consists of the availability of human resources and material resources such as drugs and other medical consumables, medical equipment, infrastructure, communication, and transport. The process simply means providing services optimally and

safely following service delivery standards through technical and non-technical performance (Das, Gopalan, and Chandramohan, 2016).

Although the results-based quality assessment is mainly used (Kohl, 2013; Lipworth, Lee and Morris, 1963; Rice et al., 1961; Shapiro et al., 1960), many health experts relied on it to many challenges such as a long time before outcome, not clearly defined, not concrete and difficult to measure for some variables (Donabedian, 2005; Kelman and Willner, 1962; McDermott et al., 1960, Tello, Barbazza and Waddell, 2020)

PBF scheme operates under the structural quality concept by promoting the autonomy of health facilities in revenue utilization. PBF considers that by providing independence to health facilities, managers are free to ensure the availability of drugs and other medical consumables, referral system improvement, improvement of working environment, training of health professional, etc. (Burundi,2010, Fritsche et al. 2014).

There is little evidence of PBF's impact on the quality of health services provided. In American, Glickman et al. (2007) had found that PBF has not improved the quality of health services offered (Glickman et al., 2007). In South Africa, Ameh et al. (2017) has reported a strong relationship between structural quality, process quality, and health outcomes (Ameh et al., 2017). In Rwanda, Basinga (2009) has found that PBF had no potential to increase structural quality in terms of drugs and equipment availability (Basinga, 2009). However, in Tanzania, (Binyaruka and Anselmi, 2020) has reported a non-improvement of equity in health services by PBF (Binyaruka and Anselmi, 2020).

A study conducted in Cameroon on health workers reported that PBF had improved the quality of health service, working conditions, and new skills acquisition (Manga et al., 2018).

-In Burundi, Bonfrer et al. (2014) have shown that PBF has increased the quality of maternal care in terms of blood pressure measurement and anti-tetanus vaccination (Bonfrer, Van de Poel, and Van Doorslaer, 2014).

2.5 Evidence of Performance-Based Financing Scheme Programs

After PBF implementation in many developing countries, a growth of studies assessing the impact of Performance-Based Financing on quantity and quality of health care services on targeted and non-targeted services. However, there is a lack of rigorous evidence of Performance-Based Financing impact deployed in developing countries. Most studies have shown that PBF schemes set in LMICs to promote population healthcare, notably maternal and child health care services, have improved health service utilization coverage, quantity, and quality. Moreover, there is a need for solid attention in PBF implementation. Some experts have shown a possible adverse effect of PBF of weakening health systems rather than strengthening them.

2.5.1 Health Services Coverage and Quantity

2.5.1.1 Health Services Coverage and Quantity on Overall Health Services

Most studies have shown a positive impact of PBF on both services' coverage and quantity. For example, studies in Haiti, Cameroon, and Nigeria have shown that PBF has enormously improved PHC in the number of incentive services and health service coverage (Bhatnagar and George, 2016; Manga et al., 2018; Zeng et al., 2013). On the other hand, some recent studies have revealed a poor impact or a probable negative impact of PBF on the quantity of services deliveries. For example, Tanzania (Binyaruka and Anselmi, 2020; Binyaruka et al., 2015) has reported a poor effect of PBF on targeted services and a risk of PBF to decrease non-contracted services delivered. However, these studies have relied on a small sample size in the intervention group and lack of data caused by poor Health Information Systems in the control group(Zeng et al., 2013), lack of precision of the approach used in quality assessment(Manga et al., 2018), inequality of sample sizes between intervention and control group(Bhatnagar and George, 2016) inadequate method used in health scheme evaluation, (Binyaruka and Anselmi, 2020) and the part of faith-based and parastatal health facilities in the intervention group(Binyaruka et al., 2015).

In Haiti, a study found that increasing the cost of PBF (international support plus incentive) by 39% in terms of motivation has increased the number of services by 87% (Zeng et al., 2013). On the other hand, a study in Tanzania found no evidence of a P4P effect on efficiency on average. P4P may have marginally improved public facilities efficiency score by 60% and decreased it in private facilities by -7.6%. Still, there was no evidence of a significant differential effect of P4P for poor catchment populations. (Binyaruka and Anselmi, 2020).

2.5.1.2 Health Services Coverage and Quantity on Maternal and Child Healthcare

Pregnant women and children mainly under five-year age are the most vulnerable people to inaccessibility of health which draws attention to all stakeholders in public health such as WHO, World Bank, and other international organizations and governments. Therefore, maternal and children health care are worldwide targeted in public health (Bank, 2015; SDG, 2019). In addition, maternal and under-five year health services are the most targeted by Performance-based financing schemes in lower- and middle-income countries.

Many studies have focused on assessing Performance-Based Financing's impact on maternal and children health care services. These studies have indicated mixed results on institutional delivery, maternal and children immunization, antenatal visit and postnatal visit, equity, and quality (Basinga et al., 2011; Binyaruka et al., 2015; Matsuoka et al., 2014; Priedeman Skiles et al., 2013; Skiles et al., 2015; Steenland et al., 2017b; Tawfiq, Desai and Hyslop, 2019; Zeng et al., 2013). However, these studies have relied on the baseline of secondary data used likely to cause interest manipulation or to provide insufficient data (Matsuoka et al., 2014; Priedeman Skiles et al., 2013; Skiles et al., 2015; Steenland et al., 2017b; Tawfiq, Desai and Hyslop, 2019), inequity between control and intervention group (Priedeman Skiles et al., 2013; Skiles et al., 2015; Zeng et al., 2013), and exposure observed in some control group health facilities (Skiles et al., 2015).

-A study conducted in Burkina Faso has found that PBF has increased institutional delivery by 2.1 percent, ANC by 2.3 percent, and postnatal care visits by 9.5 percent monthly; (Steenland et al., 2017b).

-In Cambodia, a study conducted during the early pilot period of PBF found an association between PBF and an increase in ANC visits of 62.8 percent, children immunization with hepatitis B vaccine of 29.7 percent, and outpatient visits of 3.5 percent to 4.5 percent (Matsuoka et al., 2014).

-In Rwanda, studies have shown an improvement of institutional delivery with a mixed result on quality and ANC. Priedeman et al. (2013) have found that the PBF scheme increased the use of facility delivery by 36.0 percent in the PBF group compared to 19.9 percent in the non-PBF group, but non-improvement in both ANC visits and contraceptive use; additionally, there was an improvement of equity among the poorest and rich women;(2013) (Priedeman Skiles et al., 2013); Basinga et al.(2011) have found that PBF has significantly increased facility delivery of 23% and children vaccination by 56% for children aged of infant and 132% for children aged 24-59 months but no improvement in ANC care visit (women fully vaccination) and children fully vaccinated(Basinga et al., 2011); Skiles et al.(2015) have found no effect of PBF on maternal and under-five year age care-seeking that PBF and maternal equity; however, PBF was associated with quality

improvement in terms of treatment receipt by 22.1% and children equity by 44.6% (Skiles et al., 2015).

Previous studies conducted in Burundi revealed that PBF has increased coverage and quantity of maternal and children under five years of age with mixed results; however, no significant impact on no contracted services. However, these studies relied on the risk of interest manipulation as supported by NGOs that led the PBF pilot (Rudasingwa, Soeters, and Basenya, 2017b), data paucity (Bonfrer, Van de Poel and Van Doorslaer, 2014; Falisse et al., 2015).

-In their study, (Falisse et al., 2015) have discovered no significant effect of PBF on outpatient healthcare service utilization, institutional delivery, and ANC visit; however, it has significantly increased in anti-tetanus vaccination by 20.3%. However, this study is limited by a lack of data. For example, in 2006, 32 percent of variables in the control group were missed then replaced by the average, and in intervention, provinces were rolled out in a different period. Moreover, secondary data in intervention control could be biased by the overbilling system.

-The most known experimental and rigorous study conducted in the early pilot period of PBF has found a significant improvement in institutional delivery of 39.2 percent but no

significant improvement in antenatal visits and anti-tetanus vaccination (Rudasingwa, Soeters, and Basenya, 2017a).

2.5.2 Performance-Based Financing's Challenges

Performance-Based Financing implementation in developing countries faces many challenges. For example, studies have reported some PBF implementation challenges such as administrative barriers, delay in incentive disbursement, and poor timing of evaluation relative to incentives in Mozambique, inadequate and overworked staff, overcrowded facilities, and long distances to Facilities in Malawi(Bhatnagar and George, 2016; Petross et al., 2020; Schuster et al., 2018b).In addition, some health experts have pointed out the performance financing model as a costly financing scheme and not applicable in some contexts.(Olivier de Sardan, Diarra and Moha, 2017; Paul et al., 2018).

There was a need for evidence of PBF effects from health professionals not only on quantity and quality but also on challenges that were facing PBF implementation (Bhatnagar and George, 2016; Manga et al., 2018; Schuster et al., 2018b)

CHAPTER THREE: METHODOLOGY

3.1 Study Design

A quantitative cross-sectional study was conducted among health professionals in public health facilities in Muramvya province of Burundi from September until November 2021.

3.2 Study Setting

This study was conducted in Burundi, a developing country of East Africa community. The health system is decentralized with primary health care at the base (health centers), then secondary health care (in district hospitals), and tertiary health care (national hospitals).

Muramvya province is one of 18 provinces that accounts for Burundi, with 43,7568 inhabitants. It is located in the central of the country at the middle distance between Bujumbura and Gitega, respectively, Burundi's economic and political capitals. Like in other provinces, most health facilities are under a PBF contract, and public health facility finances are primarily dependent on the PBF scheme.

Muramvya province is divided into two health districts Muramvya and Kiganda, with 22 health facilities (20 health centers and two hospitals) and 18 health facilities (16 health centers,1clinic, and one hospital). Muramvya has 38 health centers (23 public, ten privates, and five confessionals), three public hospitals, and 1private clinic. All public health facilities operate under the PBF scheme. Each public health facility has its catchment area. However, all private health facilities or CHCs operating within that catchment area are

eligible for a PBF secondary contract from that health public health facility. Under that secondary contract, a private health facility or CHC accepts implementing a part of public health facility responsible for that catchment area under certain conditions, such as providing each monthly report to that public HF. The public health facility takes 5% from PBF payment on the services offered by that private health facility or CHC.

3.3 Variables

Research variables were socio-characteristic variables (7 items). Closed-ended questions on PBF component-related variables are the tools used in PBF implementation (6 items), health services coverage and volume (4 items), structural quality of services provided (5items), and primary challenges in health implementation (4 items). These close-ended questions were measured using Likert-scale(5degree): strongly disagree, disagree, neutral, agree, and strongly agree.

3.4 Data Sampling

Research collected data using a self-administrative questionnaire tool with 26 items. The content and design of the questionnaire were guided by previous studies means and contextual considerations (Das, Gopalan, and Chandramohan, 2016; Donabedian, 1988; Donabedian, 2005; Kohl, 2013; Manga et al., 2018; McDermott et al., 1960; Petross et al., 2020; Rice et al., 1961).

The questionnaire accounts for two parts: the socio- characteristics part, which gathers socio-demographic characteristics of participants, and a second part, which contains the questions identifying PBF implementation, PBF effect on health service coverage, and quantity of services provided, and PBF implementation' challenges.

3.4.1 Socio-Demographic Characteristic Variables

Participants' socio-characteristics are age, sex, marital status, education level, professional status, Working health facility level, and experience.

3.4.2 Performance-Based-Financing Implementation Variables

PBF implementation variables contained 11 variables included six items for PBF tools-related components such as incentive payment to health workers, health facility external evaluation, individual performance evaluation, autonomy in health facility revenue utilization, PBF payment level for MCHC services satisfaction, and PBF payment level of Performance-Based Financing for non-MCHC services. Five items for structural quality-related components such as medicines and other medical consumables availability, referral system(transportation), knowledge and skills, working environment, and patient accessibility to health services at HF for any time they want.

The choice of PBF variables was guided by the Burundi manual of PBF utilization (Burundi,2010) and the World Bank's PBF tool kit (Fritsche et al., 2014).

3.4.3 PBF Effect Variables

BF effect variables contained four items: coverage in maternal services utilization, children under-five years of age service utilization, people more than five-year age except for pregnant women service utilization (non-MCHC service coverage), and volume of health services provided. Among those four items, two were only for a group of the population for which PBF reimburses 100% of their bills (maternal health utilization and under-five health services utilization). One for a group of people for which PBF pays an incentive for targeted services (group of people over the age of five, except pregnant women health service utilization).

3.4.4 PBF Challenges Variables

PBF challenges chosen were four items payment level of domestic schemes, lack of health workers according to PBF tools, health facility capacity to survive on its revenue, and time allocated to PBF evaluation.

3.5 Questionnaire Pilot Test

Before data collection, a questionnaire pilot test was conducted. Google questionnaire pilot was distributed to 20 participants outside the target population for reliability test of variables and shared to Muramvya provincial committee of the Ministry of Health in charge of Performance-Based Financing validation and verification for content validity test. The reliability of variables was calculated using Cronbach's Alpha that found a Cronbach's

Alpha of .889 for overall items. Content validity of the questionnaire was well appreciated by the Muramvya provincial committee of the Ministry of Health in charge of Performance-Based Financing validation and verification.

3.6 Data Collection

3.6.1 Population

According to a 2020 report from the ministry of health, Muramvya had 369 health providers included 22 general doctors, 280 nurses, ten midwives, and 57 health technicians (radiology, laboratory, anesthesia, and health environment).

3.6.2 Inclusion and Exclusion Criteria

3.6.2.1 Inclusion Criteria

All health providers who had one year of experience and who worked in a health facility under PBF.

3.6.2.2 Exclusion Criteria

All health providers who had less than one year or who worked in a health facility out of the PBF scheme.

3.6.3 Sampling Method and Sample Size Estimation

This study was in Muramvya, a central province of Burundi. The target population was health professionals working in public health facilities. Multistage sampling was used by cluster sampling among health facilities and then systematic random sampling. First, Cluster sampling was used to select ten health centers from 23 public HC and two hospitals from 3 hospitals. Then systematic random sampling was used to determine 143 participants from 225 health providers with a sample size calculator.

The number of participants at each health facility was chosen using a formula:

Ni=sample size (143), xi=number of health professionals at each Health Facility, ni=number of selected health professionals, and N=population size in health facilities chosen (225).

3.6.4 Data Collection Procedure

After a questionnaire pilot test, data collection was conducted using a Google questionnaire.

We used five research assistants to reach respondents. Those assistants were health professionals trained for conducting that survey. During the data collection period, research assistants went to each selected health facility and randomly selected eligible health professionals at each health facility. After explaining to selected health professionals how to fill google form questionnaire, We shared a questionnaire link with each chosen health professional.

3.7 Data Analysis

After getting data from the google survey, we gathered and inserted it in Microsoft Excel, coded, and then analyzed it using SPSS 25.0. Then, descriptive analysis was used to describe socio-demographic characteristics and participants' satisfaction with PBF implementation's effect on service coverage and volume. Next, we analyzed participants' perception of PBF challenges descriptive analysis test. Finally, we examined factors influencing PBF satisfaction among health professionals using the Chi-square test between socio-demographic variables and PBF implementation variables, PBF effect variables, and PBF challenges.

Socio-demographic variables were independent variables and, PBF implementation variables, PBF effect variables, and PBF challenges were dependent variables.

3.8 Ethics

A letter asking permission for data collection was sent to the health province authority of the ministry, followed by approval for this survey. During the survey, respondents have explained the objectives and benefits of research to obtain their consent. We will protect the rights, privacy, and dignity of the participants.

CHAPTER FOUR: RESULTS

4.1 Introduction

A study team visited all planned health facilities and reached all selected participants according to the sample size; unfortunately, 17 out of 143 did not respond. Therefore, 126 participated (88.11%) in our study; however, we represented all planned health facilities. We will later discuss the influence of those non-respondents in future chapters.

This chapter presents the results of the study. After describing the sample and analyzing participants' perceptions on each item, PBF satisfaction among health workers was analyzed using the Chi-square test between socio-demographic variable and PBF components, PBF outcomes, and PBF challenges. Finally, we investigated the effect of PBF on health service coverage and quantity and structural quality using multiple linear regression and then PBF implementation challenges analysis' using means comparison test of participants' perception.

4.2 Socio-Demographic Characteristics

The total sample size of participants was 126; among participants, most were adults above of 30 years of age (67.5%). Most participants were male, with 66.7% against 33.3% for females. Most of those participants were married (72.2%). Among participants, most had secondary or advanced diplomas (52.3%). Nurses are most represented with (65.9%). The

hospital-level is characterized with high frequency with 59.5%. Most participants had working experience between 1-5 years (54%) during our survey (Table1).

Table 1: Socio-Demographic Characteristics

N= 126

Items	Categories	Frequency	%
Age (years)	<=30	41	32.5
	>30	85	67.5
Gender	Female	42	33.3
	Male	84	66.7
Marital status	Single	35	27.8
	Married	91	72.2
Education level	Secondary and advanced diploma	66	52.4
	First degree	60	47.6
Profession	Nurses	83	65.9
	Physicians	10	7.9
	Technicians and others	33	26.2
Facility level	Health center	51	40.5
	Hospital	75	59.5
Working experience	1-5 years	68	54.0
	> 5 years	58	46.0
Total		126	100.0

4.3 Factors Associated with Health Professionals Satisfaction on PBF Scheme Implementation

Results analysis revealed that age was significantly associated with the satisfaction on PBF incentive payment among health professionals (x2 =8.674, df=2, p=0.013). The most satisfied were health professionals aged above 30years with 75.3% against 51.2% for 30years of age and below (table 2). However, marital status was significantly associated with health professional satisfaction on "Health facility accessible to the patient any time"

(x2=8.194, df=2, p=0.017). Married were the most satisfied with 93.4% against 77.1% for single (Table2).

Moreover, education level was significantly associated with health workers' satisfaction on payment level for non-MCHC services (x^2 =7.734, df=2, p=0.021). The most satisfied were under-first level with 53% against 31.7% for first level (Table 2).

Results also revealed that the education level was the factor significantly associated with health professional satisfaction on drugs and other medical consumables availability (x^2= 7.188, df=2, p=0.027) with high joy for under-fist level (77.3%) against (56.7%) for first level (Table 2). However, the working experience was significantly associated with health professional satisfaction in the working environment (x^2=6.090, df=2, p=.048) with 81% for 1 to 5years of experience and 61.8% for more than 5years of experience (Table2).

Table 2: Factors Influencing Satisfaction on PBF Implementation

N= 126 (n, %)

Factors		PBF implementation					
		Disagree	Neutral	Agree	X^2	Cramer's V	p
Age	<=30years	12(29.3)	8(19.5)	35(51.2)	8.674	.262	.013
	>30years	9(10.6)	12(14.1)	64(75.3)			
Marital status	Single	3(8.6)	5(14.3)	27(77.1)	8.194	2.55	.017
	Married	4(4.4)	2(2.2)	85(93.4)			
Education level	Secondary and advanced diploma	23(34.8)	8(12.1)	35(53.0)	7.734	.248	.021
	First level	24(40.0)	17(28.3)	19(31.7)			
	Secondary and advanced diploma	6(9.1)	9(13.6)	51(77.3)	7.188	.239	.027
	First level	15(25.0)	11(18.3)	34(56.7)			
Experience	1-5 years	13(19.1)	13(19.1)	42(61.8)	6.090	.220	.048
	> 5 years	4(6.9)	7(12.1)	47(81.0)			

4.4 Factors Associated with Health Professional Satisfaction on Service Coverage and Volume

Results revealed that health health-facility level was associated with professional satisfaction on the volume of service provided (x^2=9.500, df=2, p=0.009). However, the Hospital level had the high pleasure (90.7%) against health centers with 70.6% (Table 3).

Table 3: Factors Influencing Health Professionals' Satisfaction on Service Volume

N= 126 (n, %)

Factors		PBF implementation						
			Disagree	Neutral	Agree	X^2	Cramer's V	p
Health facility level	Volume of health services provided	Health Centers	5(9.8)	10(19.6)	36(70.6)	9.500	.275	.009
		Hospitals	4(5.3)	3(4.0)	68(90.7)			

4.5 Factors Associated with Health Professionals Perception on PBF's Challenges

Results revealed that education was the factor influencing health professional perception on availability of health workers was significantly associated with education level (x^2=6.971, df=2, p=0.031). The first level was the most dissatisfied (41.7%) against (22.7%) for the under-first level (Table 4 However, the profession was the factor significantly associated with professional satisfaction on the availability of health

(x^2=9.679, df=4, p=0.046). Most dissatisfied physicians with 60%, technicians and others (26.5%), and nurses with 26.5% (Table 4). Moreover, the working experience was the factor significantly associated with professional satisfaction on the availability of health workers (x^2=7.204, df=2, p=.027). Health professionals of experience between 1-5years were most dissatisfied (35.3%) against 27.6 for health professionals with more than five years of experience (Table 4).

Table 4: Factors Associated with Health Professionals' Perception of PBF's Challenges

N= 126 (n, %)

Factors		PBF implementation					
		Disagree	Neutral	Agree	X^2	Cramer's V	p
Education: Availability of health workers	Secondary and advanced diploma	15 (22.7)	16 (24.2)	35 (53.0)	6.971	.235	.031
	First level	25 (41.7)	16 (26.7)	19 (31.7)			
Profession: Availability of health workers	Nurses	22 (26.5)	22 (26.5)	39 (47.0)	9.679	.196	.046
	Physicians	6 (60.0)	40 (40.0)	0 (0.0)			
	Technicians and others	12 (36.4)	6 (18.2)	15 (45.5)			
Experience: Availability of health workers	1-5 years	24 (35.3)	22 (32.4)	22 (32.4)	7.204	.239	.027
	> 5 years	16 (27.6)	10 (17.2)	32 (55.2)			

CHAPTER FIVE: DISCUSSION

Under the same goal of advancing toward UHC, we promoted many financing schemes based on health workers' rewarded incentives. PBF is the most financing scheme being promoted and implemented in LMICs to reward health workers on quantity and quality of health services provided and to strengthen fragile health systems (Eichler, 2006; Evans and Etienne, 2010; Fritsche, Soeters and Meessen, 2014; Ifeagwu et al., 2021; Jowett et al., 2020; Jowett, Shishkin and Organization, 2010; Organization, 2010a, 2010b)

Burundi, a low-income country, has implemented PBF since 2006. There is little robust evidence from studies assessing the PBF schemes in the pilot period. However, no substantial evidence from health workers. This study was conducted after 15 years of PBF implementation on health workers of Muramvya province of Burundi. A survey was conducted among health workers using a google survey questionnaire in October 2021.

5.1 Socio-Demographic Characteristics

Results revealed that most of the participants were aged more than 30years (67.5%), and males were 66.7%. Most of the participants were married (72.2%). Among participants, the majority were nurses (65.9%). The majority of participants had working experience between 1 and 5years (54%) during our survey. These results were similar to results found by Manga (2018) in Cameroon (Manga, 2018). Moreover, most participants had high school or advanced diplomas (52.3%). The context of Burundi explains that fact, indeed,

to face the lack of midwives and other nurses qualified in a specific field, with high school level work in health centers and provide all primary health services.

5.2 Factors Associated with Health Professionals' Satisfaction on PBF Implementation

Results analysis revealed that age was significantly associated with the satisfaction on PBF incentive payment among health professionals (x^2 =8.674, df=2, p=0.013). The most satisfied were health professionals aged above 30years. It is parallel to results found by Manga (2018) in Cameroon, who found that age to be the factor that influences incentive satisfaction of health workers under the PBF scheme (Manga, 2018). However, Grece Grammatikopoulos et al. (2013) have found the educational level the most associated with remuneration satisfaction (Grammatikopoulos et al., 2013). In Burundi, the PBF program has introduced a system of rewarding health workers on health services quantity and quality.

However, education level was significantly associated with health workers' satisfaction on payment level for non-MCHC services (x^2 =7.734, df=2, p=0.021). The most satisfied were under-first level (53%) against the first level (31.7%). It can be explained by the complexity of the Burundi health financing schemes, which require high knowledge for understanding. Health financing knows many health insurances schemes, including Assistance Medical

Card operating in public health facilities. However, many health experts have criticized these insurance schemes for being weak in organization and inefficient (Bank,2009).

Regarding PBF implementation on quality components, results revealed that education level was significantly associated with satisfaction on drugs and other medical consumables availability l (x^2=8.198, df=2, p=0.017) with high satisfaction for under-fist level (77.3%) against (56.7%) for the first level. However, the working experience was significantly associated with health professional satisfaction in the working environment (x^2=6.090, p=.048) with 81% for 1 to 5years of experience and 61.8% for more than 5years of experience. Moreover, marital status was significantly associated with "health facility accessible to the patient any time" (x^2=8.194, df=2, p=0.017). Married were the most satisfied with 93.4% against 77.1% for single. These findings were similar to the research results found by Bhatnagar et al. (Bhatnagar and George, 2016). It can be explained by the lack of knowledge on PBF components. Apart from the lack of qualified staff that faces the Burundi health system, available health workers do not get regular training on PBF scheme implementation. In America, Glickman et al. (2007) and in Rwanda, Basinga (2009) has found that PBF had no potential to increase structural quality in terms of drugs and equipment availability (Basinga, 2009) (Basinga, 2011, Glickman et al.2007). In Burundi, results revealed that the PBF scheme is more likely to be associated with quality improvement. Indeed, among different approaches in quality assessment, structural quality is the most used by basing on Donabedian's theory Model of relationship between structure,

process, and quality in health care (Donabedian, 1988). Also, strong evidence showed that the availability of adequate resources (human and material) is followed by providing appropriate care with accessibility and equity (Donabedian, 2005; Lee, 1933; Tello, Barbazza and Waddell, 2020). In his study conducted in South Africa, Ameh et al.(2017) has found a strong relationship between structural quality, process quality, and health outcomes. It suggested that providing an excellent structural quality was directly associated with promoting good process quality and good outcomes (Ameh et al., 2017)

5.3 Factors Influencing Health Professionals' Satisfaction on Service Coverage and Volume

Results revealed that only health professionals' satisfaction on the increase of the quantity of service provided was associated with facility-level (x^2=9.500, df=2, p=0.009). Under PBF schemes, hospitals apply for primary and secondary health care, while health centers apply only for primary healthcare. It confirms the results found by Manga (2018), who found PBF satisfaction among health workers was positively associated with the type of health center. This finding supported (Steenland et al., 2017a), who reported that PBF was associated with increased services provided. It can be explained by the solid monitoring-evaluation system and incentive payment and health facility autonomy as PBF tools, which improved the Burundi health system in terms of organization. These findings were supported by Loevinsolm, Guerro and Gregorio (1995), and Soeters, who found that systematic supervision of health facilities using a set of objectives clearly defined improved

health services deliveries considerably (Loevinsohn, Guerrero and Gregorio, 1995, Soeters et al.,2011)

5.4 Factors Influencing Health Professionals' Perception of PBF's Challenges

Results revealed that health professionals' perception availability of health workers was associated with education level (x^2=6.971, df=2, p=0.031), profession (x^2=9.679, df=4, p=0.046), and working experience (x^2=7.204, df=2, p=.027). The lack of health workers differs by profession. Physicians are the most affected than technicians and nurses at the university level. To face the lack of qualified staff such as physicians, midwives, and skilled nurses, nurses of secondary level provide all primary healthcare services health centers and the majority of direct healthcare services in hospitals. It may also be explained by a lack of experienced staff caused by a permissive movement of professional job change among healthcare professionals. These findings support the results found by Bhatnagar et al. (2016), Njoumeni Fatima (Semachew et al., 2017). They reported that focusing on health professionals in health financing was associated with improving health services outcomes.

Limitations

There are several limitations that, as a researcher, we recognized that a qualitative study would give more evidence about our research. In addition, most of the participants had a short working experience which caused a lack of knowledge of the period before PBF implementation.

5.5 Future Study

- A qualitative study is necessary to identify in detail the most of services improved by PBF within groups of population and identify other challenges that face PBF implementation and to investigate the impact of PBF on Out-of-Pocket Payment;
- The association between structural quality, process quality, and health outcome
- There is a need for a study to investigate other factors influencing PBF satisfaction among health workers, such as structural and managerial factors, social factors, and environmental factors.

CHAPTER SIX: CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

A study was conducted on the Factors that Influence Performance-Based Financing toward Universal Health Coverage in Muramvya Province of Burundi. Participants were 126 health professionals.

Regarding PBF implementation satisfaction, the results revealed education level to be the most factors influencing health professionals' satisfaction on the scheme, such as satisfaction on payment level of non-MCHC services(p=.021), availability of drugs, other medical consumables(p=.027), and health workers availability(p=.027). Then, results revealed experience as the second factor associated with satisfaction on health workers availability(p=.027) and happiness in the working environment (p=.048).

Moreover, the results revealed facility level to be the factor associated with health professionals' satisfaction on the increase of health services provided by PBF(p=.009), profession to be the factor related to satisfaction on availability of health workers(p=.046), and age to be the factor associated with satisfaction on incentive (p=.013). Also, marital status is associated with satisfaction on facility accessible to the patient at any time(p=0.017). Therefore, there is a need for regular training on the PBF scheme among

health workers. In addition, however, there is a need for the motivation of health workers to face a high level of brain drain in health workers in Burundi.

6.2 Recommendations

I would like to suggest some recommendations during this study and based on findings revealed by this research.

To Burundi government

- Provide to health facilities enough qualified health workers and provide regular training to health workers
- Motive health workers to avoid health workers in other to face the need of experienced workers
- Maintain PBF scheme and strengthen collaboration between PBF and domestic financing schemes;
- Establish vital national health insurance capable of collaborating with Performance-Based Financing schemes for a sustainable health financing system,
- Update regularly the manual of procedures for Performance-based financing implementation in Burundi for PBF components tools;
- Revise incentive payment to health workers tool by clarifying the part that we should pay to health workers, and individual performance evaluation tool;

- Revise and update regularly price setting for MCHCs and incentive payment level for quantity and quality

- Create a national committee in charge of assessing regularly various health insurance schemes in premium payment, services covered, and price setting, as well as payment model;

- Maintain and strengthen health facility monitoring-evaluation and health facility autonomy in revenue utilization

To international partners:

Continue to support the Burundi government in its various policies aimed to advance towards Universal Health Coverage, such as the PBF program and free care policy for pregnant women and children under five children and other related health projects.

To health providers:

- Collaborate with health facility authority in improving population health state and strengthening health system

- Ensure equity in providing health services without putting more attention to contracted services

To community:

- Consult health facility when needed and respect the advice from health professionals in using health services
- Collaborate with the government and health professionals in the family planning process

To researchers:

- Refer to this research for leading other research related to the PBF scheme and health financing.

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APPENDIX

Appendix 1: Questionnaire (English/French)

No	Questions	Options
1	Age in years (age en année)	□ Less than 20years (moins de 20ans) □ 21-30years(21-30ans) □ 31-40 years(31-40ans) □ 41-50 years(41-50ans) □ Above 51 years (plus de 51ans)
2	Gender (genre)	□ Male(masculine) □ Female(féminin)
3	Marital status (Etat civil)	□Single(célibataire) □Married (marié) □Divorced(divorcé) □Widowed(veuf)
4	Education level(niveau d'étude)	□High school (école sécondaire) □Advanced diploma (diplôme d'étude supérieur A1) □Bachelor's degree(niveau baccalauréat et son équivalent) □Master's degree/doctoral degree(niveau maitrise ou doctorat) □Others(autres)
5	Professional status (profession)	□Help nurse(aide-soignant) □Nurse(infirmier) □Midwife (sage-femme) □Anesthetist (infirmier anésthesiste) □Laboratory technician(technician de Laboratoire) □Radiology technician(technician de radiologie) □Physiotherapy technician(kinésitherapeute) □Pharmacist(pharmacien) □General practitioners(Médecin generaliste) □Others(autres)
6	Working health facility level (niveau de structure de santé)	□Health center(centre de santé) □Hospital(hospital)
7	How many years have you been working as health provider? (depuis combien d'années avez-vous travaillé dans le secteur de santé)	□1-5 years(1-5ans) □6-10years(6-10ans) □11-15 years(11-15ans) □16-20 years(16-20ans) □21-25 years(21-25ans) □More than 25 years(plus de 25ans)

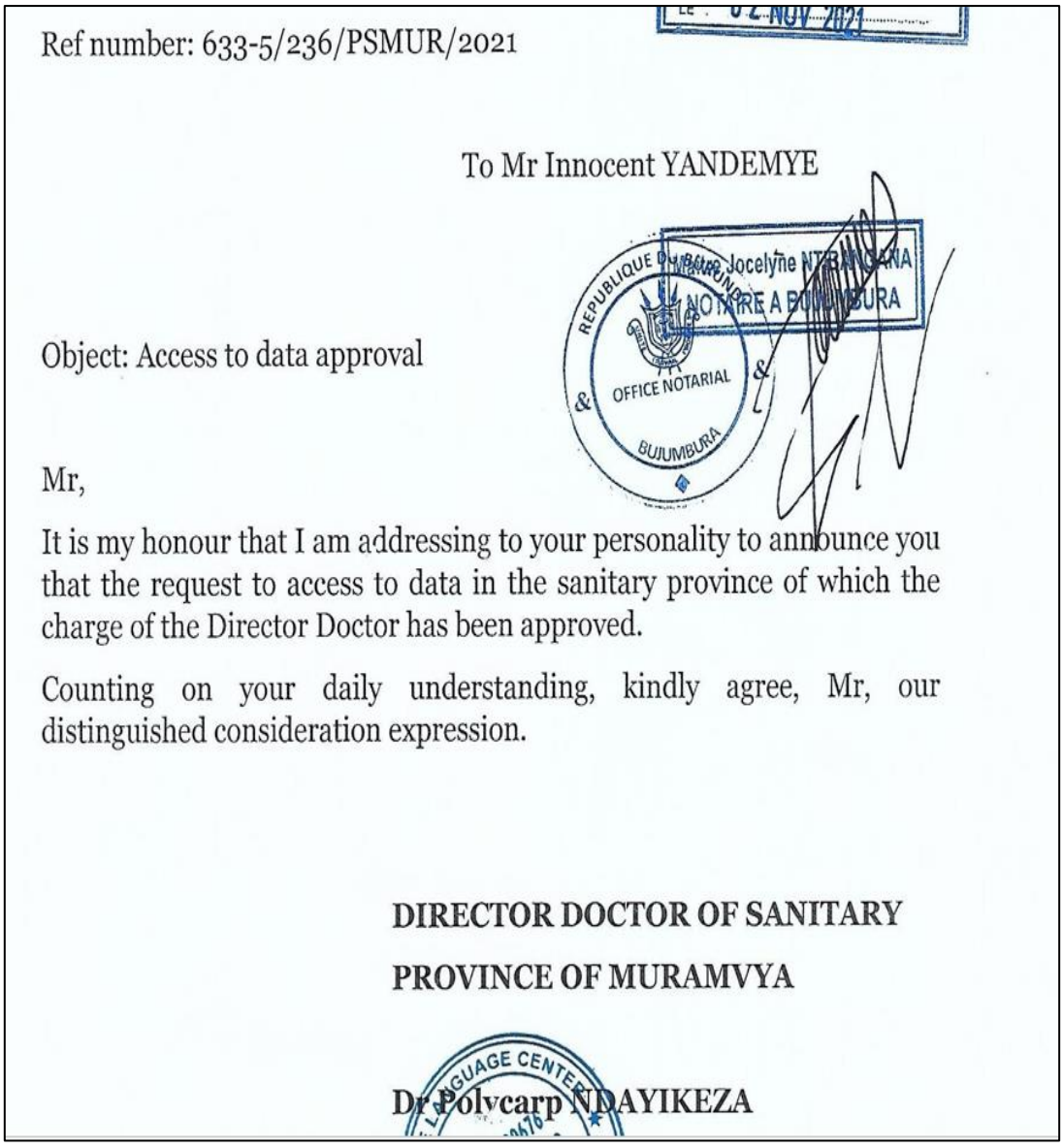
No	Questions	Options
8	Peformance-Based Financing scheme has increased my opportunity of receiving an incentive based to my performance (Le programme du Financement Basé sur les Performances m 'a augmenté l 'opportunité de recevoir la prime basée sur mes performances)	1. Strongly disagree/fortement en désaccord 2. Disagree/en désaccord 3. Neutral/neutre 4. Agree/d'accord 5. Strongly agree/fortement d'accord
9	My health facility gets adequately external supervision for quality and quantity evaluation (Mon établissement de santé bénéficie d'une supervision externe adéquate pour l'évaluation de la qualité et l'évaluation de la quantité)	1. Strongly disagree/fortement en désaccord 2. Disagree/en désaccord 3. Neutral/neutre 4. Agree/d'accord 5. Strongly agree/fortement d'accord
10	My performance is adequately appraised each month (Ma performance est adéquatement évaluée chaque mois)adequately appraised each month	1. Strongly disagree/fortement en désaccord 2. Disagree/en désaccord 3. Neutral/neutre 4. Agree/d'accord 5. Strongly agree/fortement d'accord
11	Performance-Based Financing has increased my health facility's ability to use its revenues (Le Financement-Basé sur les Performances a augmenté la capacité de mon établissement de santé à utiliser ses revenus)	1. Strongly disagree/fortement en désaccord 2. Disagree/en désaccord 3. Neutral/neutre 4. Agree/d'accord 5. Strongly agree/fortement d'accord
12	I am satisfied with the payment level of Performance-Based Financing scheme for pregnant women and under five-year-old children (je suis satisfait du niveau de paiement du programme de Financement-Basé sur les Performances pour les services fournis aux femmes enceintes et aux enfants de moins de cinq ans)	1. Strongly disagree/fortement en désaccord 2. Disagree/en désaccord 3. Neutral/neutre 4. Agree/d'accord 5. Strongly agree/fortement d'accord

No	Questions	Options
13	I am satisfied with the level of payment of Performance-Based Financing scheme for contractual services provided to people over the age of five, except pregnant women (je suis satisfait du niveau de paiement du programme de Financement Basé sur la Performance pour les services contractuels fournis aux personnes de plus de cinq ans à l'exception des femmes enceintes)	1. Strongly disagree/fortement en désaccord 2. Disagree/en désaccord 3. Neutral/neutre 4. Agree/d'accord 5. Strongly agree/fortement d'accord
14	Perfomance-Based Financing scheme has increased maternal service users in my health (Le programme du Financement Basé sur les Performances a augmenté le nombre de femmes enceintes utilisant les services de santé dans mon établissement de santé)	1. Strongly disagree/fortement en désaccord 2. Disagree/en désaccord 3. Neutral/neutre 4. Agree/d'accord 5. Strongly agree/fortement d'accord
15	Performance-Based Financing scheme has increased healthcare service users for under-five age old service in my health facility (Le programme du Financement Basé sur les Performances a augmenté le nombre d'utilisateurs de services de santé pour les enfants de moins de cinq ans dans mon établissement de santé)	1. Strongly disagree/fortement en désaccord 2. Disagree/en désaccord 3. Neutral/neutre 4. Agree/d'accord 5. Strongly agree/fortement d'accord
16	Performance-Based Financing scheme has increased healthcare service users for group of people over the age of five, except pregnant women in my health facility (Le programme du Financement Basé sur les Performances a augmenté le nombre d'utilisateurs des services de santé pour les personnes de plus de cinq ans, à l'exception des femmes enceintes)	1. Strongly disagree/fortement en désaccord 2. Disagree/en désaccord 3. Neutral/neutre 4. Agree/d'accord 5. Strongly agree/fortement d'accord

No	Questions	Options
17	Performance-Based Financing scheme has increased services provided in my health center/ department (Le programme du Financement Basé sur les Performances a augmenté les prestations mensuelles réalisées dans mon centre de santé /service)	1. Strongly disagree/fortement en désaccord 2. Disagree/en désaccord 3. Neutral/neutre 4. Agree/d'accord 5. Strongly agree/fortement d'accord
18	I am satisfied with medicines and other medical consumables availability in my health facility (je suis satisfait de la disponibilité des médicaments et autres consommables médicaux dans mon établissement de santé)	1. Strongly disagree/fortement en désaccord 2. Disagree/en désaccord 3. Neutral/neutre 4. Agree/d'accord 5. Strongly agree/fortement d'accord
19	I am satisfied with my working environment in my health facility (Je suis satisfait de mon environnement de travail dans mon établissement de santé)	1. Strongly disagree/fortement en désaccord 2. Disagree/en désaccord 3. Neutral/neutre 4. Agree/d'accord 5. Strongly agree/fortement d'accord
20	The referral system in my health facility works efficiently (le système de référence-contre référence de mon établissement de santé fonctionne efficacement)	1. Strongly disagree/fortement en désaccord 2. Disagree/en désaccord 3. Neutral/neutre 4. Agree/d'accord 5. Strongly agree/fortement d'accord
21	I have sufficient knowledge and skills to accomplish my tasks well according to norms and standards (j'ai des connaissances et des compétences suffisantes pour bien accomplir mes tâches selon les normes et standards)	1. Strongly disagree/fortement en désaccord 2. Disagree/en désaccord 3. Neutral/neutre 4. Agree/d'accord 5. Strongly agree/fortement d'accord
22	My health facility is organized such that patients are able to access to providers any time they want (mon établissement de santé est organisé de telle sorte que les patients puissent accéder aux prestataires à tout moment	1. Strongly disagree/fortement en désaccord 2. Disagree/en désaccord 3. Neutral/neutre 4. Agree/d'accord 5. Strongly agree/fortement d'accord

No	Questions	Options
23	I am satisfied by the payment level of other health financing schemes except Performance-Based Financing such as the Mutual of Public Function, Sickness assistance card, Private Insurances and others (je suis satisfait du niveau de paiement des autres régimes de financement de la santé à l'exception du Financement Basé sur la Performance, tels que Mutuelle de la Fonction Publique, Carte d'Assistance Maladie, assurances privées et autres)	1. Strongly disagree/fortement en désaccord 2. Disagree/en désaccord 3. Neutral/neutre 4. Agree/d'accord 5. Strongly agree/fortement d'accord
24	The are enough health workers to carry out all activities according to Performance-Based Financing scheme tools in my health facility (Il y a suffisamment des professionnels de santé pour mener à bien toutes les activités selon les outils du programme de Financement-Basé dans mon établissement de santé)	1. Strongly disagree/fortement en désaccord 2. Disagree/en désaccord 3. Neutral/neutre 4. Agree/d'accord 5. Strongly agree/fortement d'accord
25	25.My health facility has capacity to survive on its revenue (Mon établissement de santé a la capacité de survivre indépendamment de ses revenus)	1. Strongly disagree/fortement en désaccord 2. Disagree/en désaccord 3. Neutral/neutre 4. Agree/d'accord 5. Strongly agree/fortement d'accord
26	The time allocated to the quality evaluation process is enough to enable us to effectively analyze the quality checklist tool (le temps alloué au processus d'évaluation qualité est suffisant pour nous permettre d'analyser efficacement la liste de contrôle qualité)	1. Strongly disagree/fortement en désaccord 2. Disagree/en désaccord 3. Neutral/neutre 4. Agree/d'accord 5. Strongly agree/fortement d'accord

Appendix 2: Approval Letter of Data Collection



Ref number: 633-5/236/PSMUR/2021

To Mr Innocent YANDEMYE

Object: Access to data approval

Mr,

It is my honour that I am addressing to your personality to announce you that the request to access to data in the sanitary province of which the charge of the Director Doctor has been approved.

Counting on your daily understanding, kindly agree, Mr, our distinguished consideration expression.

DIRECTOR DOCTOR OF SANITARY

PROVINCE OF MURAMVYA

Dr Polycarp NDAYIKEZA

Réf : 633.5/236 /PSMUR/2021

A Monsieur Innocent YANDEMYE.

Objet : Accord d'accès aux données.

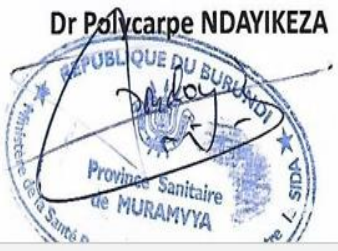
Monsieur,

J'ai l'honneur de m'adresser auprès de votre personnalité pour vous annoncer que votre demande d'accéder aux données dans la province sanitaire dont la responsabilité de Médecin Directeur m'est confiée vous est accordée.

Comptant sur votre habituelle compréhension, veuillez agréer, Monsieur, l'expression de ma considération distinguée.

LE MEDECIN DIRECTEUR DE LA PROVINCE SANITAIRE DE MURAMVYA

Dr Polycarpe NDAYIKEZA



Appendix 3: Informed Consent

A study on impact of Performance-Based Financing toward Universal Health Coverage in Muramvya Province of Burundi

Dear Sir / Madam,
I have the honor to send you this questionnaire for sharing your opinions to "A study on impact of Performance-Based Financing toward Universal Health Coverage in Muramvya Province of Burundi" which is a part of my research carried out at the Yonsei University, Seoul in South Korea. We emphasize that the performance-based financing program is playing a paramount role in strengthening the Burundi health system which has been weakened by a series of civil wars that have known our country in the past.
We inform you that the information provided will remain confidential and will be used only for academic purposes. This survey will take you 8-10 minutes, I thank you in advance for your time and your inputs.
Innocent Yandemye, (email : yandemyeinnocent1989@gmail.com ; tel : +25769160550&+8210 30731228)

Cher Monsieur / Madame,
J'ai l'honneur de vous envoyer ce questionnaire pour partager vos opinions sur "Une étude sur l'impact du Financement Basée sur les Performance vers la Couverture Universelle de la santé dans la province de Muramvya au Burundi" qui fait partie de mes recherches menées à l'Université Yonsei de Séoul en Corée du Sud.

Nous rappelons que le programme du Financement Basée sur les Performances est en train de jouer un rôle primordial dans le renforcement du système de santé du Burundi.
Nous vous informons que les informations fournies resteront confidentielles et ne seront utilisées que pour des faits académiques. Cette enquête vous prendra 8-10 minutes, je vous remercie d'avance pour votre temps et vos contributions.
Innocent Yandemye, (email : yandemyeinnocent1989@gmail.com ; tel : +25769160550&+8210 30731228)