

**AN EVALUATION OF THE EFFECTIVENESS OF RESULTS
BASED FINANCING ON USE OF MATERNAL AND CHILD
HEALTH SERVICES. A CASE OF MAFINGA DISTRICT OF
ZAMBIA BETWEEN 2015 – 2018**

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requirements for the Master of Business Administration (MBA – General)**

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APPROVAL

This dissertation of Emmanuel Chileshe Lubumbashi has been approved as fulfilling the requirements or partial fulfilment of the requirements for the award of Master of Business Administration (MBA – General) by the University of Zambia.

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ABSTRACT

Result-based financing (RBF) is a pay-for-performance model where money or material goods are transferred on conditional to achieving a predetermined performance target. In healthcare RBF is an economic and financial incentive targeting increased use of health services and professional practice. Under the Zambia Health Systems Improvement Project, Mafinga district has been implementing RBF from 2016 to date (2018) in order to address challenges of health service delivery and supplement government's traditional input-based funding. This study sought to assess the effectiveness of RBF intervention on use of health services and quality of health care in all Mafinga district.

The study was conducted in Mafinga district on five (5) RBF implementing health facilities. A retrospective longitudinal study using quantitative methods was employed. Data was collected from the DHIMS from 1st quarter 2015 to 3rd quarter, 2018 using data collection forms on service indicators and checklist on quality improvement indicators. Microsoft excel and statistical package for the social sciences (SPSS) were used for analysis. Further, data was summarised using frequencies and proportions and Chi square test for trends was used to determine significance in trends before and after the RBF interventions. Measure of effectiveness in the study was adopted as the number of maternal and child health indicators showing positive and significant change upon inception of the RBF intervention. Also, positive improvement in quality of health services was used to measure effectiveness

Study revealed that on average, use of MCH services declined from 50.6% in 2015 to 46.5% in 2016 before the intervention. However, after the intervention in 2017 average total use of MCH services increased to 60.9% and continued to increase to 70.6% in 2018. Study established positive maternal and child health increase after the intervention by 24.1%. However, the study found that the gains were not statistically significant at P-value of 0.78. Further the study compared the total average quality of health services before and after the intervention in 2016 and 2018 and found that in 2016 the average level of quality was at 71% and by 2018 increased to 84.9%. This marked a positive increase of 13.9% after RBF intervention. However, despite increase in quality of service after the intervention, the increase was not statistically significant at P-value of 0.87.

Findings of the study showed that RBF made positive improvements on use of services and quality of health care in all health centres and hence the intervention was effective despite their not being statistical significance on positive improvements. In all, RBF advances for results and hence a better model to traditional financing subject to revision of operational modalities.

Key terms: Results-based financing, Effectiveness of Intervention, Mother and Child health services, Quality of health services, Traditional Input-based financing.

DEDICATION

This work is dedicated to my family for the continued support and belief in our continued improvement and capacity to attain fulfillment.

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ACRONYMS AND ABBREVIATIONS

AHPSR	Alliance for Health Policy and Systems Research
AIDS	Acquired Immune Deficiency Syndrome
ANC	Anti-natal care
cART	Combined Antiretroviral Therapy
DHIS	District Health Information System
EmONC	Emergency Obstetric Neonatal Care
HIV	Human Immunodeficiency virus
HMIS	Health Management Information System
IFMIS	Integrated Financial Management Information System
LMIC	Low Middle-Income Countries
MCH	Maternal Child Health
MNCH	Maternal Neonatal Child Health
MoH	Ministry of Health
MoU	Memorandum of Understanding
MTEF	Mid Term Expenditure Framework
NORAD	Norwegian Agency for Development Cooperation
NGO	Non-Governmental Organization
OECD	Organization for Economic Co-operation and Development
P4P	Pay for Performance
PHC	Public Health Care
PHO	Provincial Health Office
PMTCT	Prevention of Mother To Child Transmission
RBF	Results Based Financing
STIs	Sexually Transmitted Disease
TB	Tuberculosis
USAID	United States Agency for International Development
VCT	Voluntary Counselling and Testing
WHO	World Health Organisation
ZDHS	Zambia Demographic and Health Survey
ZHSIP	Zambia Health Systems Improvement Project

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CHAPTER 1: INTRODUCTION

1.1 Background Introduction

Result-based financing (RBF) also referred to as pay-for-performance (P4P) is said to be the transfer of money or material goods conditional to taking on a measurable action or achieving a predetermined performance target. Studies on RBF and overall the evidence of its effectiveness have observed that conditional cash transfers and other types of economic incentives targeting healthcare recipients can increase the use of health services. Financial incentives also influence professional practice towards such as increased institutional deliveries, postnatal care and immunisations coverages (Oxman and Fretheim, 2008).

RBF is typically a package of well-defined interventions designed to achieve increased performance of service/s. It is difficult to disentangle the effectiveness of RBF from other components of the intervention packages which include funding, technical support, trainings, new management structures and monitoring systems. In this vain the money inflows required for RBF may be substantial, including the incentives themselves, administrative costs, and any additional service costs. However, there is limited evidence on the effectiveness of RBF. Furthermore, the intervention can have unintended effects, including motivating unintended behaviours, distortions, gaming, corruption, cherry-picking, widening the resource gap between rich and poor, dependency on financial incentives, demoralisation, and bureaucratisation (Oxman, 2008).

RBF for healthcare is a concept designed to help people in poor countries live healthier lives by linking incentives with results. The concept was primary developed by the World Bank through the Health Results Innovation Trust Fund. Results-based financing for health refers to any program that transfers money or goods to either patients when they take health-related actions (such as having their children immunized) or to healthcare providers, when they achieve performance targets (such as immunizing a certain percentage of children in a given area). While the World Bank uses the term “results-based financing” to describe this concept, other donors call it performance-based incentives or pay for performance. But they all essentially describe the same concept of linking incentives with results (L. Morgan¹, 2015).

Oxman (2008) described RBF to effective if the outcome results it intends to motivate is worth encouraging and there is compliance with the desired behaviour towards sustainability. On the other hand, financial incentives are designed to motivate desired behaviours based on an

understanding of the underlying problem and the mechanism through which financial incentives would yield desired outcomes. Furthermore, financial incentives tend to influence discrete individual behaviours in the short run and less likely to influence sustained changes. The mechanisms through which financial incentives are given to governments or beneficiary institutions can improve performance are less clear due to variations in their logic and in their implementation mechanisms. This diversity is mainly related to the fact that performance incentives are used to solve different problems in different contexts, Elovainio (2010).

RBF intervention are designed to include services which they target, the choice of targets and indicators, the type and magnitude of incentives, the proportion of financing that is paid based on results, and the ancillary components of the scheme (Oxman and Fretheim, 2008).

During inception and design stage RBF interventions are easily assimilated through broad based stakeholder involvement. The focus tends to be more on addressing important healthcare system delivery problems in order to achieve desired health goals – i.e. starting with the problem, not the solution. In addition, RBF has been displayed as an appropriate strategy to help address priority problems and goals. The strategy calls for effective technical capacity and support to be available as part of a complete and appropriate package of the intervention. The recommended RBF schemes should be monitored, among other things, for possible unintended effects, and evaluated, using specific tools designed to address important uncertainties and achieve intended plans of action, Fretheim (2009) and hence the study to evaluate RBF effectiveness on results attainment.

1.1.1 RBF In Mafinga District

Mafinga district of Muchinga province has been implementing results-based financing under the Zambia Health Systems Improvement Project from fourth (4th) quarter of 2016 to date (2018), the project is due to completion in October 2019 with possibility of further extension. The RBF intervention was initiated as part of the global campaign of the health Millennium Development Goals focusing on reducing child and maternal mortality with the support of the World Bank group (RBFMoU - Mafinag and PHO, 2017).

Being a rural district, the community of Mafinga faces numerous health challenges of long distance to health facilities, poor institutional deliveries by women of child bearing age, few skilled staff among the least. To address these and other similar challenges of health service delivery Mafinga district was selected as a recipient of the RBF package in 2016. Being a pay

for performance intervention, RBF is structured to be a supplement to the traditional input based funding (Mafinga MTEF, 2017).

Scheduled with an implementation period of up to 2019, RBF in Mafinga has literally been implemented over the last two years (2) with a projected one (1) years remaining to be implemented. During this period of implementation, this study sought to portray the effectiveness of the pay for performance intervention. A comparison was then made on the period without the intervention and alongside the RBF intervention period. The outcome of the study was used as recommendation and basis to compare measures between the two models of financing i.e. results-based financing and the current input based public financing (ZHSIP, 2016).

1.2 Statement Of The Problem

To strengthen the Zambian health system and improve health-service delivery, Zambia has been gradually introducing RBF approach in different districts countrywide to complement traditional input-based financing in some of its health programs and activities (Friedman, et al., 2015). Motivated by inadequate progress to achieving Millennium Development Goal number 4: Reduce child mortality and Goal number 5: Improve maternal health, UN (2003) the primary objective of RBF was to catalyse the country's efforts of reducing under-five and maternal mortalities in selected districts of Zambia through the pay for performance intervention.

In addition, Government of the republic of Zambia's health sector budget increased by 94% from ZMK1.9 billion in 2011 to ZMK3.6 billion in 2013; and by 135% between 2011 and 2015, from ZMK1.9 billion in 2011 to ZMK4.4 billion in 2015. However, the growth in Zambia's GRZ health budget is disproportionate to the incremental increase in resources availability of allocation through the national budget. Total government budget to health care was 8.6% in 2011, 11.3% in 2013, 9.9% in 2014, and 9.6% in 2015 (ZHSIP, 2016).

Despite the increase in financing to the health sector, Zambia continued to face a huge disease burden from high maternal and child health related morbidities and mortalities. In 2016 Mafinga district recorded two (2) incidences of maternal death with under five (5) mortality recorded at 2.4% per 1,000 Mafinga MTEF (2017). In many ways the contributing factors to the disease burden appear to emanate from inconsistency, transparency and limited accountability on the part of those involved in managing and implementing the health care service delivery along gaps in health financing in Zambia and Mafinga is not an exception (ZHSIP, 2016).

Also, Fretheim (2008) describes modalities in public finance to have limited correlation between financing and outcome of results, they are more inclined towards inputs of financial administration and guiding regulations of procedure and less towards results and hence it appears there is less effectiveness of funded programs in terms of real outputs translating into impacts.

It is against this background that this study sought to assess the effectiveness of results-based financing on critical maternal and child health intervention in Mafinga district

1.3 Justification Of The Study

A good health financing structure raises adequate funds towards its primary health care, it seeks to achieve universal health coverage in ways that encourage the provision and use of an efficient and effective mix of services.

Results based financing depicts a moderate cost and benefit of such a financing model. This study sought to show the effectiveness of results-based financing on service coverages and impact on quality health care services rural settings of Zambia. This was be done in comparison with the traditional input-based financing. In this regard the study seeks to attract various stakeholder in health financing for review of operational policy on input-based financing to results based financing. In all, operational funds should be placed at the attainment of results rather than the unpredictable process of addressing inputs hence the study.

1.4 Research Objectives

1.4.1 General Objective

To assess the effectiveness of results-based financing on the use of maternal and child health services in Mafinga district of Zambia.

1.4.2 Specific Objectives

- I) To describe the use of maternal and child health services between 2015 to 2018 in Mafinga district.
- II) To compare trends of use of maternal and child health services before and after RBF interventions in Mafinga District.
- III) To establish improvement in the quality of child and maternal health care delivery from point of intervention in Mafinga district.

1.4.3 Research Questions

What is the effectiveness of RBF on use of maternal and child health services in Mafinga district Zambia?

- a) What is the usage of maternal and child health services between 2015 to 2018 in Mafinga district?
- b) What is the difference in use of maternal and child health service before and after RBF interventions in Mafinga district?
- c) Has the quality of health care delivery improved after introduction of RBF interventions in Mafinga district?

1.5 Definition Of Terms

Acharya (2012) noted that RBF has emerged as one of the international efforts being made to make development cooperation more effective by linking financial or technical support closer to results. Therefore, it is crucial to evaluate benefits of RBF to ascertain its effectiveness. Effectiveness of development assistance such as aid funding can be defined from different perspectives. For instance, the Paris Declaration of Aid Effectiveness sets out five key principles that donors, recipient countries and multilaterals had agreed upon in order to improve the effectiveness of aid. Among these principles include country ownership; alignment of donor support with national strategies of the partner country; harmonization of donor actions; mutual accountability of donors and partners; and results-based management (OECD 2012).

On the other hand, economists usually consider aid as effective if it can be shown that aid has had a positive and statistically significant impact on economic or socio-economic outcomes, such as economic growth and human development – including education and health – as well as the quality of life (Amanda, 2013).

In this study and in reference to Amanda's (2013) definition of effectiveness, results-based financing intervention in Mafinga was adopted and considered to be effective if positive or significant improvements in targeted healthcare indicators, coverages and quality of healthcare services was observed.

Furthermore, effectiveness may be defined as the capability of, or success in, achieving a given goal. Across fields, the definitions of effectiveness are quite similar. In social research effectiveness is the extent to which an activity fulfils its intended purpose or function (Harvey, 2004).

An effectiveness analysis may investigate the whole intervention process: mobilisation of inputs, organisation of necessary activities, production of outputs, and the achievement of desired outcomes. The logical linkages among elements of RBF intervention includes:

- Inputs i.e. Personnel staff, infrastructure, equipment and funds.
- Activity Implementation includes mother and child health services being given to the population.
- Outputs basically being the number of clients receiving services.
- Outcomes being the long-term tangible results of numbers as coverage targets of clients beyond outputs.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

Despite the increase in financing to the health sector, Zambia continues to experience a huge disease burden mainly characterized by high prevalence and increasing impact from communicable diseases particularly malaria, HIV, STIs, TB, maternal, neonatal/child morbidity and mortality, World Bank (2018). The maternal mortality ratio fell from 398 in 2014 to 224 deaths per 100,000 live births in 2015, under-five mortality fell from 75 to 63 deaths per 1,000 live births and stunting in under-five children also decreased from 53 percent in 2001/2 to 40 percent however, these reductions are insufficient (ZDHS, 2015). Indications of low coverages and utilization of high impact maternal, new born and child health (MNCH) and nutrition services in Zambia has been attributed to demand as well as supply side constraints. On the demand side, communities often lack information on preventive practices, including early detection of health and nutrition complications. In addition, long distances to health facilities and lack of transportation often limit access to services and delay in seeking care. As a result, it is estimated that more than 30 percent of pregnant women deliver at home (Chibuye, 2010).

On the supply side, despite the increase in the number of health facilities, including primary health care, service utilization continues to remain low due to a number of bottlenecks such limited functioning basic emergency obstetric neonatal care facilities, stock-outs of essential health and nutrition supplies and consumables largely due to supply chain issues, High urban-rural disparities in the coverage of MNCH and nutrition interventions, with rural areas being worse off in several indicators. Further, insufficient and inequitable distribution of skilled health workers to carry out facility-based and outreach activities especially in the management of childhood illnesses and severe malnutrition, midwifery, and obstetric complications, and compromised efficiency of health workers due to tardiness, low morale, and absenteeism (ZHSIP, 2016).

Results based Financing (RBF) is a system strengthening intervention that seeks to improve utilization of primary and community level maternal, neonatal and child health and nutrition services with results-based financing approaches (ZHSIP, 2016).

Results-Based Financing (RBF) for Health is a term for programs that link payments (or material rewards) to results. It encompasses a range of health initiatives that aim to achieve

improvements in population health indicators, greater output of specific health care services, increased use of health care services by individuals, or even changes in health-related behaviours (Eichler 2006; Oxman and Fretheim 2008). The interventions similar to RBF are not new initiatives namely Output-Based Aid, Pay for Performance (P4P), Performance-Based Financing (PBF), Performance-Based Aid and Cash on Delivery have led to increasing clarity about RBFs main features and evidence is mounting with regard to the approaches strengths and limitations. This study sort to display the effectiveness in terms of noticeable change in improvement of maternal and child health indicators depicting successful health care financing mechanisms through RBF funding against the traditional input-based financing on key performance indicator (ZHSIP, 2016).

2.2 Overview of Results Based Financing

Amanda, (2013) reviewed results-based financing (RBF) approach as a mechanism gaining recognition towards the increase in use, quality, and efficiency of health care services. RBF is a financing mechanism focused on results or outputs rather than inputs, by transferring money or goods conditional on predetermined performance targets. The financial incentive can operate on either the supply or demand side of health services and can be targeted to individual health care users, individual health care provider, health facilities or institution delivering health care services. Experiences of RBF programs as a supply-side financing mechanism have been shared from other countries such as Rwanda, Nigeria, Burundi, Mali, and Ghana, among others (World Bank - HRITF, 2013).

The design of RBF programs differs widely from country to country as it is context specific and used as a tool for reforming public health systems. Some countries have reported improvements in utilization of reproductive and maternal health services as well as increased quality of health care services. Studies have also reported undesirable effects of the incentive-based intervention such as gaming the system and widening inequities (Roral Tropical Institute, 2015).

Proponents of results-based funding who include donors, partner countries and other actors of the international development community hope that this funding approach can fulfil intended goals. It is believed that results-based funding might have the potential to be more efficient and effective in improving health outcomes in developing countries than other funding modalities such as the traditional input-based financing that has been used before. Also, partners and

governments hope that the impact and effectiveness of results-based programmes can be measured more easily, such that expenditures can be directly linked to effects or results in order to demonstrate to beneficiaries and donors that their contributions are making a difference (Grittner, 2013).

In Zambia, Results-Based Financing (RBF) was piloted in some rural districts of Zambia between the period 2008 and 2014. In these districts, health centers were contracted to deliver a specified package of essential maternal and child health (MCH) services, for which the program paid fee-for-service claims (Friedman, 2016).

The RBF districts received performance-based financial incentives and additional Emergency Obstetric Neonatal Care (EmONC) equipment. While in the input financing group, districts were provided with input-based financial grants, and EmONC equipment as in the intervention group. Financial incentives in the intervention (RBF) group were disbursed directly to health facilities while in the first comparison group the financial grants were disbursed to health facilities through the districts. In the second comparison group or pure comparison group, nothing was provided.

Cost-Effectiveness was compared to the two comparison groups, RBF was highly cost-effective in terms of lives saved. However, these gains were supplied at a higher unit cost. The input financing group was not as cost-effective as the RBF group, with less health gains but at a lower unit cost. Notwithstanding the above, cost-effectiveness analysis did not explicitly account for health system strengthening investments as certain dimensions of effectiveness with regards to RBF take time to manifest and may have been missed by the analysis (Friedman, 2016).

The Ministry of Health in Zambia oversees setting standards for health service delivery, to ensure that everyone can be covered with services, with a focus on equity and universal coverage. In this regard, the MoH has adopted the Primary Health Care (PHC) approach with a strong focus on district health services including the health centre level.

Result Based Financing approaches are currently being experimented as a mean to stimulate compliance of health care providers to several qualitative and quantitative targets. In nearly all cases, policy formulation is based on evidence from local and international experience. As an illustration, the forthcoming Results Based Financing (RBF) policy is currently being developed to guide nationwide scaling up (WHO - Strengthening Health Systems, 2007).

2.3 Review of Similar Studies

Adrien (2014) identified Rwanda to be the first African country to have introduced nationwide results-based financing in 2010 when it implemented two pilot programmes. The country sort to increase efficiency in health system resource inputs both funds and human resources to improve coverage and quality of maternal child health services. In this regard evaluating effects and impacts of RBF appears to be a priority towards public finance modalities. Further, the country indicated that such financing increased the quality and use of maternal, nutritional and child health outcomes. An experiment conducted in the Democratic Republic of Congo showed that performance-based financing led to lower direct payments by patients to health facilities, comparable or better services, and higher quality of care (Bonfreret al., 2014).

Bonfrer et al. (2014) report on the introduction of performance-based financing in Burundi found that results-based financing improved the use of maternal care services and the quality of health care services during the period 2006 to 2010. Examining the effectiveness of RBF on several incentivized services, a positive effect on four of the six services, as well as on the total quality score for health services. Further, significant increases in institutional deliveries, antenatal care, family planning, and bed-net use was recorded. The improvement in the total quality score in health care facilities based on external audits was large and significant. However, no significant effects were found on the quantity of general health care used or on vaccinations in infants.

Health Systems Support

Implementation of RBF comes with considerable challenges, among them the consequences of RBF on and beyond the health system have been widely debated. Proponents argue that RBF schemes increase accountability to stakeholders, enhances provider productivity, improves coverage rates of health services and spur larger public financial system reform. On the other hand, critics allege, that these schemes are expensive both in terms of providing incentives, verification processes and information systems. RBF tends to undermine provider motivation and may lead to prioritization of service provision based on reimbursement rates (WHO-AHPSR, 2014).

In a study by Friedman, et al., (2015) on impact of RBF pilot project in Zambia found that apart from financial sustainability, RBF successfully implemented through a “contracting-in” of public health system using the existing government systems and structures can facilitate

institutional impact sustainability. This complies to the Paris Declaration on Aid Effectiveness, as well as other studies on aid effectiveness where the common agreement is that using a country's own institutions and systems to implement projects can strengthen a country's capacity to implement programmes, and programmes being implemented can be sustained. Health systems budget support through Government funds disbursed to the health facilities required to be retired before replenishment. This causes further disbursement delays while managers tend to use funds meant for health centres towards centralized procurement of goods and services and disbursing the balance of what remains. Also, a study by Dusseljee et al. (2014) confirms this finding With RBF funds payments are disbursed directly in the health centre bank accounts and didn't needed to be retired. This creates autonomy over the use of RBF funds. This facilitates fiscal decentralization and greater autonomy over resources at health centre and community level.

Burundi's implementation of RBF was inspired by earlier programs in Cambodia and Rwanda and was funded by aid agencies and international NGOs. The Ministry of Health of Burundi currently provides most of the funding for the national results-based financing program, though reliance on funding from outside the country remains considerable. RBF sustainability seems secured because it is now recognized as a national strategy. The national government committed to allocate 1.4 percent of its budget to RBF and related health financing strategies each year (Bonfrer et al., 2014).

Similar findings were noted in Zimbabwe by Friedman (2016) were factors emerged included improved autonomy, decentralized decision making, and strengthened facility-level management and governance. Facilities and staff experienced more autonomy under RBF, and, staff were more likely to be able to allocate their facility budget according to how it was needed. However, frontline staff such as nurses experience heavy workloads that divided their attention between supervisory, administrative, and technical duties. Further, extra tasks in reporting, local procurement, and organizing logistics further aggravated the shortage and workload situation in health facilities.

Institutional Maternal Deliveries

RBF intervention has been recorded to improve institutional deliveries by trained health providers. However, the rate of change usually is not substantial when compared with the

financing. This suggests minimal impact of the intervention on institutional deliveries. Evaluating RBF pilot project in Zambia reported a relative rise in institutional delivery rate by 12.8-percentage points under RBF was found to be lower than the relative gain in the enhanced financial budget support which was at a 17.5 percentage point relative gain (Friedman, et al., 2015).

Similarly, a study in Burundi by Bonfrer, et al., (2014) showed the estimated effects of performance-based financing on both incentivized and indirect outcomes. Performance-based financing significantly increased the proportion of women delivering their babies in a health institution by 38 percentage points, which reflects the share of pregnant women reporting more than one antenatal care visit increased significantly by 10 percentage points.

Antenatal Visits

Antenatal care ANC coverages have been reported to be quite high in Zambia (96%-98%) and rises to near universal coverage. As a result, there may be few or no observable gains in certain districts despite RBF intervention. One key aspect of ANC coverage that the RBF pilot in Zambia improved was the timing of the first ANC visit which improved from fourth month of pregnancy to 3.8 months represented an improvement of almost two weeks in the timing of first ANC (Friedman et al., 2015).

A study conducted in Zimbabwe, Friedman (2016) also showed an increase in antenatal coverage in that more than 99 percent of women received at least one ANC from a qualified provider. The relatively high level of coverage of ANC indicator raised questions about the efficiency of subsidizing or incentivizing such indicator versus other high priority indicators that may be provided at lower levels of coverage. On the other hand, the number of women completing at least four ANC visits showed no significant difference in reported coverage in the eight quarters before the onset of RBF, significant differences emerge by the fifth quarter after the start of the RBF intervention. Approximately 6-12 additional cases of women completing four ANC visits were reported after the first year of the program. This pattern, while most clear for the ANC indicator, holds for most other coverage indicators investigated. Again, this evidence suggests that RBF resulted in significant gains across many dimensions of incentivized services.

Fully Immunized Children

Immunization as a health care indicator has shown a complex of change in trends across various interventions and declines are a common feature Friedman et al., (2015). However, RBF has shown to be a protective increase in immunization coverages.

In Katete, RBF increased immunization coverage of children less than one year old by 4 percent between 2008 and 2012. These achievements were facilitated by RBF health system improvements of increased managerial autonomy and local decision-making at service delivery levels, enhanced staff performance and teamwork, and community participation. Despite these gains, some delays in RBF financial incentive disbursements to health facilities caused an increase in staff workload due to increased utilization of health services as clients' perceptions of high service quality increased despite low technical quality scores (Chansa et al., 2015).

Systematic reviews and a critical appraisal of four evaluations of RBF schemes in the health sectors of some low and middle-income countries (LMIC) by Norwegian Agency for Development Cooperation (NORAD), Oxman (2008) suggested that RBF may have contributed to improvements in the number of mothers delivering at an accredited institution in India, NGOs delivering basic healthcare in Haiti, TB detection and cure rates, and immunisation coverage.

Additional results found that increasing financial incentives translated into a statistically significant increase in the provision of preventive care. Using fee for service (FFS) payments another acronym of RBF to health care providers for providing immunisations. One study result found that most of the increase in measured immunisation rates where due to the financial incentives was a consequence of better documentation and not the result of health workers providing more immunisations.

Interestingly, NORAD (2008) found a relationship between result-based funding and increased immunisation coverage. The cost input of immunising an additional child was approximately \$23 at the lowest coverage rates. Once coverage rates were above 60% to 70% the cost per child immunised increased exponentially. Gross domestic product, political instability, and current conflict were found to reduce the effect of health care funding. Specific immunisation programme activities, health care planning and management, and expenditures in different categories were not found to have an impact on immunisation coverage.

In addition, it may not be possible to isolate effectiveness of RBF from the effect of increased funding based on immunisation coverage. Qualitative data suggest that the flexibility of the funding (which is not specific to RBF) was valued by recipients and may have facilitated good use of the funds under some circumstances. The scheme had an obvious impact on data reporting (Oxman et al., 2008).

Postnatal Care Visits

Friedman (2016) evaluating RBF in Zambia found that postnatal care showed improvements of 51point increase in coverage while 49point increase was noted in non-RBF facilities. This was in line with general increases across key indicators such as delivery by skilled provider, institutional delivery, and caesarean section deliveries which improved drastically with RBF.

HIV positive women on cART

Alongside other estimates of program impact based on dedicated survey data, the robustness of findings as it relates to process quality can also be investigated with administrative data in the same manner as the HMIS data analysis of service coverage.

The Zimbabwe RBF impact study findings on HIV in women were related in a within-quarter analysis and indicated differences for indicator related to quality of care. This indicator included HIV VCT/PMTCT during ANC care. The indicator followed a pattern showing clear improvement in the number of MCH service from users receiving the services especially by in the second year of the RBF, which again suggests the importance of a learning period under RBF lasting up to four quarters before population health gains can be achieved on a broad level.

Quality Improvement

Quality improvement in health service delivery coupled with managerial autonomy at health facility level, is reported to be significantly impact on service provision, clarity on policies and procedures for doing things as well. Further, there are more and frequent assessment of staff performance, and a higher number of external performance assessment of health facilities and supervisory visits by district hospitals and district management. This translates in greater accountability and transparency in planning, resource use, service delivery and community participation. Also, health reporting accuracy tends to improve in different health indicators. However, they appear to be insufficient behavioural change from RBF staff incentives which portrays a limitation on possible achievable gains from RBF. Furthermore, higher incentive

payments in remote areas may not result in increased health outcomes either. This also entails that RBF may have limited impact on the motivation of health workers despite showing positive impact on health worker satisfaction, reduced attrition, and responsiveness to the client.

On the other hand, the quality of delivery and quality of curative care rooms was noted to have increased under RBF intervention. Noticeably health facilities delivery rooms were much better both in physical appearance and equipment fitments than before the RBF implementation (Friedman et al., 2015).

In Zimbabwe, RBF presented significant opportunities for policy makers and health providers at the frontlines of service delivery to learn from an innovative approach to financing health care. The study demonstrated that RBF when successfully implemented increased the quality and coverage of priority services in a low-income country. The associated technical support to government structures provided a platform for the successful roll-out and implementation of RBF at a time when core public sector systems had declined. RBF played a role revitalizing public sector accountability functions in the health sector while coverage indicators that had exhibited the lowest degree of change under the RBF exhibited the highest baseline coverage rates, suggesting that incentivizing these indicators may not always present a highly efficient leverage of program funds. This calls for careful thought when selecting indicators in future program designs in order to maximize the efficiency of spending.

The autonomy associated with RBF enables more responsiveness to need at health facility level both by health workers and the community. RBF should not be isolated from broader health systems reforms and complementary interventions. Instead, it should be viewed as an entry point to tackling wider systemic issues such as traditional public finance, human resources and accountability that are brought to the fore when RBF is rolled out.

The impact evaluation from the Rwanda results-based financing program shows the all-important link between the increase in quantity and quality of services and better health for people. It examined the effect of result-based incentives for health care providers to provide more and higher quality care in Rwanda on child health outcomes (The World Bank - Africa Health Forum 2013).

2.4 Critique of Existing Literature

Oxman et al. (2009) reviewed that RBF in general can have undesirable or perverse effects. In practice, little attention has been paid to perverse incentives in both programme design and programme evaluation and research. In the experiences studied, the monitoring of possible perverse incentives was not built into the design of RBF from inception, but negative pervasive effects are noticeable.

RBF has not been without criticism. In Afghanistan, despite RBF intervention providing authority to hire and fire health staff, the different monitoring and evaluation tools across the programmes limited its comparability. Moreover, other factors, such as increased autonomy and flexibility in use of funds, might have contributed to improving performance. However, this is a common characteristic of most results-based approaches (Grittner, 2013).

Furthermore, despite improving healthcare coverage in Afghanistan there was more decentralized, improved monitoring capacity, and made other management and organizational changes that strengthened capacity RBF was found not to have offered a very robust result, since the comparisons conducted did not take limitations into account (Sondorp et al., 2009). In Bolivia, Oxman and Fretheim (2009) found that access to and use of general healthcare services improved after implementing the RBF scheme. The targeted outcome effects of outpatient consultations and institutional deliveries increased significantly. However, this result was evaluated without making control for other factors, such as higher technical and financial inputs, which may have also contributed to the observed outcome.

In Cambodia, Oxman and Fretheim (2009) also find that Cambodia witnessed an improvement in access to and use of general healthcare services. Again, this might be due to effects other than the results-based component, such as higher technical and financial inputs. But thanks to a randomized implementation of the RBF scheme in Cambodia, there is also more rigorous evidence for significant improvements in health facility management and for increases in the utilization of public sector healthcare facilities and of qualified public providers (Bloom et al., 2006). Vitamin A intake in children also increased significantly. Other observations in full immunization, antenatal care or institutional delivery, were also positively affected. However, the impact of the RBF scheme in these cases was found not to be statistically significant.

Moreover, the impact evaluation did not detect a significant impact of RBF on final health outcomes. The impact of RBF on all three indicators is positive, but not significant.

In Tanzania, the international NGO Cordaid implemented a performance-based financing scheme from 2006 to 2008 in order to improve equity, accessibility and quality of healthcare, and subsequently to foster improvements of the population's health status. Health facilities received a guaranteed payment of 50 per cent and a performance-based payment of 50 per cent. The performance bonus was paid every six months if the corresponding part of the performance targets is met. However, the performance-based Cordaid contribution was only one of many funding sources. Faith-based health facilities included in the PBF scheme continued to receive substantial funding from the Government which accounted for 35 to 70 per cent of the total budget, whereas contributions from Cordaid only accounted for 8 to 10 per cent with a small financial incentive accounting for only 4 per cent of the entire budget. Government-supported healthcare facilities continued to be paid based on inputs and were used as controls in the programme evaluation conducted by Canavan and Swai (2008).

The performance-based scheme implemented by the Danish International Development targeted only senior-level management staff is considered to have failed, mainly due to problems of accountability and transparency (Canavan and Swai 2008). In the future, a partnership initiative of Norway and Tanzania aims to introduce results-based financing nationwide. The "bonus for results" initiative plans to disburse financial lump-sum awards to district councils that can then allocate funding to health facilities based on performance targets (Canavan and Swai, 2008).

Toonen et al. (2009) were unable to observe perverse incentives in RBF schemes implemented in Burundi, the Democratic Republic of the Congo, Tanzania and Zambia. Similarly, Morgan (2011) were unable to document any perverse incentives when evaluating 17 RBF schemes. In contrast, RBF in Rwanda provided ambiguous findings. Programme managers did not note any decline in other services after introducing incentive payments for HIV testing and treatment (Rusa et al., 2009). Initially, the concern was that they might be a shift of much focus on HIV/AIDS while health workers neglect other services related to important maternal and child health care needs. On the other hand, RBF in Rwanda also provided some suggestive evidence for perverse incentives. Also interviews conducted by Kalk (2010) showed that some healthcare workers found themselves in an ethical conflict created by rewards. Since their

working time was limited, they had to choose to allocate time between activities considered as necessary such as intensive care and activities that were required in order to obtain monetary rewards. This often led to frustration among health staff.

The evaluation of the RBF scheme in Tanzania also raised concerns that the scheme may have led to neglecting preventive services and the quality of healthcare because performance targets with incentives focusing on the quantitative supply of curative services, while little attention given to preventive health indicators, such as antenatal care or health education (Canavan and Swai 2008). Since RBF indicators only target the supply side, it was found that unnecessary demand being placed on services instead of focusing on improving health outcomes and reducing the burden of disease. However, the authors of the evaluation were unable to refute or support these concerns. They emphasize that perverse incentives are difficult to measure. Not all RBF schemes have shown to have had positive effects on healthcare delivery or health outcomes. In Costa Rica for instance, no evidence was found in general reduction of infant mortality rates (Cercerone et al., 2005) while, Morgan (2010) also found no effect of results-based contracting on the utilization of maternal and child healthcare services in Uganda.

In Tanzania, RBF had not notably contributed towards improving health systems (Canavan, 2008). This is likely due to the limited level of resources and technical assistance at various levels of healthcare facilities. Further, evaluation was also unable to identify improvements in the quantity of health service delivery, as measured by the number of inpatient admissions, institutional deliveries, VCT for HIV, antenatal care visits and health centre consultations. Perceived quality of services had not improved either as there were no significant difference in client satisfaction with the quality of healthcare services between facilities paid based on performance and control facilities.

Similarly, to Tanzania, a pilot RBF implemented in Zambia also displayed insignificant effect on the utilization of maternal and child health service utilization and maternal health indicators (Vergeer and Chansa 2008).

2.5 Lessons Learnt

The available qualitative and quantitative evaluations on several experiences that range from South America to Africa and Asia suggest that payment incentives contributed to improved healthcare supply and healthcare coverage mainly for the targeted indicators (Liu et al, 2008).

For example, there was an increase in health service utilisation for almost all targeted indicators, including the quality of care, as perceived by RBF in Burundi, the DRC, Tanzania and Zambia. However, there is no evidence for a causal relationship due to a lack of rigorous impact evaluation (Toonen et al., 2009).

Sondorp et al, (2009) observed differences in occurrence trends among RBF programmes by the World Bank's and USAID's results-based schemes that seemed to have outperformed other similar programmes, which were not results-based. Evaluations in this regard used scorecards comprising several components covering capacity for service provision; quantity and quality of care; financial systems; and other factors in order to monitor and evaluate the RBF programmes. The World Bank-NGO programme scored best on these scorecards. Hence, the RBF scheme seems to outperform other approaches only slightly. It should however be noted that scorecards might not be appropriate tools for comparing performance across programmes. The Government in Burundi subcontracted primary healthcare in 2006 through the international NGO Cordaid, supported by funding from the Dutch government and the European Union, implemented a pilot RBF scheme aimed at improving primary healthcare in Burundi covering 40 primary healthcare facilities. The health facilities received a fixed amount per targeted action plus a bonus of up to 15 per cent for good quality. Due to encouraging results from the pilot, the Government of Burundi decided to scale up the project nationwide in April 2011 (Witter et al., 2012).

Also, in Rwanda results-based financing in the public sector was first tested for the public sector in three pilot districts. Dutch and international NGOs and the Belgium Technical Cooperation (BTC) paid public and private nonprofit healthcare facilities based on performance in order to improve curative, maternal and child healthcare as well as HIV/AIDS services. Targeted services included immunization, prenatal care and assisted deliveries. The primary goal was to increase the use of health services by motivating healthcare providers through incentive payments for a set of predefined services. The goal of quality improvement was introduced only later. In 2005, the Government of Rwanda through the Ministry of Health adopted results-based approach as a national policy while scaling up the pilot projects, supported by Belgium, the President's Emergency Plan for Aids Relief and the World Bank. A standardised set of core services, fee structure and contracts were developed (Rusa et al., 2009).

In Tanzania, health facilities received a guaranteed payment of 50 per cent and a performance-based payment. But since the performance-based was only a small part of the total funding, this incentive only accounted for 4 per cent of the total budget (Canavan and Swai 2008). Fewer than 50 per cent of health workers were satisfied with the performance bonus. They reported that the bonus was often insufficient and that they received it either too late or that there were long intervals in between, such that they did not feel directly motivated by it. Overall, RBF in Tanzania did unlikely produce any significant positive effects on staff motivation. But it managed to contribute to small-scale innovations that rewarded health workers in a non-monetary way. Surveys of health workers and direct observation by the authors of the evaluation study showed that RBF scheme in Tanzania might also set non-monetary incentives for good performance (Canavan, 2008). Surveys of both results and input-based payment mode for staff revealed that health workers rated intrinsic factors such as teamwork and empowerment of the individual health workers consistently higher than monetary incentives. By empowering healthcare workers and involving them in daily planning activities, the RBF scheme increased staff motivation. Health workers also appreciated that the scheme allowed them to decide on the allocation of the performance bonus and therefore improved communication and decision-making.

Also, in Rwanda informational interviews with health workers revealed that the RBF approach helped to generate team spirit and enhanced supervision by district health teams. Both results might have positive effects on healthcare delivery. RBF also recorded improvements in quality as well. A composite quality score in RBF facilities was 73 versus a score of 47 in non-PBF facilities (Rusa et al., 2009). Most of the difference was due to better management of deliveries and referral systems. However, there were no detectable differences in other services, such as immunization. Qualitative interviews also suggested improvements in management, motivation and quality. All in all, the evidence of the impact of RBF on quality of healthcare delivery is insufficient and more research is needed to shed light on this relationship (Rusa et al., 2009).

2.6 Theoretical Framework

Scientific Management Theory

This study recognised and adopted Frederick Taylor's scientific management theory, also referred to as the classical management theory as a model depicting theoretical framework as the theory emphasizes efficiency, much like Max Weber's. However, according to Taylor,

rather than scolding employees for every minor mistake, organisations and organisational systems should reward workers for increased productivity i.e. effectiveness. The theory emphasizes for more efficient process and effective productivity for valuable outcomes. In practice and depending on the nature of industry, the theory is a great addition to businesses operations today (Taneja et al., 2011).

Taylor's theory on scientific management is grounded on four (4) principles derived from the positivistic paradigm. Positivism attempts to view the world rationally, free of subjective values, applying logic and reductionism to the process of determining cause and effect. Taylor's principles offer a method to gather information about work processes and factors of productivity. The theory seeks a careful, objective approach to the way work is done based on a rational, apparently scientific approach. Positivism applied to social theory perceives organisational system as rational bureaucracy with an appropriate hierarchy (Carlson, 1996). Caramela (2018) highlighted the four (4) principles of Frederick Taylor's management theory;

- I. Break down assignments into subtasks
- II. Delegate responsibilities and skills training
- III. Monitor performance
- IV. Allocate work between managers and employees

In addition, efficiency and effectiveness were originally industrial engineering concepts that came of age in the early twentieth century. Frederick Taylor's management theory and Frank and Lillian Gilbreth designed time and motion studies primarily to improve efficiency (Taneja et al, 2011).

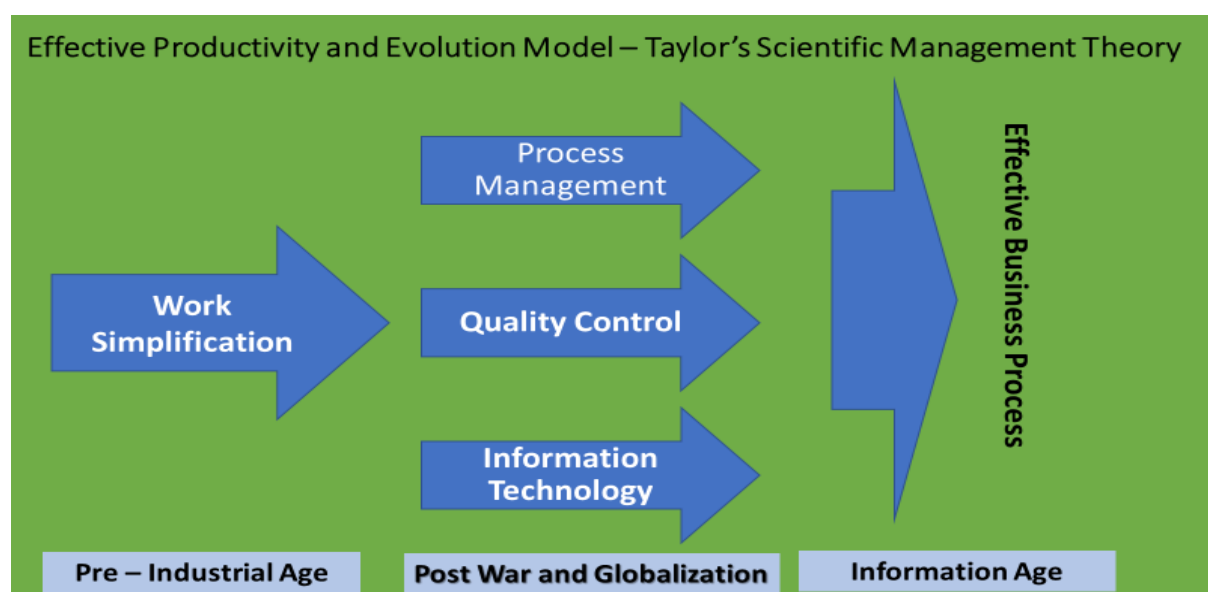


Figure 1: Effective Productivity and Evolution Model - Frederick Taylor's management theory

Figure 1 illustrates Taylor's four principles of scientific management. Taylor is careful to assert that scientific management is no new set of theories that have been untried, a common misunderstanding. He says that the process of scientific management has been an evolution, and in each case the practice has preceded the theory. Further, scientific management is in practice in various industries. It's believed that almost every type of globally has scientific management working successfully." (Shafritz, 1996) The workman on the average, in those industries where scientific management has been introduced, has turned out double the output and been the beneficiary of many improvements (Shafritz, 1996).

Taylor's management theory depicts that efficiency and effectiveness can both be improved through speed, on-time delivery, and various other operational processes.

Measures of efficiency and effectiveness for rapid adaptation are of great interest to all stakeholders, process owners, internal and external clients and suppliers, and policy makers. Inefficient processes are costly in terms of resource utilization, and so on. Ineffective processes are costly as well because they are not reliable. They don't do what they are supposed to do. Organizations should establish baselines for efficiency and effectiveness metrics. They should determine their current performance levels and benchmark with best-in-class or world-class organizations and set aggressive goals or targets for improvement. Finally, they should determine root causes of problems and eliminate them or minimize their impact (Taneja et al., 2011).

Critically positivism cannot be applied to all organizations. Efficiency, impersonal relationships, rationality and logic do not work well in social systems such as health facilities or schools, which can be unpredictable requiring flexibility, negotiation and interactivity. According to Pfeffer in Shafritz and Ott (1996), the role of power in the decision-making process of the rational/bureaucratic organization is centralized, and control is exercised over goals to be consistent with rules of logic like Taylor's scientific principles. Decisions are made to increase efficiency in the Taylor's model. However, social systems such as schools often confront ambiguous situations requiring flexibility. There can be no one best way when confronted with decision-making in a complex social organisation, political power can be expected to influence coalitions and cause conflicting interests, create disorder, cause disagreement, bargaining, and struggle for position. These effects of political power in a complex social organisation are unacceptable and unthinkable in the rational model represented by Taylor.

In view of the foregoing, Frederick Taylor's scientific management theory was remodelled to explain effectiveness of results-based financing towards improving maternal and child health services. The intervention depicts Taylor's principles against the general input-based financing for general operations RBF is specific to the attainment of results hence aligning to the theories first principle of breaking down processes into smaller tasks. Further, RBF enables for delegation through targeting individual health facilities in managing their priorities i.e. offers decentralization of decision making. Performance is also monitored at all levels to ensure attainment of results.

In all, RBF appears to confirm with Taylor's theory and aligns with the effectiveness of the intervention.

2.7 Conceptual Framework

The analysis of efficiency and effectiveness is adopted from the results chain developed by the Organization for Economic Cooperation Development (OECD, 2010). The chain is about the relationships between inputs, outputs and outcomes.

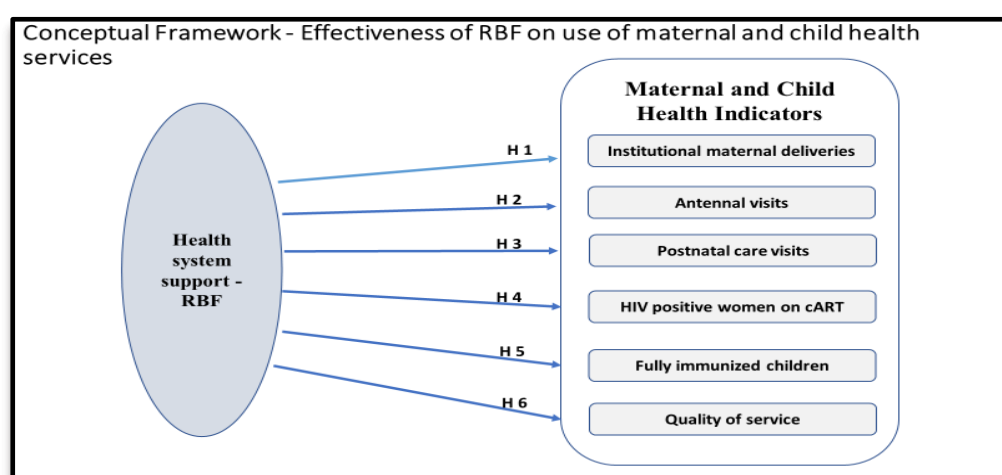


Figure 2: Conceptual Framework: Effectiveness of RBF on use of maternal and child health services

Figure 2 above is an illustration of the conceptual model of this study where health systems support – results based financing (RBF) on the left is the independent variable having positive effect to the dependent variables on the right i.e. maternal and child health constituting of six (6) independent variables namely institutional deliveries, antenatal visits, postnatal visits, HIV women on cART, fully immunized and quality of service. Measuring the level of change during the intervention of RBF on the dependent variables was to reveal whether the intervention has been effective on use of maternal and child health services.

Table 1: Study Variables and Standard Targets - HMIS, 2015

Variable	Indicator Target
1. Institutional maternal deliveries	Number of deliveries: > Standard Target 60% rural areas > Standard Target 90% urban areas
2. Antennal visits in the first trimester	Number of first antennal visits in the first trimester (Standard Target 90%)
3. Postnatal care visits	Number of women attending postnatal care visits at 6days (Standard Target 50%)
4. HIV positive women initiated on cART	Number of HIV positive pregnant women initiated on cART (Standard 100%)
5. Fully immunized children	Coverage of fully immunized children (Standard Target 80%)
6. Quality of service	Quality Indicators (Standard target 80%)

It has been observed that the measurement of efficiency and effectiveness of public spending remains a conceptual challenge. Problems arise because public spending is said to have multiple objectives and because public sector outputs are often not sold on the market which implies that price data is not available and that the output cannot be quantified. The conceptual framework of effectiveness of RBF makes the link between input, output and outcome. The monetary and non-monetary resources deployed as inputs produce an output. For example, health financing (input) affects health service coverages attainments (output). The input-output ratio is the most basic measure of efficiency. This means that the greater the output for a given input or the lower the input for a given output, the more efficient the activity is. Productivity, by comparison, is simply the ratio of outputs produced to input used (Ulrike et al., 2008).

Effectiveness further relates to inputs versus output to the final objectives to be achieved, that is the outcomes. The outcome is often linked to welfare or growth objectives despite being influenced by multiple factors such as environmental. Afonso et al. (2005) noted that effectiveness may be more difficult to assess than efficiency. The distinction between output and outcome is often blurred and output and outcome are used in an interchangeable manner, even if the importance of the distinction between both concepts is recognized. For example, the outputs of a health delivery system is often measured in terms of the attainment of coverages and numbers attended to. The final outcome, however, could be the absence of diseases or ill health among a population as a whole leading to such as increased

life expectancy. The effectiveness shows the success of the resources used in achieving the objectives set. This implies that efficiency and effectiveness are not always easy to isolate. A complication, which one encounters when measuring efficiency and effectiveness of public services is the identification of inputs and outputs, is that many public services are interlinked. This is the case, for example, when the outputs of one public service are used as inputs by another. For example, the research output of public research institutions is at the same time an input for R&D activities at universities. Similarly, public services can influence each other. For example, the public transport system, the output of spending on infrastructure affects the spending on health care (input) as health infrastructures and clinics becomes more reachable and accessible (Ulrike et al., 2008).

2.8 Research Hypothesis

The study hypotheses were employed to test the relationship of the independent variable with the dependent variables with reference to the research questions are as follows;

Null hypothesis:

There is no difference in use of maternal and child health services before and after results-based financing in Mafinga.

Alternative hypothesis:

There is a difference in use of maternal and child health services before and after results-based financing in Mafinga.

2.9 Operationalisation of Hypothesis

This study sought to establish whether results-based financing is effective in improving the use of the six (6) identified variables on maternal and child health care services against the traditional input-based financing in Mafinga district or there is no effective improvement between the two financing models.

Six (6) variables were measured in this study, these included the following;

i. Institutional maternal deliveries

With reference to Friedman (2015) RBF intervention has the possibility of improving institutional maternal deliveries despite such improvement usually not being substantial when compared with the amount of financing. Further, its shown that effects of results-based financing are motivated by incentives which significantly increases the proportion of women delivering their babies in a health institution by skilled health workers.

The number of deliveries to be performed by the health facilities. According to the HMIS guidelines (2015) targets for institutional deliveries should be 60-90% of total deliveries.

ii. Antennal care visits in the first trimester:

According to the MOE-HMIS Guidelines (2015) first antennal care visits are defined as the number of first antennal visits a pregnant woman makes to the health facility within the first three (3) months. In rural setting standard target is 90% and will be measured in ordinal count.

In Zambia, ANC coverages have been reported to be quite high (96%-98%) and rises to near universal coverage. As a result, there may be few or no observable gains in certain districts despite RBF intervention (Jed Friedman, et al., 2015). However, in many rural settings the scenario is different and hence one key aspect on ANC coverage is that RBF will improve first ANC visits.

iii. Postnatal care visits

Defined as the number of women attending postnatal care visits at 6days MOE-HMIS Guidelines (2015). In rural areas the standard target is set at 50% of total deliveries. The variable will be measured in ordinal count.

Friedman (2016) reported in his evaluation of pilot RBF in Zambia that postnatal care showed improvements of 51-point increase in coverage. This was in line with general increases across other key indicators which improved with RBF.

iv. HIV positive women on cART

Moore (1999) defines HIV positive women on cART as the number of HIV positive pregnant women who have been initiated and are on combined Antiretroviral Therapy (cART). This therapy is a combination of medical drugs to treat infection of the women with the HIV virus and also prevent infection of their unborn baby. Standard target measure is 100% and the variable will be an ordinal count (HMIS, 2015).

In Zimbabwe RBF impact study findings on HIV in women indicated slight positive differences for the indicator relating it improved quality of care. The indicator followed a pattern showing clear improvement in the number of maternal and child health service from users receiving cART especially by in the second year of the RBF. This further suggested the importance of a learning period under RBF lasting up to four quarters before population health gains can be achieved on a broad level (The World Bank - Africa Health Forum 2013).

v. Fully immunized children

The MOH-HMIS Guidelines (2015) defines fully immunized children as the number of children having received antigens over specified period. Standard coverage target for fully immunized children is 80% and the variable will be an ordinal count.

Immunization as a health care indicator has shown a complex of change in trends across various interventions and declines are a common feature Friedman et al. (2015). However, RBF has shown to be a protective increase in immunization coverages. In Katete pilot RBF increased immunization coverage by 4 percent between 2008 and 2012.

vi. Quality of service

The World Health Organization (WHO) defines quality of health services as the extent to which health care services are provided to individuals and patient population to improve desired health outcomes. To achieve this health care must be safe, effective, timely, efficient, equipment and people oriented,

Quality of services is also the availability and adherence to health service guidelines with a standard target of 80%, ZHSIP (2017).

Quality improvement in health services delivery coupled with managerial autonomy at health facility level, is reported to significantly impact on service provision, clarity on policies and procedures for doing things as well.

Friedman (2015) noted that RBF intervention impacts the quality of safe delivery and quality of curative care rooms. Noticeably health facilities delivery rooms were much better both in physical appearance and equipment fitments than before the RBF implementation.

Secondary data was be used to collect data on the five (5) performance indicators using data collection sheets. While primary data for quality of service was collected using checklist.

CHAPTER 3: METHODOLOGY

3.1 Study Design

The study was a retrospective longitudinal study using quantitative methods. This entails that the study's focused on studying changes in specific study variables by means of repeating the same measures quarterly for a period of four (4) years from 2016 to 2018. From the perspective of the present time, this retrospective longitudinal study used data generated over the study period of interest.

Furthermore, being a retrospective longitudinal (quantitative) study. Data was collected from a quarterly basis running periods from 1st quarter 2015 to 3rd quarter, 2018 as this was the most recent period of the intervention. Data was collected using data collection tools on health service indicators and a checklist on each health facility on quality improvement indicators.

3.2 Study Site

The study was conducted in Mafinga district because the district has had no similar intervention besides being a new district. The DHIS is the district health information source on all health indicators and provided performance indicators from the period 2015 to 2018 (3rd quarter) on a quarterly basis. Similarly, hospital quarterly assessment reports were used to capture preliminary data on quality performance. Indicators under the study on DHIS included the following;

1. Institutional maternal deliveries
2. Antenatal visits in the first trimester
3. Postnatal care visits
4. HIV women initiated on cART
5. Fully immunized children
6. Quality of service

Being a pay for performance intervention, results of indicators were compared using charts, graphs and excel. This comparison was before the intervention i.e. prior to 2017 (traditional input-based financing) and after the intervention i.e. 2017 to 2018.

3.3 Study Variables

Effectiveness of RBF was equated and measured through a comparison of performance trend analysis on the health indicator outcomes. These outcomes bearing an impact on collection of results-based financing on service indicators were reviewed as change monitored in the population.

Table 2 study variables

Type of variable	Variable	Indicator	Measuring Scale
Independent Variable	Health System support funding (RBF and GRZ)	Percentage Difference	RBF or GRZ Nominal and Proportions
Dependent	Institutional maternal deliveries	Number of deliveries (Standard Target 60 - 90%)	High coverage % Low coverage % Ordinal
	Antennal visits in the first trimester	Number of first antennal visits in the first trimester (Standard Target 90%)	High coverage % Low coverage % Ordinal
	Postnatal care visits	Number of women attending postnatal care visits at 6 days (Standard Target 50%)	High coverage % Low coverage % Ordinal
	HIV positive women initiated on cART	Number of HIV positive pregnant women initiated on cART and at delivery (Standard 100%)	High coverage % Low coverage % Ordinal
	Fully immunized children	Coverage of fully immunized children (Standard Target 80%)	High coverage % Low coverage % Ordinal
	Quality of service	Quality Indicators (Standard target 80%)	High coverage % Low coverage % Ordinal

3.4 Sampling and Sample Size

A total sampling of all RBF implementing health facilities in Mafinga district was done. There was a total of five (5) health facilities in the area. Due to ethical consideration actual names were not used instead coded as; Health Facility 1, 2, 3, 4 and 5. The five (5) RBF implementing health facilities in Mafinga district from the year 2016 of inception were included in the study.

3.4.1 Data Collection

Data was collected by the principal investigator with the help from Data sources including the health facility staff, district health information system (DHIS), Integrated Financial Management Information Systems (IFMIS) and baseline quality assessment reports. Data collection forms for service indicators and check list on quality health care were made for data collection.

3.5 Data Analysis

Data was analysed using Microsoft excel and SPSS for clarity of comparison. Data was summarised using frequencies and proportions. Trend analysis was used to determine the trends of maternal and child health indicators and quality assessments scores proportions. Chi-square for trends analysis was used to determine the significance in the trends of use of the services before and after the RBF interventions and improvement in the quality of services. The measure of effectiveness of RBF in this study was adopted as the number of maternal and child health indicators showing positive and significant change upon inception of the RBF intervention. Results have been presented in tables and graph forms. Level of significance was set at less than 0.05 at 95% confidence interval.

3.6 Ethical Consideration

The research proposal was approved by the University of Zambia, Humanities and Social Sciences Research Ethics Committee. Permission to collect data and conduct the study was obtained from the Ministry of Health headquarters. Confidentiality was observed as there was no mention of health centre names. Assurance was given on the academic nature of the study and results to be shared with the Ministry of Health and its partners of concern.

CHAPTER 4: RESULTS

The study revealed that all health facilities offered mother and child health services as outlined in the national primary health care package. All five (5) health facilities visited successfully conducted the services to their respective catchment communities from 2015 and 2018 both before and after the health systems support of RBF. The study targeted five (5) maternal and child health services namely; percentage of maternal deliveries by skilled personnel, percentage of 1st Antenatal coverages, percentage of fully immunized children under 1 children, percentage of postnatal coverages and number of pregnant women initiated on combined antiretroviral therapy – cART.

Table 3: Health Center Population Profiles 2015 - 2018

Health Center	Total Population				Population Under 5				Expected Deliveries			
	2015	2016	2017	2018	2015	2016	2017	2018	2015	2016	2017	2018
1	16,796	17,732	18,712	24,696	3,359	3,546	3,742	4,939	873	922	973	1284
2	14,144	14,932	15,758	19,973	2,829	2,986	3,152	3,995	735	776	819	1039
3	12,376	13,066	12,803	12,106	2,475	2,613	2,561	2,421	644	679	666	630
4	7,249	7,653	7,386	7,110	1,450	1,531	1,477	1,422	377	397	384	393
5	7,072	7,466	7,091	14,416	1,414	1,493	1,418	2,883	368	388	369	750

Source: Mafinga DHIS 2018

Table 3 shows population projections for each health center from the year 2015 to the year 2018 as generated by the Mafinga DHIS: CSO extrapolation (2018). Total population being the total number of people under a respective health center was further categorized into population of children under 5years which was estimated at 20% of the total population and Expected deliveries. The figures show population coverages for health centers in the dispensation and use of maternal and child health services in Mafinga district.

4.1 Use of maternal and child health services between 2015 to 2018 in Mafinga district

Maternal Deliveries

Table 4 illustrates the percentage coverage of maternal deliveries by skilled personnel in all the five (5) health facilities. The table depicts pregnant women who delivered at the health facilities and were attended to by skilled personal against the total expected deliveries.

Table 4: Maternal deliveries by skilled personnel (%) in selected health facilities of Mafinga district from 2015 to 2018

Health Center	2015					2016					2017					2018			
	Q1	Q2	Q3	Q4	Av	Q1	Q2	Q3	Q4	Av	Q1	Q2	Q3	Q4	Av	Q1	Q2	Q3	Av
1	42	53	57	57	52	36	38	55	46	44	53	45	71	64	58	72	63	64	66
2	24	19	14	10	17	11	28	40	23	26	54	49	62	60	56	70	62	80	71
3	19	15	14	4	13	19	18	10	33	20	37	40	45	47	42	38	42	53	44
4	10	18	18	18	16	2	0	23	18	11	37	41	54	47	45	56	67	80	68
5	68	86	38	58	63	64	51	62	59	59	64	71	57	66	65	61	46	78	62
Average Total	32.6	38.2	28.2	29.4	32	26	27	38	36	32	49	49	58	57	53	59	56	71	61

Source: Mafinga DHIS 2018

In 2015, 2016 and 2017 health centre 1 recorded the highest coverages of 63%, 59% and 65% respectively while in 2018 health center 4 recorded the highest coverage of 68%. In all, from 2015 to the year 2017 percentage average totals of deliveries remained the same at 32% but increased to 53% in 2017. Further the table 4 shows a continuation of increase in average totals from initial 32% to 61% in of 2018.

Antenatal Coverages

Table 5 illustrates the percentage coverage use of antenatal care services through 1st antenatal coverages by all the five (5) health facilities. The table depicts pregnant women who sort antenatal care services in the first trimester of their pregnancy at the health facilities. In 2015 and 2016 health centre 1 recorded the highest coverages of 45.5% and 36% respectively while in 2017 health center 5 recorded the highest coverage of 69.5% while in 2018 health center 1 again recorded the highest coverage of 121.3%

Table 5: 1st Antenatal Coverages (%) in selected health facilities of Mafinga district from 2015 to 2018

Health Center	2015					2016					2017					2018			
	Q1	Q2	Q3	Q4	Av	Q1	Q2	Q3	Q4	Av	Q1	Q2	Q3	Q4	Av	Q1	Q2	Q3	Av
1	42	46	50	44	45.5	40	50	23	31	36	58	70	75	61	66	157	104	103	121.3
2	23	31	29	8	22.6	5	14	32	24	18.8	39	31	25	25	30	31	51	56	46
3	18	13	8	10	12.3	4	10	7	26	11.8	63	57	55	41	54	57	91	97	81.7
4	39	38	52	29	39.5	21	22	36	26	26.3	38	51	94	54	59.3	40	60	33	44.3
5	30	52	31	53	41.5	22	25	17	48	28	63	83	59	73	69.5	27	41	45	37.7
Average Total	30.4	36	34	28.8	32.3	18.4	24.2	23	31	24.2	52.2	58.4	61.6	50.8	55.8	62.4	69.4	66.8	66.2

Source: Mafinga DHIS 2018

Further Table 5 shows that in 2015 to the year 2018 percentage average totals of women accessing antenatal services dropped from initial 32.3% in 2015 to 24.2 in 2016. However, this decline was followed by an increase to 55.8% in 2017. Table 3 further, shows a continuation of increase in average totals to 66.2% in 2018.

Fully Immunized

Fully immunization shown in Table 6 covers all the five (5) health centers. The Table illustrates the percentages of children fully immunized before the age of one (1) in all the five (5) health facilities. In 2015, 2016, 2017 and 2018 health centre (1) recorded the highest coverages of 131%, 132%, 117.6% and 117% respectively.

Table 6: Fully Immunized Under 1 children (%) in selected health facilities of Mafinga district from 2015 to 2018

Health Center	2015					2016					2017					2018			
	Q1	Q2	Q3	Q4	Av	Q1	Q2	Q3	Q4	Av	Q1	Q2	Q3	Q4	Av	Q1	Q2	Q3	Av
1	133	124	161	106	131	152	149	97	130	132	114	114	118	125	117.6	93	123	135	117
2	99	124	80	109	103	63	105	43	69	70	46	58	54	50	52	91	74	69	78
3	117	108	95	76	99	89	106	83	70	87	102	74	84	99	89.8	101	82	88	90.3
4	107	93	121	110	107.8	88	115	85	102	97.5	74	128	85	101	97	69	120	85	91.3
5	82	82	121	76	90.3	110	144	123	84	115.3	113	124	87	101	106.3	104	81	114	99.7
Average Total	107.6	106.2	115.6	95.4	106.2	100.4	123.8	86.2	91	100.4	89.8	99.6	85.6	95.2	92.6	91.6	97.1	98.2	95.3

Source: Mafinga DHIS 2018

Further Table 6 illustrates the percentage coverage use of fully immunization coverages by all the five (5) health facilities. The table depicts under 1 children who received full immunization services before the age of 1 at all the health facilities. From 2015 to the year 2018 percentage average totals of fully immunized children continued to drop from an initial 106.2% in 2015 to 100.4 in 2016, 92.6 in 2017 and 95.3% in the three (3) quarters of 2018.

Postnatal Coverages

Postnatal coverages in Table 7 shows percentage coverages in all the five (5) health center. The Table illustrates the percentage mothers who sort the services in the first 6 days of delivery in all the five (5) health facilities. In 2015, 2016, 2017 and 2018 health centre (5) recorded the highest coverages of 50.5%, 55.8%, 57.8% and 75.7% respectively.

Table 7: Postnatal Coverages (%) in selected health facilities of Mafinga district from 2015 to 2018

Health Center	2015					2016					2017					2018			
	Q1	Q2	Q3	Q4	Av	Q1	Q2	Q3	Q4	Av	Q1	Q2	Q3	Q4	Av	Q1	Q2	Q3	Av
1	14	14	26	18	18	8	18	14	16	14	28	41	58	50	44.3	56	44	26	42.0
2	24	28	26	11	22.3	10	13	12	28	15.8	22	34	34	35	31.3	34	31	50	38.3
3	23	26	15	23	21.8	26	32	22	22	25.5	27	40	30	35	33.0	21	46	36	34.3
4	19	60	40	64	45.8	30	52	43	30	38.8	32	46	0	34	28.0	61	52	46	53.0
5	31	61	45	65	50.5	43	70	60	50	55.8	46	76	74	35	57.8	66	81	80	75.7
Average Total	22.2	37.8	30.4	36.2	31.7	23.4	37	30.2	29.2	30	31	47.4	39.2	37.8	38.9	47.6	50.8	47.6	48.7

Source: Mafinga DHIS 2018

Furthermore, Table 7 illustrates that from 2015 to the year 2018 percentage average totals dropped from an initial 31.7% in 2015 to 30% in 2016. However, in 2016 coverages increased to 38.9% and continued to increase to 48.7% in all the three (3) quarters of 2018.

Women on cART

Table 8 shows the number of women initiated on combined antiretroviral treatment (cART) in all the five (5) health centers. The Table illustrates the number of pregnant women who were tested positive for HIV virus and put on treatment to prevent mother to child transmission in all the five (5) health facilities. In 2015, 2016, 2017 and 2018 health centre (1) recorded the numbers of 24, 29, 11 and 4 respectively.

Table 8: Number of women initiated on HAAT in selected health facilities of Mafinga district from 2015 to 2018

Health Center	2015					2016					2017					2018			
	Q1	Q2	Q3	Q4	Av	Q1	Q2	Q3	Q4	Av	Q1	Q2	Q3	Q4	Av	Q1	Q2	Q3	Av
1	3	9	7	5	24	5	2	4	9	20	6	3	0	2	11	0	1	3	4
2	1	0	0	1	2	1	0	0	0	1	3	1	0	0	4	0	0	0	0
3	0	3	4	1	8	2	1	0	0	3	0	0	0	0	0	1	0	1	2
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
5	0	1	0	0	1	0	0	2	0	2	0	0	1	1	2	1	1	0	2
Average Total	4	13	11	7	35	8	3	6	9	26	9	4	1	3	17	3	2	5	10

Source: Mafinga DHIS 2018

Further, Table 8 shows that from 2015 to the year 2018 total number of pregnant women on cART dropped from 35 in 2015 to 26 in 2016 and continued to drop to 17 in 2017 and 10 in 2018.

4.2 Trends of use of services before and after RBF interventions

The study revealed that RBF intervention has been supporting maternal and child health services in Mafinga from 2016 to date - 2018. Trends depicting coverages on use of services where compared before and after the intervention in determining the effectiveness of the interventions in all the five (5) health centers.

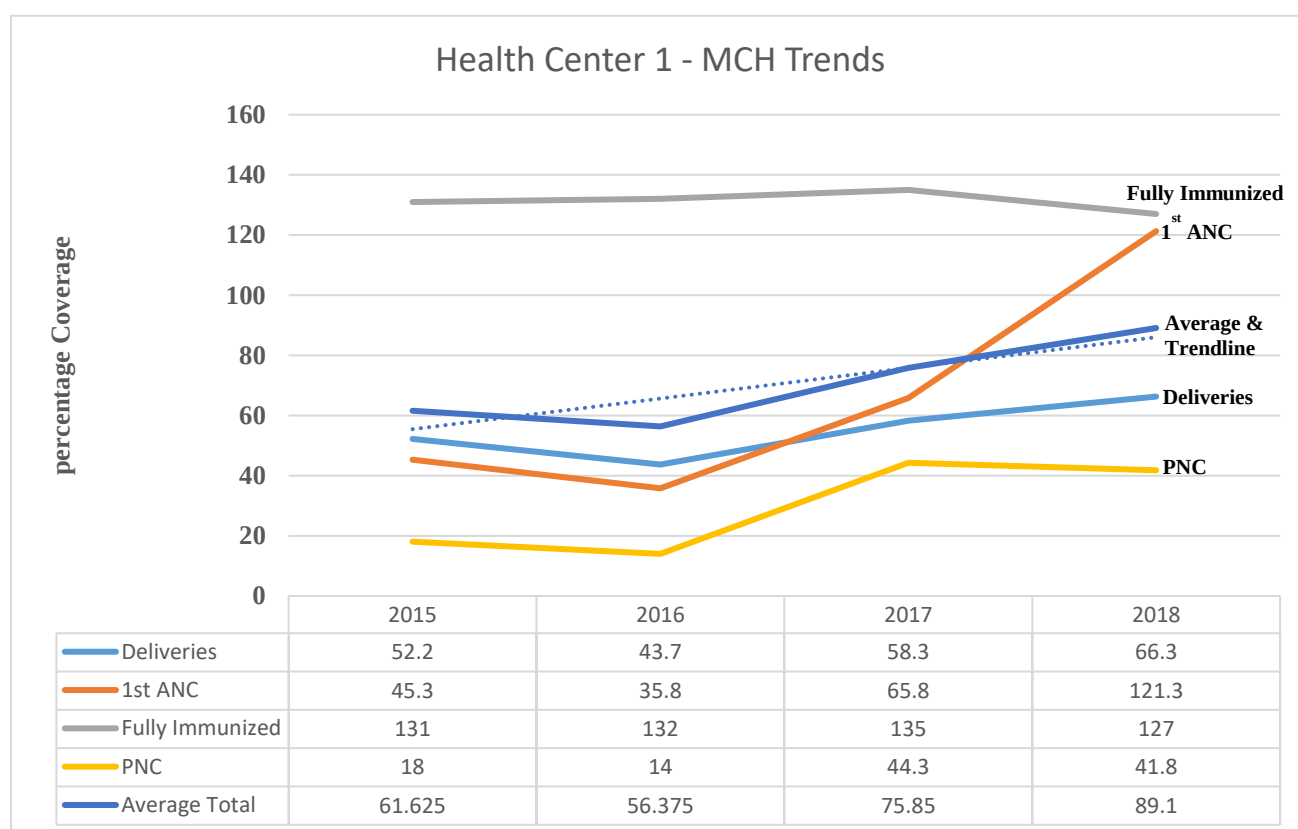


Figure 3: Health Center 1 – MCH Trends

Figure 3 illustrates progression of MCH services from 2015 to 2018 representing the period before and after the RBF intervention at Health Center 1. From average total of MCH services, the figure shows a reduction from 61.6% 2015 to 56.4% in 2016 before the intervention. After the intervention in 2017 average use of MCH services increased to 75.9% and continued to increase to 89.1% in 2018.

Despite the average increase in use of MCH services after the intervention by 32.7%, the study found that the increase was not statistically significant at P-value of 0.67.

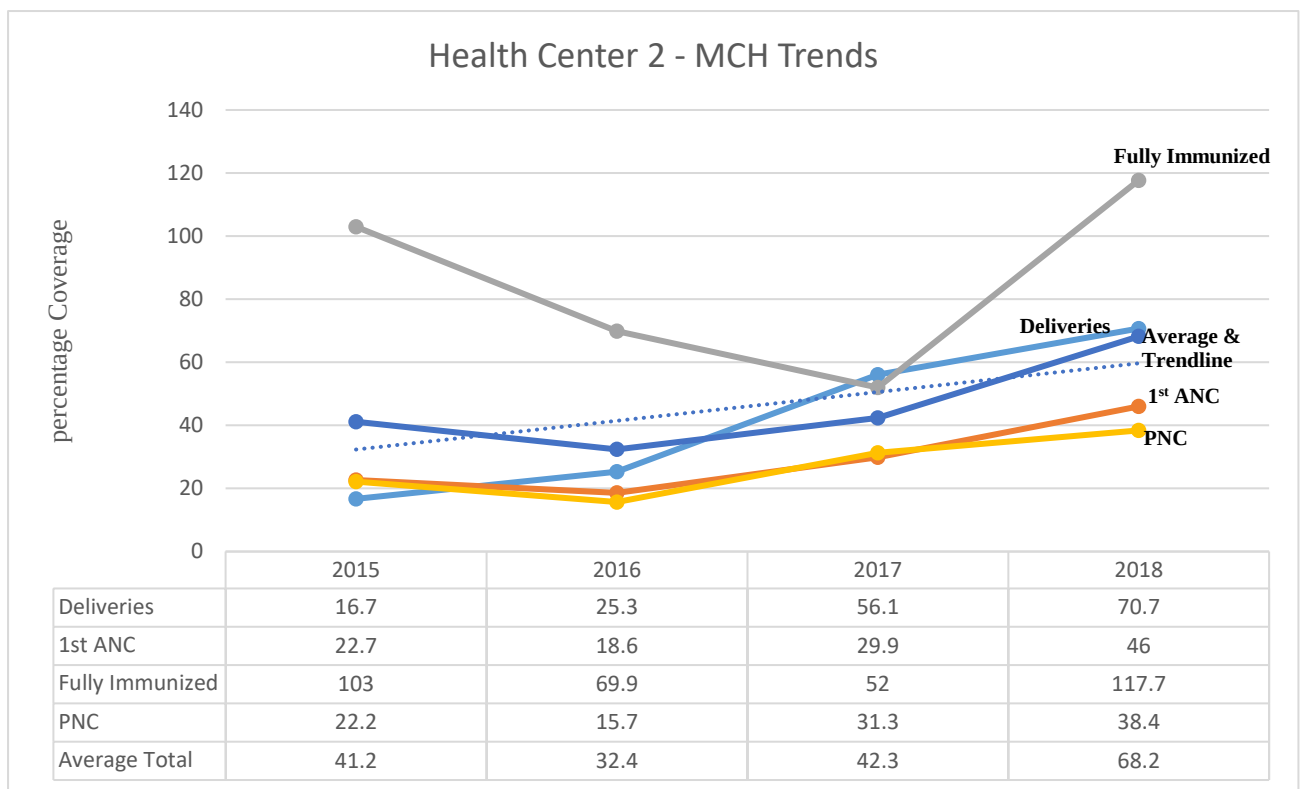


Figure 4: Health Center 2 – MCH Trends

Figure 4 illustrates progression of MCH services from 2015 to 2018 representing the period before and after the RBF intervention at Health Center 2. From average total of MCH services, the figure shows a reduction from 41.2% in 2015 to 32.4% in 2016 before the intervention. After the intervention in 2017 average use of MCH services increased to 42.3% and continued to increase to 68.2% in 2018.

Despite the average increase in use of MCH services after the intervention by 32.4%, the study found that the increase was not statistically significant at P-value of 0.68.

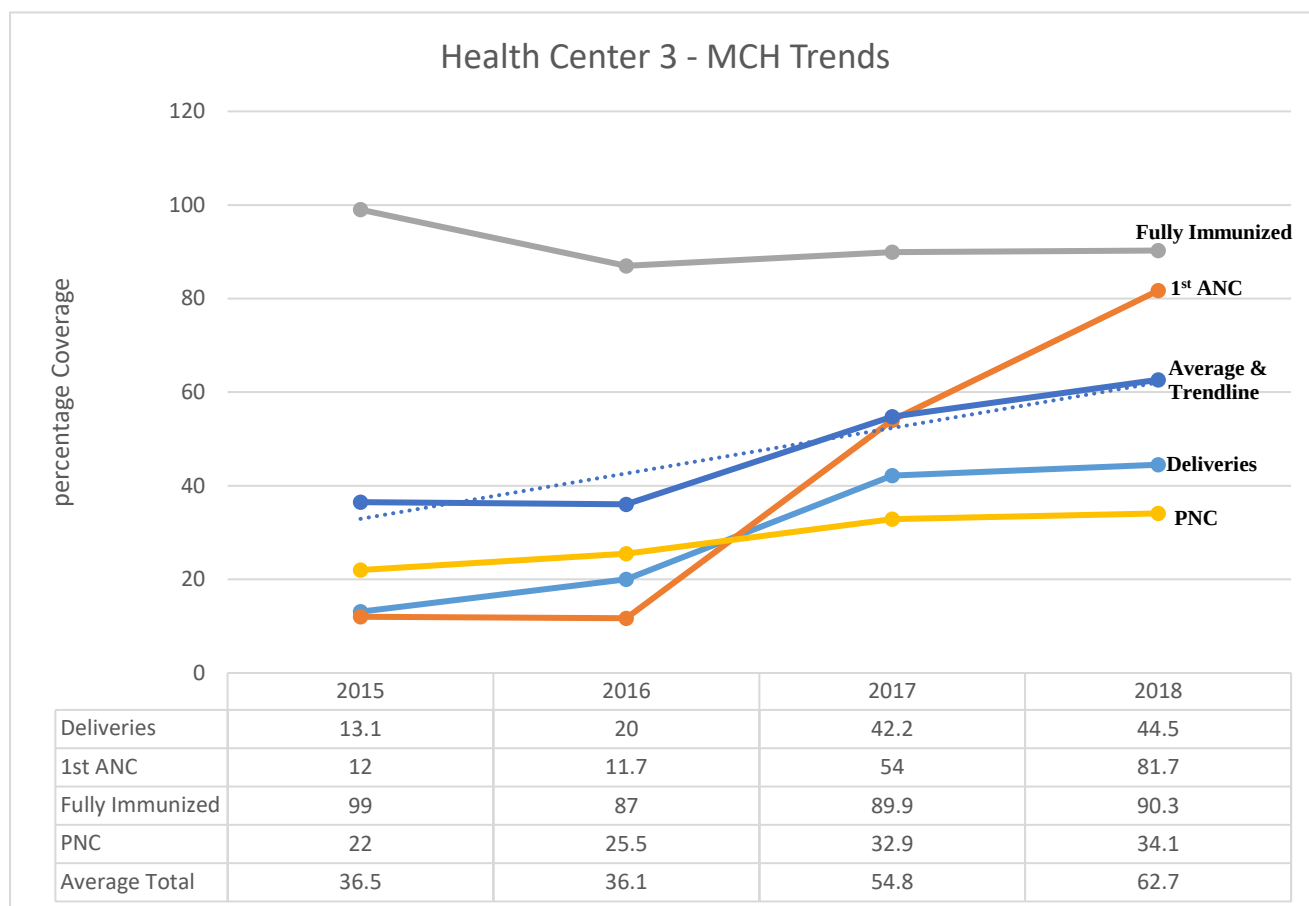


Figure 5: Health Center 3 – MCH Trends

Figure 5 shows progression of MCH services from 2015 to 2018 representing the period before and after the RBF intervention at Health Center 3. From average total of MCH services, the figure shows a slight reduction from 36.5% in 2015 to 36.1% in 2016 before the intervention. After the intervention in 2017 average use of MCH services increased to 54.8% and continued to increase to 62.7% in 2018.

Despite the average increase in use of MCH services after the intervention by 26.6%, the study found that the increase was not statistically significant at P-value of 0.76.

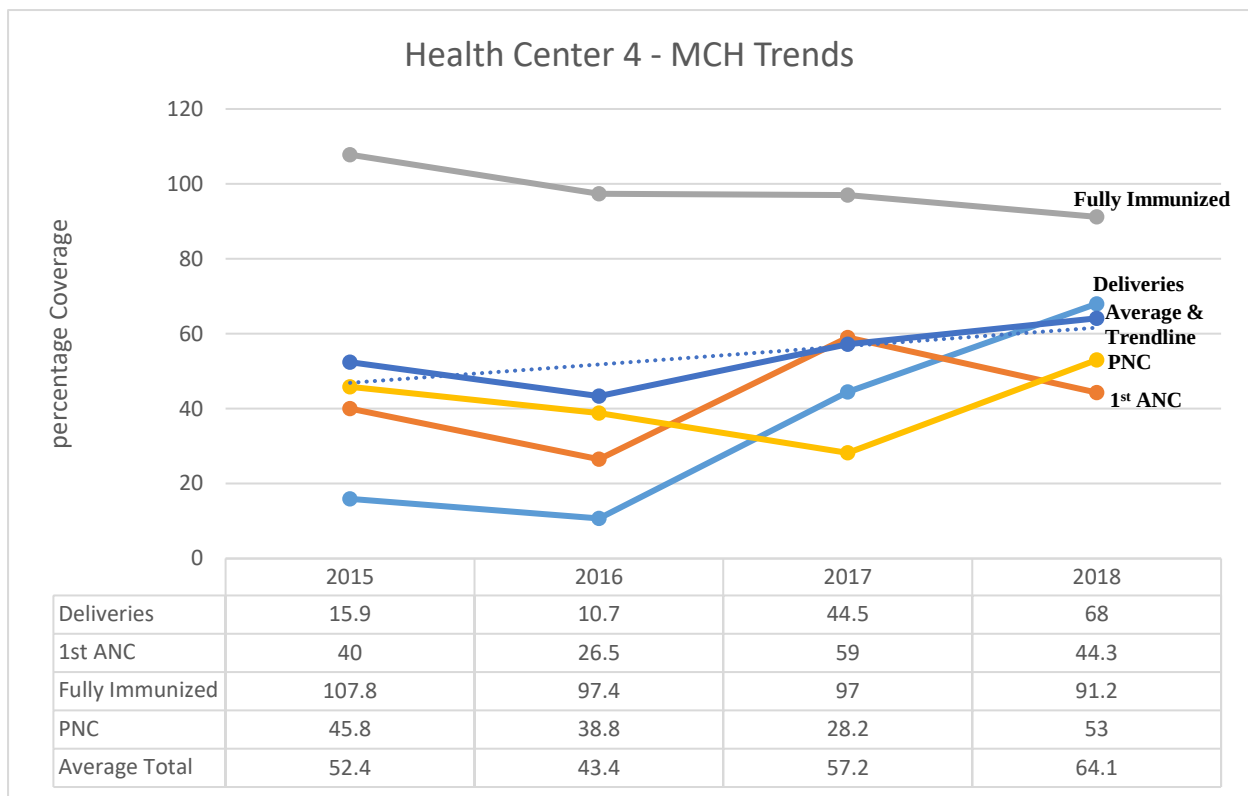


Figure 6: Health Center 4 – MCH Trends

Figure 6 demonstrates progression of MCH services from 2015 to 2018 representing the period before and after the RBF intervention at Health Center 4. From average total of MCH services, the figure shows a reduction from 52.4% in 2015 to 43.4% in 2016 before the intervention. After the intervention in 2017 average use of MCH services increased to 57.2% and continued to increase to 64.1% in 2018.

Despite the average increase in use of MCH services after the intervention by 20.7%, the study found that the increase was not statistically significant at P-value of 0.81.

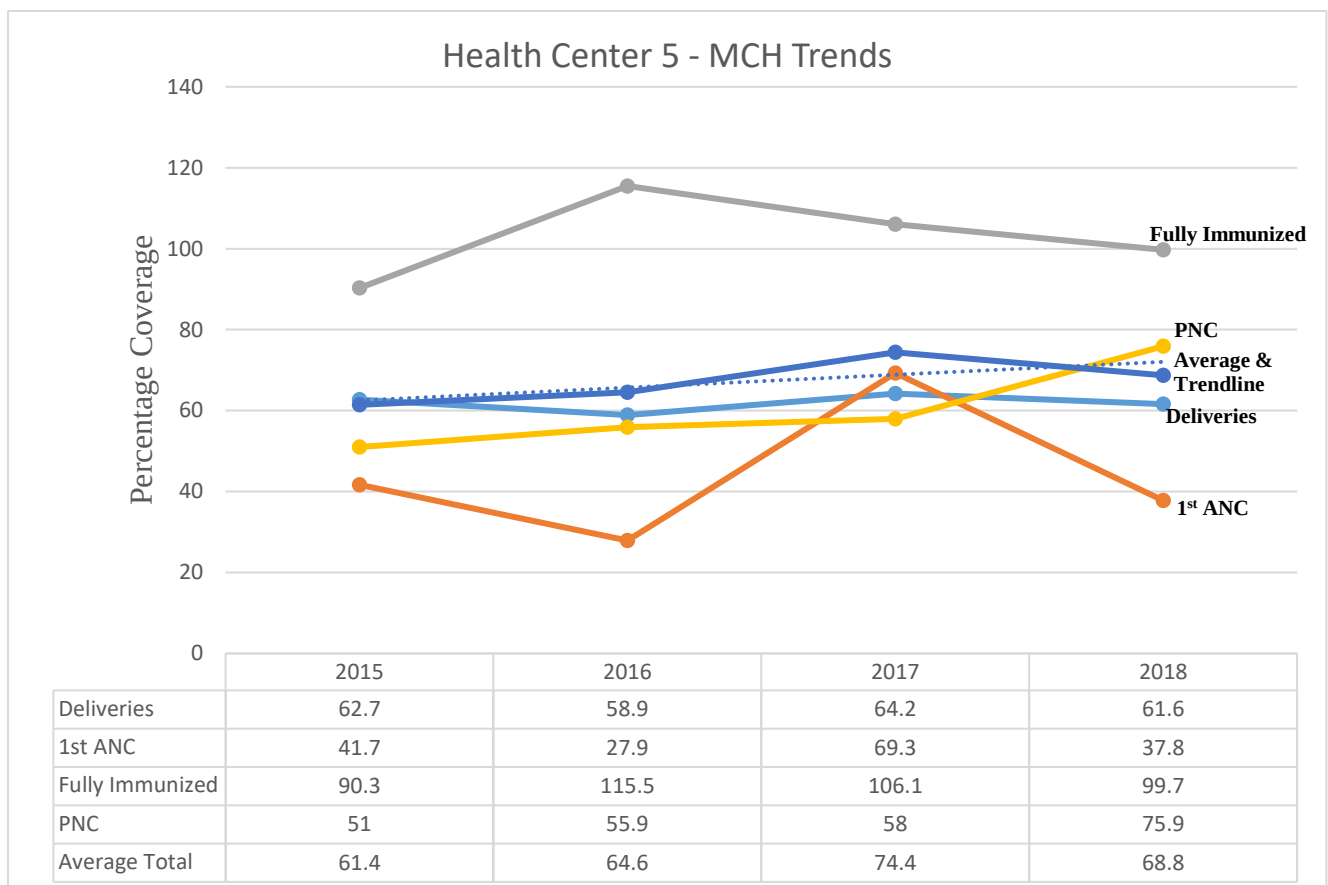


Figure 7: Health Center 5 – MCH Trends

Figure 7 reveals progression of MCH services from 2015 to 2018 representing the period before and after the RBF intervention at Health Center 5. From average total of MCH services, the figure shows an increase from 61.4% in 2015 to 64.6% in 2016 before the intervention. After the intervention in 2017 average use of MCH services increased to 74.4%, however dropped to 68.8% in 2018.

Despite the average increase in use of MCH services after the intervention by 4.2%, the study found that the increase was not statistically significant at P-value of 0.96.

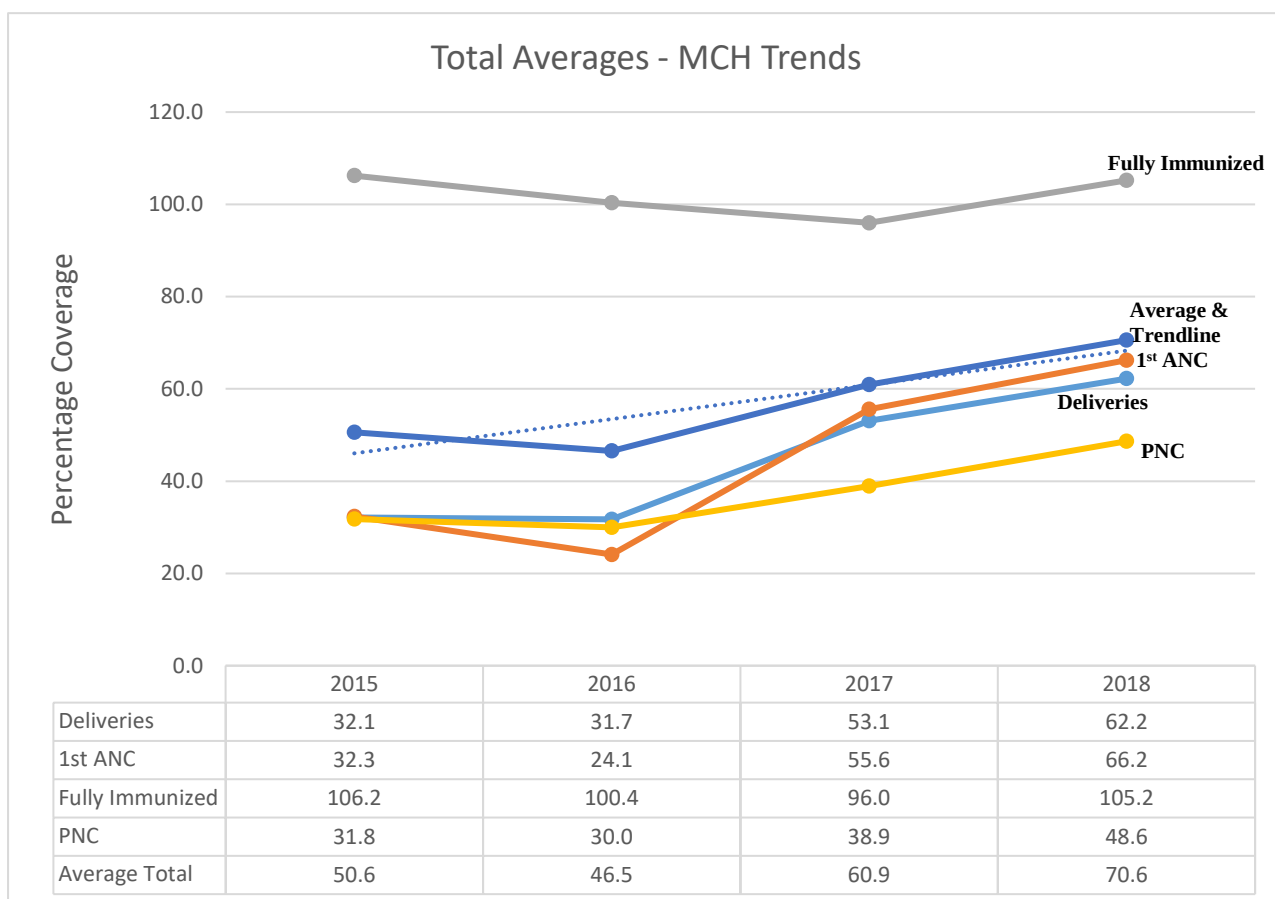


Figure 8: Total Average MCH Trends: 2015 - 2018

Figure 8 displays the average total progression of MCH services from 2015 to 2018 representing the period before and after the RBF intervention at all the (5) Health Centers. From average total of MCH services, the figure shows a decrease from 50.6% in 2015 to 46.5% in 2016 before the intervention. After the intervention in 2017 average total use of MCH services increased to 60.9% and continued to increase to 70.6% in 2018.

Despite the average increase in use of MCH services after the intervention by 24.1%, the study found that the increase was not statistically significant at P-value of 0.78.

4.3 Quality of health care delivery from point of intervention.

The study found that all the five (5) RBF health centers prioritized quality improvement of the health services through the retention of 60% of the RBF incentive support fund to health care delivery reinvestments. Current level of quality of service at time of the study was undertaken and compared to the initial level of quality at time of the intervention hence the period from 2016 to 2018 in all health centers. The comparison in quality improvement depicts level of improvement i.e. effectiveness of RBF interventions in all the five (5) health centers.

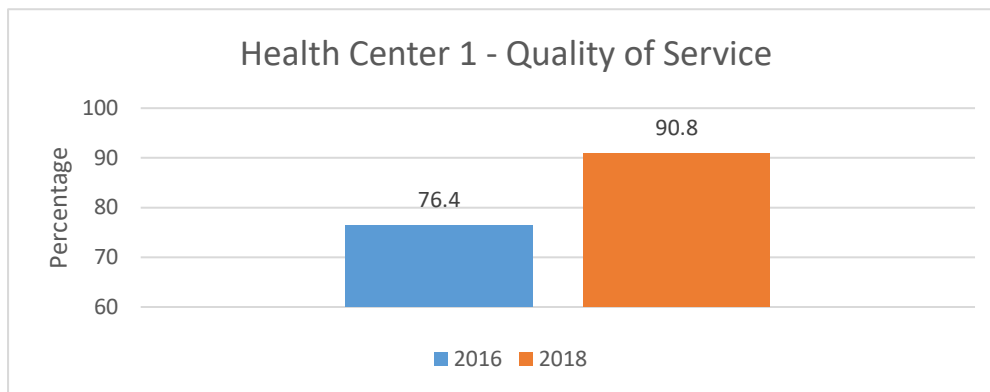


Figure 9: Health Center 1 – Quality Improvement

Figure 9 demonstrates and compares the average quality of health services before and after intervention in 2016 and 2018 at Health Center 1. The figure shows that in 2016 level of quality was at 76.4% and 2018 was at 90.8%. The difference shows an increase of 14.4% after RBF intervention. However, despite the average increase in quality of service after the intervention, the study found that the increase was not statistically significant at P-value of 0.86.

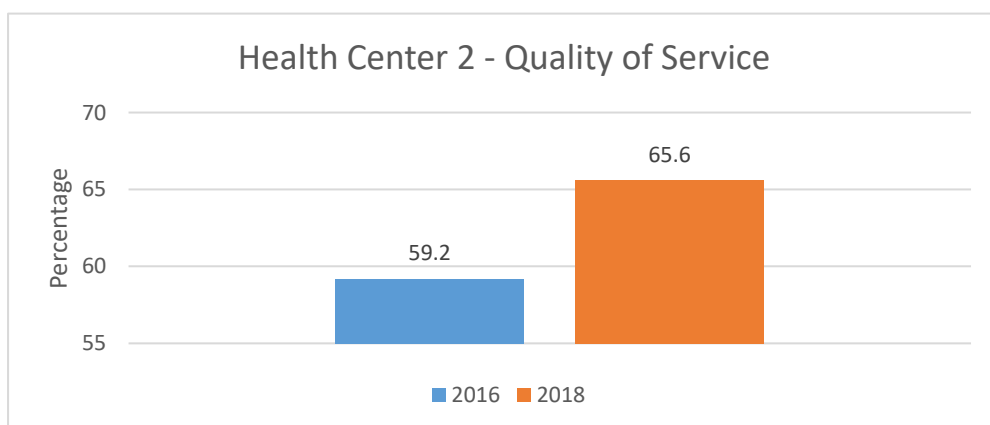


Figure 10: Health Center 2 – Quality Improvement

Figure 10 illustrates and compares the average quality of health services before and after the intervention in 2016 and 2018 at Health Center 2. The figure shows that in 2016 level of quality was at 59.2% and 2018 increased to 65.6%. The difference shows an increase of 6.4% after

RBF intervention. However, despite the average increase in quality of service after the intervention, the study found that the increase was not statistically significant at P-value of 0.94.

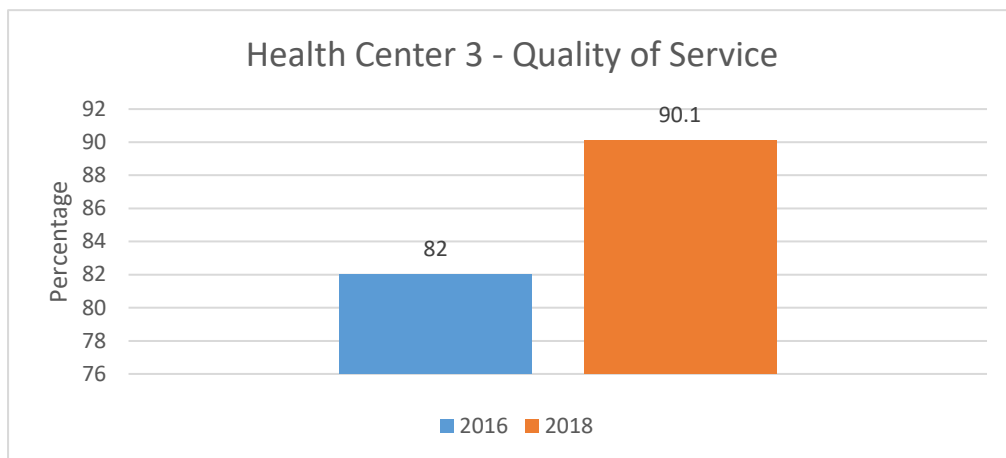


Figure 11: Health Center 3 – Quality Improvement

Figure 11 illustrates and compares the average quality of health services at period of intervention in 2016 and 2018 at Health Center 3. The figure shows that in 2016 level of quality was at 82% and by 2018 slightly increased to 90.1%. The difference shows an increase of 8.1% after RBF intervention. However, despite the average increase in quality of service after the intervention, the study found that the increase was not statistically significant at P-value of 0.91.

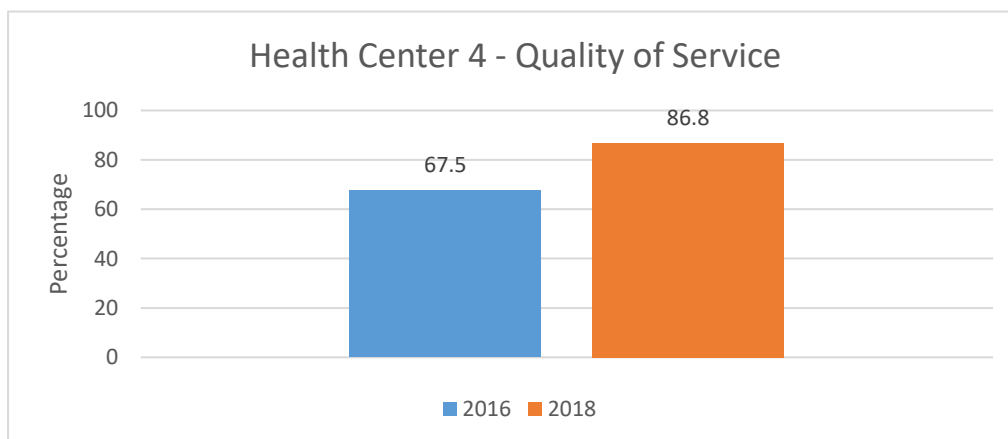


Figure 12: Health Center 4 – Quality Improvement

Figure 12 shows and compares the average quality of health services before and after the intervention in 2016 and 2018 at Health Center 4. The figure shows that in 2016 level of quality was at 67.5% and by 2018 increased to 86.8%. The difference shows an increase of 19.3% after RBF intervention. However, despite the average increase in quality of service after the

intervention, the study found that the increase was not statistically significant at P-value of 0.82.

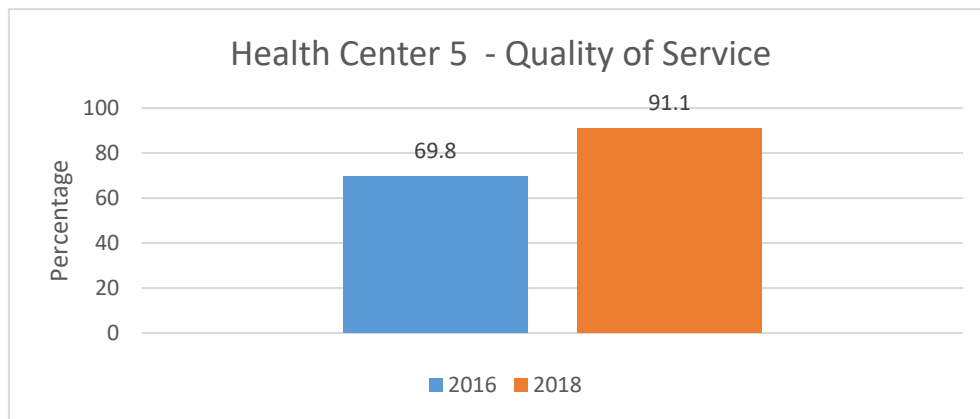


Figure 13: Health Center 5 – Quality Improvement

Figure 13 above illustrates and compares the average quality of health services at period of intervention in 2016 and 2018 at Health center 5. The figure shows that in 2016 level of quality was at 69.8% and by 2018 increased to 91.1%. The difference shows an increase of 21.3% after RBF intervention. However, despite the average increase in quality of service after the intervention, the study found that the increase was not statistically significant at P-value of 0.79.

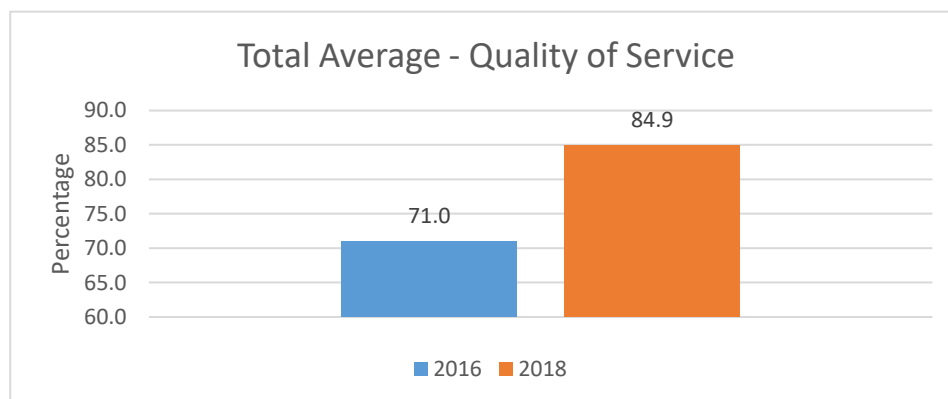


Figure 14: Total Average – Quality Improvement

Figure 14 illustrates and compares the total average quality of health services before and after the intervention in 2016 and 2018 of all five (5) Health Centers. The figure shows that in 2016 level of quality was at 71% and by 2018 increased to 84.9%. The difference shows an increase of 13.9% after RBF intervention. However, despite the average increase in quality of service after the intervention, the study found that the increase was not statistically significant at P-value of 0.87.

CHAPTER 5: DISCUSSION

The results indicate that RBF intervention in the five health centers in Mafinga district was effective in improving maternal and child health services regarding maternal delivery by skilled personnel, 1st antenatal coverage, fully immunized and postnatal coverages. Further the intervention showed positive improvements in the quality of health services in all health centers.

However, the study reviewed that despite percentage increase both in use of services and quality of services the increments were not statistically significant. Overall usage of MCH services increased by 24.1% but the increase was not significant. Further, the study found an improvement in the quality of services by 13.9% but the increase was not significant as well.

5.1 Institutional Maternal Deliveries

Regarding maternal deliveries the study found an increase of 30.5% which appear minimal and statistically insignificant. This finding relates with Jed (2015) RBF pilot project in Zambia which reported a relative gain in maternal deliveries by 12.8percentage but the gain was not in correspondence with the enhanced financial budget support of RBF despite the recorded improvements. Also, Basinga (2011) reported that the intervention has a 23% increase in the number of institutional deliveries and increases in the number of postnatal care visits by children (56%) while immunization increased (132%).

5.2. Antenatal Visits

Regarding antenatal care ANC coverages, the study found an increase of 24.1%. However, in a study conducted in Zimbabwe (Friedman, 2015) recorded more than 99% women receiving ANC. Over a substantial period the increase in ANC in Mafinga district can be attained with continued RBF interventions and their application. In rural areas target coverage for antenatal coverage is 90% (HMIS, 2016). In this regard, the findings of the study show low level of coverages despite the intervention. However, continued increase can enable the attainment of ideal coverages.

5.3. Fully Immunized Children

Immunization as a health care indicator has shown a complex of change in trends across various interventions and declines are a common feature. Friedman (2015) reported that RBF has shown to be a protective increase in immunization coverages. In line with the study fully immunization of children was found to be above target however 5.2% increase was recorded.

The study found high coverages of immunization above 100%, these findings relate to low estimation of target coverages or low population extrapolation to include communities from neighboring communities from other districts. Also, the increase can be attributed to children above the age of 1 year who missed their vaccination and yet captured as below 1 year when eventually vaccinated hence administrative and data collection systems. Further, findings in Rwanda can relate to this finding as RBF was reported to have had no effect on child vaccination as the government had implemented an intensive national vaccination campaign in 2006 that raised immunization rates to 88% HSAR – Rwanda (2014). The increase beyond the baseline of 65% was on account of substantial effort on the part of the providers to enter communities, identify unvaccinated children, and vaccinate them coupled with budget support and administrative procedures.

5.4. Postnatal Care Visits

The study found a percentage increase of 18.2% in postnatal care. This increase is in line with findings of evaluating RBF in Zambia Friedman (2016) which showed that postnatal care improved by 51% increase in coverage. RBF intervention has been recorded to improve institutional deliveries. However, the rate of change usually is not substantial when compared with the financing. This suggests minimal impact of the intervention on institutional deliveries. Evaluating RBF pilot project in Zambia reported a relative rise in institutional delivery rate by 12.8-percentage points under RBF was found to be lower than the relative gain in the enhanced financial budget support which was at a 17.5 percentage point relative gain (Friedman et al., 2015).

5.5. Quality Improvement

Quality improvement in health service delivery coupled with managerial autonomy at health facility level, is reported to be significantly impact on service provision, clarity on policies and procedures for doing things as well. In Zimbabwe, RBF presented significant opportunities for policy makers and health providers as health facilities were much better both in physical appearance and equipment fitments than before the RBF implementation (Friedman, et al., 2015).

Despite a minimal percentage increase of 13.9% improvement in the quality of service and care the findings are in line with RBF in Zimbabwe as the increase relates to managerial autonomy at health centres. Further the increase also caters for maintenance of standards and continued improvements despite the increase not being statistically significant.

In evaluating the effect of result-based financing on maternal and child health services in Rwanda, Bonfrer et al. (2014) reported that financial performance incentives can improve both the use and quality of health services. In this regard, modalities of RBF should be highly pursued to achieve effective results in health care and value of investments, further the RBF intervention should be allowed to continue for a considerable period of time as it will accelerate progress towards universal health care and sustainable development goals.

As shown by the study, RBF intervention led to increased use and quality of maternal and child health care services in all the health centers. However, there is need to further study if the positive outcomes from RBF are based on the incentive payment or the same can be attained from increased traditional funding.

Basinga (2011) study on primary health care facilities in Haiti, showed increases in immunization coverages and the number of attended deliveries after the introduction of result-based financing and its bonus payments. While in Rwanda large increases in the number of institutional deliveries were recorded but no increase in vaccinations. A similar study in Cambodia showed that RBF schemes increased immunisation rates, with receipt of more resources in a traditional sense. This suggests that resources rather than the RBF mechanism could explain positive outcomes. Again, the need to undertake further studies on effects of RBF incentives and associated increase in resources would be ideal. This distinction will enable policy understanding if indeed RBF achieves its results from increased financial resources rather than incentives as the same results could be achieved from an increase in traditional input-based financing and there would be no reason to incur the administrative costs associated with RBF which in Rwanda, such administrative costs were estimated at 0.8% of total health expenditures per head and 1.2% of public and donor expenditures combined.²⁷.

5.6. Limitation

Among many challenges the study was limited by lack of complete availability of data on women initiated on combined antiretroviral therapy (cART) as the number of women tested for HIV at time of birth for comparison was not available. This delimited the study to fully compare the variable i.e. number of women initiated to the number testing positive but not initiated on cART Further, data on fully immunized was distorted as the study reviewed that children above one (1) received their immunization yet recorded as below 1. This led to percentages of coverages beyond projected targets.

CHAPTER 6: CONCLUSION AND RECOMMENDATIONS

The study revealed positive increase in usage of maternal child health and quality of service in all the health centers after the RBF intervention in Mafinga district by 24.1% and 13.9% respectively though improvements not statistically significant. Further research should employ different statistical models to better establish scope of statistical data for effective measure of statistical significance. Also given a longer period of study statistical results could show the effectiveness. This entails that RBF is a better model for health financing against the traditional input financing subject to revision of operational modalities. One major recommendation to the Ministry of Health in line with the study's findings is the need for increased monitoring and supervision of service delivery as a key determinant to increased coverages, improvements in service indicators and quality of services. This coincides to similar studies depicting RBF's efficiency in monitoring of service provides and provision of administrative logistics. The Ministry of Health and its partners should scale up efforts towards increased monitoring and supervision of service delivery at all levels. This will induce not only motivation but focus on quality of service.

Further RBF enables decentralized decision making for health centers. This level of self-administration enables for priority of key challenges towards attainment of results. In this regard the Ministry of Health should encourage decentralized decision making of health centers and focus on focused technical support at district level.

RBF having a financial incentive component should enable for local sourcing and procurement of necessities. In this regard community participation will be enhanced and so health facilities should encourage for local procurement of materials and resources. This will improve social economic activities of local communities.

Community should demand for continued improvement of quality of health services, this improvement will also ensure quality of life from reduction in mortality and morbidity especially among the women and children.

Being a pay for performance intervention, Government through Ministry of Finance can save from unnecessary expenditures as only results are paid for hence Ministry of Finance through Treasury should champion RBF in health financing and widen budget support to other health improvement areas such as logistics and medicines supplies.

In all results-based financing in health financing would be a better model to traditional financing subject to revision of operational modalities. This is in view of the positive improvement on all indicators shown in the study after its implementation. Further, the intervention can induce cost effectiveness in public finance. In this regard, Ministry of Health should lease with Ministry of Finance on health financing policy change towards the RBF model in a phased approach beginning with RBF implementing districts like Mafinga District.

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- Annex 1: Data Collection – Health Service MCH indicator**
- Annex 2: Health facility Checklist – Quality Improvement Indicators**
- Annex 3: Ethical Clearance**
- Annex 4: Ministry of Health – Permission for data collection**