

Early evidence from results-based financing in rural Zimbabwe

Frank van de Looij,ⁱ Dudzai Mureyi,ⁱⁱ Chenjerai Sisimayi,ⁱⁱⁱ Jaap Koot,ⁱⁱⁱ Portia Manangazira,^{iv} Nyasha Musuka,^{iv}

Corresponding author: Frank van de Looij, e-mail: frank.van.de.looij@cordaid.nl



SUMMARY—Results-based financing (RBF) is an innovative approach to health system financing which pays providers for verified outputs. In July 2011, through a World Bank grant, Zimbabwe commenced an RBF project to improve utilization of quality maternal, neonatal and child health (MNCH) services. This article discusses its early results. A statistical analysis of intervention districts and control districts shows that RBF districts demonstrate higher increases in utilization levels for the MNCH services than control districts. Month-on-month growth rates for antenatal care, perinatal referrals and growth monitoring are statistically significant after the intervention, whilst they were not before the intervention and no significant trend was found in control districts. Qualitative study provides insight in the mechanisms through which RBF contributed to better performance: the use of contracts, increased autonomy of health facilities, increased community involvement, intrinsic motivation of health-care workers, existence of a reliable health information system, abolishment of user fees, improved supervision of health facilities, separation of functions, and the Government of Zimbabwe's results-based management (RBM) policy.

Due to economic turmoil in the last decade, government funding to the public health system in Zimbabwe reduced considerably. As a result, many health-care workers emigrated or sought employment in other sectors, the infrastructure dilapidated and health indicators deteriorated. Maternal mortality rose from 390 to 790 per 100 000 live births.¹ Out-of-pocket expenditure as a percentage of total health expenditure rose to 50.4%.²

However, since 2009, the Ministry of Health and Child Care (MoHCC) has made considerable progress in revitalizing the health system and its policy has gradually moved from organizing emergency service delivery to health system strengthening, as shown by the Health Investment Case³ and its National Strategic Plan.⁴ Through the Zimbabwe Agenda for Sustainable Socio-Economic Transformation (ZIMASSET) and the country's new strategic plan for economic transformation anchored within results-based management (RBM) principles, the government has committed to strengthen the health system and improve key health indicators and has projected a cumulative growth of 22.5% in the health sector between 2013 and 2018.⁵

To support the MoHCC in its efforts to further strengthen the health system, the World Bank committed a grant of US\$ 15 million to a results-based financing (RBF) project aimed at increasing utilization of quality maternal, neonatal and child health (MNCH) services, primarily through the abolishment of user fees. The RBF project pays health facilities – rural health centres (RHCs) and district hospitals – for outputs/results rather than inputs. The larger the volume of output (high utilization), the larger the payment

a facility receives. This is the hallmark of RBF, where income is linked to levels of output.

Abolishment of user fees and thus increased service utilization is the primary goal of the RBF project in Zimbabwe. To this effect, RBF payments compensate for income forgone due to the abolishment of user fees. Motivating providers to increase output and improve service delivery is the secondary goal of RBF. For this purpose, a portion of the RBF payments can be invested in improving providers' working conditions and paying staff incentives. In Zimbabwe RBF started as a two-district pilot in July 2011 and was scaled up in March 2012 to 18 rural districts covering a total population of 4.1 million.

The rural public health-care system in Zimbabwe follows a typical district health-care model with a district hospital being a referral centre, and RHCs providing primary health care. Each district is managed by a district health executive (DHE). The DHEs and district hospitals in a given province are in turn supervised by a provincial health executive (PHE).

For general oversight over the RBF project, a multi-stakeholder RBF National Steering Committee (NSC) and district steering committees (DSCs) in each of the implementing districts were established. Health facilities are contracted to offer a set of RBF-incentivized services and DHEs/PHEs are contracted to supervise RHCs and district hospitals. Community-based organizations (CBOs) are contracted for community sensitization activities and assessment of user satisfaction. A National Purchasing Agency (NPA) executes specific RBF activities, i.e. contracting all the actors in the project (health facilities, DHEs/

Voir page 70 pour le résumé en version française.

Ver a página 70 para o sumário em versão portuguesa.

ⁱ Cordaid, The Netherlands

ⁱⁱ Cordaid, Zimbabwe

ⁱⁱⁱ Independent public health consultant

^{iv} Ministry of Health and Child Care, Zimbabwe

PHEs and CBOs), verification of results and disbursement of payments to the contracted parties for verified results. In Zimbabwe the Catholic Organization for Relief and Development Aid (Cordaid), was contracted by the World Bank (according to the Bank's contracting procedures) to perform the NPA tasks in Zimbabwe. This is a temporary measure, as the Government of Zimbabwe, being in arrears, could not be directly engaged by the bank. An independent agency, the University of Zimbabwe, is contracted to perform counter verification, i.e. verifying whether the NPA, DHEs, PHEs and CBOs are correctly performing their tasks as verifiers and supervisors. The separation of functions of purchaser, provider, verifier, counter-verifier, client tracing, quality assessor and regulator, is meant to ensure integrity at each stage of the RBF cycle.

Contracted health institutions, which need to meet minimum criteria before being contracted, receive a quarterly payment from the NPA based on the quantity of RBF-incentivized services provided and the quality of these services. The vast majority of these incentivized services are related to MNCH. However, to avoid a focus on MNCH only, to the detriment of other clinical services, "outpatient consultation" (first visit only) was added as an incentivized service too. Inequity is mitigated by awarding additional 'remoteness' bonuses to facilities which serve relatively geographically inaccessible populations – to top up their earned RBF incomes.

To discourage facilities from focusing merely on volume of services, the quarterly payments to facilities also take quality scores into account. Each quarter, DHEs and PHEs conduct supervisory visits to RHCs and district hospitals respectively and use a standardized quality checklist to assess quality indicators and award scores. CBOs also conduct surveys among health service users and their responses determine the client-perceived quality score for each facility. A facility's overall quality score is then calculated from both the CBO score and DHE/PHE score and determines the amount in quality bonus a facility accrues, on top of the service quantity earnings.

Health facilities, together with their health centre committees (HCCs), write annual plans which are approved by the DHE (or PHE for hospitals). RBF health facilities hold their own deposit accounts and are autonomous in how they spend the money earned for purposes that are consistent with the contents of their operational plans (plans they make annually and that are approved by the DHE). Since January 2013, facilities can use 25% of their earnings to award staff bonuses.

The aim of this article is to describe and attempt to explain, the effects of RBF in rural Zimbabwe.

Methods

The RBF project in Zimbabwe runs in 18 districts across 8 provinces. However, for evaluation purposes, only two RBF districts per province were chosen and matched with two non-RBF (control) districts of similar socio-economic, geographic and health utilization characteristics, thus creating 16 pairs of districts for comparison. Intervention (RBF) and control districts were compared for differences in service utilization trends for both RBF-incentivized and non-incentivized services. The control districts continued to receive similar support from government, vertical programmes and donors as they received before. Data for the comparison of the trends in service

utilization for RBF-incentivized and non-incentivized services were obtained from the health management information system from March 2011 to June 2013.

Descriptive statistics (percentage increases) were used for analyses of patient volumes. In addition a segmented linear regression was done and the time series was adjusted for auto-correlation.⁶ The findings from the statistical analysis were triangulated with findings from qualitative research, which derived data from:

- Document reviews of relevant policy documents, (training) manuals and progress reports;
- Financial data from the NPA on total programme spending and disbursements to facilities;
- Semi-structured interviews with officials from one hospital and two randomly selected health centres in each of the study districts (RBF and control districts), as well as the DHEs, DSCs and PHEs;
- Focus group discussions with at least four HCCs and four CBOs in each district; and
- Stakeholder interviews with officials from MoHCC, NSC, NPA and other relevant parties, including international donor organizations present in Zimbabwe.

Qualitative research took place in February and March 2013. All findings



were discussed with relevant stakeholders during a national workshop and joint conclusions from the assessment were arrived at.

Results

For the majority of indicators the analysis revealed that service utilization in the RBF-districts has increased since March 2012. Compared with non-RBF districts, RBF districts show relatively higher growth rates (Table 1). Exceptions are prevention of mother-to-child transmission (PMTCT) and primary immunization course completed. A graphical presentation of the trends also shows increased growth rates in RBF districts after the start of the intervention. This is particularly evident for antenatal care (ANC) visits (Figure 1).

Table 2 provides insight into the statistical significance of the findings. It compares growth rates (month-on-month volume changes) of the different indicators before and after the intervention and shows the sudden volume changes as a result of the intervention.

Table 2 shows that there is a significant change in volume of normal deliveries as a result of the intervention. After the start of the intervention a significant positive trend was found for ANC 4+ visits, high-risk perinatal referrals and growth monitoring, whereas no significant trends were found in the control districts. Finally, one can observe significant positive trends before the intervention for OPD new consultations, syphilis RPR test and IPT2. These trends are not significant after the intervention.

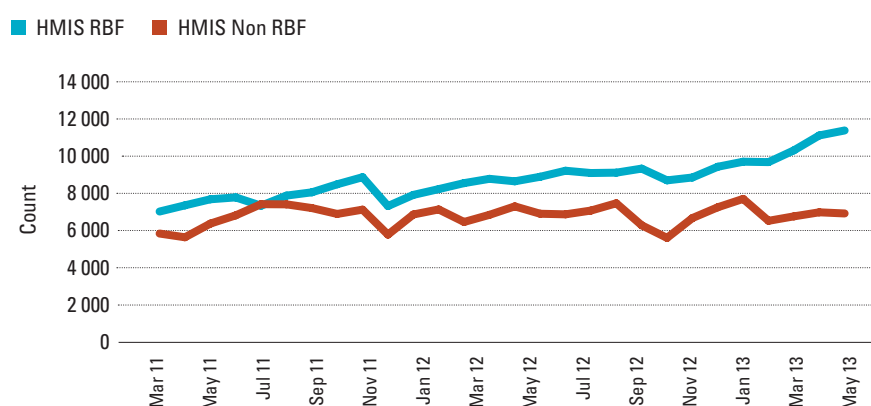
Moreover, the study found indications that the reliability of data entered into the national health management information system (HMIS) improved in RBF districts (Figure 2). In the RBF scheme, facilities incur deductions in payments when there is a discrepancy between the data they declare to the national HMIS and the data which are verified by the NPA. Income forgone as a result of these discrepancies also decreased in the RBF districts (Figure 3).

Quality of services was only measured in the RBF districts and data collection only started at the beginning of the

Table 1. Comparison between trends in RBF and control districts for selected incentivized indicators

Indicator	January 2012–June 2013 RBF districts	January 2012–June 2013 Control districts
	Change in volumes (% points; n=387)	Change in volumes (% points; n=398)
ANC 4+ visits	44.6%	0.8%
OPD new consultations	19.9%	12.5%
HIV VCT in ANC	3.5%	-12.2%
ARVs to HIV + pregnant women (PMTCT)	5.6%	37.1%
Tetanus TT2+	7.7%	7.7%
Syphilis RPR test	18.4%	-1.2%
IPT (x 2 doses)	21.9%	2.9%
Normal deliveries	20.2%	17.6%
High-risk perinatal referrals	78.1%	11.0%
Family planning, short-term methods	33.0%	12.4%
Primary course completed	-18.7%	-6.5%
Growth monitoring	96.7%	19.2%

Figure 1. ANC 4+ visits, in RBF and control districts



Source: Zimbabwe National HMIS

Table 2. Month-on-month increase before and after the intervention (March 2011 to June 2013)

Indicator	Pre-slope	P-value	Intervention	P-value	Post-slope	P-value
RBF						
ANC 4+ visits	85.6	0.129	-78.8	0.858	160.2**	<0.01**
OPD new consultations	1115.2*	0.007*	7720.8	0.809	127.5	0.96
HIV VCT in ANC	125.5	0.107	758.6	0.272	-43.7	0.379
Tetanus TT2+	24.3	0.903	535.9	0.618	-5.9	0.968
Syphilis RPR test	298.6*	<0.01**	1481.8	0.078	-16.4	0.784
IPT2 (2 doses)	252.4*	0.01*	-140.1	0.76	22.6	0.629
Normal deliveries	-18.9	0.522	738.2*	0.01*	27.7	0.158
High-risk perinatal referrals	2.9	0.767	-156.8	0.089	50.1**	<0.001**
Family planning, short-term methods	-185.3	0.892	-3055	0.702	776.2	0.445
Primary course completed	-3.2	0.977	-436.6	0.667	-46.6	0.529
Growth monitoring	-222.8	0.875	9144.9	0.459	2412*	0.016*
Non-RBF						
ANC 4+ visits	92.4	0.139	-452.8	0.39	9.6	0.815
OPD new consultations	4745.2*	0.019*	12427	0.468	437.4	0.727
HIV VCT in ANC	67.6	0.197	-469.5	0.32	-10	0.763
Tetanus TT2+	-44.3	0.812	-479.5	0.67	40.3	0.769
Syphilis RPR test	268.1	<0.01	159.32	0.842	-18.8	0.752
IPT2 (2 doses)	299.7**	<0.001**	-445.4	0.093	-13	0.484
Normal deliveries	-30.4	0.406	-207.4	0.525	45.8	0.064
High-risk perinatal referrals	2.2	0.693	-18.3	0.72	1.98	0.595
Family planning, short-term methods	-135	0.892	-5281.5	0.531	271.8	0.687
Primary course completed	-48.9	0.461	78.3	0.896	23.2	0.586
Growth monitoring	426.1	0.497	1480.9	0.794	247.8	0.54

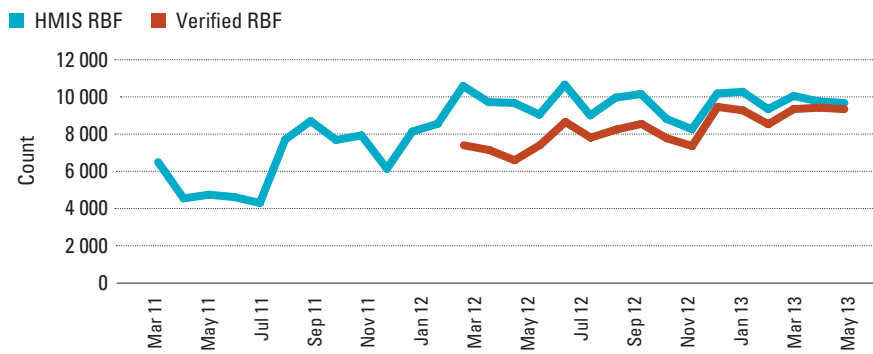
Pre-slope/post-slope: month-on-month changes in volumes before or after the intervention, if p-value <0.05 then changes significant either positive (+ve coefficient) or negative (-ve coefficient)

Intervention: the change in level, sudden increase (again check for significance)

*= P<0.05

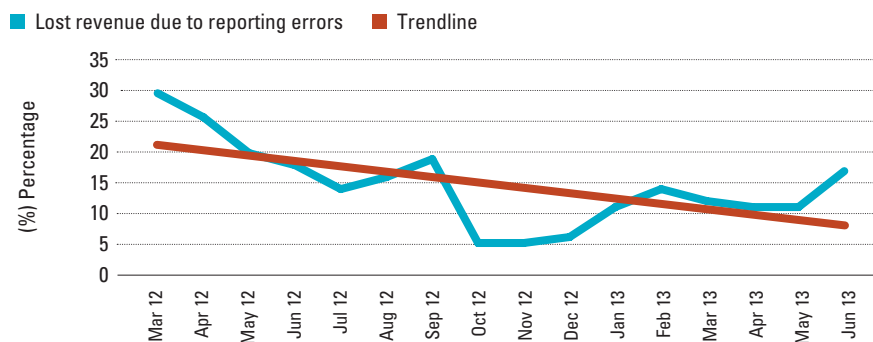
**= P<0.01

Figure 2. Differences between syphilis RPR tests done during first ANC visit which were declared in the HMIS system and which were verified by the NPA, in the RBF districts



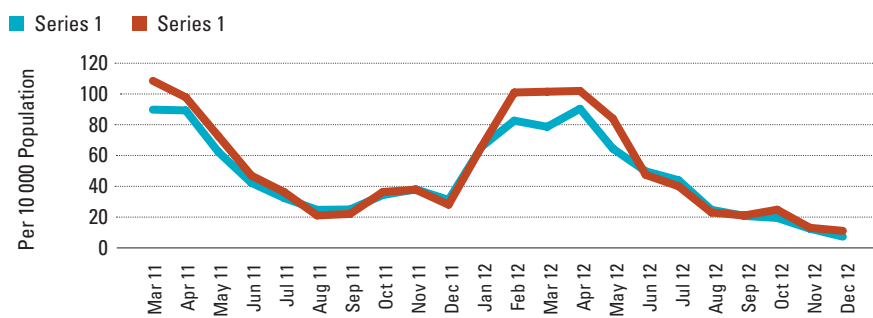
Source: Zimbabwe National HMIS and the Cordaid Zimbabwe RBF database

Figure 3. Lost revenue due to reporting errors



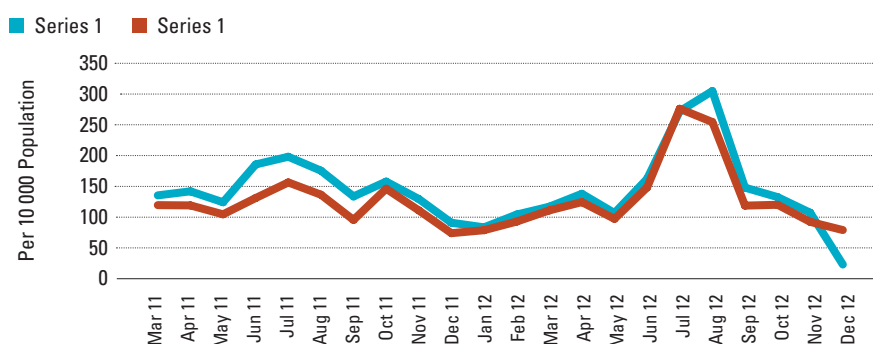
Source: Zimbabwe National HMIS

Figure 4. Malaria cases treated among children older than five, in RBF and control districts



Source: Zimbabwe National HMIS

Figure 5. Acute respiratory infection cases among children older than five, in RBF and control districts



Source: Zimbabwe National HMIS

intervention. Therefore no comparison with control districts or the trend before the intervention could be made. However, quality scores show a slight increase since the start of the intervention in the RBF districts. The focus group discussions and interviews confirm the observed quality increments. Respondents also indicated that the satisfaction surveys by CBOs have a strong impact on the attitude of staff. The direct feedback on their behaviour (and the financial incentive related to the CBO score) has sensitized staff to the importance of client-friendly behaviour. Waiting times are reported to have reduced and nurses are perceived as being more responsive to emergencies.

All health facilities in the RBF districts have stopped charging fees for MNCH services, in line with the goals of the project. This was confirmed through the CBO client-satisfaction surveys and the external counter verification. According to health workers interviewed, subsidies provided through RBF payments are four to ten times the amount of previously received amounts from patient fees for MNCH services. However, the total value of salaries, equipment, drug kits and other contributions from government and donors still constitutes the majority of the financing of health institutions.

The RBF subsidies go towards a wide range of uses: rehabilitation of the infrastructure, purchase of sundries, medicines and medical and surgical supplies, food for patients, payment of utility bills, hiring of locum and casual staff, transport and ambulance services. In some cases the RBF subsidies were used to pay for staff to obtain training in certain procedures e.g. insertion and removal of long-term contraceptive devices.

As shown in Figures 4 and 5, the trends in utilization of services, for which no RBF incentives are provided, show remarkable similarities between RBF and non-RBF districts, before and after the intervention; an indication that the validity of comparisons between intervention and control districts is high and that differences in the performance of the indicators for which RBF incentives were awarded are likely due to the incentives.

Discussion

The results from the comparisons between RBF and non-RBF districts reveal a rising trend in utilization services in RBF districts. For some MNCH services (deliveries, ANC, high-risk perinatal referrals and growth monitoring) these trends are statistically significant. In the RBF districts, the reliability of HMIS data and quality of care increased since the introduction of RBF. The study also points at externalities that influence behaviour of health service providers. Utilization figures for OPD, syphilis RPR test and IPT2 show a positive trend before the intervention in both RBF and control districts, while this trend is no longer significant after the intervention. This may for instance be caused by stock-outs of drugs and supplies.

Literature about the mechanisms through which RBF contributes to better performance is limited. This is also referred to as “the black box of RBF implementation”.⁷ It is generally imagined however, that the pecuniary incentives which are earned by providers and are contingent and proportional to their productivity, motivate them to perform better.⁸ The qualitative study revealed practices in RBF districts which are not being followed in control districts. In this section, the ways in which these could be contributing to improved performance are discussed.

- First, because the contracting approach clarifies what is expected of actors in terms of results,⁹ the use of RBF contracts stipulating the obligations of the NPA, health facilities, DHEs/PHEs and CBOs has enabled the DHEs/PHEs to execute their supervisory role by removing role ambiguity and ensures that communities’ opinions are regularly collected through CBO-conducted surveys.
- The relative autonomy enjoyed by health facilities in RBF districts is not a characteristic of governance in non-RBF districts. With active involvement of staff and HCCs, RBF facilities take responsibility for operational planning and implementation. In the non-RBF (control) districts, operational planning was a paper exercise because facilities had no control over the user fees they collected; they relinquished them to the DHE. Due to lack of funding

to execute the planned activities, the same plans are submitted every year. Facility staff in RBF districts also have increased (not absolute) autonomy over procurement. So it is likely that they are able to demonstrate allocative efficiency and innovation, by acquiring supplies which are necessary to solve specific operational problems at their particular facilities.

- Community involvement has always been a strong aspect of the Zimbabwean public health system, premised on the primary health care concept and philosophy. With RBF funds, HCCs have been re-activated and are committed and take ownership of the health services. In addition, the patient satisfaction surveys by CBOs, which were a feature in RBF districts only, gave communities a voice and likely motivated health service providers to take the preoccupations of the community into account in their operational planning.
- Financial incentives, such as applied in the Zimbabwean RBF project, have been argued to crowd out intrinsic motivation of health workers. However, achievements in the first nine months of the scaled up RBF project in Zimbabwe (March 2012 to December 2012) must be attributed to intrinsic motivation of staff and HCCs since, as alluded to earlier in this paper, personal incentives for frontline health workers in RHCs and district hospitals were only introduced after in 2013.
- A major contributing element to the success of an RBF intervention concerns the efforts made in relation to training and capacity building. In the first two years of the programme around 10% of the total project budget was invested in training for national level decision makers, district staff and facility staff.

Conclusion

In general, the RBF programme in rural Zimbabwe has shown positive intermediate results. It has succeeded in the removal of user fees for MNCH services, a finding confirmed through client satisfaction surveys, as well as compensating health institutions for the foregone income. Utilization figures increased in districts which implemented

RBF, indicating that accessibility has effectively increased.

While the results are inadequate for a conclusion regarding the statistical significance of the overall impact of the RBF project in Zimbabwe, this research found several elements only prevalent in the intervention districts, that may have contributed to the positive results in service utilization and quality improvements in RBF districts since the project commenced. These are:

- Use of contracts to clarify what is expected of each actor for payments to be made;
- Community involvement in the provision and planning of health services;
- Autonomy for primary health care facilities in planning and procurement; and
- Intrinsic motivation of staff, demonstrated by improved utilization statistics even before personal staff incentives were introduced in the project. 📌

References

1. WHO. *Trends in Maternal Mortality: 1990 to 2008*. Geneva: World Health Organization 2010.
2. Zimbabwe National Statistical Agency. *Poverty and Poverty Datum Line Analysis in Zimbabwe 2011/12*. Harare: Zimbabwe National Statistical Agency 2013.
3. Ministry of Health and Child Care. *The Health Investment Case*. Harare: Ministry of Health and Child Care 2010.
4. Ministry of Health and Child Care. *The National Health Strategy 2009–2013*. Harare: Ministry of Health and Child Care 2009.
5. Government of Zimbabwe. *Zimbabwe Agenda for Sustainable Socio-Economic Transformation Document*. Harare: Government of Zimbabwe 2013.
6. Lagarde, M. How to do (or not to do) ... Assessing the impact of a policy change with routine longitudinal data. *Health Policy Plan* 2011; 1–8.
7. Torsvik G. *Researching PBF: Time to open the black box*. 2013 Available from: <http://performancebasedfinancing.org/2013/06/02/researching-pbf-time-to-open-the-black-box/> [accessed on 11 June 2015].
8. Basinga P et al. Effect on maternal and child health services in Rwanda of payment to primary health-care providers for performance: An impact evaluation. *Lancet* 2011; 377(9775):1421–1428.
9. Eldridge C, Palmer N. Performance-based payment: Some reflections on the discourse, evidence and unanswered questions. *Health Policy Plan* 2009; 24(1):160–166.