

Dealing with difficult design decisions: The experience of an RBF pilot program in Haut-Katanga District of Democratic Republic of Congo (DRC)

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Authors:

Caryn Bredenkamp, Health Economist, World Bank, Washington, D.C.

Nicolas de Borman, Health Economist, AEDES, Brussels

Patrick Mullen, Senior Health Specialist, World Bank, India

Danic Ostiguy, Consultant, World Bank, Seychelles

Eric Sompwe, Chef de Division Provinciale, Ministry of Public Health, Lubumbashi

Waly Wane, Senior Economist, World Bank, Tanzania

Jacques Wangata, Coordinator UCP-PARSS, Ministry of Public Health, Kinshasa

Corresponding author:

Caryn Bredenkamp

cbredenkamp@worldbank.org

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1. BACKGROUND

Democratic Republic of Congo (DRC) is the third largest country in Africa by area, with the fourth largest population at 67 million. It is also among the poorest countries in the world, second from the bottom of the Human Development Index (168 out of 169 in 2010) (UNDP, 2010), with an estimated per capita income of US\$ 160 (current) in 2009 (World Bank, 2010). Impoverished by decades of war, instability and bad governance, it is not surprising that the Democratic Republic of Congo (DRC) is not on track to reach the health-related MDGs. According to the 2007 Demographic and Health Survey (DHS), under-five mortality is 148 per 1,000 live births, 45.5% of children are chronically malnourished, and the maternal mortality ratio is 549 per 100,000 live births. Coverage of many high impact interventions, particularly preventive, remains low. For example, in 2007, only 31% of one-year-old children had received all recommended vaccinations (République Démocratique du Congo Ministère du Plan and Macro International, 2008).

The crisis of the past several decades severely undermined the health system and its financing arrangements. The amount of public funding reaching health services fell to close to zero in the 1990s and early 2000s and, currently, the public sector health system remains chronically underfinanced with a level of public funding (including both domestic and international sources) of only around US\$4 (current) in 2008 (World Bank, 2008). Nevertheless, the health zone system and services have, in many cases, shown remarkable resilience (Porignon *et al.*, 1998; World Bank, 2005), partly through the support of humanitarian programs and largely on the basis of out-of-pocket payment from patients.

Indeed, most service providers, whether public, faith-based or private, rely heavily on user fees to cover the operating costs of the facilities as well as the salaries of staff. In government facilities, salaries are low for those who receive them, while many posted staff are not even on the civil service payroll, deriving their remuneration solely from fees charged to patients. The effect is a *de facto* privatization of government health services, with health facilities functioning as revenue-generating enterprises. Moreover, the higher levels of the health administration, also starved of resources, have imposed "taxes" on health facilities to finance their own operations and remunerate their officials. This creates opportunities for other rent-seeking behavior and patronage, particularly since the centralization of functions means that the higher levels of the health administration have retained the power to post personnel to the facilities that would allow them to profit from patient revenues.

The health zone system, which dates from the 1980s and integrates primary and hospital level services under one management in a defined catchment area (with a population on average of 150,000), would seem to be a good vehicle for the decentralization of resource allocation and management. However, managerial autonomy at the zone level is greatly attenuated by the retention of decision-making power over budget and personnel allocation at the provincial and central levels. This is partly driven by well-founded concerns about capacity and systems of accountability, but also by political economy considerations, including the opportunities for rent-seeking behavior described above.

International financing of health services represents over half of total public financing and is mostly channeled through disease-specific programs as well as more comprehensive support to primary health care through contracted non-governmental organizations (NGOs). These public-private partnerships build on a long tradition of cooperation between the government administration and church-based health providers as well as the significant

recent humanitarian programs implemented by NGOs. Some NGO contracts have a performance-based financing (PBF) element, with third-party monitoring of indicators tied to financial incentives.

More significant has been the experience with PBF mechanisms to incentivize health workers, including PBF mechanisms implemented by NGOs in the east of the country as well as strategies put in place by contracted NGOs under a World Bank emergency project starting in 2002. Various sorts of PBF mechanisms to remunerate health workers are currently being implemented in approximately 20% of health zones, often funded through multilateral and bilateral donor support. Moreover, PBF has had increasing prominence in the national health policy dialogue, particularly in the context of planned decentralization whereby the provinces would become responsible for government health worker salaries.

However, there is little empirical evidence to inform this discussion. A study of the experience of the above-mentioned World Bank-financed emergency project, based on health management information system (HMIS) data compiled by a contracted NGO in Kinshasa, concluded that there was a greater improvement in service utilization indicators in health zones where a PBF incentive system was instituted compared to zones where it was not, but this effect could not be disentangled from differing overall resource levels in the different areas (Porignon *et al.*, 2005). A similar study (Soeters *et al.*, forthcoming) based on HMIS data in South Kivu province found that health zones supported by an NGO implementing a PBF strategy showed significantly better improvements in service utilization than zones without PBF receiving similar or higher resource flows. This study emphasized that health facilities had significant autonomy in the use of revenues from the PBF system.

The Haut-Katanga pilot program and impact evaluation described in this paper is intended to provide rigorous evidence, using a randomized intervention design, of the effects of a PBF strategy in the difficult conditions of rural DRC. The pilot seeks to contribute to the national dialogue on PBF by analyzing the effects of the strategy on (i) production of health services (quantity and quality), (ii) management of the facility and behavior of health staff, and (iii) behavior of households. It will also shed light on a number of issues relevant to broader health sector reform that have been highlighted above, including questions related to user fees and other revenues from patients, management of personnel, levels of managerial autonomy, and decentralization. As implementation of the pilot is currently ongoing and results have not yet been measured, this paper is limited to a description of the strategy and the design of the program and impact evaluation.

2. THE PBF PILOT IN HAUT-KATANGA DISTRICT

2.1 Pilot program area

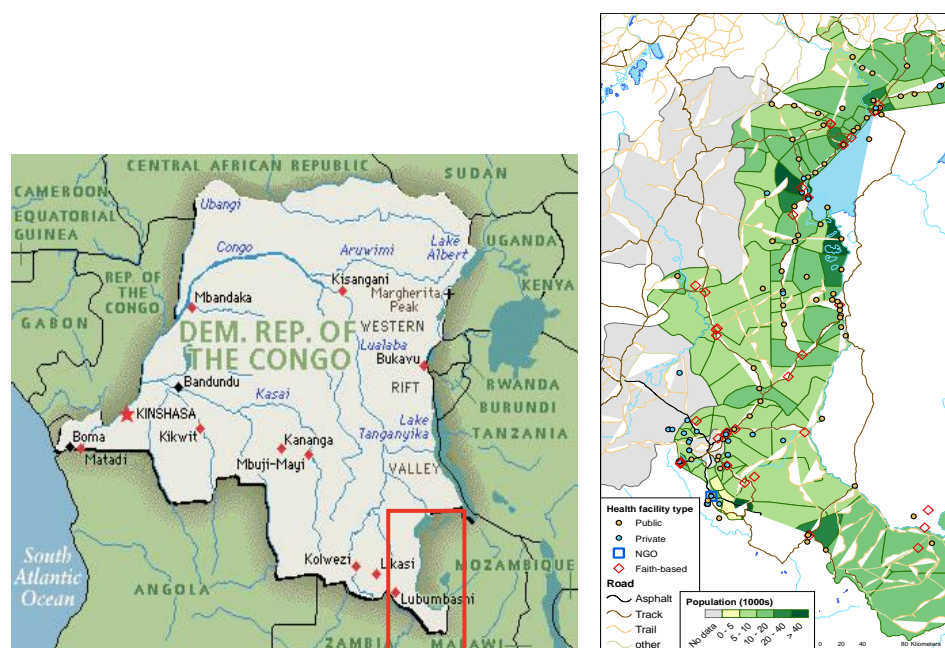
The pilot is embedded in the World Bank-financed Health Sector Rehabilitation and Support project (HSRSP) which involves contracting NGOs to provide support to health services in ten districts across different provinces. Included in this support are salary top-ups for health workers, of which a small portion is directly linked to performance indicators. The HSRSP provides the framework of the pilot, defining, among other things, the budget envelope, the purchaser (an international NGO with a strong local presence, but limited PBF experience), the time frame for implementation, procurement methods, the fact that drugs will be provided directly on an input basis, and the user fee policy.

The pilot is being implemented in Haut-Katanga, a district of around 1.26 million people in the province of Katanga in the south-eastern corner of the Democratic Republic of Congo. Haut-Katanga was chosen by the government and the World Bank team for multiple reasons: (i) the implementing NGO was believed to have good implementation capacity and an interest in PBF mechanisms, (ii) the provincial government and provincial health authorities of Katanga expressed interest in PBF mechanisms, and (iii) the district capital is more accessible than many other parts of the country, easing provision of external technical assistance and data collection for the impact evaluation.

Haut-Katanga is characterized by a low population density and great distances between health centers. The district covers 79,547 square kilometers and includes eight health zones divided into 107 health areas. Among the 160 health facilities that are recognized as part of the government health system, there are five rural hospitals and three referral health centers that provide the entire complementary package of health services and, so, are considered to function similarly to hospitals. In addition, there are a further 152 facilities consisting of four referral health centers (which provide only part of the complementary package), 110 health centers and 38 health posts. Altogether, there are 85 public facilities, 31 faith-based facilities and 44 private facilities. The pilot focuses on the lower levels of care and includes most of these accredited facilities, but not the five hospitals or three larger referral health centers.

The district was severely affected by the civil war during the first part of this decade and the health system has been severely degraded by the decades of low or absent government funding. Although the World Bank project has recently channeled significant investment and resources into the system, it is still characterized by severely deficient infrastructure and equipment, insufficient and poorly-trained human resources and intermittent supplies of drugs and consumables. Most of these facilities are reached by poor roads and are often inaccessible during the rainy season. The Kasongo Kamulumbi health area in Pweto, for example, is particularly difficult to access. One needs all-terrain vehicles to reach the Luapula River, which is then crossed by motorized canoe. From there, Kasongo Kamulumbi is approximately 260 kilometers, accessible by trails only during the dry season by motorcycle or bicycle. Many of the health facilities in the zones of Pweto, Kasenga and Kilwa are also only accessible by motorized canoe or motorbike. Whether or not PBF can have an impact in such difficult conditions – which prevail over much of DRC – is an underlying question for the pilot program.

Figure 1 District of Haut-Katanga



Source: Map on left is produced by www.greenwichmeantime.com; map on the right is produced using baseline data from the pilot.

2.2 Overall Design

This pilot involves the provision of performance-based payments to health centers and referral centers using a fee-for-service¹ mechanism in the “intervention” group and a predictable monthly transfer in the “comparison” group. There are 48 health areas (including 75 health facilities in these administrative areas) in the intervention group and 48 health areas (including 77 health facilities) in the comparison group. The impact evaluation compares the results of a lump-sum monthly transfer to a transfer that is tied to the quantity of services provided. Thus, it is only in the intervention group that health workers can influence their incomes through the level of effort exerted. The hypothesis is that the performance (i.e. quantity and quality of health services delivered) of the health facilities in the intervention group that receives the performance-related payment will differ in a statistically different way from the performance of health facilities in the comparison group that receives the fixed payment.

To the extent possible, both groups of facilities are treated similarly in all other respects, such as the training provided to health workers, the quantity of drugs provided, the level of supervision etc. All facilities have a large degree of autonomy in the allocation of the payment received, both across expenditure categories (staff bonuses and operating expenses) and between staff. Finally, the total budget allocated to performance bonuses across health facilities in the intervention group is the same as the total budget allocated across all health facilities in the comparison group.

¹ The intervention group is a “fee-for-service” scheme meaning that each unit of service that is provided, of those services specified in the contract, is remunerated by a particular fee. The total payment is equal to the product of the number of services delivered and the fee for each service, i.e.

$$PerformancebasedPayment = \sum_i INDICATOR_{it} * PRICE_{it}$$

While not part of the pilot, in the sense that they are not randomized into any experimental group, the health zone teams/authorities also receive performance incentives financed by the HSRSP. These are in the form of salary bonuses that contain a small performance-related component. Staff in the five hospitals and in the three large referral health centers that are not part of the pilot also receive salary top-ups (also defined by the HSRSP), but these are related to staff rank, not performance.

The purchaser of services is an international NGO that is also responsible for provision of comprehensive support to primary health care services in Haut-Katanga under the HSRSP. The NGO manages the implementation of the pilot, participates in the technical verification of the results reported in health information system records, leads the calculation and processing of payments, and facilitates the process of community verification. Oversight responsibilities are shared by the provincial ministry of public health and the provincial health inspectorate. An informal technical committee is responsible for addressing design and implementation issues that may arise, while a formal steering committee validates major decisions.

The pilot employs two types of data verification. Facility-level or “technical” verification is carried out by NGO supervisors, together with the health zone administration, as part of the regular facility supervision. This is to verify that information reported by the facility corresponds with the information contained in the facility registers and also to monitor the quality of the care being provided. Random community-level verification is carried out by local community associations with the primary purpose of verifying the accuracy of the information reported in the facility registers.

The effect of the pilot will be evaluated through the implementation of a rigorous impact evaluation with an experimental design by which health areas are randomized into treatment and comparison groups. Quantitative data collection from households, facilities and patients during the baseline and follow-up surveys is complemented by qualitative data collection at various points during project implementation.

3. DISCUSSION OF CORE DESIGN ELEMENTS

In designing the pilot and the evaluation, a number of questions had to be considered:

3.1 Which health facilities to include?

The Bank-financed HSRSP supports 76 health facilities in the district, including all public facilities, some faith-based facilities and some private facilities. In order to improve service delivery, the pilot incorporates as many facilities as are willing to participate. The criteria for inclusion were that (i) the facilities are considered part of the national health system (i.e. form part of the “*carte sanitaire*”), even if they are not public, (ii) the facilities are able to deliver the basic package of health services, and (iii) they agree to a reduction in the user fees according to a defined schedule. A total of 152 facilities in 96 health areas participate in this pilot.

Linked to the support from HSRSP, the government has mandated the reduction of the user fees charged by public facilities. However, many faith-based and private facilities approached to participate in the pilot were reluctant to accept the same user fee reduction that had been imposed on government health facilities. Reasoning that the higher fees

charged by faith-based and private facilities often reflects the higher cost structure that arises from delivering better quality care, and preferring to include these “better” facilities in the pilot rather than exclude them, user fees were negotiated on a facility-by-facility basis to include as many of these facilities as possible. If a blanket user fee policy had been imposed, it is unlikely that private and faith-based facilities would have agreed to be part of the pilot and we would have lost valuable information about how these facilities respond to performance incentives. The importance of integrating faith-based and private facilities was also a rationale behind the decision to have autonomy in the allocation of the performance-related payments across input categories (e.g. personnel remuneration, operational expenses etc.). Autonomy allows private facilities to preserve their internal management structure and expenditure patterns, making it more likely that they would agree to be part of the pilot. The issue of autonomy is discussed further in section 3.6.

3.2 Which services?

The services targeted in the treatment group reflect the government’s national health priorities and are essential components of the basic package of health services that health centers are mandated to provide (see Table 1). In referral health centers, an additional three services are purchased to capture the complementary package of health services that facilities of this type offer. Health posts, which are not required to provide the basic package, will be paid according to the services they produce. The services that will be purchased (indicators), as well as the amount associated with each, will be reviewed on a quarterly basis and, if need be, adjusted by the steering committee, based on an analysis of observed changes in service utilization, the available budget and any changes in health sector priorities.

Table 1 Services targeted, their indicators and their prices, at the time of the pilot’s launch

Service	Indicator	Price (US\$)
<u>Services targeted at health centers and referral health centers</u>		
Curative care	Per new curative consultation	\$0.35
Institutional delivery	Per delivery at the health center	\$3
Obstetric referral	Per pregnant woman referred to the referral center/hospital	\$3
Full childhood immunization	Per fully immunized child	\$2
Prenatal care	Per prenatal care consultation	\$0.50
Tetanus toxoid vaccination	Per 5 th dose of tetanus toxoid vaccination	\$2
Family planning	Per woman that uses a modern method of family planning	\$3
<u>Additional services targeted only at referral health centers:</u>		
Caesarean section	Per caesarean section delivery (if decision-tree has been followed)	\$30
Blood transfusion, when appropriate	Per transfusion episode	\$5
Obstetric referral	Per delivery referred to the referral center/ hospital”	\$5

Note: Referral health centers are paid for all seven services targeted at health centers, plus an additional three services

While the choice of indicators was mainly determined by the content of the government’s basic package of health services and the link between these interventions and MDG outcomes, other factors were also taken into consideration. First, it was agreed that the number of indicators needed to be parsimonious in order to simplify design and implementation, to focus attention on a few key results and to improve the accuracy of reporting. Second, some of the indicators that were on the initial “shortlist” were dropped because of the opinions and preferences of key policy-makers. This is why early child consultations, for example, do not appear on the list. Third, we had to consider whether the

chosen indicators could be measured by the existing national health information system (HMIS/SNIS) through which, on a monthly basis, health facilities report service utilization data to the health zone office and then to the district health office. This was done to avoid the creation of a parallel reporting system. It also has the advantage of creating an incentive to strengthen the timeliness, completeness and accuracy of reporting within the health information system, while encouraging administrators to use the health information system to analyze results. A disadvantage, though, is that it imposes limitations on the indicators that can be used for payment. For example, we would have liked to use the third prenatal care visit as an indicator, but since the HMIS monthly report only has cells for “Prenatal Care 1” and Prenatal Care 2+”, we pay for each prenatal care consultation.

3.3 Which prices?

There are two dimensions to the size of the incentive that is associated with each service, i.e. the “price”. One is the absolute price and the other is the price relative to other services.

The relative price (i.e. the ratio of the price of one service to the price of another service) reflects a combination of the priority given by government to the intervention and the difficulty in delivering and utilizing the service. Services that are more complex or time-intensive to provide (such as child delivery or caesarean section), or for which significant cultural, financial or geographic obstacles need to be overcome to use the service (such as family planning), have higher fees associated with them. In addition, since the model simultaneously requires a reduction in user fees, it also pays for curative care consultations for both adults and children, in order not to reduce health worker incomes. Another factor that was taken into consideration was the importance of limiting perverse incentives. The best example is the relative prices paid for institutional delivery and for obstetric referral. Some stakeholders argued that more should be paid for institutional delivery since health facilities incur higher costs if they perform the delivery themselves than if they refer, while others argued that this would create the perverse incentive to retain rather than refer complicated deliveries, with potentially dire consequences for the health of the mother and child. Eventually, the steering committee resolved the impasse by deciding to pay an equal price for institutional delivery and for obstetric referral in an attempt to encourage health facilities to do whatever is medically appropriate.

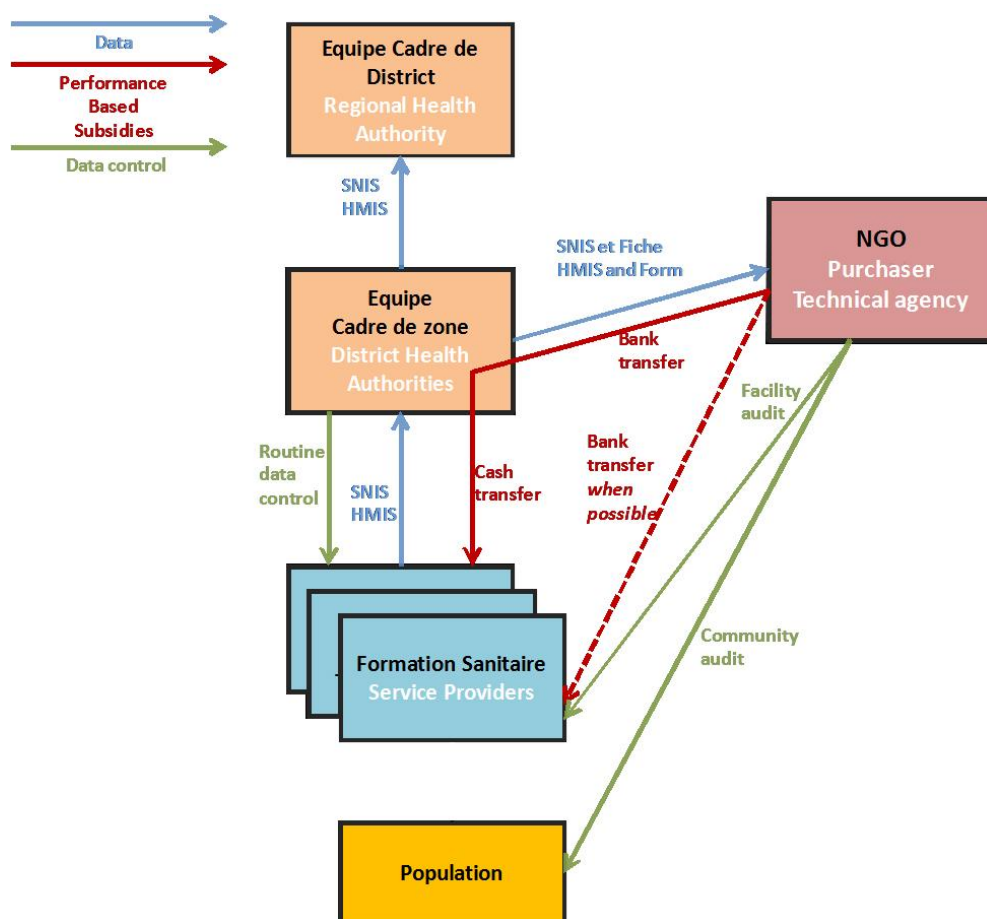
Once the relative prices (or price ratios) were agreed, the absolute price of each service could be calculated. The calculation of prices was based on estimates of baseline service utilization (drawn from the HMIS), assumptions about the projected increase in service utilization in response to the fee-for-service scheme, the estimated catchment population, and the budget envelope. The fee schedule is defined by a contract signed by the management of each facility, the community health committee, the purchaser (the implementing NGO) and the chief medical officer of the health zone.

At best, however, the “appropriate” price is a guess. There is uncertainty as to how service delivery will respond to changes in incentives/prices. There is uncertainty about how reductions in user fee revenue may be offset by payments under the scheme (which depend both on changes in utilization and on the prices). It is also not known what perverse incentives may be created. Therefore, the design needs to remain flexible. Based on reviews of facility performance and budget execution, prices need to be periodically reviewed, and if need be revised upwards or downwards. Periodic consideration also needs to be given to shifting the incentive payments to alternative types of health services.

3.4 What are the arrangements for reporting and payment?

The cycle of service delivery, reporting, verification and payment takes two months. Activities are undertaken and measured in the first month. Between the 3rd and 10th of the second month, the facility transmits its monthly HMIS report to the health zone authorities who check the data and transmit a copy to the district health authorities and to the purchaser before the 15th of the month. The random community audit (see section 3.5) should be carried out between the 19th and 28th day and, if no problems are revealed, the purchaser transfers the amount earned into the bank account of the health zone authorities. Health zone authorities are then responsible for transferring the funds to the health facility and ensuring that a receipt with the signature of the head nurse is sent to the purchaser. The NGO is charged with calculating the amount due to each facility.

Figure 2 Flow of data, funds and control processes



3.5 How is performance verified?

In order to pay for performance, performance needs to be measured. But, in addition, the measurement of performance needs to be verified and validated in order to ensure that only what is earned is paid. There are two sources of risk. One is poor data quality. The other is

explicit cheating, made possible by information asymmetries between the agent (health worker) and the principal (purchaser). To address the data quality risk, only effective data verification and validation are needed, but to address the risk of fraud, a credible threat of sanction large enough to overcome the agent's risk aversion and likelihood of detection is also needed.

To reduce these risks, the pilot employs two types of data verification:

Facility-level or "technical" verification: This is carried out by the health zone administration, working together with a supervisor hired by the NGO purchaser, as part of regular facility supervision. The team verifies that the information reported by the facility corresponds with the information contained in the facility registers. They also monitor the quality of services being provided and observe whether quantitative improvements in service delivery may be occurring at the expense of quality. The purchaser plays a supporting role in this supervision and also selects a random sample of patients from the facility registers to be used for the community verification.

Community-level verification: This is carried out by local community associations, independently of health facilities and zone management, with the primary purpose of verifying the accuracy of the information reported in the facility registers. While, as a rule, facilities are chosen randomly for audit, the choice of facilities is also be partially guided by any suspicions about the data. A sample of patients, randomly selected from the different facility registers by the purchaser, is visited by community associations to determine (a) if the patient exists, (b) whether the reason for seeking care given by the patient matches the reason given in the register, (c) whether the correct user fees were applied, and (d) how satisfied patients were with the services they received. The local association will compile data, analyze the consistency of numbers and transmit a report on the audit to the health zone administration (who will use it to improve supervision) and the NGO purchaser, alerting them to any fraud. Community verification is to be carried out every month.

Sanctions are to be applied in the event of data discrepancies. The approach to sanctions is not rigid, however, but rather treated on a case by case basis. In general, it is envisaged that the first instance of fraud will result in a written warning, the second in a 50 per cent reduction in the value of the performance-based payment and the third in cancellation of the contract. Any conflict between the NGO purchaser and health facilities will be resolved by the mediation of the health zone administration and, if need be, with the intervention of district health authorities. Finally, there is recourse to the steering committee.

3.6 What degree of autonomy for health facilities in the distribution of the performance payment?

One major design decision was the degree of autonomy to allow facilities in the allocation of the performance-related payment, ranging from a pure input-based financing arrangement (with defined allocations across input categories, according to a pre-determined formula) to full autonomy to use the additional funds in any way, whether for higher salaries, extra staff, operating expenses, investment, additional drugs etc. Where possible, the pilot adopts the latter approach. The hypothesis is that the facility will allocate the additional resources in such a way as to create the internal incentive structure that will maximize results and, therefore, revenues.

Private and faith-based facilities have full autonomy to allocate the resources as they see fit, i.e. to decide how much to give to staff as remuneration, how much to spend on operating

expenses etc. From the share given to staff remuneration, they also have full autonomy to decide how much to give to different categories of staff and change these allocations over time.

Public facilities have a similar degree of autonomy as private and faith-based facilities when it comes to the allocation of the performance-related payment. If, however, the health zone administration or the community health committee finds that the allocation is resulting in a distortion in service provision (e.g. as a result of too little being spent on facility running costs) or is being highly inequitably distributed among staff, then they may propose an alternative internal allocation. This analysis will be carried out on a case-by-case basis, as decided by the chief medical officer with the support of the NGO. It is ultimately the responsibility of the zone and district management teams to ensure that the performance-related payments contribute to improved performance.

Agreeing on this model of facility autonomy was the outcome of a long negotiation process. Initially, many stakeholders preferred the use of a fixed grid to allocate the performance payment among health staff, mainly for equity reasons. The decision to maintain flexibility in the allocation of the payment was made for three reasons. First, it makes it easier to attract private and faith-based facilities into the pilot since a model of autonomy allows them to preserve their existing managerial structure and operational processes. Second, even public facilities sometimes have their own internal management structures and policies related to the allocation of user fees and the imposition of a new allocation rule could create tensions among staff. Third, the national strategy and the HSRSP aims at empowering communities in the management of the health system and a model of autonomy provides the opportunity for the community health committee to have a role in the allocation of resources.

3.7 What is the policy regarding user fees?

In the Haut-Katanga pilot, and the HSRSP of which it is a part, the introduction of performance-based payments is also accompanied by the simultaneous reduction or elimination of user fees – something for which many donors and NGOs in DRC advocate and something which is quite common in PBF schemes in central Africa. Indeed, improving financial accessibility of health care is a major objective of the Government of DRC and the HSRSP.

The simultaneous reduction of user fees and introduction of performance-based payments suggests that the PBF payment is being used as a policy tool to enhance financial protection from health expenditure while compensating health workers for foregone revenue from patients. Thus the intention is for the PBF scheme to contribute to the health system objective of improving financial accessibility to services (and reducing the impoverishing effect of health care-seeking among the poor) while simultaneously retaining the potential advantages of a fee-for-service model, including the incentive to provide more services and to be more accountable to patients.

Initially, the NGO purchaser wanted to uniformly reduce all user fees for a specified range of services and establish similar tariffs in all the facilities of the district, including in private facilities. However, several private and faith-based facilities found this policy unacceptable, choosing rather to remain outside of the pilot than to implement the reduced tariffs. The result would have been exclusion from the pilot program of many facilities that are providing quality services to the population. It was eventually decided to have a flexible user fee

policy, and to enter into a case-by-case negotiation of fee reduction with private and faith-based facilities. The reasoning is that if patients are choosing to use these facilities despite the higher fees, the fees probably reflect a higher quality of service provision, and it is preferable to have better facilities part of the PBF reform than outside of it.

3.8 What about governance arrangements?

A provincial-level steering committee has been established. The members of the committee are the key stakeholders: the Provincial Ministry of Public Health, the Provincial Health Inspectorate, the NGO purchaser/fundholder, an NGO providing technical assistance to the provincial and district health administrations under HSRSP, the School of Public Health of the University of Lubumbashi, the World Health Organization Katanga office, the HSRSP implementation unit in Kinshasa and the World Bank. The role of the steering committee is to ensure close monitoring of the pilot project, approve the main strategic directions, and solve implementation problems. For instance, the steering committee played a key role in ensuring the transparency of the randomization process. The steering committee meets every three months. Overall regulatory responsibility for the health sector, and thus the pilot, is shared by the Provincial Ministry of Public Health and the Provincial Health Inspectorate.

4. IMPACT EVALUATION

The effect of the intervention will be assessed through a rigorous impact evaluation. Health areas (with their catchment populations) have been randomly assigned to intervention and comparison groups. Several health areas include more than one facility, so that there are 59 health facilities in the intervention group and 58 facilities in the comparison group (rather than 48 in each). Health facilities in the intervention group of health areas receive the performance-related payments described above. Health centers and referral health centers in the comparison group of health areas receive a monthly lump-sum transfer, designed to be equivalent to the average transfer received by facilities in the fee-for-service treatment group. Except for the faith-based and private facilities not supported by HSRSP but included in the pilot, the intention is to treat all facilities in both intervention and comparison groups similarly in all other respects, such as the training provided to health workers, the quantity of drugs provided to facilities, the level of supervision, etc. In reality, however, it is likely to prove impossible to completely equalize the level and type of resources (i.e. from government, HSRSP, and patient revenues) made available to the different facilities. This potential important confounding factor, along with other differences between facilities, is intended to be addressed by the randomized allocation of the intervention. In addition, the study will measure the resources available to each facility, as well as a wide range of other facility and catchment population characteristics, in order to enable potential control of such factors in multivariate modeling.

We expect to observe a better level of performance (as measured by the quantity of health services delivered) among health facilities in the treatment group than among the health facilities in the comparison group. We also expect to observe changes in the quality of services of provided. This change may be for the better (since facilities have an incentive to improve quality in order to attract more patients) or it may be for the worse (since this pilot does not create explicit incentive for quality).

It is also worth noting that technical supervision and community verification activities will also be undertaken in the “comparison” health facilities. This should account for the possibility that it is improved performance-monitoring, rather than the financial incentive, that is driving any observed changes in performance.

Baseline and follow-up data collection is being carried out using health facility and household surveys. Interviews of health personnel and patients will be done in facilities, while information on community characteristics will be collected as part of the household survey. Data collection for the baseline study, carried out in partnership with the University of Lubumbashi, was completed in October-November 2009. The follow-up study is planned for the same season in October-November 2011.

At baseline, given the lack of a reliable list of health facilities in the district, the first step needed was to survey all of the health facilities that had been identified. Because many facilities identified turned out to be non-existent, not operational or inaccessible, only 87% of the health facilities chosen to be included in the program could be surveyed. Data were also collected from 26 facilities not included in the pilot, mainly private or faith-based. In each surveyed facility, all of the medical staff present at the time of the visit were interviewed as well as a maximum of ten patients (or the total number available if fewer than ten were present). For the community and household surveys, a list of communities in each health area was compiled on the basis of information from the health zone administration. Two communities were randomly selected, along with three others who were randomly selected as back-ups in case either of the first two could not be reached for any reason. Within each sampled community, every third or fifth (depending on the size of the community) household was sampled. It is intended to re-survey the same households for the follow-up in order to create a panel. The sampling strategy resulted in the collection of data from 152 health facilities, 522 health workers, 868 patients, and 1,060 households in 106 communities. GPS coordinates were recorded for surveyed health facilities, communities and other locations important to the communities. The geographic inaccessibility of many health facilities and communities presented severe challenges to the data collection team, who were also racing against the start of the rainy season which would have cut off many locations. Data collection was completed in 44 days.

5. WHAT DOES IT COST TO IMPLEMENT AND EVALUATE THE PILOT?

Overall support to health services in the district by the HSRSP, including infrastructure and equipment investments, drugs and consumables (including anti-malarial bednets), technical supervision and support (and incentives for health administrators and hospitals not included in the experiment) is approximately US\$ 3.50 per capita annually. Added to this are the incentives to health facilities included in the intervention and comparison groups, equivalent to US\$0.75 per capita per year. Compared to results-based financing interventions elsewhere in DRC and in Central Africa region, this is a small incentive. The performance-based payment allocated to health centers in the results-based financing schemes in the provinces of Kasai Oriental, Kasai Occidental, South Kivu and North Kivu range from about US\$ 1 to US\$ 1.50 per capita per year, with still higher figures in Rwanda and Burundi. Yet, this small incentive would still count for a large proportion of the total income of the facilities, and is expected to be sufficient to modify staff behavior. Implementation cost, including establishing systems, technical supervision and community verification, totals an additional US\$ 0.22 per capita annually.

Additional cost, unique to the experimental pilot nature of the program, is external technical assistance to the design and implementation of the pilot and the impact evaluation, as well as data collection and analysis, totaling approximately US\$0.50 per capita annually.

6. CONCLUSION

The design of the performance-based strategy was kept simple so that it could be feasibly implemented in the difficult conditions of DRC within the available project timeframe of 12-18 months. Consequently, the strategy lacks some of the more complex refinements that might be seen in other PBF interventions, such as equity bonuses and quality measures, which while desirable, take a longer time and are more difficult to implement successfully.

The relatively short timeframe of the pilot program may attenuate the impact of the PBF strategy that will be measurable by the impact evaluation. Nevertheless, through its design and implementation, the pilot has already contributed to the policy dialogue in DRC, since it reflects a performance-based financing model that could feasibly become part of the government's long-term health financing policy. In particular, planned decentralization of responsibility for payment of health workers to the provinces may allow some provinces to move ahead with such innovations while others are more cautious. It is also designed to complement what is being learned from PBF initiatives financed by different donors in other parts of DRC. As well, while it took about a year to build consensus around a PBF design that, in addition to being technically sound, also satisfies key stakeholders, there is now considerable commitment to the pilot and interest in the results of the impact evaluation.

The governance structure of the pilot, in the form of the steering committee, has strong representation from the central and provincial health ministries, so that experience during design and implementation is regularly transmitted to policy-makers. The pilot's design is flexible, with mechanisms that allow for regular review and adjustment in response to implementation experience and conditions.

Given the range of interests and issues that are at play, it is unlikely that the PBF strategy will alone provide the solution to the challenges facing the health sector in DRC. Like in other contexts, this innovation will be most effective if part of a wider set of reforms, most importantly relating to governance and accountability. Decentralization of resource allocation, particularly management autonomy at the health zone and facility levels, are reforms (as demonstrated by the experience so far of this pilot) that can be closely tied to a PBF strategy. There is also potential for improving accountability at the local level by involving communities and patients more closely in the PBF payments, just as they are tightly in control of the user fees that the performance-based payment is intended to replace.

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