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Piloting a performance-based financing scheme in Chad: Early results and lessons learned

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SUMMARY—The Ministry of Health of the Republic of Chad decided to introduce a performance-based financing (PBF) strategy as a pilot project in eight districts of rural areas, from October 2011 to May 2013. Based on both qualitative and quantitative data collected during the implementation of the scheme, this study aims to reflect on the early results of the scheme and draw valuable lessons to inform future scaling up of the strategy. Despite some methodological limitations, the results show that overall access to health services and quality of care improved in the period considered, even though some indicators reacted less. These positive results resonate with the findings of our qualitative interviews that highlighted changes in ways of providing care as well as managing health facilities and regulating the health system. However, results vary substantially between regions (north and south) and between facilities. Moreover, the short duration of the project leaves the sustainability of these changes in question. In conclusion, our study stresses the need for evaluations and an evidence-based discussions in order to tailor the design of PBF scheme to the context, and to better inform policy-making decisions on PBF schemes, both at pilot stage and when considering their rollout nationwide.

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Performance-based financing schemes for health facilities have been attracting increasing attention in most sub-Saharan Africa countries and some experts believe that the strategy could serve as an entry point to address several structural weaknesses constraining health systems.[1,2] In October 2011 Chad adopted this strategy as a pilot project for 20 months with the overarching objective to improve uptake and quality of health care. Based on the quantitative data made available by the PBF data verification process and on qualitative data collected specifically, the present study aims to document the experience gained from field implementation in order to present the early results of the scheme and reflect on the drivers of behavioural change within facilities and in the wider health system. This could supply valuable lessons for a possible future PBF scheme in Chad and provide a perspective on scaling up. It could also stimulate critical reflections from stakeholders and be helpful for other countries facing similar challenges.

Context

From a health and demographic perspective, Chad is a complex and difficult environment. The country's health indicators are very low, particularly those related to maternal, newborn and child health. According to the Multiple Indicator Cluster Survey (MICS, 2010),[3] under five mortality ratio was 175%, infant mortality ratio 106%, contraceptive prevalence 4.8% and skilled birth attendance 22.7%. Chad's maternal mortality ratio is one of the worst in the world, at 1 100 per 100 000 live births in 2010.[4]

The PBF scheme included four regions (out of 23 in the country) and eight districts (out of 72) with two districts per region. There were a total of nine district hospitals and 102 primary health centres (PHCs). The population covered was estimated at 1 650 000 (Chad's total population estimate is 11 million). The selection of areas for the project was based on three criteria:[5]

- Districts where maternal and child health performance indicators were below the national average;
- The poorest districts, according to national levels of poverty; and
- Districts where support from donors was less important.

Two of the regions were located in the north of the country (Batha and Guéra, with 46 PHCs in total) and two in the south (Mandoul and Tandjilé, with 56 PHCs in total), with completely different characteristics. Population density is higher in the south and health facilities, particularly faith-based ones which are usually credited with better organization and management, are more numerous. By contrast, populations in the north are more scattered and nomadic, spending a good part of the year outside their enumeration area. Moreover, there are geographical accessibility issues with long distances from villages to nearest facilities, with some PHCs being more than 200 km from the district hospital. Low levels of education and sociocultural constraints are also more marked in the north.

The project was designed to be consistent with the National Health Policy elaborated for the period 2007–2015, which identified some problems in health-care provision, particularly: low coverage – health facilities in difficult locations, low technical equipment,

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lack of infrastructure and maintenance, poor organization and underfunding of health services, poor management and procurement of essential generic drugs, vaccines and contraceptives, lack of communication, poor referral system, low quality of care etc. The PBF project aimed to directly address some of these issues to improve service organization and increase accessibility and quality of care. The services covered were mainly within the 'minimum package of activities' (essential package of care) of primary health centres; and the 'complementary package of activities' of district hospitals. The indicators chosen and purchased quantitatively (unit prices given) at PHCs and district hospitals level are shown in tables 1 and 2.

Health facilities (both PHCs and district hospitals) were also assessed according to quality of services, mainly via resources indicators. There were also indicators related to: environmental hygiene of health facilities; confidentiality of consultation rooms; availability of unexpired and well stored drugs (including contraceptives and vaccines) and medical consumables; availability and functionality of materials and equipment (thermometer, sphygmomanometer, stethoscope, delivery table and boxes, surgery box, sterilizers, baby scales, measuring rods etc.); records well completed and tidy; accurate filling of partographs etc. Regulators, especially regional health management teams and district health management teams were also taken into account. They were assessed by indicators such as: planning of activities (availability of action plans); supervision of health facilities; promptness and completeness in the transmission of data from health information system; regular holding of statutory meetings etc.

The project was managed on a daily basis by an independent performance purchasing agency (PPA) whose mission was twofold: implementation of the project in the pilot areas and ensuring transfer of skills to the Ministry of Health to allow it to manage future PBF projects. In order to avoid conflicts of interest and to improve verification of results and transparency, the Chad PBF scheme strived for a full separation of functions between key actors:

- Fundholder – The Word Bank;
- PPA;
- Regulator – the Ministry of Health (MoH); and
- Providers including health and supporting staff as well as health facility management committees.

Table 1. Quantitative indicators purchased at the PHC level and their unit prices in Chad PBF pilot scheme

Indicators	Unit price (US$)*
Curative services	
New curative consultations for children over five years (zone A** and outside zone B***)	0.20
New curative consultations for children over five years (zone B)	0.24
New curative consultations for children under five years (zone A and outside zone B)	0.30
New curative consultations for children under five years (zone B)	0.40
STI cases treated	2.00
Preventative services	
Children preventive consultation	0.20
Pentavalent 3	1.20
Anti-measles vaccination	1.50
Tetanus vaccination (2+)	5.00
Pregnant woman counselled and screened positive for HIV and transferred to district hospital	6.00
Reproductive health	
First prenatal consultation	1.20
Third prenatal consultation	6.00
Eutocic delivery	10.00
Number of users of modern contraceptive methods: new and former clients	8.00

*Chad uses CFA franc; exchange rate used: US$ 1 = 500 CFA franc
**Zone A: area located within 5 km of the health facility
***Zone B: area located 5–10 km from the health facility

Table 2. Quantitative indicators purchased at the district hospital level and their unit prices in Chad PBF pilot scheme

Indicator	Unit price (US$)*
New curative consultation referred or with emergency signs seen by a doctor	2.00
Major surgery	15.00
Minor surgery	4.00
Eutocic delivery	6.00
Caesarean	20.00
Dystocic delivery	10.00
Voluntary test for HIV	2.00
Days of hospitalization	1.50
HIV positive pregnant women under prophylactic ART	10.00
Number of new cases treated with HAART	10.00
Number of patients taking HAART and followed every six months	12,00
Screening for TB by smear positive	8.00
Number of users of modern contraceptive methods: IUDs and implants	8.00
Patients counter referral	5.00

*Chad uses CFA franc; exchange rate used: US$ 1 = 500 CFA franc

Methods

This study adopted both quantitative and qualitative methods for data collection and analysis. Quantitative data relate to the period between October 2011 and March 2013 (18 months) and were derived from the PBF verification processes, compiled in Chad's results-based financing web portal (www.fbrchad.org). Quantitative analysis mainly focused on trends in health service utilization during that period, as well as on the quality of health-care and administrative services. All health facilities involved in the PBF scheme were taken into account. Information for the qualitative component of this research was collected over one month (February–March 2013). Qualitative data were based on a series of key informant interviews (KII), as well as focus group discussions (FGD). Key informants included officials from the MoH at central and regional level, district health management teams (DHMT), district hospitals health workers and administrative staff, PHCs staff and their management committees, and community-based associations. All DHMT and district hospitals involved in the project were taken into account whereas half of the PHCs were considered and sampled randomly. Key informants were interviewed with different questionnaires and data were collected in three ways:

- Face-to-face interviews with 52 heads of PHCs;
- Self-administered questionnaires for officials from the MoH at central level (n=1) and regional level (n=24), for DHMT members (n=29), for district hospitals health workers and administrative staff (n=59); and
- 41 focus group discussions with PHC management committees and community-based associations.

Notes were taken during interviews and we gradually noticed saturation of data, namely the information collected was less and less new. All interviews were conducted in French. Data were complemented by direct observations in the field as all four authors were part of the project implementation, and by a document review, focusing on documents produced as part of the project, such as expert reports, quarterly progress reports, handbook of procedures for PBF implementation in Chad etc. Qualitative data were treated and analysed manually, using a content analysis with an inductive approach. We used Stata 11 and Excel 2007 to carry out descriptive statistics for the quantitative data to monitor trends in some key indicators. The main limitations of the data available and the analysis processes are presented in the discussion section.

Quantitative results

Utilization of health services

The findings show that access to health facilities increased generally for all indicators, even if significant differences were sometimes observed between facilities. Key indicators selected from indicators purchased in PHCs are shown below. For all results the target population was used as the denominator. Considering all PHCs involved in the pilot scheme, the proportion of children immunized by pentavalent 3 increased from 50% to 95%, and for vaccination against measles it rose from 48% to 91% (Figure 1). Facility-based deliveries (including caesarean sections) increased from 17% to 40% (Figure 2), whilst modern contraceptive prevalence rose from 1.2% to 6.9% (not shown here). Conversely, some indicators remained almost stationary, with a noticeable seasonal effect. That was the case for new case of curative consultations for under five in PHCs, which remained between 40% and 60% on average, with peaks of 90% to 115% between July and October, i.e. during rainy season both in 2012 and 2013 (Figure 3). Similarly the third antenatal visit ranged on average between 18% and 25% with peaks around 30% to 40% between January and April both in 2012 and 2013 (Figure 4). In all cases, results demonstrated a clear difference between regions, with those in the south presenting higher indicators

Figure 1. Evolution of monthly coverage rate for pentavalent and measles immunization (average figures calculated from data from all PHCs involved in the project)

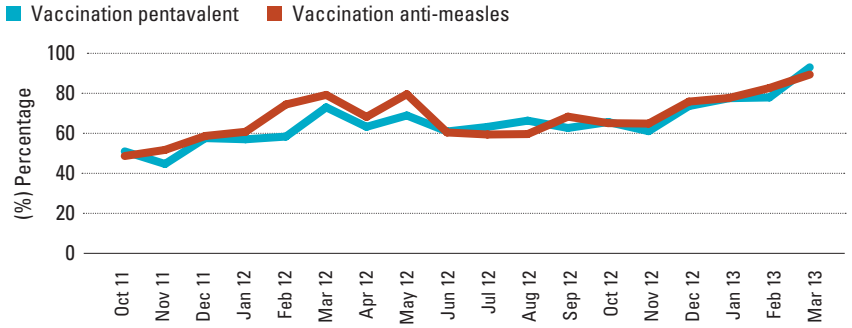


Figure 2. Evolution of monthly coverage rate for assisted deliveries (average figures calculated from data from all PHCs involved in the project)

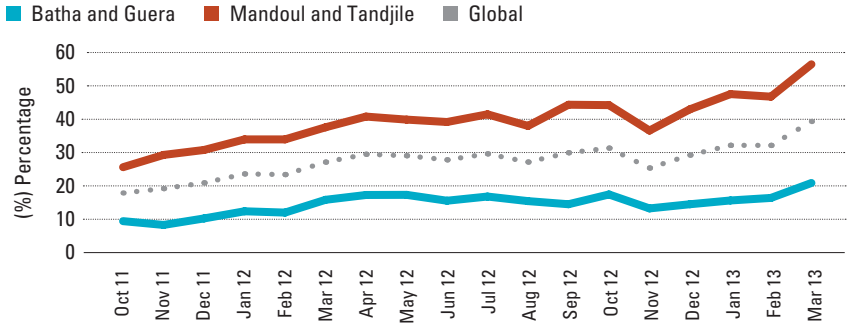


Figure 3. Evolution of monthly coverage rates for new curative consultations for under 5 (average figures calculated from data from all PHCs involved in the project)

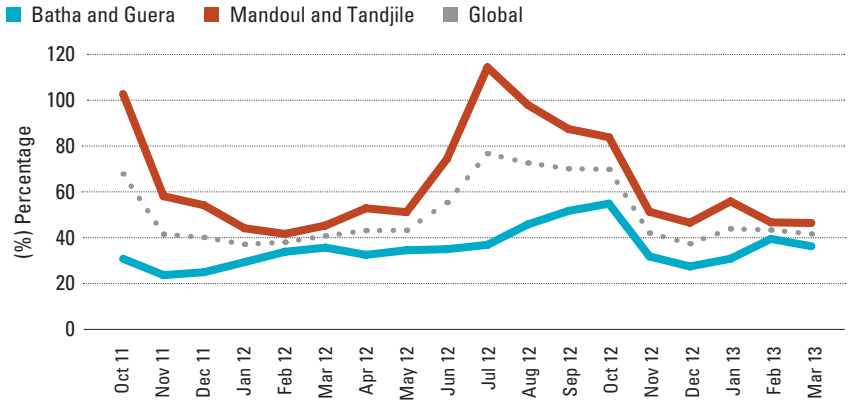
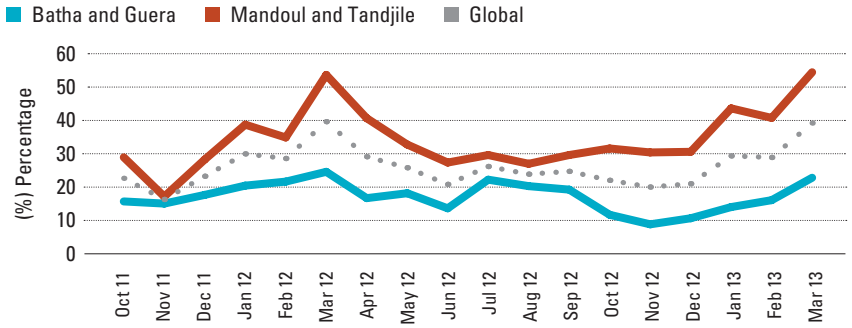


Figure 4. Evolution of monthly coverage rate for third antenatal visit (average figures calculated from data from all PHCs involved in the project)



(as shown in figures 2, 3 and 4 where data have been disaggregated). But it is worth mentioning that PBF failed to revive indicators relating to HIV-related services, which generally were not provided in PHCs before the PBF scheme.

Quality of care

Quality checklists were developed to assess quality of care and they include items such as health facilities environment and hygiene, cleanliness of treatment and waiting rooms, availability and functionality of medical and technical equipment for care, sterilization procedures, biomedical waste management, existence of standard treatment protocols, proper filling and management of patient records, medicines procurement and management etc. Quality was assessed quarterly by the DHMTs and the PPA, and points were given for each item which were then converted into percentage scores. Over the pilot duration PHCs were assessed for quality five times and the average score, including all facilities, increased from 42% (at first verification round) to 67% (at the last one) as shown in Figure 5. However, these aggregate numbers hide huge disparities between facilities, with quality scores ranging from 33.16% to 92.74% in the last quarter when PHCs were considered individually. Quality of care in district hospitals also improved with each evaluation and while crude figures were better in the south, progress made was more important in the north (figures 6 and 7).

Figure 5. Evolution of quality scores in PHCs

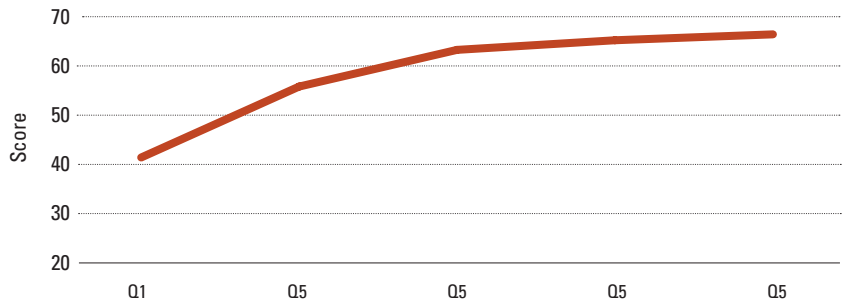


Figure 6. Evolution of quality scores in north district hospitals

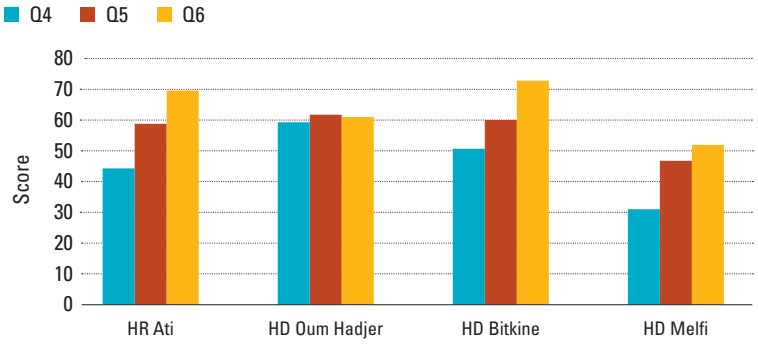
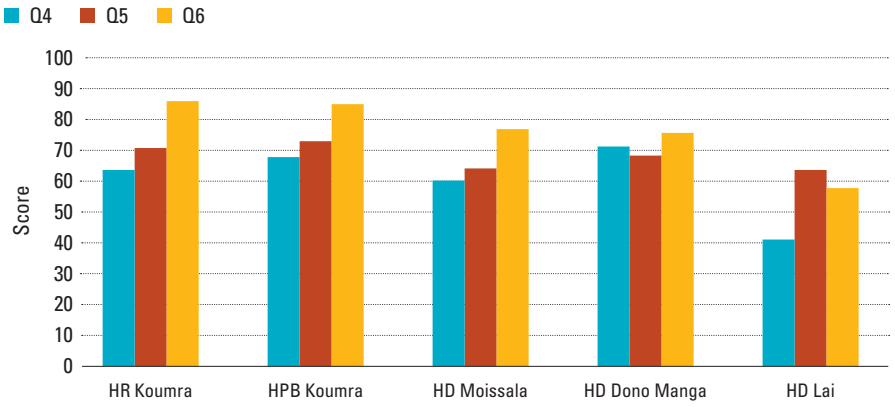


Figure 7. Evolution of quality scores in the south district hospitals



Qualitative results

During the key informant interviews and the focus group discussions, several changes that occurred in the behaviour of providers and the functioning of the system emerged, as observed and attested by key stakeholders. Some of these changes are summarized below, focusing on those that relate with the initial theory of change underlying the PBF scheme.

Improvements in ways of "doing things" at facility level

Informants in interviews and group discussions highlighted a series of changes in the way things are done at facility level. One of these changes was reflected by improvements in staff motivation accompanied by increased attendance and punctuality of health staff. Several reports confirmed this.

> *"Since the introduction of PBF staff enjoy working and are no longer absent as was the case before; with PBF you work a lot but you win a lot too; we are encouraged by the money we earn compared to our efforts and our results" (KII, health worker in PHC).*

> *"During strikes we did not close the doors, instead we took the opportunity" (FGD, member of a heath centre management committee).*

> *"Since the project was implemented there has not been one resignation, which was not the case before; instead we tend to reinforce staff by hiring locally" (KII, district hospital manager).*

> *"Before PBF implementation we were only two in the health centre; now we have hired a nurse and two community health workers; we are now five and work with renewed commitment" (KII, head of PHC).*

Secondly, as encouraged during the PBF training and "coaching", entrepreneurial initiatives by health staff also sprang up, boosted by the greater autonomy health facilities enjoyed in using their funds. These included incentives to patients who accessed facilities (gifts to mothers such as loincloths, baby clothes, soap, tea, sweets for children), reduction in or exemptions from user fees for some services, financial motivation for traditional birth attendants who encouraged mothers to deliver in health centres.

With funds received from the PBF scheme some PHCs also improved working conditions for staff, as well as hospitality and confidentiality for patients. For example, some built delivery rooms, buildings for immunization and prenatal visits, or shelters for pregnant women awaiting consultations. Some also purchased curtains to increase patients' privacy, as well as other medical equipment for consultations, delivery tables, sterilizers, surgical devices etc. to improve services. Many health facilities' premises were repainted, gardens were landscaped and grounds were kept clean.

> *"Though there is still some ways to go in terms of mindset, things have improved a lot in the area of hygiene in general. Cleanliness is ensured everywhere, making patients wonder why there is such cleanliness in structures which, only yesterday, were filled with flies and other insects" (KII, a member of a DHMT).*

Improvements in health facilities management

Prior to the implementation of the PBF scheme, most PHCs did not have action or business plans and this could impede good governance. Those involved in the project were required to have such a document, which enabled a basic of consensus on the activities to be carried out. It was a requirement for contract with the PPA.

> *"Now expenditures are made according to the business plan and the signed contract, after a meeting of health-care providers and health centre committee" (KII, head of a PHC).*

PBF also greatly improved the presence, as well as the filling in and archiving of local health information tools, such as facility registers for activities and funds. Some registers, which had not been used for many years, began being used again.

> *"Prior to PBF some registers such as those related to patient referrals or minor surgery did not exist; this is not the case now, thanks to recommendations made during verifications" (KII, the superintendent of a district hospital).*
> In fact, this register existed since 1988 according to a Chad health system expert, but its use had been discontinued.

Moreover, monthly financial reports of PHCs were usually poor or not filled in at all before PBF. As the scheme required to have and use such registers (quality checklist), PBF contributed, in some part, to correcting this situation. Management of drugs, their availability and storage also improved in many health facilities.

> *"Prior to PBF we stored drugs in cartons, but with money earned we purchased medicine cabinets. In addition, PBF funds enabled us to purchase enough drugs, so shortages are now rare" (FGD, manager of a pharmaceutical depot).*

Improvements in health system regulation

Performance contracts were signed with regulators at intermediate and peripheral levels (i.e. regional services and DHMTs). These contracts were assessed, and regions/DHMTs paid, by using checklists targeting their routine duties, such as planning and monitoring of activities, health facility supervision, effective analysis of health information, completeness and promptness in data transmission, regular holding of statutory meetings etc. Evaluations were made quarterly by the purchasing agency. Such evaluations found that substantial efforts in improvement were made also at this level. Initially, most of these activities were rarely, if at all, carried out, while that was no longer the case after introduction of PBF.

Discussion

Our results must be interpreted carefully. One of the limitations of our data and analyses is that they are based on trends during the implementation of the project only, as data relating to the same indicators before the project are not available. Thus a before and after analysis is not possible. Moreover, we have to bear in mind that this study is not an impact evaluation with control and intervention groups, and therefore it is not possible to tease out the impact of other factors, such as concurrent activities of NGOs intervening in the targeted health districts. The project period was also too short to capture all relevant effects or to ascertain longer term trends and lasting changes. Furthermore, the reliability of target population data when assessing coverage rates for services utilization is also a limitation of the study, especially in the northern regions (Batha and Guera). Let us add that regarding quality of care, checklists used to assess it had limitations because they mainly focused on structural indicators, with less emphasis on processes and outcomes ones. Finally, it is worth mentioning that baseline studies had not been conducted, so thorough comparisons with indicators prior to the project's start are not possible. However, we believe that more than their value, it is the evolution of the indicators that matters. The limitations of our data analysis remain substantial, but these elements do not detract from the relevance of our study and its contribution to the main objective of presenting data that often go unused, and drawing preliminary lessons from this pilot scheme.

Our findings show relatively positive evolution in indicators of access and quality of health services. These positive results resonate with the findings of our qualitative interviews. Indeed, the qualitative investigation provides some help in explaining the trends in the indicators. They also confirm elements of the PBF theory of change which is built partly on the neoclassical theory of "Homo economicus" maximizing its utility.[6] These important changes could

also be linked to the large growth margins of most health indicators which were originally very low in Chad (increasing marginal returns). Indeed, in many health facilities, consultations were extremely low because patients were dissatisfied; so there was room for greater workloads, especially when there was a financial motivation. Peaks observed between July and October for "new cases of curative consultations for under five" were consistent with the rainy season, and its set of endemic and epidemic diseases (malaria, gastroenteritis, acute respiratory infections etc.), while those observed between January and April for "third antenatal visit" correlated with the end of farm activities, meaning women were much freer to come to health facilities. However, what is most interesting to note are the vast performance disparities between regions (and sometimes between health centres in the same district even if we didn't show disaggregated data).

The first issue (disparities between regions) highlights an initial important lesson of our study, which is that context matters a great deal. The same intervention implemented in two different contexts (geographic, climatic, socioeconomic and cultural etc.) will not have the same consequences with regard to health outcomes. Secondly, disparities between PHCs located in the same district could be mostly explained, based on our direct observations, by differences in staffing, in health workers' qualification and in lack of leadership from managers. Indeed, generally, PBF in Chad worked better in faith-based facilities and where heads were actually qualified and demonstrated strong leadership.

Our results also highlighted the pilot's effect on better governance and management of health institutions. But despite these positive signs, more effort is needed to make decision making happen on a more empirical and rational basis. We noted that in a large number of health facilities, development of business plans was neither rigorous nor actually effective, owing to weak management capacity, overall lack of human resources and low levels of community participation. But in health facilities with some potential in relation to these elements, PBF easily revived local initiatives even though there is still a long way to go to establish effective autonomy. Overall, management of the local health information systems also improved even though registers were not always tailored to both health facility and community verification requirements. Thus, more appropriate tools need to be devised, under the national health information system, in order to facilitate these verification activities while avoiding duplication. Another issue that requires close attention is better linking of PBF with other financing mechanisms, especially fee exemptions for emergency care in hospitals (decreed since 2007 and ongoing at the time of the study). A decision (that was not yet effective) had also been made to extend comprehensive free care to all pregnant women and children under five. The implementation of these policies consists only in the provision of drugs to health facilities, without any effort to take into account real needs in drug supply and changes at other levels (increased workload, loss of revenues for staff etc.), which obviously raises major management challenges.

Some of the difficulties highlighted in this article are structural and require system-wide actions. However, it seems clear from our study that the introduction of the PBF scheme in health facilities, even if at pilot stage and poorly regulated, creates almost instantly a positive momentum as well as enthusiasm and buy-in from most local players, highlighted by our qualitative results. It is precisely this that makes PBF so innovative.

Conclusion

As currently occurring in numerous sub-Saharan African countries, a PBF scheme for health facilities was introduced in Chad as a pilot project. Our analysis, based on data collected through the PBF system, as well as interviews and focus group discussions, show that the PBF scheme began to bear fruit after only 18 months of implementation. It induced some strengthening of the health system and good practices quickly took root. Moreover, early results show improving trends for some of the indicators observed. However, results remain disparate across regions and districts and between health facilities. This confirms that PBF does not operate mechanically and similarly in all contexts, but rather acts as a catalyst to address issues when some key conditions are met. Our study presents some limitations, but the changes highlighted stress, more than ever, the need for rigorous impact evaluations and for open and evidence-based discussion in order to tailor the design of PBF schemes to specific contexts and policy needs, and to better inform policy-making decisions on PBF schemes, both at pilot stage and when considering their rollout countrywide.

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