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Reviewing institutions of rural health centres: the Performance Initiative in Butare, Rwanda

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Summary In many low-income countries, performance of pyramidal health systems with a public purpose is not meeting the expectations and needs of the populations they serve. A question that has not been studied and tested sufficiently is, 'What is the right package of institutional mechanisms required for organisations and individuals working in these health systems?' This paper presents the experience of the Performance Initiative, an innovative contractual approach that has reshaped the incentive structure in place in two rural districts of Rwanda. It describes the general background, the initial analysis, the institutional arrangement and the results after 3 years of operations. At this stage of the experience, it shows that 'output-based payment + greater autonomy' is a feasible and effective strategy for improving the performance of public health centres. As part of a more global package of strategies, contracting-in approaches could be an interesting option for governments, donors and non-governmental organisations in their effort to achieve some of the Millennium Development Goals.

keywords contracting, fee-for-service, health services, developing countries, millennium development goals

Poor accountability of public health systems in low-income countries

Health systems in low-income countries are not living up to expectations. Low performance in terms of coverage of needs, equity (contribution, access and protection against poverty), quality of care, responsiveness to users or efficiency has been largely documented this last decade (World Bank 1993, 2003; WHO 2000). Lack of funds available for the health sector is certainly part of the problem, but it has been also recognised that there are issues calling for changes in the way health systems are operated (Commission on Macroeconomics and Health 2001).

Most observers would probably agree that accountability in public health facilities is, in too many countries, not satisfactory (World Bank 2003). Accountability to the ubiquitous Ministry of Health – an administration that usually performs the simultaneous role of owner, employer, trainer, supplier, regulator and sponsor – is not effective. In many low-income countries, public health systems are organised as administrative bureaucratic pyramids (Blaise & Kegels 2004). Bureaucrats, who do not necessarily know more than people at decentralised levels, assign directions, plans and resources to front line providers. Because of low salaries, inadequate civil servant policy and lack of replacements, the hierarchy has difficulty enforcing control over subordinate staff. This problem is compounded when senior staff loses credibility because of political interference, nepotism, conflicts of interests or corruption. Coping mechanisms to the detriment of the patients, colleagues or the community are then unavoidable (Ferrinho & Van Lerberghe 2000).

In some countries, lack of peer-to-peer accountability through best practices and a common code of conduct is an issue as well. Because of human resource scarcity, most low-income countries have developed, at their early stage of health system development, first-line health services that rely mainly on standardised procedures entrusted to nurses or health auxiliaries requiring close supervision. This is in sharp contrast with western style health systems that rely on professionalism (i.e. autonomous medical staff whose skills and behaviours have been standardised through a long socialising training and who remain subject to peer-control) to ensure quality of care and services. Some authors have put forth this as a possible challenge for establishing sustainable quality mechanisms in sub-Saharan Africa (Blaise & Kegels 2004).

Accountability to the users is of even greater concern. In many public health facilities, patient – staff interaction is very problematic (Jaffré & Olivier de Sardan 2003). As a result, in many countries, the population has deserted public health facilities. Accountability to sub-groups like the poor is even weaker: the first beneficiaries of public resources injected in the public health sector are too often the better off (World Bank 2003).

Of course, policy makers have not remained complacent in the face of this unsatisfactory situation. In sub-Saharan Africa, the most systematised effort to reintroduce some pressure to perform has probably been the dynamic set by the Bamako Initiative (Jarret & Ofosu-Amaah 1992). As far as accountability was concerned, the approach was twofold: First, it was expected that financial contributions by individual users would provide some 'purse authority' to claim for better services. Second, health committees were created to co-manage the user fees collected by the health centres. This can be interpreted as an attempt to reintroduce some accountability to the community through the governance relationship. Results of the Bamako Initiative have had mixed reviews (Griffin & Shaw 1995; Gilson 1997; Levy-Bruhl *et al.* 1997; Gilson *et al.* 2000). Some countries have been more successful than others. Gains obtained in one dimension of performance (e.g. quality of services) have sometimes been offset by losses in other dimensions (e.g. accessibility). Results in terms of community empowerment have not met initial expectations.

In response to these limitations, new reforms have been advocated. Community health insurance has been a strategy receiving quite a lot of attention this last decade (Griffin & Shaw 1995; Preker & Carrin 2004). While it was initially mainly put forward as a strategy to enhance access and protect households against poverty, it has been more and more promoted as a way to obtain some accountability from health facilities (Carrin *et al.* 2005).

There are nevertheless good reasons to believe that other reforms are needed. The urgency is for the sake of the population, as well as the health system. In some countries, especially those with a booming private sector, performance of public health facilities must dramatically and quickly improve. This challenge calls for bold solutions. The Ministry of Health of Rwanda has decided to take on the task.

Institutional intervention: a challenge for research

This article presents the motive, the implementation and the first results of an institutional intervention in two rural districts of Rwanda. Documenting an *institutional intervention*, here defined as any significant and purposeful modification of the institutional arrangements that determine the behaviours of the actors in a local or national health sector, is a difficult task. One is faced with two major scientific challenges.

The first concerns demonstrating the causal role of the institutional intervention in effecting the performance variation. Ideally, some control is necessary. However, control can be elusive. First, there is the risk that some confounding factors are ignored and not controlled. Second, the random selection or the discrimination in terms of benefits may simply be politically unacceptable. By nature, any significant institutional change aims at affecting property rights and the distribution of benefits that accompany this (Alchian & Demsetz 1972). Powerful stakeholders may oppose the change. More positively, if the reform looks interesting enough, it may be impossible to constitute a control group: every one wants to join. As we will see in our discussion, the project was confronted with this precise constraint. This does not mean that we remain stuck in ignorance. It is acknowledged that for such situations, other options such as Before – After or Comparative-experimental studies can be acceptable second-bests (Pawson & Tilley 1997; Øvretveit 1998).

The second challenge is to come forward with a fair and exhaustive description of the transformations that have been brought to the institutional arrangements. Indeed, as rightly put forward by the School of New Institutional Economics, it is the whole institutional arrangement that matters (North 1990; Williamson 1996). *Institutions* have been defined by North as 'the humanly devised constraints that structure human interactions. They are made up of formal constraints (rules, laws and constitutions), informal constraints (norms of behaviour, conventions and self-imposed codes of conduct) and their enforcement characteristics. Together they define the incentive structure of societies and specifically economies' (North 1996). Obviously, inasmuch a health system is concerned, it is about a lot of elements.

Both as the promoters of the intervention here described and as authors of the article, we have struggled with these two challenges. Whereas the issue of control is further discussed, we believe that the response to the second challenge is incorporated in the very structure of the paper.

Its structure is the following. First, we introduce the general context of the health system in rural Rwanda and the initial situation in the intervention areas, both in terms of institutions and performance. Secondly, we describe the institutional intervention. We develop the initial diagnosis, the logic underlying the institutional changes and their implementation. As a third step, after the methodology

section, we give the major results in terms of observed changes. We conclude the paper with a short discussion of the key lessons.

General context of the intervention

The country and its health sector

Rwanda is one of the poorest countries in the world. The economy mainly relies on tea, coffee and banana farming. Even with remarkable economic growth over the last decade, constraints will remain tight for decades to come. Donors acknowledge the difficulties; international aid accounts for 17.3% of the Gross National Income. In August 2002, the national census estimated population at 8 128 553. Population density is exceptional for Africa (331 people/km^2). This high density is an advantage for the general administration and the achievement of high population coverage in terms of schools, health facilities and other social services.

As with all other sectors of society, the health sector was deeply shaken by the 1994 genocide. The Ministry of Health and its partners have made great efforts over the last 10 years to make up for lost time. New problems, such as the HIV/AIDS epidemic and chloroquine resistant malaria, compound the challenges. Despite relatively generous foreign aid inflows and an extensive cost-recovery policy, insufficient amounts – about 4.3% of gross domestic product (GDP) – are being spent on health in Rwanda (WHO 2000). The result is that the burden of financing health care today rests mainly with the user. Major problems of accessibility and equity have been reported. To reduce the share of direct payments, the Ministry of Health has recently supported the establishment of *mutuelles* at community level (Schneider *et al.* 2001; Musango *et al.* 2004; Kalk *et al.* 2005).

Gakoma and Kabutare health districts

The intervention has taken place in two of the four health districts of Butare Province. The Kabutare Health District has a referral hospital and 19 health centres, 15 of which cover the rural population. The population was estimated at 302 750 people in 2002. Gakoma Health District comprises a referral hospital and four health centres, with a population estimated at 85 090 people.

From the end of the war up until 1999, Kabutare District had received support from Médecins Sans Frontières Belgium (MSF) followed by the non-governmental organisation (NGO) HealthNet International (HNI). The HNI project, *Santé d'Abord I* started effectively in February 2000. A second phase, *Santé d'Abord II*, started in August 2001 and extended into Gakoma District. To a large extent, it is a classical project of decentralised health system support, including capacity building and financial assistance.

In 2001, before the launching of the Performance Initiative, it could be concluded, from direct observation and analysing the indicators, that the situation in Kabutare and Gakoma health districts was promising. The major strengths included:

- In both health districts, health centres were used by the population. Except possibly for family planning, there was no indication of non-acceptance of the services by the population;
- In both districts, the health facility coverage plan had been completed for many years. Infrastructures were new, of good quality and equipped to provide a minimum package of activities;
- In terms of human resources, there were no major deficits in Kabutare District. Personnel were in place and hard working. Staff qualifications, although basic, were sufficient to ensure a minimum quality of service delivery. The payment of fixed allowances by MSF, and then by HNI was certainly a motivating factor. Gakoma Health District, which is far from the main roads, has always faced more difficulties in attracting and retaining qualified staff. In 2001, the district was not yet supported by the *Santé d'Abord II* project; staff were not benefiting from the allowance scheme;
- Management systems were in place and functioning well. There were few stock outs of drugs and vaccines, and the computerised health information system, GESIS®, was well established (Porignon 2003). Gaps in transport (e.g. the ambulance) and operational costs were met by the NGO.

However there were trends in both health districts of growing concern. Activities performed by first- and second-tier health facilities had reached a ceiling, and even declined over the last 3 years. Despite a high rate of population growth, attendance of health centres was declining in absolute terms. In Kabutare for example, the number of consultations for new cases in 2001 was 20% lower than that of 1998.

The first cause of this situation was quite clear: while the immediate aftermath of the war had seen a major inflow of external resources, since 1999, the health facilities have had to rely only on the financial contribution of the population to sustain their operations (Foulon *et al.* 2004). In 1997, a user of a health centre in Kabutare Health District was paying, on average, 175 Rwandan Francs per illness episode (US$ 0.58). In 2001, the same user had to

pay 437 Rwandan Francs (US$ 1) on average, which is unaffordable for many households.

Careful observation of data seems, however, to indicate that the reduction of financial accessibility was not the only explanation. At constant prices, between 2000 and 2001, the number of institutional deliveries had declined by 22% among the rural population of Kabutare Health District. As far as preventive activities were concerned, they reached a ceiling, sometimes at already high levels (child immunisation in general), sometimes at very low levels (family planning). In Gakoma District, the decline in activities was even more significant. All the causes for these trends were not understood by the management teams.

In terms of activities, the management teams were expressing some concern over the lack of attention given to emerging needs. The HIV/AIDS epidemic created new obligations for health services. Reaching a ceiling in addressing relatively simple and affordable health related problems was not a good sign.

In brief, the situation in 2001 was that curative activities were no longer the driving force that they had been in the past. Recent past experience indicated that it was possible to do better. The present situation, especially regarding HIV/AIDS and maternal health, was compelling the teams to be much more proactive. Finally, some improvements could still be made on activities, which were already being performed in a satisfactory manner.

The Performance Initiative

The diagnosis: a need for reviewing the remuneration system

As resources were limited and the needs increasing, improving efficiency in the use of existing resources seemed the best way forward. While overall use of health services had declined over the last 3 years, there were exceptions. In Kabutare District, the least-performing health centre had 0.18 contacts per year per inhabitant in 2001, the best-performing 1.54. Visits to health facilities confirmed that some were performing (very) well, and others were performing poorly.

The *ownership structure* could partly explain the variability in the levels of performance: generally, mission owned health centres had a higher performance than government owned health centres. It is true that some religious communities were investing additional resources in their health centres; but one could also assume that part of the lower performance of public health centres was attributable to less effective internal accountability mechanisms. In Rwanda, like in many other countries, staff working in public health facilities seems to have less performance obligations and lower motivation (Green *et al.* 2002; Leonard 2002; Gruénais 2004).

But the ownership status was not the only explanation. There was also some variability in the performance of the various mission owned health facilities. In view of their staff numbers, some seemed less efficient. Many were also disappointing in terms of preventive activities. The low achievements in terms of immunisation or antenatal visits in some of these centres were particularly puzzling. A possible cause could lie on the side of the incentives for the health centres. One could assume at least two reasons for a responsive and self-financed health facility to neglect activities such as immunisation: (i) any activity delivered for free (such as immunisation) is an economic burden for the health centre. If immunisation is not a source of income, the manager has less incentive to allocate his staff time; (ii) for ethical and self-esteem reasons, medical and paramedical staff are more prone to respond to the pressing demand of actual patients than to protect the quite anonymous community against possible future diseases.

Looking at the varied levels of performance and use of resources, health authorities and the NGO came to the conclusion that the payment mechanisms in place had to be revised.

The bonus system inherited from the past, although useful at the time, was no longer optimal. First, the fixed allowance was increasingly being perceived as a guaranteed supplementary salary. The behaviour or professional practice of the health worker was not taken into consideration. Another drawback was that the total amount invested in a health centre was not related to its performance in terms of output, but simply to the number of people employed. The direct consequence was that health facilities with more staff were receiving more than those with less staff, regardless of their output. The system was therefore both unfair and not motivating for the health centres with high potential.

There were other arguments in favour of a performance-related remuneration system: (i) the willingness of the Ministry of Health to 'get more' from the districts and health facilities lucky enough for receiving external aid; (ii) the experience of HNI with similar approaches in Cambodia (Soeters & Griffiths 2003); (iii) the existence of an updated and computerised health information system; (iv) the dynamism of management teams; and (v) the support by the health personnel. The fact that health centres were already operational, had sufficient equipment and personnel, and were correctly supplied with drugs suggested that there was no alternative intervention capable of providing higher benefits.

The only unfavourable factors identified during the diagnostic phase were at the level of the NGO: the budget

available for an innovative scheme was limited and the technical assistant was already quite stretched in addressing other project needs. It was therefore decided to restrict the scheme to the health centres (19 in total) and both district teams. The exclusion of both referral hospitals was certainly a major limitation, but unavoidable.

The intervention

In order to establish the desirable new incentive structure, several modifications were brought to the institutional arrangement determining the health centres.

Output-based payment

The main change in the payment mechanisms was the criterion determining the financial support by the NGO to the health centres. The assumption was that input-based or process-based payments were not powerful enough or even perverse in regard to health challenges in rural Rwanda. Remunerating a health facility according to its number of nurses does not create a strong incentive for efficient use of human resources. Process payments such as per diem for training are even worse: health service delivery in Rwanda, like in many low-income countries, is regularly disrupted by qualified staff being diverted to attend workshops or training.

It was decided to move from a fixed individual bonus to facility performance funding. Performance has been defined in a quite basic way through a limited set of five key activities with a potentially high impact on the population's health status: curative consultations, institutional deliveries, antenatal visits, family planning and child immunisation. Designers of the scheme were well aware of the limitations and risks of the strategy; performance is multidimensional and inadequately represented solely by quantitative terms. Of course, health services are much more than a selection of 'high impact but easy to measure' activities. But if these observations clearly point to the limits of output-based payment, they were not assessed as sufficient reasons to refrain from questioning the existing incentive structure.

It was decided that any single unit produced by a health centre deserved a payment. For the five services listed above, a fee for service – to be paid by a purchaser other than the individual user – was established. Arguments in favour of such an option were the following:

- Target population size varies considerably in health centre catchment areas. Linking payment to coverage rate achieved would favour health centres serving a small population. Health centres delivering more outputs have higher staff costs (at least staff-time); they deserve more, whatever their coverage achievement;
- The payment per unit guarantees that each unit generates income for the health centre. There is no threshold effect;
- A unit output-based scheme is just extending to other services, including the preventive ones currently delivered for free to the households, what exists already for curative care: fees for services. The only difference is the identity of the payer;
- The output unit is quite a good proxy of the marginal effort of the health staff. This is in line with the main objective of continuing to motivate the staff;
- With fixed, transparent fee amounts allocated for agreed upon deliverables, health centres can foresee the financial benefits of their actions. This also assists in planning and resource allocation;
- Paying for the total production of the health centres rather than for their incremental performances recognises previous and current efforts by the health centres already performing quite well. Without denying that there is a possible efficiency loss in terms of performance gains, it is seen as a gesture of fairness. It also sends the signal that purchasers will not to behave in an opportunistic way (as some schemes 'always pushing the carrot further ahead');
- The use of a same payment structure for the different health centres establishes some fairness. If a health centre suffered from some specific handicaps (e.g. poor infrastructure), input or process-based supports were still possible.

Those familiar with economics will observe that what the Performance Initiative in fact introduced is a constant price for the supplier to confront their marginal cost curve with. As the marginal effort for delivering a health output unit is not constant, a rising scale would have served better. But again, simplicity was the choice. The intervention was a pilot experiment, fine-tuning could come later.

A public health perspective

The expertise of economists was highly useful in assessing the incentive structure, but the decisions relating to activities, relevant indicators and the fees were under the control of the public health experts involved in the project.

Given the unacceptable maternal mortality rate, assisted deliveries were identified as a top priority (Graham *et al.* 2001). A high fee (rwf 2500; i.e. more than US$ 5 at the start of the scheme) was set for a delivery at the health centre. In fact, the institutionalisation of deliveries at the

health centre was not really an objective *per se*, but a strategy to improve the early detection and transfer of women possibly needing a major obstetric intervention (Jahn & De Brouwere 2001). It was then considered important that the fee should not create a perverse incentive for health centres to retain women requiring a transfer. As it was quite unknown how powerful the incentive would be, it was considered prudent, at this early stage, to pay the full fee even if the health centre decided to transfer the woman to a higher-level health facility.

Even though the capacity of antenatal care (ANC) to detect and prevent risks is questionable in Africa (McDonagh 1996), it is still valued as an opportunity to nurture the relation between the future mother and the health system. Finding the right indicator for compensation was not easy. Initially, the proponents had thought of retaining the number of third visits. It seemed ideal to reflect some continuity in monitoring activities. Unfortunately, it appears that in many health centres, there was confusion, at registration, between 'third visit' and 'visit during the third quarter'. To overcome this confusion, it was decided to select the number of women who had received between two and five doses of Tetanos Toxoid (TT). The fee was set at rwf 250.

The very low rates of adherence to family planning in rural Rwanda are puzzling. Is it that women do not really want family planning or is it that health staff is giving up in the face of cultural and religious obstacles, which are quite significant? The management team wanted to directly confront the issue. It was therefore decided that each newly registered woman should bring in a significant income to the health centre (rwf 1000 per new subscriber). To support modern family planning techniques, it was decided that only these would be compensated.

Including child immunisation in the incentive scheme did not raise any question. Initially, there were two indicators selected: the third dose of *Diphteria-Tetanus Pertussis* (rwf 250) and one dose of measles vaccine (rwf 250). *BCG* and OPV were not included as the schedule for both overlap that of DTP. After a few months of the Performance Initiative, it appeared that there was still a high dropout rate between the third *DTP* dose and measles vaccination. It was decided to merge both fees and keep only measles vaccination (rwf 500).

The selection of curative services was more debatable. Did one really need to boost this as there was already an output-based payment for this activity (the fee paid by the user)? Indeed, if one of the objectives was to counterbalance the excessive bias towards curative care, not remunerating the consultations would have made sense. Designers did not reject this perspective; but they did not want to completely destabilise the health centres' existing activity profile. Moreover, as we have mentioned earlier, curative activities had declined over the last few years. It was therefore worth introducing some financial incentive. The number of new cases was selected as an indicator. Each new case is indeed the reflection of the health centre's attracting power. The fee was set at a very low level (rwf 40).

As mentioned above, the Performance Initiative was conceived as a pilot scheme. Starting with a limited list of activities, easy for the health centre to deliver and easy for the health district supervisors to monitor, was perceived as a pragmatic way to explore the potentials and risks of the strategy. This option did not exclude that at a latter stage, activities less standardised and hence more complex to measure (e.g. malnutrition, HIV/AIDS, impregnated bednet promotion) would be included. But there was a strong consensus that capacities, neither at facility level nor at higher levels, were ready for more sophisticated schemes.

A key question was of course the source of information for the activities to be remunerated. The monthly health centre activity reports sent to the district office were identified as reliable references. The fact that from then on, these records would have an impact on the staff revenues was creating an obvious risk of record inflation. In order to prevent such a degradation of the data, it was agreed that independent complementary monitoring would be conducted. It was understood that some crosschecks of the reported activities, including home visits to users randomly selected from the daily registers, plus the threat of a severe sanction would be dissuasive enough to prevent 'temptations'.

A frequently raised question is the omission of quality as a criterion for payment. The choice again was cautiously thought through. First, there was scepticism about remunerating health centres based on quality criteria. Technical quality of care and quality of services are multidimensional issues of which many dimensions are difficult to measure objectively (Casalino 1999; Landon *et al.* 2003). Second, there was a pragmatic issue: measuring even only some dimensions of quality would have required a full battery of indicators, administratively hard to manage. It was assessed that the project did not have the resources to carry this out satisfactorily. Third, and more fundamentally, it must be kept in mind that it is the whole institutional arrangement that determines the behaviour of the different stakeholders, staff and manager included. One can have doubts whether a purchasing scheme is the best route to establish high quality of care. Some determinants such as initial education, continuous training, internalised values or peer pressure – elements that one can club together under the term 'professionalism' – are probably much more important (Freidson 2001). Implementers of the scheme

considered that these mechanisms, especially the routine supervision, were functional and quite effective in Gakoma and Kabutare districts.

In fact, the partners were quite convinced that the output-based payment would trigger an improvement in the quality of the *services*. In order to build their customer base, health centre teams would probably try to improve their service delivery; opening hours, cleanliness of the facilities and kindness to users. To produce 'high volumes', it was also clear that health centres would have to be credible and monitor some technical quality determinants such as the availability of drugs and vaccines, staff qualifications… Moreover, it was hoped that the improved motivation of staff would provide a better environment for other interventions planned by the project (training sessions, introduction of new protocols…): the Performance Initiative was not taking place in a vacuum. Finally, it was not excluded that, at a certain stage, the improved economic situation of the facilities would allow them to attract or retain more competent individuals.

New organisational bodies

The output-based payment called for the creation or the reshuffling of some key functions. General direction of the strategy, decisions about the priority activities and the fees, monitoring of the output delivery, monthly payment and the sanctioning of a potentially cheating health centre had to be entrusted to some actors.

The strategic functions were entrusted to a *Steering Committee* comprised of key partners. This organisational set-up, already tested in Cambodia (Van Damme *et al.* 2001), had the advantage of being in agreement with the very participatory and equal way that national and international stakeholders interact in Rwanda. The initial plan was that every 3 months the *Steering Committee* would meet to: (i) assess the activities developed by the health centres; (ii) identify implementation bottlenecks and their possible solutions; (iii) decide upon possible reorientation in case of unsatisfactory trends (e.g. degradation of quality as routinely assessed by supervisors); (iv) take sanctions against fraud.

From the beginning, transparency and ownership were promoted; representatives of health centres attended the meetings. Meetings were open as well to external visitors, including any donor considering a financial contribution to the co-managed basket or replication of the strategy in another province.

This co-operative set-up has of course its flaws: some functions are blurred and conflicts of interest could emerge (none were observed during the 2 years here documented); the arrangement can only be transitional as it cannot be applied to the whole country; gathering stakeholders as frequently as initially hoped, proved difficult. But from 2001 to 2004, the Steering Committee demonstrated a real capacity to pilot the scheme, enforce the contracts and solve problems between the different stakeholders.

The other key function was the close monitoring and verification of the outputs declared by the health centres. By nature, an output-based payment scheme provides a strong incentive for providers to over-declare activities. Random controls, including home visits to registered users, are thus necessary. As a first solution, this role was subcontracted to the School of Public Health of Butare, a body independent from the health pyramid, but with enough expertise to conduct both the data collection and their analysis. If this option was perceived since the start as not sustainable, it was seen also as a way to involve local scientists in the project. Their involvement helped in the development of a structured way to control health centres (e.g. protocol, sampling).

As the output payment to the health centres was mainly earmarked to pay staff bonuses, it was decided that calculation of the allowance and payment should be performed on a monthly basis. These actions required a body with a very operational capacity. As the funding was donor money, it made sense to entrust this role to the international NGO.

Contracts

One of the weaknesses of the previous fixed bonus system was its informal character: the NGO was topping up salaries, but it was unclear what staff felt as their own obligations. The introduction of an allowance scheme provides, in fact, a unique opportunity to reintroduce some effective accountability (Van Damme *et al.* 2001): 'We offer you a supplementary income, but in exchange we require you to comply with certain rules'.

A formal contract is often the most effective institutional arrangement to establish the respective obligations of economic operators engaged in any transaction. By putting clauses down on paper, a contract provides a clear reference for mutual accountability.

For the sake of simplicity, it was decided to establish the Performance Initiative in one single multilateral contract per health centre. In this 'purchasing contract' all the stakeholders commit themselves to assisting the health facility in improving its performance (See Figure 1). The NGO provides the funds, while the Ministry of Health supports the Performance Initiative through timely decisions (posting or transfer of personnel…). In exchange for the resources and support that it will receive, each health

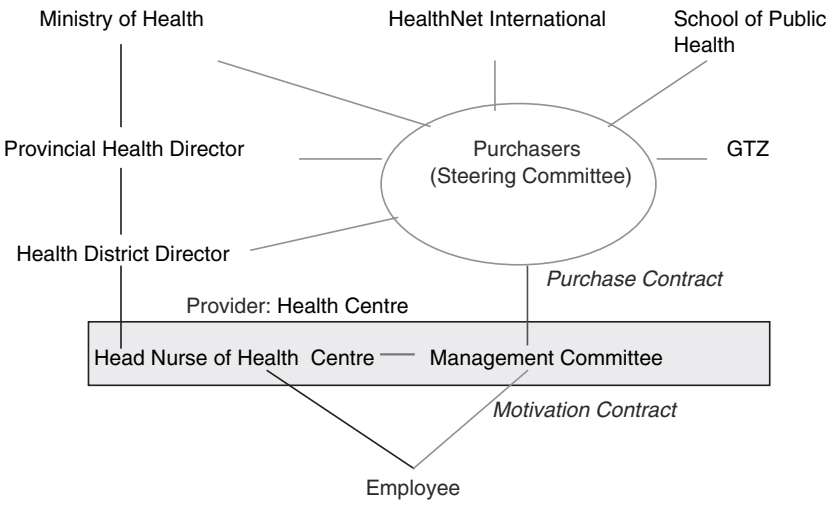

Figure 1 Contractual set-up of the Performance Initiative.

facility commits to providing the best services to the population.

The contract specifies the fee scale, the obligations in terms of information and transparency, and possible sanctions. It is written in such a way that it leaves enough room for action in case of problems. If, for example, it turns out that a health centre team is performing particularly poorly – either quantitatively or qualitatively – the Steering Committee may try and resolve the issue by using its power as a purchaser and withhold payments. It can suspend the health centre from the scheme until such time as the root causes of the distortion are addressed.

Institutional changes at the level of the health centres

Eventually, it is staff behaviours that determine performance of a health centre. Many factors determine staff motivation and well-being, including income (Franco *et al.* 2002). The designers of the Performance Initiative considered that in the context of rural Rwanda, higher pay would contribute positively to work performance, especially in terms of working hours. Accordingly, the Steering Committee agreed that the health centre teams should benefit from the funding earned as a result of the outputs they delivered.

It was felt that more individual effort alone would not suffice for boosting the health centre's performance; there should also be some incentives for more creativity and initiative. Health staffs have ideas. If they can benefit from them, they will be more willing to test and implement them.

In order to trigger this, two major changes were brought to the institutions connecting the individual health workers to their health facility; one at the level of the owner – manager relationship, the other at the level of the manager – employee relationship. Their combination was expected to develop higher internal accountability, partly through higher peer pressure.

The first change consisted of the creation of a management committee. This new body was necessary to give staff more decision-making rights regarding the general management of the health centre. Mainly composed of staff representatives, the management committee has the responsibility to secure the economic development of the facility. It is the platform for discussing and implementing any strategy for boosting performance.

The other change was the introduction of institutional tools to assist the management committee in improving the performance of individual workers. The main component was the introduction of a variable bonus scheme. As it was intended to be fully funded by the output-based payment income, the Steering Committee had some authority to set some basic rules (transparency, equity among the personnel, formalisation through a contract…), but there was some freedom given to the management committees. The Steering Committee requested also that in each health centre, internal regulations and job descriptions be introduced. The *motivation contract* binding the individual worker to his management committee refers to these internal regulations and job descriptions for clarifying what is expected of each individual. Patient abuse, violation of the code of conduct, fraud are clearly identified as breaches of contract that could potentially lead to sanctions, including action by the Steering Committee against the health centre.

Assessing the impact of the Performance Initiative

Method and materials

As already mentioned, evaluating the impact of an institutional intervention is a challenge. In Gakoma and Kabutare, the option of a randomised control trial was not feasible.

As a matter of fact, the intervention was taking place in the framework of a development project. From the point of view of the Ministry of Health, the key concern was to correct the declining trend observed in both districts. The limits of fixed bonus were well identified, a high-powered intervention on the whole system was requested.

The expectations of the health staff were another major constraint: early on in 2002, they were well informed about the logic of the new approach. In the not yet supported district (Gakoma), the four health centres were eager to get a supplement income. In Kabutare, through quick calculation (previous outputs time the fees), it was easy for any health centre team to compare their earning under the new scheme and under the old one. Only the less performing health centres would have been interested in keeping the old remuneration model. In order to avoid an obvious bias, the only solution was then to include every health centre under the new approach.

Confident in the strategy, the NGO was keen also on a full-scale implementation. They felt that their accountability was towards their donor and the target population, not towards the scientific community.

These constraints of the 'real world' are of course neither new nor specific to the Performance Initiative. Other scientific models such as Before – After or Comparative-experimental studies are strategies that can still contribute to the scientific knowledge (Øvretveit 1998).

In terms of data, it was decided at an early stage of the study, to rely on the GESIS®, the high-standard computerised health information system of Rwanda. There is a general consensus in Rwanda that this data source is reliable. Yet, by its very way of remunerating the facilities, the Performance Initiative established a new incentive for health centres to inflate their records. By explicit contracts, the health centres were well aware of the risk of opting for such a route. By demonstrating that the 2002 and 2003 data were not inflated by false reporting, the two independent surveys performed by the School of Public Health have confirmed that the dissuasion has worked (Ecole de Santé Publique 2003a,b).

GESIS® allows the comparison of the performance of the 19 interventional health centres before and after the Performance Initiative, but the national database allows also some comparison with the rest of the country (see Tables 3 and 4).

In order to conduct this comparison, we had to identify our non-intervention groups. Several steps were taken. The first one was to isolate 'our' 19 health centres from the national database ($n = 403$ in 2004). The second one was to remove the health centres for which our baseline year, 2001, was missing (e.g. because the health centre opened in a later year). It led to the removal of 38 health centres. The third step was to remove population areas with a profile not matching that served by the rural health centres in Gakoma and Kabutare. Along this line of argument, we have removed health centres situated in urban settings and those not serving the general population (e.g. health posts in prisons). This step led to the removal of 76 health centres. The third step was to deal with the incompleteness of the database. Whereas data were complete for 2001–2004 for the 19 intervention health centres, such completeness did not prevail for the rest of the country. We have dealt with this problem by (i) excluding from the 'controls' the health centres having issued less than nine monthly reports on 12 either in 2001 or in 2004; (2) extrapolating on 12 months the data of the health centres with 9–11 reports. This was applied separately for the different indicators of Tables 3 and 4; henceforth, the varying *n*.

Results

Implementation

It took the partners around 6 months to prepare the launching of the Performance Initiative (design of the scheme, financial simulations, information to stakeholders, writing of the contracts…). By March 2002, the four health centres of Gakoma district were ready. The scheme started later in the 15 health centres of Kabutare district (June 2002). Early 2004, a general assessment of the intervention was undertaken (Meessen *et al.* 2004). We review the main findings in the next section.

Improvements in terms of coverage of needs

Tables 1 and 2 show the aggregate results for the key indicators in both districts. As a reminder, Table 1 (Gakoma District) depicts a change from a 'no bonus at all' situation to the Performance Initiative. Table 2 (Kabutare District) corresponds to a change from a 'fixed individual bonus' situation to the Performance Initiative. Last column compares performance of the scheme at cruise speed with performance before its introduction.

We see that in both districts, all the remunerated activities have increased. The improvement is particularly

Table 1 Key indicators (Gakoma district, four health centres)

	2001	2002	2003	2004	2004/2001 (%)
Population (GESIS 2004)	83,015	85,090	87,217	89,747	+8.1
Consultations (new cases)	36,374	50,490	45,310	53,770	+48
New case/inhabitant/year	0.44	0.59	0.52	0.60	+37
Deliveries at the health centre	463	1,042	1,034	1,504	+225
Deliveries referred by the health centre	29	75	64	129	+345
Assisted deliveries/expected deliveries	14%	31%	29%	42%	+207
New subscriber to family planning	22	150	171	331	+1,405
Coverage rate for family planning	0.7%	0.6%	0.8%	0.7%	+0
Coverage rate for TT 2-5	46%	73%	69%	85%	+83
Coverage for DTP3	59%	86%	85%	90%	+53
Coverage rate for measles immunisation	58%	62%	91%	80%	+38

TT, Tetanos Toxoid.

Table 2 Key indicators (Kabutare district, 15 health centres)

	2001	2002	2003	2004	2004/2001 (%)
Population (GESIS 2004)	263,371	269,953	276,702	284,726	+8.1
Consultations (new cases)	106,998	174,952	192,594	195,733	+83
New case/inhabitant/year	0.39	0.65	0.70	0.69	+78
Deliveries at the health centre	925	1,816	2,234	3,077	+233
Deliveries referred by the health centre	142	463	618	794	+459
Assisted deliveries/Expected deliveries	9%	20%	24%	32%	+236
New subscriber to family planning	399	625	869	1,348	+238
Coverage rate for family planning	0.3%	1.2%	1.2%	2.1%	+506
Coverage rate for TT 2-5	38%	58%	51%	63%	+66
Coverage for DTP3	75%	83%	86%	78%	+5
Coverage rate for measles immunisation	72%	62%	89%	77%	+7

TT, Tetanos Toxoid.

Table 3 Performance of rural health centres in other provinces

	2001	2004	2004/2001 (%)
Consultations New case/inhabitant/year ($n = 222$)	0.22	0.29	+36
Deliveries at the health centre ($n = 215$)	24,682	37,879	+53
Deliveries referred by the health centre ($n = 197$)	2,641	4,239	+61
Assisted deliveries/expected deliveries ($n = 197$)	13%	19%	+47
New subscriber to family planning ($n = 175$)	14,095	25,716	+82
Coverage rate for family planning ($n = 230$)	0.6%	2.1%	+253
Coverage rate for TT 2-5 ($n = 214$)	43%	54%	+25
Coverage for DTP3 ($n = 200$)	73%	73%	+0
Coverage rate for measles immunisation ($n = 199$)	67%	69%	+3

TT, Tetanos Toxoid.

spectacular for the activities related to maternal health. A glance at the coverage rates confirms that performance of both health districts in 2003 and 2004 was high, quite above the coverage rates one can traditionally observe in sub-Saharan African rural districts. The only source of disappointment is the coverage rates of family planning, which have not improved as initially hoped.

A crucial question is of course to which extent these increases in outputs in Gakoma and Kabutare health centres can be attributed to the Performance Initiative. To

Table 4 Performance of rural health centres in the Cyangugu Province

	2001	2004	2004/2001 (%)
Consultations New case/inhabitant/year ($n = 22$)	0.24	0.48	+100
Deliveries at the health centre ($n = 20$)	3,315	5,185	+56
Deliveries referred by the health centre ($n = 20$)	446	762	+71
Assisted deliveries/expected deliveries ($n = 20$)	17%	24%	+46
New subscriber to family planning ($n = 20$)	1,284	6,557	+411
Coverage rate for family planning ($n = 22$)	0.6%	5.2%	+703

explore this question, we have compared their performance with that of the rest of the country.

We have compared the Performance Initiative with two control groups. The first one consists of the rural health centres receiving some traditional input-assistance or no assistance at all. The second control group consists of 22 health centres from the Cyangugu Province, another site where an output-based approach was started in 2002.

Table 3 shows that during the 2001–2004 period, the utilisation has also improved in the rest of the country, especially for activities responding to the needs of mothers. The comparison with Tables 1 and 2 nevertheless reveals that the comparison is largely favourable to Gakoma and Kabutare districts. Gakoma and Kabutare health centres have caught up on immunisation services. They have outperformed the rest of the country with respect to outpatient consultations and assisted deliveries.

The comparison with the Cyangugu health centres particularly is enlightening with respect to family planning. In this province, the international NGO and its partners have put much more stress on this service, resulting in much better coverage than in Gakoma and Kabutare. This finding certainly deserves attention in a region where demographic pressure on land is a threatening factor (André & Platteau 1998).

Costs

The costing of the scheme has been based on the accounting data of the NGO. It appears that the Performance Initiative was not an expensive intervention. Yearly cost was around US$ 93 300 (or US$ 0.24 per capita per year) distributed in the following way: 62% for incentives to the health centres, 27% for incentives to district and province managers and 11% for the transaction costs (i.e. organisation of the Steering Committee meetings and two surveys by the School of Public Health).

As the NGO was already paying fixed bonuses in Kabutare district in 2001 (around US$ 59 000 a year), one can consider that the incremental improvements detailed in Table 2 have cost around US$ 0.035 per capita for the year 2003.

Eventually, it is interesting to note that in 2003, the bonuses financed by the Performance Initiative contributed up to 39% of the staff income in the health centres of Kabutare District (Meessen *et al.* 2004).

Discussion

Main findings

The Performance Initiative has reshaped the incentives in force in Gakoma and Kabutare health districts. The new institutional arrangements combined with a limited injection of funds have boosted the performance of the 19 health centres. The improvements have been particularly important in Gakoma district, a district where there was no bonus before. In Kabutare, the progress has been particularly impressive in terms of curative care. In this district, the intervention has mainly consisted in a shift from an individual fixed bonus system to a facility output-based scheme. We have here some good evidence that method of payment has an influence on performance of health centres. Both districts have shown an impressive increase in assisted deliveries, as this activity was quite well remunerated by the Performance Initiative. This increase is particularly welcome given the high maternal mortality rate in Rwanda.

Power of the evidence

As already mentioned, the Performance Initiative experience is not a randomised control trial. Granted, this may weaken the strength of the evidence for the causal relationships.

It is noteworthy that the Performance Initiative does not pretend to be a definitive model, even for Rwanda. For example, the approach taken in the nearby province of Cyangugu has been even more radical. The operators of the scheme have pushed the separation of functions and the performance-based remuneration further. Particularly

interesting is the idea to involve the community in the monitoring of the performance of the health facilities.

In Rwanda, the positive changes observed in Butare and in Cyangugu have attracted a lot of interest. The potential and the limits of the strategy have been openly discussed in several national forums. The pros and cons of the different possible institutional models have been discussed.

Recently, several agencies have decided to adopt the strategy for the provinces they support. More outstandingly, the Government of Rwanda has committed in 2005 its own public resources to the continuation of the schemes in Butare and Cyangugu. It is hoped that the approach will contribute to the attainment of the *Millennium Development Goals*.

Yet, the Performance Initiative is still very recent. Some caution is necessary: Impact of such approaches in terms of technical quality or in terms of professional ethos is still to be documented. One should certainly not think that it is the magic bullet that will solve everything. One should not underestimate the contextual elements that have contributed to its success so far. Nevertheless, it raises some very interesting questions about health care financing in low-income countries.

Early lessons

First, there are the operational lessons. The Performance Initiative experience confirms that contracting health centres for higher results is feasible in low-income countries (Preker & Langenbrunner 2005). The design stage requires some degree of technical skill, but the cost of the investment can be spread overtime and over a large number of health facilities.

The Performance Initiative indicates that contracting to a private body such as a NGO (a strategy often referred to as 'contracting out') is not the only track (Loevinsohn & Harding 2005). The steering committee seems an interesting transitory step towards a 'contracting-in' approach (contract between a purchasing governmental agency and a provider governmental health facility). It allows the government to benefit from the external agency's presence (expertise, commitment to results and transparency) without neglecting its own capacity building needs. The approach of one basket of funds co-managed at decentralised level seems also a promising mechanism to prevent possible abuses of the output-based payment logic (e.g. a multiplication of purchasing bodies with their own targets and rules). This will sound familiar to practitioners of Sector-Wide Approaches (SWAPs). The basket of funds is a powerful strategy to handle funds with different disbursement rules (e.g. State budget, NGO funding).

In the long run, a greater clarification of respective roles fulfilled by the different actors will be necessary. In the case of the Performance Initiative, it is noteworthy that the future autonomous purchasing agency will have to take over key functions of the steering committee (purchasing), the NGO (daily management and monitoring) and the School of Public Health (random verification of outputs in the community). This will require significant funding and real operational capacity.

Changing institutions is anything but neutral. In terms of implementation, the various experiences in Rwanda indicate that some caution is necessary. Before the purchase of a specific activity, the required technical capacity must exist at the level of the health facilities. As a minimum, refresher courses must be organised to address any gaps. Providers will demand this as they themselves encounter shortcomings in their performance. Other stakeholders also must prepare themselves. They might have to respond to new requests from the health facilities or new pressures upon the health system (e.g. a massive increase in referrals to the hospitals). Monitoring the process and its impact is important. For this purpose, a good health information system and a real operational capacity to monitor are essential.

Second, there are the policy lessons. The experience confirms that incentives matter. An important remark has to be made at this stage. Many people have a too narrow understanding of the term 'incentives'. To our mind, it does not cover only the payment received by individuals; consistent with the paradigm of New Institutional Economics, it is also about all the intrinsic and extrinsic benefits that actually or potentially accrue to individuals because of a given set of institutional arrangements. So the discussion of the incentive structure is much broader than a mere discussion on bonus and salaries. In fact it covers all the formal contracts binding the health facility stakeholders to each other; the different laws; the informal norms (including ethics and code of conduct); and the way that, all together they distribute the decision rights, risks and subsequent rewards.

It is henceforth crucial to note that the Performance Initiative rests on a very large set of co-ordination mechanisms. It is obvious that a good health system also needs co-ordination through 'command and control' mechanisms. Values and social norms are also important. The more values such as honesty, altruism, professional consciousness or ethics are present among a population, the less control mechanisms will be necessary, and consequently, the lower the transaction costs.

The initial analysis revealed that Rwanda was not a risky environment for testing a more powerful incentive structure. According to African standards, the country is very

well administered. There were also good reasons to expect no excessive opportunism from the staff. These conditions are not necessarily present in other settings.

The most important policy lesson may be the strong plea for output-based payment that this experience supports. Whereas OECD countries have adopted this approach for some time, it is quite surprising that it has not been tested much more in low-income countries (Barnum *et al.* 1995). In fact, in settings where underproduction is the pattern, payment for services can be part of the solution, especially for activities with positive externalities. This observation challenges ministries of health but also international agencies and NGOs. They will need to contemplate other funding strategies than the traditional input-based funding (line-item budgets). As a group, international agencies should certainly pay more attention to incentives (Martens *et al.* 2002). In some settings, NGOs and bilateral agencies relying today exclusively on traditional input or process supports (e.g. provision of drugs, vehicles and capacity building) could consider combining these with some output-based payments. It is noteworthy also that output-based payment makes the purchasing contract quite *complete*: there is not much to interpret or to negotiate ex post (Salanié 1999). This aspect seems particularly important where some purchasers fulfil simultaneously other functions that might induce them to overprotect or to abuse the health care providers.

Interestingly enough, the Performance Initiative casts another light as well on the user fee debate. User fees are output-based payments. If the health facility is allowed to retain the income, this is a powerful incentive to increase its production. If the payment by the user is a lump sum per episode and if exemption system works, user fees can do more good than harm. To our mind, in many settings, the question should not be 'charging or not' but 'whom to charge'. Creation of purchasing agencies and control bodies is a new track to explore, even for better access by the poor (Soeters & Griffiths 2003; Hardeman *et al.* 2004).

Another important question raised by the experience is whether all the resources existing in low-income countries have adequately been tapped. The Performance Initiative seems to point at a resource largely overlooked so far: the health staff, and its capacity to develop efforts and initiatives. If incentives are right and significant, they can deliver much more than what has been previously assumed. In Rwanda, it has been the enthusiasm of those involved in the scheme (more than any scientific proof) that has convinced stakeholders to develop the strategy in other locations.

Eventually, we believe that the Performance Initiative and other similar experiments invite us to have a close rethink on 'which actors should do what' in any public health system. Our suspicion is that in many low-income countries, some functions are wrongly assigned. The redistribution of roles, i.e. clear institutional splits between regulation, purchasing, verification and provision functions, is a track to further explore. New Institutional Economics offers an interesting paradigm for this purpose.

More research, more experiments

The Performance Initiative experience has convinced us that the development and strengthening of health systems in low-income countries calls for more attention to the institutional arrangements. For further exploration along this track, greater alliances between operational agencies and scientists need to be built. Only further experimentation – with the risks this entails – will reveal if there are institutional arrangements superior to existing ones.

For researchers, the challenges are numerous. A first one is organisational: finding the right articulation with operational projects is not easy. Government, agencies and NGOs are less interested in state of the art research than in rapid benefits for the population. This may have negative consequences for the experimental set-up. Developing countries like Rwanda are impatient to improve their situation; rightfully, the first concern of their governments is not to contribute to international scientific knowledge. If one is serious about evidence-based policy, those providing the evidence should be compensated. Aid contracts (between donors, NGOs and recipient countries) must give more attention to the 'public good' value of scientific evidence.

The second challenge is methodological. We have already stressed the difficulty of controlling for confounding factors; in fact, the real challenge might be more at the level of the measurement of impacts. In this paper, we have focused mainly on the changes in terms of the utilisation of the remunerated activities. In fact, a fair assessment should include all the dimensions that matter in a health system: quality of care, integration of services... Particularly problematic will be the measurement of the impact on quite intangible dimensions such as professional ethos and individual values. We nevertheless believe that this should be acknowledged as challenges for researchers, not as excuses for inaction.

There is indeed a need for a more responsive research agenda. The Millennium Development Goals focus on outcomes supports this. Obviously, approaches like the Performance Initiative have some appeal in such logic. There lies, however, a possible third challenge: dealing with the misinterpretation of findings. In terms of institutional arrangements, the holistic view really matters. Reports must integrate this concern. Hopefully, this will

prevent readers misinterpreting lessons and wrongly inferring the suitability of possible replication in totally different institutional environments. Both the scientific and the operational actors have a lot to learn at that level.

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Passage en revue des institutions rurales de centre de santé: L'initiative de performance a Butaré au Rwanda

Dans de nombreux pays à faibles ressources, la performance des systèmes de santé pyramidaux avec un but public ne répond pas aux attentes et besoins des populations qu'ils servent. Une question qui n'a pas été étudiée et testée suffisamment est 'Quel est le bon volet du programme dans les mécanismes institutionnels, nécessaire pour les organisations et les individus travaillant dans ces systèmes de santé?'. Cet article présente les expériences de l'Initiative de Performance, une approche contractuelle innovante, qui a remodelé la structure d'incitation en place dans deux districts ruraux du Rwanda. Il décrit les données de base générales, l'analyse initiale, les arrangements institutionnels et les résultats après trois ans d'opération. A cette étape de l'expérience, il est démontré que le 'paiement basé sur le rendement + une plus grande autonomie' est une stratégie faisable et effective pour l'amélioration de la performance des centres de santé publique. Les approches par des contrats, en tant que partie des volets stratégiques, pourraient être une option intéressante pour le gouvernement, les bailleurs de fond et les ONG dans leur effort pour atteindre certains des Objectifs du Développement Millénaire.

mots clés contractuel, frais de service, services de santé, pays en développement, Objectifs du Développement Millénaire

Revisando instituciones de centros sanitarios rurales: La Iniciativa de Rendimiento de Butare, Ruanda

En muchos países de baja renta, el desempeño de los sistemas de salud piramidales con fines públicos no está cumpliendo con las expectativas y necesidades de la población a la que sirven. Una pregunta que aún no ha sido tratada e investigada suficientemente es "¿'Cual es el paquete adecuado de mecanismos institucionales requerido por organizaciones e individuos trabajando en estos sistemas de salud?" Este artículo presenta la experiencia de la Iniciativa de Rendimiento (*Performance Initiative*), un enfoque contractual innovador que ha reorganizado las estructuras de incentivos existentes en dos distritos rurales de Ruanda. Describe los antecedentes generales, el análisis inicial, los arreglos institucionales y los resultados después de tres años de operaciones. Hasta este momento la experiencia muestra que "el pago basado en resultados + mayor autonomía" es una estrategia factible y efectiva para mejorar el desempeño de los centros de salud públicos. Como parte de un paquete más global de estrategias, este enfoque de contratación podría ser una opción interesante para el gobierno, donantes y ONGs en su esfuerzo por alcanzar algunos de los Objetivos de Desarrollo del Milenio.

palabras clave contratación, pago por servicio, servicios de salud, países en vías de desarrollo, Objetivos de Desarrollo del Milenio

