

# From administrative hospital management to performance-based management: Paradigm shift at the Yaoundé Gynaeco-Obstetric and Pediatric Hospital, Cameroon

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## Abstract

The Yaoundé Gynaeco-Obstetric and Pediatric Hospital (YGOPH) faced challenges of high debts and sub-optimal care delivery. Performance-Based-Management (PBM) provides an environment of checks and balances, increased transparency, competition and autonomy, thereby improving clinical as well as financial indicators. We describe the transition from resource-based to PBM at the YGOPH over a seven-year period. There was an increase of 4.5% in OB/GYN and 8.1% in prenatal consultations, 8.4% in C-sections, 6.1% of children vaccinated, and 30.5% of women seen for family planning, 51.1% of people living with the Human Immunodeficiency Virus on treatment and 29.4% of indigent patients. These results occurred in spite of a 14% reduction in staff. Annual revenue increased by 5.75%. The share of hospital income from care on overall hospital revenue increased from 55.11% to 60.00%. With this self-financing PBM model, the hospital remains a social, humane and financially viable structure delivering improved quality care.

## Introduction

The economic crisis that followed structural adjustment in African countries resulted in weakening of economies and the social fabric. Increase in service provision costs led to limited access of the poor to

health-care, hence a deterioration of indicators such as maternal and child mortality.

African countries signed the Abuja Declaration in 2000, which required them to devote at least 15% of their national budget to health. Beyond universal health coverage, the sector needed to focus on the values of performance, efficiency and effectiveness, access and a guarantee of sustainability.<sup>1</sup>

The development of hospitals from sanatoriums and the moral value of health-care provision to the needy enshrined in various professional oaths (Nightingale, Hippocrates, Imhotep etc.) has turned them into underfunded indebted social institutions where budgetary deficits are not only tolerated, but even expected.<sup>2</sup>

The euphoria of health for all by the year 2000 after the Alma Ata Conference in 1978, where welfare states promised free quality health to their populations, was short-lived. States have had to partner with the civil society and a private health industry to finance health-care. In developing countries, cost recovery mechanisms such as the Bamako Initiative, cost sharing and community-based financing schemes like mutual health funds complemented public sector grants.<sup>3</sup> These measures have not, however, curbed growing deficits, negative performance and poor quality of health-care. More than fifty percent of health funding comes from out of pocket expenditure. Hospital funding focused on curative health-care with costly inputs. The supply component has been driven by medical, pharmaceutical and hospital technology industries, further increasing budget deficits.<sup>4</sup>

In Cameroon, the transition from dispensaries and care of endemics, wounds and infectious diseases to wide spread hospital curative health-care was strengthened five years after Alma Ata. Management of hospitals has remained input and administrative-based, with the goal to cover the entire population. This entitlement approach often in disregard of effectiveness and efficiency produced unsatisfactory outcomes hence sub-optimal care and structural indebtedness. The hospital thus required another management method to provide both preventive and curative quality health care.<sup>5</sup>

The Hospital Performance-based Management (PBM) model breaks from the hitherto centralized command management to a co-shared vision, a co-managed service oriented model, with the following institutional values: humility, integrity, and veracity (truth) for quality service. It is built on microeconomic precepts of the public choice theory. The roles and responsibilities of the five pillars, or actors, of the hospital

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provide an environment of checks and balances to curb conflict of interest. This evolving model has been criticized by some. The bone of contention has been the emphasis on staff bonuses at the expense of quality health-care.<sup>6</sup>

The PBF project in Cameroon is funded by the World Bank to help the country develop a managerial approach, which will improve health indicators over time. The PBF approach was started in 2006 in the Dioceses of Batouri (East) and Maroua-Mokolo (Far North), with the technical and financial support of the international Non

Governmental Organization (NGO) Catholic Organization for Relief and Development Aid (Cordaid). In 2011 the government of Cameroon contracted a World Bank loan to extend this approach to four of the ten regions of Cameroon (Littoral, North-West, South-West, and East). The Yaoundé Gynaeco-Obstetric and Pediatric Hospital is situated in the Centre Region that is not yet included in the PBF project. Therefore, it cannot benefit from financial subsidies of the PBF project from a yet to be created Center region Contracting and Audit Agency (CAA).<sup>7</sup>

We hypothesized that PBM, which rewards transparency, equity and quality, gives better results than entitlement, administrative input based management.

The purpose of this work was to demonstrate the impact of PBM on improving indicators of quality care and eliminating budgetary deficits.

## Materials and Methods

We describe an experiment of transitioning from input or resource-based management to performance-based management at the Yaoundé Gynaeco-Obstetric and Pediatric Hospital (YGOPH), a tertiary hospital, over a seven-year period (2012 to 2018).

### Situational analysis

After a situational assessment by the 2011 Technical Rehabilitation Commission<sup>8</sup> which classified YGOPH, as high risk principally from its indebtedness, outdated equipment and other audits from June 2012 to January 2013,<sup>9,10</sup> it was imperative to restructure the management of the hospital to halt its decline. The Board of Directors authorized Management to partner with the World Bank for implementation of Performance-based Management (PBM) at YGOPH.

The World Bank (WB) consultation determined that YGOPH, had a structural debt mainly caused by high staff aggregate wages (salaries, fixed allowances, taxes and bonuses), representing 63.5% of total running costs whereas according to standards, wages should not exceed 60% of the total operational expenditure.

Further, despite the staff surplus, services to users were of undesirable quality, drugs and consumables often out of stock, equipment broken down and patients diverted to non-contracted private facilities.

The consultant suggested:

- (i) Reduction of at least 25% of staff;
- (ii) Revision of staff salaries to reflect a fixed portion (50%) (entitlement) and a variable portion (50%) representing

performance bonuses (rewards contingent on output);

- (iii) Raising awareness among staff about the changes to be implemented so as to improve the quality of services and care to users.

### PBM implementation procedure

The first step was the training of 32 members of staff who participated in the PBF international courses by the WB consultant Sina Health in Limbe, Douala and at the Batouri Academy. They were appointed as *in-situ* trainers for the rest of the institution's staff. The communication component focused on raising staff awareness through weekly coordination meetings and working sessions between the General Directorate and the World Bank with support of the Health Sector Investment Support Project (PAISS) and the Littoral Contracting and Auditing Agency. The staff was engaged, cajoled to adopt the novel system of management that respected others, cared for their personal development and welfare in a united family. This was appropriately reflected in the hospital slogan *Together we are stronger, together we will go further*.

PBM was launched in Radiology, Clinical Laboratory services, and the Ophthalmology Unit, without PBF subsidies and despite the doubts raised by the World Bank's expert. The Program was built around training, communication, and

coaching, as well as systemic and systematic audit of human resources. The 28 exiting services were grouped into 14 (11 clinical and 3 administrative) departments. The Hospital Management delegated technical and administrative management prerogatives to each department.

The second step consisted of carrying out a human resources audit. New staff management tools were designed: the personal daily activity log, the service index staff management tool, the quarterly service business plan with its performance indicators (including monthly expenses and revenues) elaborated in a performance contract, which was signed quarterly between the service and hospital management. Payment of monthly quantitative performance bonuses followed auditing and validating of individual and service performance tools at the monthly service meeting and approved by the PBM committee. The quarterly qualitative performance bonuses were paid after data validation by the Littoral Contracting and Auditing Agency (LCAA), which consulted patients randomly selected from performance registers.

The new management scheme was initiated on April 1<sup>st</sup> 2015. Following successful implementation of the pilot phase, the program was extended to all services of the institution within the ensuing six months.

Figure 1 shows the organizational structure of performance based management at the YGOPH.

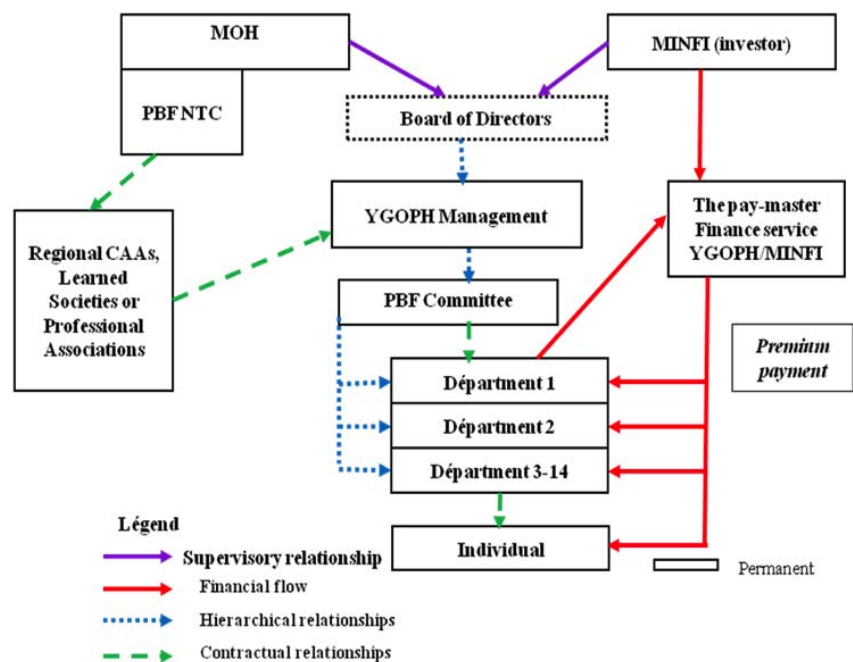


Figure 1. Performance Based Management organizational chart.

## Results

### Human resources

The audit of Human Resources having revealed inadequacies in qualifications, staff profiles and positions, a control of diplomas led to the dismissal of 12 employees and 10 others resigned. The hospital lost 15 staff from death and 51 from transfers. This reduced the Human Resource strength by 14% short of the recommended 25%. This decrease in staff occurred with a significant and unprecedented increase in client attendance and other clinical performance indicators, as seen in Table 1.

A qualitative as well as quantitative improvement of the indicators after 2015 is remarkable. The increased use of hospital services cuts across all segments of the population as can be seen with the needy and vulnerable patients living with HIV (PLWHIV).

### At the financial level

Improvement in the institution's financial health is demonstrated in the three successive Figures 2-4.

Figure 2 shows trends in direct hospital income and total operating revenues from 2012 to 2018. The graph shows the change in direct hospital income and overall revenue between 2012 and 2018. The 5.75% average increase in direct hospital revenue from care and services is in the main attributed to the implementation of PBM. This also explains the increases in running budgets after 2015 as state subsidies have not increased over the period.

Table 2 shows improvement in financial indices including donations from partnerships over time.

Figure 3 shows the influence of debt payment on the net result. After the 2012 surplus due to non-payment of the debt for that year, the hospital deficits grew until 2016 due to regulatory payment of the debt during the same period. In 2017, the resumption of debt clearance still led to a deficit. If debts were cleared as suggested by the Debt Audit and Restructuring Committee (CTR), the organization would have been debt-free since 2016.

Figure 4 compares trends in operating expenditure over time. The share of own

revenues on overall hospital revenues increased from 55.11% in 2012 to 60.00% in 2018. Operating expenses increased between 2012 and 2015, before decreasing from 2016 due to the streamlining of expenses in respect of PBM principles. The yearly increase in expenditure related to staff salaries and wages is + 0.97%. Human resource efficiency improved from 63.53% in 2012 to 49.2% in 2018, with an average improvement of 2.2%. This reflects discipline in expenditure on staff and essential services in relation to wealth created. Account must be taken of the effect of debt clearance. Total operating expenditure would have fallen below total revenues if there were financial provision for the debt clearance.

Encouraging results as evidenced by improvement in the key performance indicators notably: revenue, expenditure, client attendance, and progression in care and service delivery noted in Tables 1 and 2.

Analysis of net margin rates also shows that the level of YGOPH's debt clearance increased between 2013 and 2015, before decreasing over the last two years. Had it

**Table 1. Clinical Performance Indicators.**

| Indicator                                    | 2012   | 2013   | 2014   | 2015   | 2016   | 2017   | 2018   | Average increase (%) |
|--|--------|--------|--------|--------|--------|--------|--------|----------------------|
| Number of consultations                      | 64 492 | 70 557 | 74 458 | 75 971 | 78 869 | 77 913 | 83 722 | 4.50                 |
| Number of ANC                                | 7 199  | 9 755  | 9 813  | 10 066 | 11 327 | 12 881 | 10 789 | 8.11                 |
| Number of deliveries                         | 2 841  | 2 886  | 2 778  | 2 860  | 3025   | 2 960  | 2 868  | 0.22                 |
| Rate of Caesarean sections (%)               | 20.95  | 22.90  | 25.95  | 26.01  | 29.33  | 29.60  | 33.74  | 8.42                 |
| Number of live births                        | 2 721  | 2 660  | 2 705  | 2 814  | 3 062  | 2 698  | 2 781  | 0.63                 |
| Occupancy rate of hospital beds (%)          | 57.90  | 53.45  | 45.25  | 47.31  | 56.25  | 58.26  | 52.18  | -1.07                |
| Number of vaccinations                       | 31 081 | 29 018 | 30 721 | 31 230 | 28 381 | 41 603 | 40 983 | 6.14                 |
| Number of women received for family planning | 679    | 679    | 1 194  | 1 807  | 1 389  | 1868   | 2 699  | 30.50                |
| Number of malnourished children managed      | 32     | 21     | 27     | 62     | 93     | 64     | 86     | 29.50                |
| Number of preterm babies admitted            | 128    | 272    | 303    | 394    | 409    | 362    | 498    | 30.64                |
| PLWHIV under ARV treatment                   | 266    | 911    | 997    | 1 094  | 1 262  | 1 494  | 1 669  | 51.18                |
| Indigent patients                            | 47     | 98     | 90     | 85     | 166    | 122    | 138    | 29.45                |

**Table 2. Financial performance indicators.**

|   | Standard (%) | 2012 (%) | 2013 (%) | 2014 (%) | 2015 (%) | 2016 (%) | 2017 (%) | 2018 (%) |
|---|--------------|----------|----------|----------|----------|----------|----------|----------|
| Execution rate of operating budget in revenue     | -            | 62.1     | 43.8     | 43.9     | 57.3     | 87.3     | 75.8     | 93.4     |
| Execution rate of investment budget in revenue    | -            | 36.3     | 52.8     | 83.0     | 84.8     | 78.2     | 74.1     | 102.9    |
| Execution rate of the budget in revenue           | -            | 56.6     | 46.0     | 52.3     | 64.2     | 84.3     | 75.3     | 95.4     |
| Execution rate of operating budget in expenditure | -            | 60.8     | 48.0     | 53.8     | 76.6     | 87.3     | 78.6     | 90.7     |
| Execution rate of the budget in expenditure       | -            | 55.5     | 48.4     | 58.2     | 69.1     | 77.1     | 63.3     | 80.3     |
| Staff expenditure/operating expenditure           | 40 - 60      | 69.7     | 66.0     | 56.5     | 49.2     | 60.1     | 57.1     | 53.6     |
| Self-financing rate**(%)                          | 100          | 56.3     | 48.9     | 42.4     | 42.3     | 61.6     | 59.6     | 61.8     |
| Own revenue/Total revenue (%)                     | 40- 60       | 55.1     | 53.6     | 51.9     | 56.5     | 61.6     | 61.9     | 60.0     |
| Proportion of revenues from donations (%)         | -            | 0.0      | 14.3     | 14.2     | 1.9      | 0.5      | 1.5      | 2.7      |
| Net margin (with payment of debt)* (%)            | -            | 1.8      | -6.9     | -14.9    | -22.5    | -0.1     | -2.7     | 2.2      |
| Net margin (without payment of debt) (%)          | -            | 1.8      | -6.7     | -4.7     | -6.1     | 4.1      | 3.5      | 13.6     |

\* Net Margin = Net Profit / Turnover x 100 (It reflects overall profitability of the institution). \*\*Self-financing rate: is the share of own revenue relative to total expenditures.

not been for past debt, YGOPH would have reached the desired financial balance in 2016.

### Discussion

In 2012, for a population estimated at 20,636,954 inhabitants, Cameroon disbursed CFAF 728.1 billion (US\$) of current health expenditure, representing 5.4% of current Gross Domestic Product (GDP). This corresponds to an expenditure of CFAF 32,700 (US\$) per capita. Inpatient curative care cost CFA francs 88,683,000,000 (US\$), representing 13.14% of health expenditure.<sup>11</sup>

YGOPH, is a para-public hospital, borne of Sino-Cameroonian cooperation. The Chinese and other partners contribute to the investment budget through procurement of equipment and drugs. It has limited administrative and financial autonomy, because its revenues and expenditures are managed by the Public Treasury, and procurement of goods is subject to the public contract code where articles are generally bought at above the equilibrium market price. Its four missions include: provision of health-care, training, research and cooperation in the specialties of Gynecology, Obstetrics and Pediatrics.

YGOPH's target population is the mother, the child and the adolescent. These are classified as vulnerable groups in the Growth and Employment Strategy Paper (GESP).<sup>12</sup> In addition, if 37.5% of the general population is classified as poor, this rate is 52% for women. To improve access to health-care, the State has made provision for a subsidy of one hundred million CFA francs (two hundred thousand US\$) per month for YGOPH which unfortunately has remained unchanged since 2008.

In 2011, an audit of YGOPH by the Technical Rehabilitation Commission (TRC) found obsolete equipment, decrease in client attendance, falling revenue and structural indebtedness. This earned the hospital's classification as high risk of bankruptcy.

At the same time, the increase in commodity (drugs and medical supplies) prices had significantly contributed to widening the gap between revenue and expenditure, thus exacerbating indebtedness. To avoid eventual closure of the hospital, the management designed a scheme that would increase revenue, streamline expenditure and improve care and service delivery quality.

Performance-based management is an approach that respects the following cardinal values: access to care, adequacy of care,

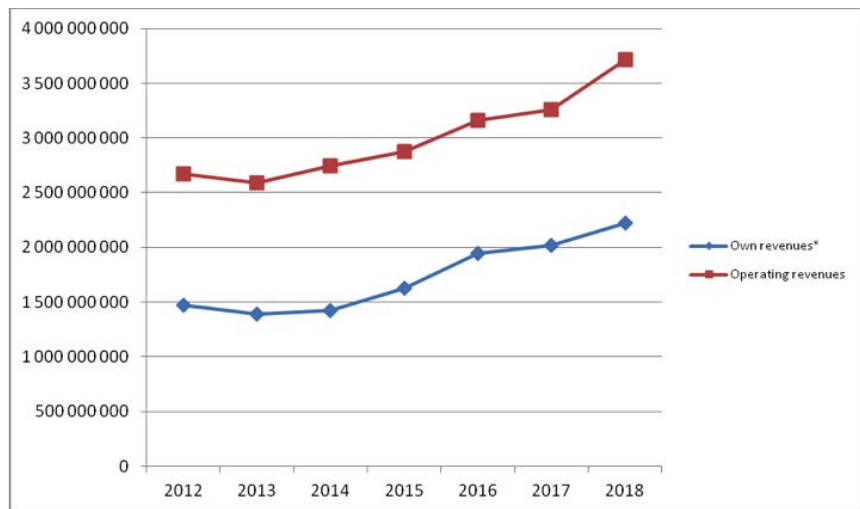


Figure 2. Variation of own and operating revenue from 2012 to 2018.

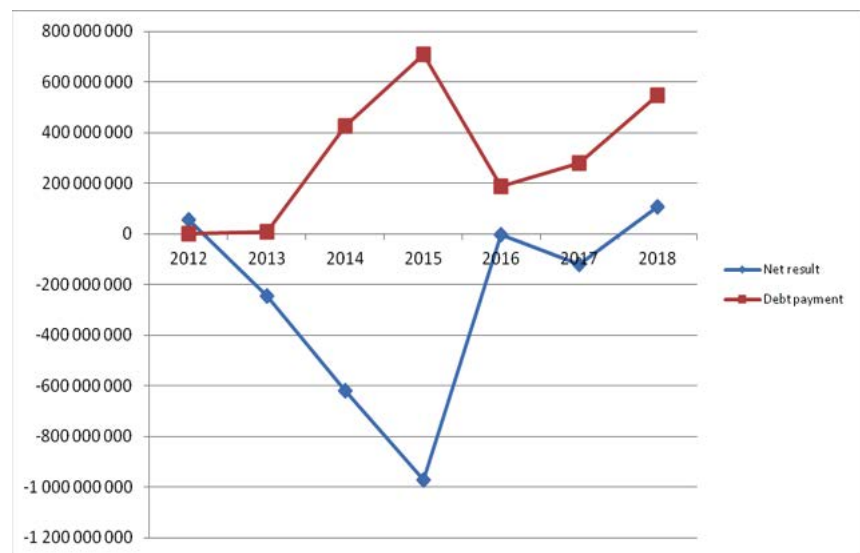


Figure 3. Variation of the net result and debt payment from 2012 to 2018.

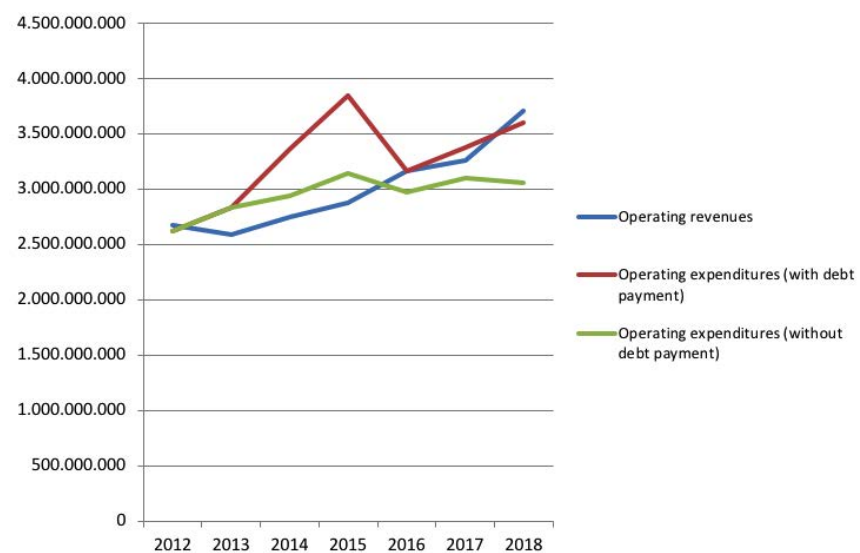


Figure 4. Variation in revenue and operating expenditure from 2012 to 2018.

skilled care delivery, care follow-up (horizontal and vertical referral and feedback), effectiveness of care, efficiency of care (much more and better notwithstanding limited resources), timeliness of care, patient safety and protection; prevention of disease, promotion of health and humaneness of care (empathy, respect, compassion and guidance). PBM has five pillars, namely: The Beneficiary (the patient), the Provider (Health Personnel), the Regulator (the State through the Board of Directors and the Directorate General), the Paymaster/Financier (MINFI), the Auditor (Neutral Structure LCAA). This approach unites the five pillars (actors) in developing a co-shared (united) vision, with a strategic organization and an implementation culture with delegation of responsibilities. This paradigm promotes constructive criticism, encourages ownership and develops individuals' potential. Ultimately stakeholders are empowered as their contributions and decisions are factored in resolving daily operational challenges.

This model empowers care providers and services; staff is more accountable to patients thereby increasing their fidelity and consequently hospital utilization rates and revenue. Implementing this managerial paradigm required devolution of certain aspects of hospital management; firstly provider empowerment and secondly purchase of inputs at free market prices thus favoring competition, thirdly performance auditing by neutral external experts, fourthly recording of all services in the performance registers and finally user satisfaction surveys.

YGOPH, a first category tertiary hospital in the health pyramid, plays a pivotal social role and is ethics-wise non-profit making. Nonetheless, it must balance its revenues and expenses (as stated in its mission statement) to avoid indebtedness that plunges its quantity and quality of care. Our model is a unique experience in Cameroon on self-financing and deserves a critical analysis to improve its strengths, reduce its weaknesses, bank on its opportunities and above all eliminate its threats.

This model highlights several principles, notably the public choice theory, which takes into consideration the interests of the five constituents of the hospital enterprise. It favors a reward for production paradigm over an entitlement culture.

For the user, competition, the right price of inputs and services reduce operational costs, thus improving financial access and thereby increasing hospital attendance. The consumer survey captures the voice of the patient, thereby satisfying the beneficiary. This is one way the community participates

in hospital governance. As public authorities plan to introduce Universal Health Coverage, users are comforted in their social control and co-financing role. This in part explains doubling of direct hospital income within two years of implementation.

The health provider who expects a decent salary and benefits, participates wholly in the management cycle of the hospital. Each individual contract translated into monitored tasks in the daily log and validated monthly at the service index tool audit, encourages everyone to perform their best and fosters emulation, equity and social justice as each staff cross-checks individual output *vis-a-vis* the service performance register. Verification of individual and overall service performance reinforces transparency and improves morale. This index tool was conceived from the Prime Ministerial decree of 1994.<sup>13</sup> The decree provides for consideration of staff diploma, status, grade and duty post on the one hand and a significant percentage for individual output on the other. The latter was not codified and therefore was not uniformly applied by health facilities; hence the complaints of discrimination here and there. The discriminatory application of this decree has been at the root of many strikes. Codifying performance (output) with participation of staff is a cornerstone of the model.

YGOPH's main financial sponsor is the State, which in the long run will not subsidize it anymore.<sup>14</sup> Moreover, stagnant subsidies since 2008 and underfunding of the hospital explain in part the chronic structural debt. The new law of 12<sup>th</sup> July 2017 provides for increased autonomy through directly contracting employees.<sup>15</sup> Increased autonomy and empowerment of staff comes with real time controls and oversight to streamline expenditure. Budgetary discipline is a *sine qua non* indicator of financial performance.

Positive actions on overbilling during acquisition of inputs, monopsony, monopoly, competition and the development of a local economy in the community around the hospital will further strengthen and sustain the hospital. The fact that suppliers prefinance the hospital is partly responsible for its chronic indebtedness. Regulations require payment of debts no later than four years; this explains the clearance of the huge 2010-2011 debt in 2015. Alignment of public procurement with market prices (the right or equilibrium price) will reduce out-bidding and, in turn, the debt. Improved financial health will enable YGOPH to seek financing through Public-Private Partnership (PPP), a cooperation mechanism that was hitherto unexploited. PPP has

strengthened the financial base of the hospital through co-share and co-management agreements, procuring equipment for the laboratories, the department of Medical imaging and the computer system. They have also trained staff in electronic administration and electronic patient records as well as telemedicine.

Precepts and values of good governance, in this case, competition, tracing output from daily logs of tasks/activities and registers as well as daily inputs, revenues and expenditures, computerization of hospital finances and stock accounting are facets of governance in this model. Real-time oversight commands managerial discipline.

With the imminent annulment of subsidies to para-public enterprises, the state may not relinquish its regulatory role, even if this is delegated to the Board of Directors and Hospital Management. Editing and enforcing service and care standards and norms remains within the purview of the State and its partner, the World Health Organization (WHO). Hospital Management ensures compliance with standards and norms through internal controls, user satisfaction surveys, care and service protocols, and checklists which are indispensable evaluation tools. The various mortality and morbidity audits enable the hospital team to adapt protocols and checklists to the YGOPH context.

Nonetheless, YGOPH's PBM model can only succeed if other facilities in the health system consider the shift from entitlement to performance or satisfying the user. Otherwise YGOPH becomes a victim of its success from ever-increasing patient attendance; the dumping of parturients, often at the last minute, which is often cause of death on arrival. Receiving indiscriminately all patients has shown its limits because, despite the respect of equity, social justice and a pro-poor policy, we can hardly accommodate beyond 20% of nonpaying poor patients. Segmenting the population in relation to purchasing power is a challenge and hopefully will disappear with imminent introduction of Universal Health Coverage (UHC).

Our model requires external control and audit by a neutral body. In the absence of a CAA in the Center Region, we contracted with the Littoral agency, an expert in the area. We are aware that when the State's partner (the WB) will leave, CAAs will also disappear. It seems appropriate that the role of external auditor should naturally go to learned societies of Gynecology-Obstetrics, Pediatrics, Surgery and other professional bodies to sustain PBM.

The Ministry of Public Health (MPH) and the Ministry of Finance (MINFI) plan a

nationwide extension of a subsidy dependent PBF model with World Bank assistance. The YGOPH model is based on self-financing, therefore, more likely to be sustainable. There are also non-financial rewards that explain growing PBM acceptance by the hospital community; such as acquisition of management skills by staff with direct interaction of the five pillars in hospital management. The performance culture extends to life outside YGOPH, with the growing demand for our staff to share our experience at conferences and workshops. Linking performance incentives to intelligent and verified indicators spurs production and above all increases consumer confidence. The beneficiary is willing to purchase quality health, a guarantee of the citizen's wellbeing and development.

PBF is criticized for health workers might be tempted to abandon routine services not included in the business plan to focus on profitable performance indicators; moreover, there is always a gap between planned and attained objectives. Quality improvement depends on injection of external funds, making the process unsustainable and also dependent on donor funding.<sup>6</sup> Our PBM innovation is based on self-financing and development of dynamic tools such as the quarterly business plan. Quarterly renewal of the latter offers opportunities to schedule neglected routine hospital activities. Beyond budgetary issues, this experience confirms that creating a culture of engaging (closeby) leadership and followership improves clinical and financial outcomes through increased performance of staff following improvement of wellbeing indicators.<sup>16</sup>

### Strengths and limitations

Our self-financing model deserves a critical analysis to improve on its strengths, limit its weaknesses, seize its opportunities and above all eliminate its threats. The difficulties that must be overcome include: the resistance of some employees hanging on to entitlement with its ways, means and input-based management, the eroding of the culture of common interest, which consolidates individual and group interests, perceived scarcity of financial and human resources, difficulty involving other key public administrations, heavy debt of the institution, no clearly defined catchment population and the social context of corruption.

As limitations, YGOPH has restrained control over operational costs subject to inflation and economic vicissitudes. There are long contract and payment execution deadlines, as well as weaknesses in cost accounting that need to be addressed.

Despite these difficulties and limitations, we believe that improving our model requires devolution: real financial autonomy, effective establishment (launching) of all the five performance pillars (the provider, the beneficiary, the regulator, the investor and the auditor), the fight against illegal practice of medicine and the systematic accreditation of health facilities, strengthening competition at the expense of monopoly in the public procurement system (promotion of the market price equilibrium), promotion of autonomy in the management of staff, adaptation of health worker training programs and curricula, and definition of the population to be covered for coherence of clinical indicators. The proposed reforms highlight the central role of personal choice and responsibility in performance based hospital management.

### Conclusions

PBM fosters sharing of responsibilities among the five pillars that enable the hospital to be both a social, humane and financially viable structure, while providing quality health-care. The YGOPH experience without external funding has validated PBM in practice. This experience urges us to advocate for a more efficient, more equitable system that satisfies the consumer (beneficiary) and motivates staff to implement a more robust PBM, guarantor of good hospital governance. This PBM model focuses on the output, while some PBF models focus on material inputs and subsidies. We therefore retain the hypothesis that PBM is a better system of hospital management compared to the hitherto administrative or largely entitlement input-based management.

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