

# AN EVALUATION OF HEALTH CENTERS AND HOSPITAL EFFICIENCY IN KAMPALA CAPITAL CITY AUTHORITY UGANDA; USING PABON LASSO TECHNIQUE

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## **ABSTRACT**

The Pabon Lasso Model is one of the most important and suitable techniques applied in evaluating the performance of hospitals. The visual representation standardizes the comparative accomplishments of hospitals which information is used by planners in effort to improve productivity of the health care system by use of three pointers namely: (i) Average Length of Stay (ALS); (ii) Bed Occupancy Rate (BOR); (iii) Bed Turnover (BTO). The purpose of this study is to evaluate performance of wards in health centers affiliated to Kampala Capital City Authority (KCCA) and Ministry of Health (MOH) during the financial year 2012-2013 constructed on Pabon Lasso Model. Data for the nine health centers and two referral hospitals was taken by the nursing sisters who were in charge. To ensure accuracy, a weekly standard report was submitted to head office and the data included: a list of wards, number of beds, admissions, deaths, discharges and inpatient days. For all government health centers and hospitals, overall, the average indicators ALS=3.63 days, BTO= 74.0 times per year and BOR=49.3% were obtained. Based on the Pabon Lasso graph, two wards are in Zone 3, two wards in Zone 4, one ward in Zone 2 and five wards in Zone 1. The performance of health centers and hospitals in Kampala were somehow poor. This represented unacceptable levels of technical deficiency.

**Keywords:** *Efficiency, Pabon Lasso, health centers, hospitals, Uganda*

## **Introduction**

Public health centers perform a significant role in the health care structures. These are health center establishments that possess a structured medical and other specialized staff. They provide medical related services in a varying range and in doing so, they create vital data for research, learning and administration (1).

For the past two decades, the government of Uganda significantly appreciated the need for improvement in health infrastructure expansion, human resource training, welfare improvement and health policies, procedures and guidelines (2, 3, 4). Health Infrastructure development of health centers, laboratories and theaters were to improve quality and service equity (4).

However, regardless of efforts of establishments by the authorities, health care worker providers, traditionally oriented challenges related to practical professional inefficiencies, unmet demands, limited resources, public-

private partnerships, donor funding, existing arrangements, scarce specialists, equitable distribution and unfortunate welfare of health workers pose major challenges to policy makers in Uganda (5, 6, 7) as well as at the global level (8, 9, 10). Approximately all health centers I, II, III and IV in Uganda still encounter unmet expectations though services delivered entirely depend on the status awarded. What remains uncertain is the performance of health centers in these circumstances and important factors to enable them survive the test of time.

Ministry of Health and medical researchers in Uganda have acknowledged parallel difficulties which further threaten hospitals from contributing to healthier population. These include: collapsed referral system, insufficient funding for necessary expenditures like ambulance fuel and maintenance, increased pressure for quality services, delayed supplies of blood in addition to poor road networks in the areas and absence of emergency medicines, workforce shortage, failures in task shifting,

inequality in health with bias to the disadvantaged, delayed care seeking, failure or delay to reach the health center, delayed institutional care, increasing demand health services (11, 12).

Usually, given such circumstances, economy, equity, effectiveness, standards, quality, quantity and safety are largely ignored or marginalized. It is essential for administrators, decision-makers and policy makers to evaluate and monitor the performance of health centers' present status and services delivered, to utilize the available resources efficiently, to withstand and enhance a health population in spite of the constraints.

Available evidence shows that current escalated economic burden on public health centers has been met by the victims. World Bank reports indicate that health centers are increasingly allotted a sizeable portion of resources for health expenditure in developing countries (13) while the least for poor developing countries (1). Uganda's total expenditure on healthiness as a percentage of total state expenditure has risen from 7.3% in 2000 to 13.6% in 2009 (1) but there is no factual proof that the increase in health expenditure has better outcomes on healthcare. While there is lack of evidence, the mixture of private not for profit (PNFP) and private health practitioners are also competing at the same space and performing better than the government health centers (7) though their costs are high in a country without government health insurance. Though there are free health services in health centers (14, 15, 16), quality is still lacking (17, 18).

Bearing in mind the above stated concerns, it is significant to consider the performance yardsticks of health centers in order to advise interested parties well on the issue that has been essentially disregarded. Ugandan Ministry of Health (MOH) has categorized selected Efficiency Parameters 2011/12 (2) as shown in Table 1.

Table 1: Annual Health Sector Performance Report 2011/2012

| Yardsticks             | Average | Minimum | Maximum |
|------------------------|---------|---------|---------|
| Average Length of stay | 5.48    | 0.59    | 12.05   |
| Bed-Turn Over rate     | 63.5    | 76.19   | 78.85   |
| Bed occupancy Rate (%) | 96.89   | 6.74    | 235.35  |

### Methodology

To date, many methodologies, methods, illustrations and models have been offered to assess the performance of health centers better and gauge their productivity, financing, distribution and utilization of scarce resources as means to control their inefficiencies (19, 20). This significant and helpful model for assessment of health center accomplishments is Pabon Lasso Model. It was

initiated in 1986 by Pabon Lasso for usage in ascertaining the comparative accomplishments of health centers and it has proved one of the greatest model, valued for comparing the different hospitals or diverse units inside the health centers using three yardsticks namely: average length of stay [ALS]; bed turnover rate [BTO]; and bed occupancy rate [BOR] to make up the overall assessment of performance (21). Understanding of accomplishments by the use of this model is constructed on a chat split into four fixings depending on the average measures:

- (i) Wards having low-level BTO and low-level BOR point out an extra of hospital beds compared to the present requirement (Zone 1).
- (ii) Wards with high-level BTO and low-level BOR (Zone 2) characterized by unwarranted hospitalized patients and excess bed capacity or bed usage for just detecting patients.
- (iii) High-level BTO and High-level BOR (Zone 3) characterize wards in health centers that possess a realistic, suitable neck and neck of efficacy with comparatively a handful of empty beds at any time.
- (iv) Wards in (Zone 4) have low -level BTO and high-level BOR. Such wards have patients with severe, long-lasting diseases or without cause they have long ALS.

This category of investigation has been performed for rapid recognition of badly performing health centers and highlighting areas of direct rectification and discover suitable plans to streamline the incompetence (8). Furthermore, the investigations aim at clear outcomes in the short run period, funding directed at raising health center competence which will be additional advantage in assisting the shift of scare capital to other economical involvements in the same day care situations. Each ward allots themselves particular characteristics by existing in a particular station among the four parts (regions). However, Pabon Lasso has short comings i.e., the performance yardsticks might be strained following a numerous dynamics which cannot be studied by means of a one-dimensional tool (21, 22).

The KCCA is a new administrative body entrusted with management of health service delivery in city whose estimated population is 2.5 million. The authority comprises of five divisions namely: Kampala Central, Nakawa, Lubaga, Makindye and Kawempe with a total of nine health centers and two hospitals. Each division has two health centers apart from Nawaka division. The past few years, emphasis was on quality, quantity, effectiveness & social equity without considerable evaluation of their productivity. This current study performed a Pabon Lasso model to evaluate the condition for the financial year 2012-2013 and discover strategies to assist new management realize high levels of achievement. The purpose of this

study, is to determine the respective performance of the health centers by classifying which zone a health center fits so that the administration team can make additional rational and pertinent judgment of how best to enhance effective performance. More so, to offer administrators evidence they need for appraisal and oversee the health center present activities.

### Results

Entirely, nine health centers and two hospitals affiliated to MOH were assessed. The review of collected data showed that the average bed turnover rate, bed occupancy rate and average length of stay were; 74.01, 49.33% and 3.6 days respectively. Table 2 shows the performance yardsticks for the studied wards.

According to Table 2, the highest and lowest BTO rate goes to Intensive Care Ward (284.1) and lowest to Psychiatric

Ward (19.3), respectively. In addition, the highest and lowest BOR relate to intensive care ward (98.7%) and female surgical ward (30.6%), respectively. Furthermore, the highest and lowest ALS relate to Psychiatric ward (7.1) and intensive care ward (1.3), respectively.

Real-time analysis of health centers and hospital wards using Pabon Lasso graph showed that from the total of nine health centers and two referral hospitals, Naguru and Mulago, out of the ten wards, Intensive Care and Maternity wards were located in Zone 3, this depicted a High level of efficiency. Two wards of Female Surgical and Postnatal Wards were located in Zone 4, one ward, commonly referred to as other wards, was located in Zone 2. The remaining five wards namely; Pediatric, Male Surgical, Female Surgical, Isolation and Psychiatric were located in Zone 1 Pabon Lasso (figure 1).

Table 2: Performance yardstick of the health centers and hospitals affiliated with ministry of health for the financial year 2012-2013.

|    | List of wards        | No of beds | Admissions | Death | Discharges | In Patient days | Occupancy rate per ward (BOR %) | Bed turnover (BTO) | Average length of stay (ALS) |
|----|----------------------|------------|------------|-------|------------|-----------------|---------------------------------|--------------------|------------------------------|
| 1  | General ward         | 351        | 11786      | 574   | 12360      | 66191           | 51.6                            | 35.2               | 5.6                          |
| 2  | Paediatric ward      | 276        | 11742      | 439   | 12181      | 40122           | 39.8                            | 44.1               | 3.4                          |
| 3  | Maternity ward       | 310        | 32140      | 33    | 32173      | 69485           | 61.4                            | 103.6              | 2.1                          |
| 4  | Male surgical ward   | 106        | 3850       | 69    | 3919       | 15364           | 39.7                            | 37.0               | 3.9                          |
| 5  | Female surgical ward | 73         | 2949       | 31    | 2980       | 8169            | 30.6                            | 40.5               | 2.7                          |
| 6  | Intensive care ward  | 26         | 7050       | 223   | 7273       | 9375            | 98.7                            | 284.1              | 1.3                          |
| 7  | Postnatal ward       | 36         | 2688       | 1     | 2689       | 6157            | 46.8                            | 75.1               | 2.2                          |
| 8  | Isolation ward       | 21         | 553        | 8     | 561        | 2869            | 37.4                            | 27.3               | 5.1                          |
| 9  | Psychiatric ward     | 3          | 56         | 0     | 56         | 398             | 36.3                            | 19.3               | 7.1                          |
| 10 | Other wards          | 58         | 4287       | 14    | 4301       | 10722           | 50.6                            | 73.6               | 2.5                          |
|    | Total                | 1260       | 77101      | 1392  | 78493      | 228852          | -                               | -                  | -                            |
|    | Average              | -          | -          | -     | -          | -               | 49.33                           | 74.01              | 3.6                          |

### Discussion and conclusion

This research used pooled data from eleven MOH health centers and Kampala hospitals. To derive the average performance, we used formulas to calculate BOR, BTO and ALS note indices or mean values. The reason for combined analysis was that data was categorized according to wards and therefore it was mixed. This was to avoid miss reporting or misrepresenting which might result into misleading conclusions. Also another reason was that the type of data and mode collection was in terms of services delivered and by standard. Though the health centers are not similar, one health center is a mirror of the other.

In the past, there was pint-sized investigations of this type in Uganda, and former scholarly works was confined to assessing referral system failures, little investment in the health sector, equitable distribution, comparing public and private not for profit service delivery, abolition of user charges, welfare of health workers, task shifting, unmet health expectations, family planning, quality of life, health infrastructure and HIV/AIDS and its impact. In spite of having many methods for measuring efficiency, MOH has stipulated the average BOR, BTO and ALS following Pabon Lasso. However, health researchers have not ventured in measuring efficiency to help guide policy makers' decisions in the health sector of Uganda.

The graph below indicates the average length of stay, bed turnover and bed occupancy rate as plotted on the graph. The clearly plots each ward for easy analysis of data.

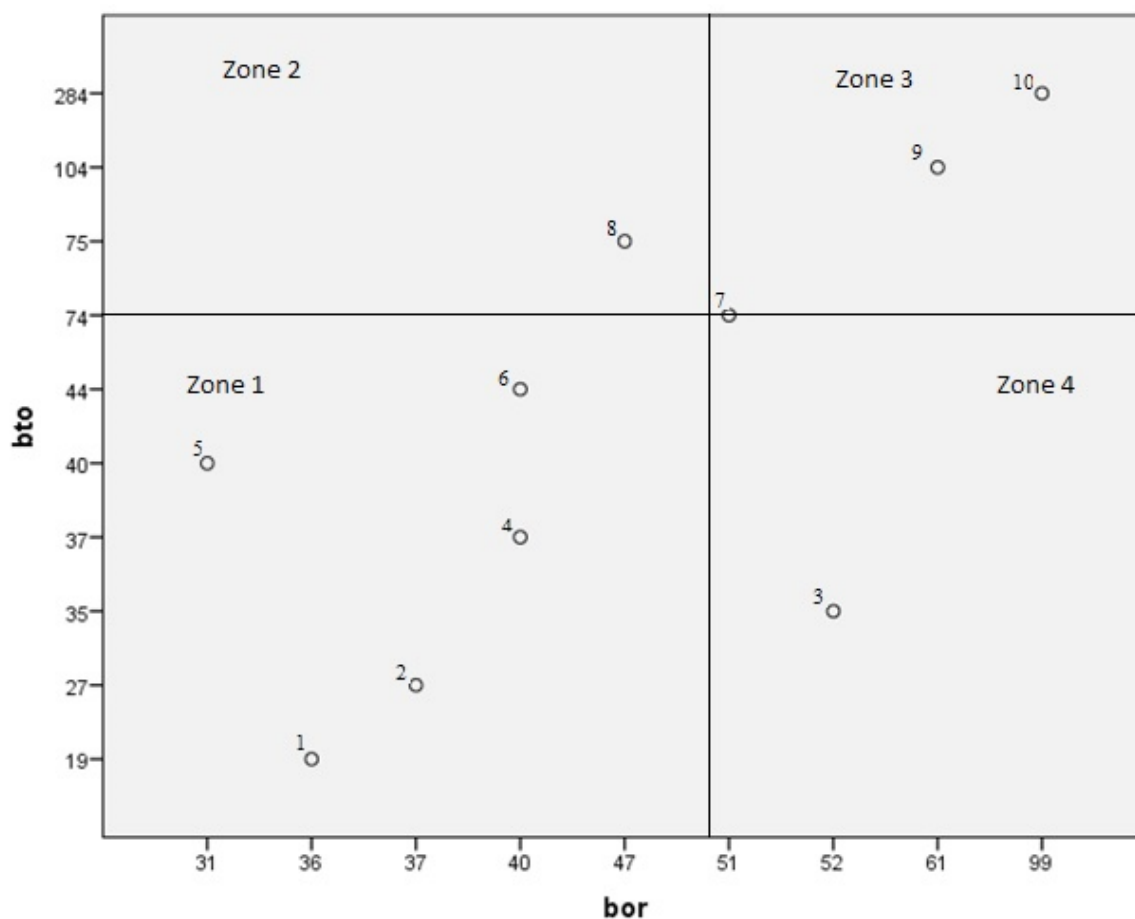


Figure 1: The rank of health centers and hospitals using the Pabon Lasso technique

Care has to be taken while measuring efficiency especially using one yardstick to avoid misleading conclusions on the performance of health centers and hospitals. For instance one can use only BOR and high BOR which may result into either high ALS in some wards due to the nature of illness, cost- effectiveness exhibited in proper management and utilization of resources or simply unnecessary hospitalizations coming from failure to utilize the available resources more efficiently hence leading to inefficiency. Only one study in Uganda used multiple indicators (Pabon Lasson) to measure efficiency of hospitals in Western Uganda in 2002 (7).

This study has used the analytical model for Pabon Lasso which provided us with three yardsticks (BOR, BTO and ALS) as illustrated diagrammatically to support quick evaluation of overall performance and also establish the relationship among the multiple yardsticks to facilitate the analytical and discussion process.

Apart from the fact that data was collected on daily basis and sent to the ministry weekly for a period of one year, it should be noted that certain wards such as, ENT, Eye, TB

and Cancer did not exist since TB Ward, is being managed by a Centre for Disease Control.

Overall, the results indicate that only two wards, Intensive Care and Maternity have a good degree of efficiency since they fall in Zone 3 of the Pabon Lasso graph. This means that these two wards may extend to a perfect magnitude of productivity via appropriate service supervision and the observing of the current admissions and delay standards. In Zone 2, we identified one ward that has a low BOR and it appears there are unwarranted hospitalized patients and excess bed capability. Therefore, we propose that appropriate means are engaged to justify the action resourcefully.

General and Postnatal Wards fall into Zone 4 of the Pabon Lasso graph with a low BTO and average BOR but with reduced ALS since any successful delivery does not stay beyond two and half days. Such ALS should be maintained though there is need to improve the BOR and BTO. Among the broad strategies for enhancing performance may include a shift to out-patient for mothers who are not in labour apart from complex cases. There is also need for

comparative studies that will enable comparisons among different hospitals with different status before making any remedial intervention. A number of factors have been identified to be the cause of the state of affairs such as traditional inpatient practices, mismanagement of limited available resources and total failure to utilize the available resources.

The remaining five wards fall into Zone 1, indicating unfortunate accomplishment and ineffective utilization of resources. In the past, many studies have concentrated on performance in terms of absenteeism of health workers (7), immediate intervention is to improve supervision and ensure health workers turn up for duty and work for recommended time. Secondly, health centers should be operational over weekends. This can be managed through shift operations in order to step up the utilization of available resources. Thirdly, full utilization of resources will require improved welfare of health workers more especially in terms staff houses within the vicinity of the health centers (infrastructure). Lastly, there is need for short-term strategies i.e., pause expansion for a while. Focus should be dedicated on identifying factors contributing to the current state of affairs for example inefficiency among the five wards in Kampala health centers and hospital out of ten. Then, immediate interventions like proper resource management, income management strategies, merging nonfunctional wards and departments to reduce on the operational costs and improve on the technology used in terms of equipment should take place (23).

This paper has analyzed 10 wards in Kampala from nine health centers and two referral hospitals under MOH and we assessed their accomplishment through Pabon Lasso model. The end results indicate that although two wards have an outstanding performance, the other eight wards exhibited poor performance. The author has suggested solutions with a view to guide policy makers to improve efficiency.

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