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ABSTRACT

Management in hospitals just like any other organization is very important as nothing moves without it. Kenyan public hospitals have not been doing well in their service delivery and the management's role in hospital performance has not been evident.

Objective: **The objective of this study was to analyze the effect of hospital management practices on hospital outcomes**

Design: **The study employed a mixed method research design where both qualitative and quantitative data were collected from all the 25 hospitals in central Kenya. The qualitative data was analysed thematically while quantitative data was analysed statistically.**

Setting: **25 hospitals in central Kenya.**

Subjects: **Patients, next of kin, health workers and hospital managers.**

Interventions: **There was no intervention measures taken.**

Results: **The study identified eleven management practices in Kenya public hospitals with regular supervision being practiced widely. The results further showed that hospitals practicing motivation and inspiration of staff, effective communication, delegation, work plan, work plan implementation and, staff empowerment had an increase in total live births. At the same time the results also indicate that hospitals that practiced empowerment, delegation and managers residing in hospitals had a reduction in fresh still births. All management practices identified in this study improved overall inpatient and outpatient satisfaction though not statistically significant.**

Conclusion: **This study concluded that better management of hospitals translates to improved hospital outcomes and general health improvement of population served. This results in reduction of fresh still births, increase in total live births, and overall satisfaction in both inpatient and outpatient services.**

INTRODUCTION

Management in all spheres of life is an important aspect that ought to be given its rightful place and the weight it deserves, since it is the driver of all resources put together- from inputs, processes, outputs, outcomes and impacts. Good management practices take center stage in any firm or organization that intends to continuously provide products or services that meet and or exceed customer expectations.

Ugandan public hospitals were in pathetic conditions and with service delivery at the lowest level and this was associated with poor management. The study singled out good management as precursor of better performance of hospitals[1]. Management is a vital feature of health systems strengthening which is often not given much prominence[2]. Hospitals are labor intensive organizations that require effective management practices to improve both the standards of healthcare outcomes and patient outcomes. This is a result of employees' performance which in turn is influenced by management practices employed[3].

Management is a vital aspect in every organization as it breathes life to all the other aspects of inputs put together, thereby enabling processing and delivery of products and services that meet the objectives of the organization. The manager is the dynamic, life-giving element in every business, without whom the resources of production remain resources and never become products[4]. Management is getting people to work harmoniously together and to make efficient use of resources to achieve objectives. Hospitals are established to restore normal health to the sick. Therefore, management plays an important role in ensuring that the available input resources at the hospital are put to the best utility to maximize output.

The managers are like the potters who use clay and their artistic touch to produce clay products that suit their clients' needs. Likewise, a manager employs management practices to the various inputs and processes to give the best health care services to meet the needs of the sick. This way the management practices and acumen employed by managers are likened to the artistic touch the potter gives to raw clay that converts it to finished clay products that meet the needs of their clients. The manager has to be a craftsman. His first duty is, indeed, to make his institution perform the mission and purpose for the sake of which it exists—whether this be goods and services, learning, or patient care [5].Management sets the input, processing, output and delivery of services to customers by ensuring all the required inputs are ready (human resources; tools, equipment & machinery; medicines and non-pharmaceutical supplies, conducive environment et cetera). Management does this by bringing aspects and dynamics that ignite and awaken the systems, arrange, order and systematize processing of inputs into outputs that customers receive as services which in turn translate into outcomes for the individual customers/patients, hospital and the community served.

In order to accomplish this managers are required to employ management best practices to achieve output and outcome that meet clients' needs satisfactorily. Best practices are practices which are most appropriate under the circumstances, especially as considered acceptable or regulated in business; techniques or methodologies that, through experience and research, have reliably led to desired or optimum results[6].

Health care services delivery is complex. This is because of the inherent nature and uniqueness of the different health issues (diseases and infirmities) that afflict

individual patients at different times requiring different interventions: case handling and management (including the different medical personnel: doctors, nurses, laboratory technicians, radiologists et cetera), medical and non- medical supplies, facilities availed to management by government/owners/ sponsors (beds, machine, wards, theaters et cetera) and the different management practices that are put into play to produce the best results for the individual cases.

Hospital and health services delivery are measured using improved services, reduction in morbidity, mortality and patient satisfaction. This calls for healthcare managers to undertake to improve the quality of patient care delivery in their hospitals. This can be achieved if they adopt and adapt management practices that help in the manipulation of inputs into outputs and results in a more efficient manner that satisfies patients maximally. In the healthcare industry, service quality has become an imperative in providing patient satisfaction because delivering quality service directly affects the customer satisfaction, loyalty and financial profitability of service businesses[7].This study sought to analyze effects of management practices on hospital and health outcomes in public hospitals in central Kenya.

MATERIALS AND METHODS

The study employed a mixed method research design where both qualitative and quantitative data were collected from all the 25 hospitals in central Kenya. The mixed research method is a method that focuses on collecting, analyzing, and mixing both quantitative and qualitative data in a single study or series of studies. Its central premise is that the use of quantitative and qualitative approaches, in combination, provides a better understanding of research problems than either approach alone [8]. The qualitative data was analysed thematically. During data collection, the interviewer asked and recorded open-ended questions and their answers from four thematic areas. These were: 1) Is the hospital serving the community well? 2) What do you think are the major problems facing this hospital?. 3) In your own view, how would you describe the hospital in terms of: Drugs and other supplies, food, the staff attitude, hospital cleanliness and safety and, 4) what can be done to improve the hospital services?

Qualitative information was used for a descriptive analysis of the link between hospital management, health service delivery, and health outcomes. The information from focus group discussions and key informants interviews were used to augment results from the quantitative analysis. The quantitative data were analysed statistically through ordinary least squares and Tobit regressions.

The study collected data from samples of hospital managers and patients. The patients, sample sizes were computed using Fisher's method, and sample patients were chosen randomly. In addition, qualitative data about the performance of hospitals were collected using key informants and focus group discussions.

This study employed selected management practices to test their effect on hospital outcomes. These were: work plan, work plan implementation, staff empowerment, effective communication, delegation, daily supervision motivation and inspiration and finally, hospital residence of managers.

This study used total live births, fresh stillbirths and overall patient satisfaction of both inpatient and outpatient services as indicators of hospital outcome.

This research study employed interviews for all groups: top managers, key informants (who were departmental or section in charges), in-patients, outpatients and, focus group discussions. Top managers were

interviewed on their management practices, while key informants were interviewed on how the hospital was run including the communication from the top management to the unit workers. On the side, the patients were interviewed on their perception about the services offered by the hospitals at inpatient and outpatient department, whether they would return to the hospital if a need arose, the attitude of the staff, the quality of food and the state of cleanliness of the bathrooms and toilets. On focus group discussions, men and women were interviewed separately and were asked to give their views on how the hospitals were being managed and how they were offering services. The ordinary least squares (OLS) regression method was used to analyze the various determinants of hospital outcomes. The determinants of hospital outcomes were regressed against management practices identified in the study. These were: fresh still births, total live births, overall satisfaction with outpatient services and overall satisfaction with inpatient services. The *t*-values in parentheses were considered statistically significant from 2.0 and above.

RESULTS

Statistical results: The study identified eleven management practices in Kenyan public hospitals.

Table 1

Hospital management practices in the order of practice frequency

	Number	**Percentage**
1.Regular Supervision	74	98.67
2.Good Communication of Information	65	87.84
3.Good Relation	61	81.33
4.Consultation &Consensus Building	52	70.27
5.Delegation	50	66.67
6. Work plan Preparation	47	64.38
7.Empowerment of others	47	62.67
8.Work Plan Implementation	47	62.67
9.Motivation&Inspiration of others	39	52.70
10.Uses Inspection tool	39	52.00
11.Residence of Managers In Hospitals	22	29.33

Table 1 shows the results of management practices in Kenyan public hospitals. The most common management practice was regular supervision. The next practices were good communication and good relationship with other people.

Table 2

Management practices and hospital performance – dependent variable is log of fresh still births (t-statistics in parentheses)

Management Practices	1	2	3	4	5	6	7	8	9
Work plan? (yes=1)	0.446 (1.34)								
Work plan implemented? (yes=1)		0.032 (0.95)							
Staff Empowerment (yes = 1)			-0.733 (-2.15)						
Effective communication (yes=1)				-0.47 (-0.80)					
Delegation (yes=1)					-0.95 (-2.60)				
Daily supervision (yes=1)						-0.169 (-0.49)			
Motivation and inspiration (yes=1)							-0.169 (-0.49)		
Hospital residence (yes=1)								-0.689 (-2.02)	
Log of management index									1.098 (0.99)
Constant	2.349 (8.67)	2.473 (9.05)	2.91 (15.43)	2.73 (15.93)	2.91 (16.41)	2..744 (13.46)	2.800 (11.47)	2.894 (15.30)	3.180 (6.01)
R-squared	0.0254	0.0128	0.0621	0.0091	0.0879	0.0035	0.0059	0.05548	0.0137
Sample size	71	72	72	71	72	71	71	72	72

The results in table 2 showed that a 1% increase in the empowerment indicator (the proportion of empowered workers), hospital practicing delegation of duties to other workers and hospitals whose managers were residing in hospital compounds reduced the number of fresh stillbirth by 0.733% (*t*-2.15), 0.95% (*t*-2.60) and 0.689% (*t*-2.02) respectively. Effective communication, daily supervision, motivation and inspiration were associated with reduction of fresh stillbirth by0.47% (*t*=-0.80), 0.169% (*t*=-0.49) and 0.169% (*t*=-0.49) respectively, but were statistically insignificant. These results clearly indicate that good management practices help in reduction of fresh stillbirths implying that good management results in good clinical management. In this case it is an indicator of good labor management. However, work plan and work plan implementation were associated with increase in fresh stillbirths by 0.446% (*t*=1.34) and 0.032% (*t*=0.95) respectively. The same applied to log management index an increase by unit of log

management index was associated with 1.098 (*t*=0.99) increase in fresh stillbirths.

Table 3

Management practices and hospital performance – dependent variable is log of total live births (t-statistics in parentheses)

Management Practices	1	2	3	4	5	6	7	8	9
Work plan (yes = 1)	0.56 (2.05)								
Work plan implemented (yes = 1)		0.06 (2.04)							
Staff Empowerment (yes = 1)			0.76 (2.79)						
Effective communication (yes = 1)				1.39 (3.47)					
Delegation (=1)					0.89 (3.17)				
Daily supervision (yes = 1)						0.10 (0.36)			
Motivation and inspiration (yes = 1)							1.39 (3.47)		
Hospital Residence (yes = 1)								-.056 (-1.88)	
Log of management index									2.57 (4.08)
Constant	6.85 (31.3)	6.84 (30.7)	6.72 (30.9)	5.98 (15.9)	6.61 (29.1)	7.13 (35.8)	5.98 (15.9)	7.36 (45.4)	8.44 (25.66)
R-squared	0.056	0.054	0.096	0.143	0.121	0.001	0.143	0.046	0.185
Sample size	73	75	75	74	75	74	75	75	75

On total live births the results of log management index exhibited strong positive relationship with log of total live births as shown in table 2. Increase in one unit of log management index increased log total live births by 2.57. In other words one per cent increase in management index increased the number of total live births by 2.57% (*t* =4.08).The results further show that an increase in one per cent of proportion of hospitals practicing the following management practices: motivated and inspired staff, effective communication, delegation, work plan, work plan implementation and staff empowerment increased total live births by 1.39% (*t* =3.47), 1.39% (*t* =3.47), 0.89% (*t* =3.17), 0.56% (*t*=2.05), 0.06% (*t* =2.04) and 0.76% (*t* =2.79) respectively. Daily supervision had positive but statistically insignificant association with total live births 0.10% (*t* =0.36); while hospital residence managers had negative

and statistically insignificant association with total live births -0.56% (t =-1.88) that is it did not have significant positive correlation with total live births. These results are showing that all management practices identified in this study increased the total number of live births in hospitals with exception of residence of managers in hospital compound.

Table 4

Management practices and hospital performance – dependent variable is log of overall satisfaction with in patients' services (t-statistics in Parentheses)

Management Practices	1	2	3	4	5	6	7	8	9
Work plan? (yes = 1)	-0.03 (-0.56)								
Work plan Implemented? (y=1)		-.0024 (-0.49)							
Empowerment of staff? (yes=1)			-0.03 (-0.57)						
Effective communication (yes=1)				0.06 (0.52)					
Delegation (yes=1)					-0.06 (-1.25)				
Daily Supervision (yes=1)						0.03 (0.64)			
Motivation and inspiration (yes = 1)							0.024 (0.55)		
Hospital residence (yes = 1)								0.0082 (1.76)	
Log management index									0.25 (1.68)
Constant	1.20 (27.43)	1.20 (27.66)	1.20 (30.93)	1.13 (10.39)	1.22 (31.07)	1.16 (40.53)	1.17 (33.71)	1.16 (45.76)	1.30 (18.17)
R-squared	0.0008	0.0006	0.0008	0.0007	0.0038	0.0011	0.0007	0.0075	0.0068
Sample size	411	413	413	410	413	392	410	413	413

Table 4 shows the results of overall satisfaction with inpatient services. The results indicates that an increase in one unit of log management index increases log overall inpatient satisfaction by 0.25 (t=1.68). A 1% increase in proportion of hospitals practicing effective communication, daily supervision, motivation and inspiration and hospitals whose managers resided in hospitals increased overall satisfaction with inpatient services by 0.06% (t=0.52), 0.03% (t=0.64), 0.024% (t=0.55) and 0.0082% (t=1.76) respectively. All these management practices exhibited positive relationship with overall satisfaction with inpatient services but they were statistically insignificant. These management practices indicate that good management is an ingredient for improved service provision and uptake of outpatient services in hospitals. The other management practices (work plan -0.3 (t=-0.56), work plan

implementation -0.0024 (*t*=-0.49), empowerment staff -0.03 (*t*=-0.57) and delegation-0.06% (*t*=-1.25)) were negatively and statistically insignificantly associated with overall satisfaction with inpatient services.

Table 5

Management practices and hospital performance – dependent variable is log of overall satisfaction with out-patient services (t-statistics in parentheses)

Management Practices	1	2	3	4	5	6	7	8	9
Work plan? (yes = 1)	-0.02 (-0.29)								
Work plan Implemented? (yes = 1)		-0.0002 (-0.04)							
Staff Empowerment (yes=1)			0.02 (0.28)						
Effective Communication (yes = 1)				-0.0083 (-1.10)					
Delegation (yes = 1)					-0.04 (-0.69)				
Daily Supervision (yes = 1)						0.09 (1.91)			
Motivation and Inspiration (yes = 1)							0.0069 (0.14)		
Hospital residence (yes = 1)								0.0046 (1.27)	
Log management index									0.31 (1.89)
Constant	1.3 (25.55)	1.28 (26.04)	1.3 (27.81)	1.28 (16.49)	1.31 (24.84)	1.22 (36.06)	1.27 (33.00)	1.27 (48.73)	1.41 (18.40)
R –squared	0.0002	0.0000	0.0002	0.0000	0.0012	0.0091	0.0000	0.0010	0.0090
Sample size	393	398	398	397	398	397	397	398	398

Further the results from table 5 indicates that an increase in one unit of log management index increases log overall outpatient satisfaction by 0.31 (*t*=1.89). A 1% increase in proportion of hospitals practicing empowerment staff, daily supervision, motivation and inspiration and hospital residence of managers increased overall satisfaction with outpatient services by 0.02% (*t*=0.28), 0.09% (*t*=1.91), 0.0069% (*t*=0.14) and 0.0046% (*t*=1.27) respectively. All these management practices exhibited positive relationship with overall satisfaction with outpatient services but they were statistically insignificant. These management practices indicate that good management is an ingredient for improved service provision and uptake of outpatient services in hospitals.

The other management practices (work plan preparation-0.02 (*t*=-0.29), work plan implementation -0.0002 (*t*=-0.04), effective

communication -0.0083 (*t*=-1.10) and delegation-0.04% (*t*=-0.69)) were negatively and statistically insignificantly associated with overall satisfaction with outpatient services.

Qualitative Results

Focus group discussions: The results from focus group discussions showed that there was a general consensus that hospitals served the community well. Also, a majority of the focus group discussions agreed that shortage of drugs was evident with patients being sent to buy them from private pharmacies. Ambulance charges were also said to be high. They also reported that staff was generally warm and welcoming, hospital cleanliness was good and food served was well prepared. Despite the positive responses from the focus group discussions they also indicated some areas that hospitals needed to improve on. Such areas include: a shortage of drugs supplies, high ambulance charges, some hospitals had high bed charges while other hospitals had high consultation fee. These factors reduce the effectiveness of good management practices.

Key informants: The results from key informants showed that a majority of hospitals in the study had annual work plans for hospital, departments, sections, and units that were implemented on a quarterly basis. They also reported that there were daily unit supervision, fortnight departmental supervision and, monthly management supervision. The key informants also confirmed understanding of how the hospital affairs were conducted.

DISCUSSION

From the results it is clear that this research concentrated on four measures of hospital performance, that is, fresh stillbirth, total live birth, and overall satisfaction of both inpatient and outpatient services. Death rate within 30 days of Hospital admission for heart attack is utilized as a measure of quality care[7]. WHO states that the following measures are used to gauge health performance per country globally: Life expectancy at birth overall years, death per 1000 live births, infant mortality, gross domestic product, gross domestic product per type of health systems[8].

From the results of both fresh stillbirths and total live births it can be seen that those specific management practices that had a negative effect on fresh stillbirths and all those that had positive effect on total live births were indicators of better labor management with improved clinical outcome, that is, reduction in the number of fresh stillbirths and increase in the number of total live births. This translates to the reduction in neonatal mortality and infant mortality in the hospitals which leads to good health indicators in the community hence it impacts on maternal, neonatal and child health and also on life expectancy at birth. This implies that timely intervention is critical in delivery and community uptake of health care services.

Intrapartum- related neonatal deaths account for about 10% of deaths in children aged less than 5 years globally. Intrapartum are huge and invisible but potentially preventable as they are mainly a result of mismanagement of labor[10]. These authors assert that programmatic attention and improved information are required[10]. Programmatic attention was applied to the helping babies breathe program which was associated with a sustained 47% reduction in early neonatal mortality within 24 hours and a 24% reduction in fresh stillbirths after 2 years[11]. This confirms the following specific management practices reduced fresh stillbirths by 0.733% (*t*= -2.15) staff empowerment, 0.95% (t=-2.60) delegation and 0.679% (*t*= -2.02) residence of manager in hospital compound. On total live births the following specific management practices

increased by 0.56% (*t*= 2.05) work plan; 0.06% (*t*= 2.04) work plan implementation; 0.76% (*t*=2.79) staff empowerment; 1.39 %(*t*= 3.47) effective communication; 0.89% (*t*= 3.17) delegation, 1.39% (*t*=3.47) and 2.57% (*t*=4.08) management index. The reduction in fresh stillbirths and increase in total live births translates to a reduction of neonatal, less than five year mortality rates and increases life expectancy at birth. This is a clear indicator that hospitals that employ best management practices have better outcomes for both the patients and the hospitals.

Results from tables 4 and 5 show that good management practices had effect on overall satisfaction of both inpatient and outpatient services implying that good management is a pre-condition of health services provision and uptake in hospitals as they are good pointers of hospital image and quality of services provided. These results compares well with what Carter found, that is, patient satisfaction with care tends to be higher at better-managed hospitals. In United Kingdom hospitals, where patient satisfaction ratings correlated with management scores[12], compares well with this study where log management index in both cases of inpatient and outpatient overall satisfaction exhibited remarkable positive association 0.25 (*t*=1.68) and 0.31 (*t*=1.89) respectively. The other management aspect that had remarkable positive implication on both inpatient and outpatient overall satisfaction was residence of managers in hospital compound by 0.0082 (*t*= 1.76) and 0.0046 (*t*=1.27) respectively. Although the results of log management index, residence of managers in hospital compound, effective communication, daily supervision, motivation and inspiration did not have statistical significant on overall patient satisfaction on both inpatient and outpatient services they were indicative of important effects and direction of hospital performance. They suggest that specific management practices had effect on the way hospital affairs are conducted and generally on hospital outcome. Like in this case, hospital-specific management practices were strongly related to a hospital's quality of patient care and productivity outcomes. These researchers pointed out that improved management practices in hospitals were associated with significantly lower mortality rates[13].Overall patient satisfaction in both inpatient and outpatient services is perception issue and any slight improvement is of great importance to all stakeholders: patients, managers, caregivers, policy makers and the general public. There was a positive and significant relationship between customers' perception of service quality and their willingness to recommend the company[14]. Likewise, when asked whether they would return to the hospital if need be 97% outpatient and 95% inpatient interviewed agreed they would return. This implies that they would tell and recommend others to seek services in the same hospitals.

The qualitative results on overall satisfaction of both inpatient and outpatient services suggests that any slight incremental improvement in healthcare is welcome as it means forestalling death or health deterioration of the patients. A good example is reduction in emergency waiting time for caesarian surgery even if by a minute may result in saving both the life of the mother and child, avoidance/ reduction of health complications for both mother and child. It also results in increasing total live birth, life expectancy at birth, and reduction in fresh still birth, neonatal and infant mortality. In table 2 for example some management practices such as daily supervision (-0.169, *t*= -0.49) and motivation (-0.169, *t*= -0.49) exhibits insignificant statistical correlation with fresh still birth. However, good overall satisfaction with both inpatient and outpatient services suggest that such slight improvements mean a lot (as it is a quality issue) as they seem to

feed into general overall satisfaction with patients giving positive and favorable responses as to whether they would return to the hospital if need arose or recommend others to seek medical attention in these hospitals.

The qualitative results from both focus group discussions and key informants does not only support but also augment the quantitative results because any slight incremental improvement in healthcare is welcome as it means forestalling death or health deterioration of the patients. For example, focus group discussions reported that hospitals were serving the community well, had good levels of cleanliness and staff attitude was good. Implying that hospitals were well managed. However, they also pointed out on areas that required attention. These were: a shortage of drugs in hospitals. This implies that patient (s) would not receive clinical intervention timely and their case may deteriorate, get complicated and may even lead to death. The same case may be said for high ambulance charges.

CONCLUSIONS

Management is an essential component in hospital performance. Hospitals are perhaps the most complex organizations that exist. They are labor intensive, handle diverse and complex life threatening cases and also death. They require specialized knowledge and resources. This calls for good management so as to bring about the desired outcomes that match the objectives and goals of establishment of these hospitals.

Good management and specific management practices applied to hospitals in the production of services can make a whole difference in the outcome of hospitals. This research concludes that specific management practices had profound impact on hospital performance such as reduction of fresh stillbirths, increase in total live births and improved customer satisfaction for both inpatient and outpatient services. By reducing fresh stillbirths it goes a long way in reducing neonatal, infant and under 5 years' mortality rate and also reduction of maternal death. The findings of this study corresponds with modern management practices that are indispensable in maintaining and sustaining health professionals' performance and most importantly improving quality of patient outcomes in hospitals[3].

From the findings of this study the researchers recommend that government should come up with polices that ensure that: the three top hospital managers (Medical superintendent, Nursing officer in-charge and the hospital administrator) are housed and resides within the hospital compound. In addition the hospital managers should be motivated to employ the best management practices identified in this study. There is also a need for policy that would encourage competition within hospitals of similar category with an attached rewards and incentives to both hospitals and their staff.

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ETHICAL CONSIDERATION

The study involved gathering information from patients, next of kin, hospital managers, and departmental/ section supervisors (informants). Informed consent from individual patients and next of kin

were sought from patients. Patients' data were anonymized to conceal personal information and confidentiality maintained throughout the entire study.

Ethical clearance and permission to conduct the study were granted by Kenyatta National Hospital/ University of Nairobi Ethics and Research committee.

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