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# Effects of Out-Of-Pocket Payment, Money Value on Insurance Claims and Patient Case Mix Index on Revenue Generation among Not-For-Profit Hospitals in Kisumu County, Kenya

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## Abstract

**Purpose**: Effective revenue cycle has become crucial in today's hospital business environment. Hospitals are confronted with stricter regulations and billing requirements, more thorough preauthorization, and precertification, underpayments and greater delays in payments. This study provided an analysis of the determinants of revenue generation with key focus on out-of-pocket spending, money value of insurance claims and patient case mix index among not-for-profit hospitals in Kisumu County.

**Methods:** The study utilized Baumol's model of sales maximization. A correlational research design was employed and secondary panel data was used from revenue statements of 39 not-for-profit hospitals in Kisumu County for the period 2019-2023. Data was analyzed using descriptive statistics and regression analysis and presented in the form of tables.

**Results:** A positive and significant relationship was found between out-of-pocket payments (β=0.259, P =0.002), monetary value on insurance claims (β=0.169, p=0.031), outpatient revenue (β= 0.152. P=0.031), inpatient revenue (β=0.244, P=0.000) and revenue generation.

**Conclusion:** The study concluded that when patients pay more out-of-pocket, more revenue is realized by hospitals. More insurance claims by the hospitals resulted in more revenue and the patient case mix index has a positive and significant relationship with revenue generation among Not-For-Profit Hospitals in Kisumu County. The study recommended that not-for-profit hospitals should encourage more patients to subscribe for health insurance coverage; a mix of inpatient and outpatient index be allowed as they both contribute to increased revenue generation; and the government should formulate policies that will guide the not-for-profit hospitals to come up with standardized charges to ensure they remain financially sound while providing quality and affordable services.

**Keywords:** *Out of pocket payments, Monetary value of insurance claims, Patient Case Mix Index, Not-for-Profit hospitals*

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## 1. Introduction

All firms, regardless of ownership status, must generate returns to key stakeholders. Within investor-owned (IO) hospitals, the key stakeholders are the equity holders, those who have a residual claim on the hospital assets after the debt obligations have been met. Government and not-for-profit (NFP) hospitals also have stakeholders but they are not necessarily as easily identified. Instead of individuals who own stock in the firm, NFP and government hospitals are supported by local communities, states, and the federal government that provide support via bypassed tax revenue or directly through general tax revenue. Both IO and non-IO hospitals demand adequate returns to support the long-term goals of the organization (Jason et al., 2015).

Revenue is income generated from the sale of goods and services or any other capital or asset utilization linked with the major operations of an entity before any costs or expenses are deducted (Weygandt, Kimmel & Kieso, 2013). Revenue is the aggregate sum of money generated by an enterprise for goods or services rendered during a particular period. It also embroils net sales, exchange of assets, as well as any other owner's equity and, is evaluated before the deduction of any expenses (Aggestam-Pontoppidan, 2017).

For public hospitals, or broadly speaking non-profit hospitals, the objectives do not usually have a monetary dimension, and their mission and objectives should be focused on life-saving decisions (Nowicki, 2007). This does not mean that financial goals, including keeping financial liquidity on the recommended level, can be skipped (Kachniarz, 2008). Hospitals that intend to fulfill must achieve a balance between revenue and costs, while, at the same time, obtaining income, should not only cover the costs but also the development and modernization of equipment before it would be completely unserviceable (Roj & Sobiech, 2006). Maintaining financial liquidity is a necessary condition to acquire those goals.

Medical insurance in Kenya has always had a high loss ratio (the proportion of claims serviced to insurance premiums paid to medical insurers) and this may be the reason that it is not underwritten exclusively. For instance, AAR Health Services and Resolution Health East Africa came on board the Kenyan market as health maintenance organizations but have recently acquired licenses to underwrite general insurance classes. The general cost of healthcare has been increasing steadily and those with medical insurance coverage have access to quality healthcare services. Medical insurance, therefore, plays a critical role in facilitating access to quality healthcare services in Kenya (Muiruri, 2014).

Case-mix is a group of patients requiring similar tests, procedures, and resources that are treated at a particular hospital. It is a way to define a hospital's production and has been identified as a major factor in differing costs among hospitals and individual patients (Saunders, 2003). Contemporary case-mix systems for health services need to ensure that payment rates adequately account for actual resource consumption based on patients' needs for services.

### 1.1 Problem Statement

Hospitals, renowned for their compassionate patient care, are also businesses concerned with revenue and expenses. The flow of revenue impacts patient care and the health of the hospital itself. Hospital administrators work behind the scenes to ensure financial security. Factors such as patient numbers, insurance sources, and service types affect revenue and expenses. Hospital

revenue regulation differs from public utility pricing as rates are not fixed independently of service volume. Hospital executives face challenges in increasing revenue while financial constraints force them to reduce costs or find new revenue sources.

Researchers are exploring the benefits of system improvement in patient care and the potential for privatization of healthcare to generate revenue. Entrepreneurial hospitals have been studied, but research focuses on commercial purposes. A study in Nairobi focused on liquidity ratios and profits, not revenue generation by the hospital. The study examined the impact of the NHIF outpatient scheme on the financial sustainability of public hospitals in Nakuru County, finding insignificant results due to government subsidies and limited research on revenue generation determinants in the hospital system. This constituted the knowledge gap. This study therefore divulged into OOP, MVIC, and PCMI as sources of revenue and examined to what extent they determine the revenue collected.

### 1.2 Research Objectives

1. To examine the relationship between out-of-pocket payments and revenue generation among Not-For-Profit Hospitals in Kisumu County.
2. To assess the relationship between the monetary value of insurance claims and revenue generation among Not-For-Profit Hospitals in Kisumu County.
3. To investigate the relationship between patient case mix Index and revenue generation among Not-For-Profit Hospitals in Kisumu County.

### 1.3 Research Hypotheses

1. $H_0$: Out-of-pocket payments have no significant effect on revenue generation among Not-For-Profit Hospitals in Kisumu County.
2. $H_0$: Monetary value of insurance claims has no significant effect on revenue generation among Not-for-Profit hospitals in Kisumu County.
3. $H_0$: Patient Case Mix Index has no significant effect on revenue generation among Not-for-Profit hospitals in Kisumu County.

## 2. Literature Review

### 2.1 Theoretical Review

#### 2.1.1 Wedig's model

From a capital structure perspective, when hospital ownership, number of hospital beds, and teaching status were controlled for, no differences in the capital structure were found between investor-owned and not-for-profit hospitals using data from 1983. However, neither profitability nor growth was accounted for in Wedig's model. In a follow-up study addressing this shortcoming, NFP hospital leverage was found to be directly and positively correlated with growth and negatively correlated with profitability. One of the more comprehensive studies to date on hospital profitability explored its relationship with location, ownership, teaching status, number of beds, occupancy rate, competition, and other variables using data from the 1990s. Teaching status and NFP ownership were found to have a negative relationship with return on assets.

Unfortunately, profitability was examined as return on assets (a function of profit margin and efficiency), and no consideration was given to the hospital capital structure. In a later article, returns on equity and profit margins for US hospitals were measured in relation to the aforementioned variables but there was no analysis on the effect of efficiency or capital structure on returns on equity.

Gapenski et al. (1993) evaluated the impact organizational, managerial, patient-mix, and market variables have on various measures of profitability. In addition, Pink et al have provided some important performance indicators for critical access hospitals (CAHs) with and without long-term care. Burkhardt and Wheeler clarified the role and importance of returns on investments relative to return on assets in 2013 and some other articles have examined additional organizational or process-oriented factors that influence ROE through increased efficiency or increased use of equity. In a 2015 study, Turner et al found ownership was related not only to the capital structure but also to measures of risk, return on assets, and growth.

### 2.1.2 Baumol's Theory of Sales Revenue Maximization

Prof. Baumol, in his book 'Business behavior, Value, and Growth' propounded a theory of Sales Maximisation. The main aim of a firm is to maximize sales. By sales, he meant total revenue earned by the sale of goods and services. That is why this goal is also referred to as the Sales Maximisation Goal. According to this theory, once profits reach acceptable levels, the goal of the firms becomes the maximization of sales revenue rather than the maximization of profits. The sales maximization goal says that managers of firms seek to maximize their sales revenue subject to the constraint of earning satisfactory profits. The above definition maintains that when the profits of firms reach a level considered satisfactory by the shareholders then the efforts of the managers are directed to maximize revenue by promoting sales instead of maximizing profit.

While studying this theory it must be kept in view that firms do not ignore profit altogether. They do aspire to attain a general level of profit. But once an acceptable level of profit is obtained their goal shifts to sales maximization in place of profit maximization.

Baumol raised serious questions on the validity of profit maximization as an objective of the firm. He stressed that in competitive markets, firms would rather aim at maximizing revenue, through maximization of sales. According to him, sales volumes, and not profit volumes, determine market leadership in competition. He further stressed that in large organizations, management is separate from owners. Hence there will always be a dichotomy between managers' goals and owners' goals. Manager's salary and other benefits are largely linked with sales volumes, rather than profits. Baumol hypothesized that managers often attach their prestige to the company's revenue or sales; therefore, they would rather attempt to maximize the firm's total revenue, instead of profits. Moreover, sales volumes are better indicators of a firm's position in the market, and growing sales strengthen the competitive spirit of the firm. Since operations of the firm are in the hands of managers, and managers' performance is measured in terms of achieving sales targets, therefore it follows that management is more interested in maximizing sales, with a constraint of minimum profit. Hence the objective is not to maximize profit but to maximize sales revenue, along with which, firms need to maintain a

minimum. Level of profit to keep shareholders satisfied. This minimum level of profit is regarded as the profit constraint.

### 2.2 Empirical Review

#### 2.2.1 Out-of-Pocket and Revenue Generation

An analysis by TransUnion Healthcare Analysis (2019) revealed that 30% of uninsured patients or patients with out-of-pocket costs after insurance generate more than 80% of hospital self-pay revenue. This is attributed to the high uninsured population and the large patient balances after insurance. Healthcare patients generate the majority of revenue for the industry, according to the Health PAC Online website.

Patients put money into health care when they pay out of pocket for medical services - that is when they cover the cost of their care without the help of a third party. The amount of revenue that a facility gets from patient payments depends on the rates the facility sets. Much of the healthcare reform movement has focused on trying to reduce the percentage of healthcare revenue that comes from patient's pockets. Insurance companies that provide health care insurance operate on the principle that you will be well more than you will be sick and that they will earn far more in premiums than they end up paying out. The money that insurance companies pay to health care providers thus comes largely from the premiums that all policyholders give the companies. However, the study was only limited to a qualitative approach and could not provide descriptive statistics on the same. This study did not conduct factor loading to establish which other factors may account for the hospital revenue such as patient-case-mix.

The logistic regression model was used to identify provider factors that may influence each domain. The study found that providers supported the capitation payment method rather than the For Fee Service payment method. This is because the payment was received more regularly and thus hospital's revenue generation was stable.

Fee Service, in this case, is akin to pocket payment while capitation is the monetary value of insurance claims. This means that hospital administrators preferred the former in sustaining the hospital's revenue.

#### 2.2.2 Monetary of Insurance Claims and Revenue

To analyze the medical malpractice claims and their amounts in Italy, Marco, et al. (2016) pooled data involving statistical models both for the number of claims and for their associated monetary amounts between January 2004 and December 2012. Data was pooled for 9 years from the top three insurance brokers in Italy containing 38125 reported claims due to alleged cases of medical malpractice and an inhomogeneous Poisson process was used to model the number of medical malpractice claims in Italy. The intensity of the process was allowed to vary over time, and it depended on a set of covariates, like the size of the hospital, the medical department, and the complexity of the medical operations performed. The model produces estimates and forecasts that are relevant to both insurance companies and hospitals, for quality assurance, service improvement, and cost reduction. The main findings were that the number

of claims is positively and significantly dependent on both the size of the hospitals and the complexity of the medical operations, as represented by the Case Mix Index (CMI).

For example, Orthopedics and Obstetrics generate, on average, higher disbursement costs for hospitals and insurance companies. A preliminary analysis of the claim amounts, all together and by type of claim, suggested a marginal lognormal model for the non-zero payments. The study made use of the Poisson process and logistic regression model which differ from the multivariate linear regression model that this study will make use of. The study did not take other variables influencing revenue generation in hospitals.

In another study, Yu-Chu, Wu, and Glenn (2010) analyze trends in hospitals' costs and revenue as a function of Hospital Maintenance Organization (HMO) penetration and concentration and provide important empirical findings. Medicare hospital cost reports, American Hospital Association (AHA) annual surveys, HMO data from the Interstudy, and other supplemental data were the main sources of data for the study. A retrospective study of all short-term, general, and nonfederal hospitals in metropolitan statistical areas in the United States from 1994-2005 was done using hospital fixed effects translog models. The context of the study was the United States which is a developed nation and hence the findings of the study may not apply to Kenya which is a developing nation and whose policies are not yet established.

A 10%-point increase in HMO enrollment was associated with a 4.1 to 4.2 percent reduction in cost but only a 2.1 to 2.5 percent reduction in the post-2000 period. Hospital revenue in HMO-dominant markets is significantly lower (19-27%) than in other types of markets suggesting a slower revenue increase in HMO-dominant markets. These results are consistent with the hypothesis that when HMO markets are more concentrated than hospital markets, HMOs gain a bargaining advantage that results in lower hospital revenue. The study, however, does not take into consideration other variables such as the patient-case-mix index and the influence of a national social insurance scheme such as NHIF.

### 2.2.3 Patient Case Mix Index and Revenue Generation

A study by Chen and Yang (2018) was conducted on whether the provision of more services increases hospitals' revenue as an assessment of China's National Essential Medicine Policy (NEMP). The objective was to establish whether increased Outpatient Service Provision (OSP) generated additional income for primary hospitals to compensate for reduced-cost medicines. The two outcomes, annual OSP and INCOME for the period of 2008–2012, were collected from 34,506 primary hospitals in 2,675 counties in 31 provinces in China by the national surveillance system. A bivariate five-level random effect was fitted to examine correlations between OSP and INCOME in terms of their mean values and dose-response effects of the essential medicine policy (EMP).

The estimated correlation coefficients between the two outcomes' mean values were strongly positive among provinces (r = 0.910), moderately positive among counties (r = 0.380), and none among hospitals (r = 0.002) and time (r = 0.007). The correlation between their policy effects was weakly positive among provinces (r = 0.234), but none at the county and hospital levels. However, there were markedly negative correlation coefficients between the mean and policy effects at -0.328 for OSP and -0.541 for INCOME at the hospital level. The study thus

concluded that there was no evidence to suggest an association between Out-Patient Service Provision and income at the hospital level in terms of their mean values and dose-response effects of Essential Medicine Policy at the hospital level. This indicated that increased Outpatient Service Provision did generate more income but not enough to compensate for the revenue primary hospitals required.

The present study seeks to establish the effect of a patient-case-mix index in influencing revenue generation among not-for-profit hospitals in Kisumu County. The study was done nationally among all primary healthcare hospitals whose results provided a national average. However, Kisumu County has uniquely diverse factors in terms of demographics, insurance absorption, and health-seeking behavior among natives which may influence different results for this study. Unlike China, Kenya does not have an essential medicine policy so the study will not be carried out in a controlled environment. The study hence presented a contextual gap.

## 3. Methodology

The study utilized Baumol's model of sales maximization. A correlational research design was employed. In the present study, all the 175 not-for-profit hospitals in Kisumu County were part of the target population, specifically public hospitals. The study targeted financial records from hospitals with relation to out-of-pocket payments, insurance claims, and patient case mix index on revenue generation among not-for-profit hospitals in Kisumu County. The sample size of this study consisted of 39 not-for-profit hospitals in Kisumu County selected using a simple random sampling technique. The study used all patient-related variables that have a bearing on the generation of hospital revenue. The data for the study was obtained from the annual hospital returns submitted to the Kisumu County Government Health Department of the selected hospitals under study. The data points included 22 hospitals' revenue observed for 5 years (2019-2023). Data was analyzed using descriptive statistics and regression analysis and presented in the form of tables.

## 4. Results and Discussion

### 4.1 Descriptive Statistics

The descriptive statistics which included the mean, standard deviation, and the minimum and maximum values for the study variables were analyzed to summarize the data. Table 1 presents the findings.

**Table 1: Descriptive Statistics**

| Variable | Obs | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|---|
| Revenue Generation | 110 | 1238066.4 | 4559749.4 | 10422.5 | 28802679 |
| Out of Pocket Expenditure | 110 | 124987.88 | 396756.34 | 450 | 2017645.2 |
| Monetary Value of Insurance | 110 | 974976.43 | 3001383 | 632.5 | 16011229 |
| Out Patient Revenue | 110 | 10155.383 | 25762.879 | 150 | 235403.33 |
| Inpatient Revenue | 110 | 940663.88 | 3315223 | 258.33 | 18028874 |

The descriptive analysis revealed that for the period under study, the mean revenue generated by the not-for-profit hospitals in Kisumu County was Ksh 1,238,066. The minimum value during this period was Ksh 10,422 and the maximum value was 28,802,679. This implied that there were hospitals that were outperforming others. The difference could however be due to the level of the hospital as county-level hospitals are expected to have a higher revenue generation than the lower-level hospitals such as the sub-county.

The findings also revealed that the out-of-pocket expenditure during this period averaged Ksh 124,987 and the minimum amount for this was Ksh 450 and the maximum was Ksh 2,017,645. This means that there were hospitals that received less out-of-pocket payment than others which could again be connected to the level of the hospital and the number of patients visiting the hospital. Further, it was observed that the monetary value of Insurance claims for the study period had a mean of Ksh 974,976 with the minimum amount claimed being Ksh 632 and the maximum amount being Ksh 16,011,229. This was an indication that the insurance claims were higher than the out-of-pocket expenditure. This means that the majority of the patients visiting the not-for-profit hospitals in Kisumu County use insurance for hospital bills. This implied that health Insurance coverage is high in the county.

Furthermore, the results indicated that the value of outpatient revenue averaged Ksh 10,155 the minimum value was Ksh 150 and the maximum was 235403. This means that the amount of outpatient revenue is low which could mean few cases of outpatient visits in the hospital. Finally, it was observed that the inpatient revenue was averaging Ksh 940,663 and the minimum amount was Ksh 258 with the maximum being Ksh 18,028,874.

This shows that the value of the inpatient revenue was higher compared to the outpatient revenue. This could imply more inpatient cases than outpatient cases. The rates for inpatient are also higher than the outpatient charges which could also explain the difference in the inpatient and outpatient revenues.

### 4.2 Random Effects Regression

Based on the outcome of the Hausman test, the random effects model was selected to be used to show the relationship between the independent and the dependent variables. Table 2 presents the findings.

**Table 2: Results of Random Effects Model Estimation**

| RG | Coef. | St.Err. | t-value | p-value | [95% Conf | Interval] | Sig |
|---|---|---|---|---|---|---|---|
| OOP | .259 | .083 | 3.12 | .002 | .096 | .421 | *** |
| MVIC | .169 | .078 | 2.16 | .031 | .016 | .323 | ** |
| OPR | .152 | .07 | 2.16 | .031 | .014 | .29 | ** |
| IPR | .244 | .065 | 3.77 | 0.00 | .117 | .371 | *** |
| Constant | 3.542 | .698 | 5.08 | 0.00 | 2.175 | 4.909 | *** |

| | | | |
|---|---|---|---|
| Mean dependent var | 11.995 | SD dependent var | 1.695 |
| Overall r-squared | 0.729 | Number of obs | 110 |
| Chi-square | 199.299 | Prob > chi2 | 0.000 |
| R-squared within | 0.259 | R-squared between | 0.899 |

**** p<.01, ** p<.05, * p<.1*

The results presented in Table 2 showed that the R squared value was 0.729. This means that the independent variables under study that if, out as pocket expenditure, money value for insurance claims, outpatient revenue, and inpatient revenue explain 72.9% of the variance in the dependent variable revenue generation. Therefore, other variables that were beyond the scope of this study could explain the remaining percentage in the variation of the dependent variable.

The F Test P value was P=0.000. This implied that the whole model that explained the relationship between out-of-pocket payment, money value on insurance claims, patient mix index, and revenue generation among not-for-profit hospitals in Kisumu County, Kenya was statistically significant. Therefore, the relationship between out-of-pocket payment, money value on insurance claims, patient mix index, and revenue generation among not-for-profit hospitals in Kisumu County, Kenya was found to be significant.

The coefficient for the relationship between out-of-pocket expenditure and revenue generation was 0.259 and the P value was 0.002. This means that the relationship between out-of-pocket expenditure and revenue generation was positive and statistically significant. A coefficient of 0.259 means that, for each unit increase in out-of-pocket expenditure, revenue generation increases by 0.259 units. Since the coefficient is positive, it indicates a positive relationship —

as out-of-pocket expenditure goes up, revenue generation increases. Since 0.002 is much smaller than 0.05, the relationship between out-of-pocket expenditure and revenue generation is statistically significant. This means that as patients or customers spend more out-of-pocket, the hospital's total revenue increases. The results suggest that out-of-pocket expenditure is an important factor driving revenue generation, and hospitals may want to focus on strategies that encourage or increase customer or patient spending. This can help improve financial performance.

The results also revealed a positive and significant coefficient for the relationship between money value on insurance claims and revenue generation (β=0.169, p=0.031). This implied that the relationship between money value on insurance claims and revenue generation was positive and significant. A coefficient of 0.169 means that for each unit increase in the monetary value of insurance claims, revenue generation increases by 0.169 units. Since the coefficient is positive, this indicates a positive relationship: as the money value of insurance claims goes up, revenue generation also tends to increase. Since the p-value is less than the common significance level of 0.05, the relationship between money value on insurance claims and revenue generation is statistically significant, meaning it's unlikely to be due to random variation. This indicates that insurance claims are an important source of revenue generation for the organization. The results imply that the monetary value of insurance claims is a critical driver of revenue generation, and organizations should consider strategies to optimize their insurance claim processes to increase their overall revenue. Effective management of insurance claims could lead to higher reimbursements and, therefore, greater financial growth.

Further, results revealed that the coefficient for the relationship between outpatient revenue and revenue generation was 0.152 and the value was 0.031. This implied that there is a positive and statistically significant relationship between outpatient revenue and revenue generation. Therefore, if outpatient revenue is increased by one unit, revenue generation would increase by 0.152 units. This suggests that there is a meaningful and measurable connection between the two factors: outpatient revenue and revenue generation. Specifically, it implies that as outpatient revenue increases, revenue generation also tends to increase. Furthermore, the relationship is statistically significant, meaning that the observed connection is unlikely to be due to random chance or error, and it holds a level of confidence in statistical analysis. The results show that higher outpatient revenue is associated with better overall revenue generation. Therefore, increasing revenue from outpatient services is likely to increase total revenue generation. The results imply that focusing on outpatient revenue can have a significant, positive impact on overall revenue generation, and healthcare providers should consider strategies that enhance outpatient service offerings to improve financial outcomes.

The results finally revealed that the coefficient for inpatient revenue and revenue generation is positive and significant (β=0.244, P=0.000). The relationship between inpatient revenue and revenue generation was therefore found to be positive and significant. Since the coefficient is positive, it shows that there is a positive relationship between inpatient revenue and revenue generation. In other words, as inpatient revenue increases, revenue generation also increases. Therefore, revenue generation would increase by 0.244 when inpatient revenue was increased by one unit. Since the p-value is much smaller than the common significance threshold of 0.05,

this relationship is statistically significant. This means the observed positive relationship between inpatient revenue and revenue generation is highly reliable. The finding shows that increases in inpatient revenue are associated with increases in revenue generation. This is a strong indication that inpatient services contribute significantly to overall revenue in not-for-profit hospitals. This result implies that inpatient revenue plays an important and reliable role in boosting overall revenue generation, and hospitals can potentially focus on optimizing inpatient services to improve their financial performance.

### 4.3 Discussion of Results

#### 4.3.1 Effect of Out-Of-Pocket Payments on Revenue Generation

Regression analysis indicated that the relationship between out-of-pocket expenditure and revenue generation was positive and statistically significant. This means that with an increment in out-of-pocket expenditure, the revenue generation of the hospitals would increase. This implies that payment of hospital bills and other expenditures in the hospital from the patient out of their pockets enhances the revenue generation of the hospital.

Moreover, the coefficient for this relationship was the largest implying that out-of-pocket expenditure contributes to the most of the revenue generation. This is because, unlike payment via insurance claims, the hospitals do not need to wait for approval from the insurance companies to release the money. Therefore, the hospital can immediately use the money paid through out-of-pocket to generate more revenue.

This finding is in agreement with the finding by Trans Union Healthcare Analysis (2019) that patients with out-of-pocket costs after insurance generate more than 80% of hospital self-pay revenue. According to the study, patients put money into health care when they pay out of pocket for medical services - that is when they cover the cost of their care without the help of a third party. This was connected to the high number of uninsured patients.

#### 4.3.2 Monetary of Insurance Claims and Revenue Generation

Regression analysis revealed that the relationship between money value on insurance claims and revenue generation was positive and significant. This was an indication that with an increment in money value on insurance claims, the revenue generation of the hospital increases.

This implies that the use of insurance health covers is an advantage to the hospital in terms of generation of revenue. These findings can be explained due to the convenience of using insurance in paying for hospital services. The use of insurance enables even patients with critical conditions that are expensive to treat can seek the services without having to constrain their pockets. Therefore, the hospitals benefit from the large number of patients which leads to increased revenue generation.

These findings concur with those by Kazungu, Nonvignon, Quaife, and Barasa (2023) that capitation payments from NHIF and FFS payments from both NHIF and private insurers are good as viewed by public-private and faith-based providers. Capitation and FFS payments were preferred because they were guaranteed despite delays as they came up in lump sum thereby enabling them to finance their budgets. FFS by private health insurers were also deemed to be

good sources of income as they sustained faith-based and private providers and contributed to their total revenues.

### 4.3.3 Patient Case Mix Index and Revenue Generation

The findings by regression analysis revealed a positive and statistically significant relationship between case mix index revenue generation. This means that revenue obtained from both inpatients and outpatients contributes positively towards revenue generation. This further implied that a mix of inpatients and outpatients has a positive effect on the amount of revenue generated by a hospital.

Hence patient case mix index has a positive relationship with revenue generation. The hospitals can maximize revenue generation by using a mix of outpatient and inpatient services. This is through the expansion in revenue sources as the hospital generates revenue from both inpatient services and outpatient services. This can also be explained through the economies of scale as the hospital can use the available resources to serve both inpatient and outpatients which maximizes income and minimizes the expenses.

These findings supported the findings by Uwe (2006) that the patient-case-mix index influences hospitals' revenue. The findings however contrasted those by Chen and Yang (2018) who found no evidence to suggest an association between Out-Patient Service Provision and income at the hospital level. This indicated that increased Outpatient Service Provision did generate more income but not enough to compensate for the revenue primary hospitals required.

## 5. Conclusion

The study concludes that the relationship between out-of-pocket payment and revenue generation among Not-For-Profit Hospitals in Kisumu County is positive and significant. The more the patients pay from out of their pockets, the more revenue the hospitals make. Payment of healthcare services including drugs, consultation services, laboratory charges, and even accommodation charges by patients to the not-for-profit hospitals will lead to increased revenue generated by the hospitals.

The study also concludes that monetary value of insurance claims has a positive and significant relationship with venue generation among Not-For-Profit Hospitals in Kisumu County. Therefore, the more the insurance claims by the hospitals the more the revenue generated by the hospitals. Therefore, using insurance health covers by patients results in increased revenue generated by the hospitals. However, the coefficient for monetary value on insurance claims was lower than the coefficient for out-of-pocket payments. This leads to the conclusion that monetary value on insurance claims leads to less increase in revenue generation than it is with out-of-pocket payment.

The study further concludes that outpatient revenue and inpatient revenue have a positive and statistically significant relationship with revenue generation among Not-For-Profit Hospitals in Kisumu County. Therefore, the study concludes that the patient case mix index has a positive and significant relationship with revenue generation among Not-For-Profit Hospitals in

Kisumu County. Therefore, having both inpatients and outpatients generates more revenue for the hospital.

## 6. Recommendations

The study recommends that not-for-profit hospitals should encourage more patients to subscribe for health insurance coverage. This is so since in addition to the patients being able to get more appropriate health care and better outcomes, the hospitals can get increased revenue. The study further recommends that hospitals should ask for more monetary insurance claims as opposed to other claims as this will result in the hospital gaining more revenue. In addition to this, the study makes recommendations that a mix of both inpatients and outpatients should be allowed and both categories given equal attention as they both contribute to increased revenue generation.

For policy, the study makes recommendations that the government through the Ministry of Health should formulate policies that will guide the not-for-profit hospitals to come up with standardized charges that will be for both out-of-pocket payments and even for insurance claims to ensure they gain equally from both kinds of payments.

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