UNIVERSITY OF GHANA

THE IMPACT OF NATIONAL HEALTH INSURANCE SCHEME PAYMENT DELAYS ON THE SERVICE DELIVERY OF PRIVATE HOSPITALS

By

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A THESIS SUBMITTED TO THE UNIVERSITY OF GHANA BUSINESS SCHOOL, IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF MASTER OF SCIENCE DEGREE IN DEVELOPMENT FINANCE.

AUGUST, 2019

CANDIDATE'S DECLARATION

I do declare that with the exception of special reference and thoughts credited to specified sources, this is entirely my own work and has never been presented anywhere.

I, therefore, take personal responsibility for any short-comings that may be detected in the work.

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SUPERVISOR'S CERTIFICATION

I declare that the preparation and the presentation of this thesis were in accordance with the guidelines on supervision of thesis laid down by the University of Ghana

Name ……

Signature ……..

Date ……..

DEDICATION

This thesis is dedicated to my wonderful family for the tremendous support and their words of encouragement.

ACKNOWLEGEMENT

I will begin by thanking God for the strength to go through this academic exercise successfully.

And to my supportive supervisor, Dr. Edward Asiedu under whose guidance this output was produced, I will eternally be grateful.

My profound appreciation also goes to Ms. Eva Mends (Former Director of Budget and now the Director in charge of Technical Issues at the Ministry of Finance), Mr. Richard Ebo Amuah (my former boss and now Head of the Fiscal Decentralization Unit at the Ministry of Finance) and to my Presiding Elder, Mr Boadi Donkor (Church of Pentecost, Ofankor Central) for the diverse forms of support you gave through this academic exercise and making it a success.

ABSTRACT

The National Health Insurance Scheme (NHIS) was introduced in Ghana in 2004. The scheme was brought on board a substitute for the then out-of-pocket system, popularly identified as the dreaded 'cash and carry system'. This system required that clients pay healthcare service at the point of service. The reimbursement of claims by the National Health Insurance Authority (NHIA) has not been regular as it ought to be. This study assessed whether delays in claim payment by the NHIA affect healthcare service delivery by private hospitals in the Ga West and Ga North Municipality of the Greater Accra region.

Primary data was solicited and used for the study. A structured questionnaire was designed around four thematic areas namely claims management, reimbursement, service delivery and inpatient attendance. A mixed process approach involving both quantitative and qualitative research techniques are used in analyzing the data. A multiple regression model is estimated to analyze the impact of the delays in claim payment has on healthcare service delivery by private hospitals.

The study established that the delay in payment of claims by the NHIA does not necessarily affect the service delivery of private hospitals in the Ga West and Ga North Municipalities in the Greater Accra region. The study finds that private hospitals in the study site rely heavily on revenue from Private Commercial Health Insurance Scheme (PCHIS) and clients who pay cash at the point of service. The study concluded that NHIS accredited private hospitals are able to provide healthcare services even though the claim payment from the NHIS delays. The study,, however, identified some operational challenges such as difficulty in providing NHIS drugs, delay in paying creditors and payment of salaries in months where turnover from private insurance schemes are low.

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LIST OF ACCRONYMS/ABBRIVIATIONS

DMHIS	District Mutual Health Insurance Scheme
FFS	Fee-For-Service
FSW	Formal Sector Workers
MCM	Medical Claims Management
NHIA	National Health Insurance Authority
NHIF	National Health Insurance Fund
NHIS	National Health Insurance Scheme
PCHIS	Private Commercial Health Insurance Scheme
PMHIS	Private Mutual Health Insurance Scheme
PMPM	Per Member Per Month
PPS	Purchaser-Split- Provider System
SSNIT	Social Security and National Insurance Trust

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

With the poor in mind, Ghana launched the NHIS in 2004. This was consistent with the World Bank's 2003 Poverty Reduction Strategy. As a low-income country then, the need for alternative funding for healthcare was as crucial as it is today. For such an important policy initiative, there was the need to have it rooted firmly in law hence the passage of the National Health Insurance Act, 2003 (Act 650). The Act established the legal basis for the introduction of the Scheme in 2004. The scheme was introduction to principally address the issues of access and affordability however without compromising the quality of healthcare service. As argued by De Allegri et al., The idea of insurance is implemented at micro-level to promote access to healthcare and provide economic security against disease costs by encouraging pooling of community resources and sharing of risks. The Scheme was to replace the then Out - of-Pocket fees charged at the service point known as "Cash and Carry" which needed clients to pay before or immediately after therapy in our hospitals. This practice often resulted in needless deaths.

As of 2016, the Scheme had 11.2 million users, covering 41 percent of the entire population of Ghana (NHIS official site). This makes it a critical social intervention in removing cost as a barrier to healthcare access in the quest for universal coverage. Even though no country achieves full universal coverage, all countries want to reduce the gap between need and utilization, and this is to ensure equity, improve quality and improve financial protection (Joseph Kutzin). As a subscriber, one is expected to make a minimum premium renewable every year. As enshrine in the NHI Act, 2003, Policy holders have the right to certain minimum health benefits through patronage of hospital facilities in Ghana. The operationalization of the NHIS has brought about a steady

growth in the use of healthcare services in a lot of health centres (Health Ministry, 2007). Healthcare use in government hospitals improved by 28.4 percent between 2006 and 2007. Per capita hospital attendance grew to 25.5 percent during the same period (Ghana Health Service, 2007)

1.2 Research Problem Statement

The implementation of the NHIS has been bedeviled by a number of challenges. The situation has brought to accredited hospitals some operational challenges particularly delay in receiving reimbursement which in turn to affect healthcare delivery. The research attempt to assess the effect of delays in the imbursement of claims on the service delivery of private hospitals under the NHIS.

1.3 Study purpose

The study resolves to assess the impact of delays in the imbursement of claims on the provision of healthcare services in private healthcare centres. An appreciation of this will help shape policy regarding claim management by Government and internal claim processing by hospitals especially when the objective of the government is to make healthcare more accessible to all.

1.4 Research objectives

- To examine whether delays in claim payment by the NHIA affect healthcare service delivery in private hospitals.
- Identify operational challenges faced by private hospitals resulting from delay in claim payment by the NHIA.

1.5 Research question

- Do the delays in payment of claims affect service delivery by private healthcare providers?
- Does operational challenges arise as a result of delays in payment of claims by the NHIA?

1.6 Importance of the research

The results of this research will add to current works done on the operationalization of the NHIS in Ghana. Although there have been a number of research on various elements of the NHIS, this study focuses on the impact delays in claims payment have on service delivery of private hospitals will help establish whether or not private hospitals are severely affected by these delays or rely on other revenue sources to survive. The study will also contribute to policy formulation regarding management and payment of claims.

CHAPTER TWO
LITERATURE REVIEW

2.0 Theoretical review

The theoretical review section is dedicated to the reviews of theories, concepts, and studies already conducted by other researches in the field of study and this is called empirical review. This kind of review is done to give the study firm theoretical and empirical basis.

2.1 Types of Health Insurance Schemes (HIS) in Ghana

Ghana currently has three types of HIS. These schemes are acceptable in both public and private hospitals. The schemes are as follows; District Mutual Health Insurance Scheme (DMHIS), Private Commercial Health Insurance Scheme (PCHIS) and Private Mutual Health Insurance Scheme (PMHIS).

2.1.1 District Mutual Health Insurance Scheme (DMHIS)

The DMHIS is the most common scheme operated in Ghana and found in all district. The scheme is open to everyone willing to join and it is non-commercial in nature. It is effective even if a subscriber moves from district to the other. It is designed to cover the very poor who paying insurance premiums is challenging. It is the insurance scheme that gets a regular payment from the central government apart from the premiums subscribers pay. The funds are drawn from the 2.5 Social Security Contribution by workers and 2.5 Value Added Tax. One only goes through a simple process to sign on to the scheme.

2.1.2 Private Commercial Health Insurance Scheme (PCHIS)

The second category is PCHIS. This includes PCHIS run by licensed firms. It is important to note that the scheme receives no central government subsidies or financing. One can just walk into any of these approved companies and purchase the policy for him or herself and dependents.

2.1.3 Private Mutual Health Insurance Scheme (PMHIS)

The last category is PMHIS. Under this type, any group of individuals may decide to come together and contribute to providing for their healthcare needs and also rendering services that are sanctioned by the government or the governing council of the scheme. It receives no National Health Insurance Fund financing

2.2 Purchaser-Provider Split System

The purchaser-provider split refers to a type of service provision in which third party payers are kept managerially separate from service providers. The activities of the providers are often handled through contracts. A key objective of this system is to create competition between and among service providers. PPS can be implemented via several policy routs, including instituting an autonomous health insurance system to serve as a health-care purchaser or increasing the autonomy and independence of healthcare providers, while limiting the state's control over their internal activities (Cashin and Simidjiyski 2000). Ghana's situation is where we have greater autonomy and control for the purchaser, in this case, the NHIA. The implication for the purchaser-provider split, therefore, will mean that those hospitals who rely heavily on claims payment from the NHIA could face operational difficulties when payment delays and therefore may offer poor healthcare services.

The generally accepted perception is that a sound financial foundation is a pre-requisite for an effective healthcare provision system. Governments in sub-Saharan Africa are confronted with serious financial constraints in their effort to deliver basic healthcare services to their citizenry (Abekah-Nkrumah, et.al 2009). With respect to Ghana, the sources of funds for financing the NHIS include contributions from informal sector workers (Premiums), the NHI Levy, (a top-up of 2.5% on value-added tax), 2.5% deduction from the SSNIT contributions by Formal Sector Workers (FSW), and any returns on the investment from the NHI Fund. Per the Law, the minimum and maximum a contributor can pay sits between Gh₵7.20 to Gh₵48.00. The Act also exempts the key population who are not employed and also do not obtain any recognizable and continuous survival assistance from anywhere else, and children under 18 years of FSW are also exempt from making any contributions given that employees spouses in the informal sector also pay their own contributions, if any. There are three main institutions through which the Scheme runs. These institutions are; The NHIA, the Service Providers (Public and Private Healthcare providers) and the Beneficiaries.

2.3 Evolution of Health Financing in Ghana

The financing of healthcare has evolved over the years in Ghana. In the past, curative services in Ghana was based on fee-paying. The policy was ended after independence. The new government after independence opted for the socialist approach and financed healthcare from general revenue and thereby making it free. This meant that the Ministry of Health provided free healthcare services for the general public. This system after 1992 transitioned to the “cash and carry” system which demands that clients pay a substantial amount of money for receiving healthcare (Durairaj,

D'Almmeida, and Kirigia 2010). The policy was one of full cost recovery, denying the majority of the Ghanaian populace from accessing healthcare because they could not pay immediately after receiving service as obligated by the "cash and carry" system. In an effort to address this challenge, the NHIS was brought on board in 2003 with the objective of removing the existing bottlenecks occasioned by financing healthcare through user fees and eventually providing equitable access to basic healthcare to the Ghanaian populace.

2.4 Universal Health Coverage (UHC)

The World Bank (WB) indicates that, the objective of the UHC is to guarantee that the citizenry have access to the healthcare they require without encountering financial difficulties in order to pay for healthcare services. The importance of this concept in healthcare provision cannot be overemphasized since it allows countries to make the most of their strongest asset which human capital. It is established that health is the foundational investment in human capital and economic growth, without children are unable to go to school and study as well as adult not able to go to work. UHC plays an important role in ending extreme poverty. According to a report issued jointly by the WB and the World Health Organization (tracking UHC: Global Monitoring Report 2017), It will be almost impossible for 50% of the world's inhabitants to acquire vital health services. The report indicates that each year, nearly 100 million individuals are driven into the region of extreme poverty which is occasioned by healthcare costs and 800 million expend more than 10% of their family budget on healthcare. They concluded by indicating that achieving UHC is not only about improving health results but also helping to end extreme poverty-stricken SDG goals.

2.5 Medical Claim Management

According to Kristine Tucker, Medical Claims Management "is the organization, billing, filing, updating, and processing of medical claims related to patient diagnoses, treatments, and medication. Keeping patients records, interacting with health insurance agencies and issuing of invoices for medical services is time-consuming and this often leads to delay in the processing of claims by the healthcare providers and the payment of claims by the insurance company. In the absence of proper medical claims management, patients are unable to discern exactly their medical bill and this may result in over or underpayment of hospital facilities for services provided. The claims are either processed electronically, manually or both. The billing process is undertaken and invoices or claims are then submitted to the patients, insurance agencies and in some jurisdiction, state-sponsored agencies to ensure that respective obligations are honored.

2.5.1 NHIS Claim Management Process

As already indicated, effective claim management is central to the successful implementation of any insurance scheme. The NHIA prior to 2013 the processing and submission of claims was done manually and very labor-intensive. The NHIS in 2013 then rolled out an electronic platform to hospital facilities nationwide in a bit to improve claim management, processing, and payment. The process begins with the service provider providing services to a subscriber or NHIS card bearer and then ensuring that the necessary internal documentation are completed for onward submission to the NHIA either electronically or manually. Once the claims are received, the Authority subjects them through a 5-step method of; fulfilment, vetting, data entry, vetting report generation, and initiation of payment requests. Normally, a vetting report will contain data on the quantity

deducted for each batch of claims filed. There have however been disagreements between service providers and the NHIA on submitted claims.

2.5.2 Provider Payments Mechanism

Health insurance is a type of insurance coverage that covers the cost of an insured individual's medical and surgical expenses. (Adam Felman, 2018). It is a means of paying in advance for healthcare services. Provider payment includes the means by which the purchaser of the healthcare services can transfer funds to the suppliers. There are various methods used in paying service providers under NHIS.

2.5.2.1 Fee-For-Service

This is a method of payment under which a service provider lists the various services rendered to a client, cost the individual services and then demand for payment. The client pay based on the service she or he has received from the provider. The system provides the advantage of service providers not leaving out of the list any of the services provided. It may, however, provide a good incentive for service providers to render services that are not necessarily needed by clients. It has the tendency of causing rapid inflation and posing a great threat to scheme sustainability. To use this method effectively will require putting in place a rigorous validation process. Germany is noted to use this payment method effectively.

2.5.2.2 Diagnosis Related Groupings

Under this payment system, similar diagnosis is assembled and determined the average therapy price in that group (NHIS). Service providers are then paid on the basis of the services rendered to

their customers. Most advanced countries such as the United States and the United Kingdom use this payment scheme. This scheme require service providers to complete reimbursement claims forms after service has been rendered. Before payment is effected, the claims go through a strict review process. There are also some incentives for overbilling in this phase.

2.5.2.3 Capitation

This is an imbursement mechanism in which the suppliers are usually paid, upfront, a predetermined fixed amount to deliver a specific set of services for each person who is registered with them for a secured period of time. Whether customers seek the health care for which the amount is paid or not during the specified period, the money parted away is non-refundable. This is expressed mostly on the grounds of Per Member Per Month (PMPM). The subscriber chooses a Preferred Primary Provider (PPP) to deliver all services within the capitation basket in return for the capitation amount. The total amount is then paid to the service provider based on the number of people who selected to the particular provider. Countries such as Britain, Thailand, Chile, and Estonia have used this system successfully.

2.5.2.4 Payment system under the NHIS

The NHIA paid service providers originally based on the Fee-for-Service (FFS) scheme. This is a payment model in which services are individually unbundled and paid for. However, this provides rise to incentives for physicians or service suppliers to treat excessively, as reimbursement is a function of the quantity of care rather than the quality of care. Because of this weakness, the payment system has developed to include Ghana-related Diagnostic-Groups (GDRGs) and Capitation to mainly include costs. The GDRG is a tool used to group the categories of patients a

healthcare facility treats to the expenses incurred by assigning patients in similar groups based on their diagnosis and procedures.

Whiles Capitation payments are used in primary care in selected regions in Ghana, especially the Ashanti Region, the GDRG are used for all inpatients and outpatients care in all the non-capitation regions. The FFS continues to be used to reimburse pharmaceutical costs, reflecting predetermined tariffs and drug volumes presented by providers. Public hospitals obtain financing from the Health Ministry, while private health care providers do not receive financing.

2.5.2.5 Accreditation for Service Providers

In order for a health facility to qualify to provide healthcare services to NHIS subscriber, the facility must be accredited by the NHIA. The health facility will provide the required paperwork and fees to the NHIA and the Authority will verify the paperwork presented and send to the facility a toolkit. Following the toolkit, an assessment is done of the facility by the quality assurance department of the NHIA after which a report is submitted to management for decision making.

2.6 Empirical review

The NHIS, since its introduction in 2004 has attracted attention from a lot of researchers, undertaking various assessments and analyses of the design, implementation and its impact on various stakeholders and healthcare providers in general. The operation of the Scheme is decentralized including district-wide mutual health schemes. The NHIS aims to make healthcare more affordable to all and to achieve equity of access premised on need, rather than socio-economic status (Wittter and Garshong, 2009).

In a study done by Sodzi *et al*, 2012 in the Kassena Nankana and Builsa district on the challenges faced by service providers collecting their claims revealed that claim processing are elaborate, labor-intensive and this was similar for like districts. The study extensively considered claim administration for the Scheme. The cost percentage of claims disallowed in both districts at 10-14% shown to be far more significant consideration for suppliers and scheme administrators than the proportion of each separate claims disallowed at less than 1%. The difference according to the study was caused by periods of disagreements between the scheme and service providers over which rates to apply resulting in substantial deductions. The study also focused on claims Reimbursement and revealed significant differences between the total reimbursement rates (85-89%) and the total timely reimbursement rates (28-45%). This brings to bear the importance of effective claim management, especially for private healthcare providers.

Another study on "Managerial problems of hospitals under Ghana's Health Insurance schemes" done by (Emmanuel *et al*, 2010) was reviewed. The study aimed at establishing the managerial problems faced by district hospitals (Government) under the NHIA. The research conducted in 12 district hospital in the Upper East, Upper West, Northern, Central, and Greater Accra regions identified a number of problems these hospitals face. These challenges were in the area of reimbursement payment, claims management, and other operational difficulties impeding service delivery. In the area of claims management, it was identified that over-reliance on manual processes of processing claims often contributed delays in claim payment. Another challenge identified was delayed reimbursement to healthcare providers by NHIA. According to the NHI Act, (2003 Act 650) Accredited healthcare facilities are expected to receive payment for services

rendered (reimbursed) within a period of four weeks upon submission of claims. The study, however, found out that it took an average of two months for healthcare facilities to receive their claims and this affected the financial stability of hospital which relies heavily on the reimbursed funds for operations.

A review of a study done by (Aidoo-Buameh, 2014) on the topic "*the effects of NHIA debt on Accounts payables management in public hospital*" pointed out a number of challenges faced by public hospitals as a result of the debt owed by the NHIA to public hospitals. It concluded that as the NHIS element of the account receivable balances rise, the more challenging it turns out for these healthcare facilities to honor its payable obligations. The study added that the NHIA inability to settle its debt obligation to public healthcare facilities timely translate into deferments nearly three-time lengthier on the part of the hospital in paying their debt commitments to creditors. The study however considering the fact that hospitals have little control over government policy, suggested the onus to be placed on government to fashion out payment regime that is operable and sustainable in order not to cause hospitals to fold up operations force them to return to the fee paying system in the quest to addressing issues of meeting debt obligations.

Further review of existing literature showed that some, have also been done in the area of access to the Scheme by Informal Sector Workers (Laura, 2013). The study sort to identify the barriers impeding the informal sector access to the NHIS. The study indicated two main barrier areas namely Premium Related Barriers and Administrative Barriers. The research concentrated on *kayayes* and to them the most important barrier to access was payment of premiums. On a typical day, a kayeye earns an average of GH₵3.00 and this amount pays for her rent, feeding herself and

baby in most cases and taking care of incidental costs, according to the study. With this situation, the minimum annual premium of GH₵7.20 seemed out of reach.

Concerning the Administrative barrier, though the sample size was small, the general sense of direction indicated a chaotic administrative system for the district schemes. This was considered to be a major barrier to access. It was identified that NHIS cardholders were reportedly being made to wait for treatment behind cash-paying patients at health facilities. There was minimal education on the advantages Informal Sector Employees stands to gain from the Scheme and this contributed in denying many the access to the Scheme. It was as if these challenges were not enough, another nagging issue was the long hours people would have to wait at hospitals only to secure their NHIS card. This affected productive hours these traders must work and earn money. In fact the opportunity cost for obtaining NHIS card was increasingly becoming too expensive. The study concluded by recommending the regulation of urban premiums, better dissemination of information in workplaces including markets and better representation of informal workers at all levels of the NHIS. Another study on "Managerial problems of hospitals under Ghana's Health Insurance schemes" done by (Sakyi et al. 2010) was reviewed. The study aimed at establishing the managerial problems faced by district hospitals (Government) under the NHIA. The study conducted in 12 district hospital in the Upper East, Upper West, Northern, Central, and Greater Accra regions identified a number of problems these hospitals face. These challenges were in the area of Reimbursement, claims, waiting time and other operational difficulties impeding service provision. In the area of claims management, it was identified that over-reliance on manual processes of processing claims often contributed delays in claim payment. Another challenge identified was delayed reimbursement to healthcare providers by NHIA. According to the *NHIS*

Act, (2003 Act 650), Accredited healthcare providers are expected to receive reimbursement in a period of four weeks following submission of claims to the NHIA. The study, however, found out that it took an average of eight weeks for healthcare facilities to be paid their claims and this affected the financial stability of hospital which relies heavily on the reimbursed funds for operations.

A review was conducted on the study done by the World Bank Group on "Taking an Electronic Claims System from Pilot to Countrywide Implementation". The study contextualizes the claim processing status of the NHIS as at 2010 to be manual and labor-intensive. In 2012 the NHIS processed about 25 million paper claims (NHIS, 2012). The process was bedeviled by delays due to the volume of paper claims, errors, fraud, duplication and some reported treatment that never fit the diagnoses indicated. Due to the manual and labor-intensive nature of claim processing, hospital facilities needed to employ large of people to handle this huge task and this came at a cost to these facilities.

To address these challenges the NHIS in 2010 begun to introduce measures to enhance claim management which included centralizing the claim management and creation of electronic claim management system. A number of corrective actions were instituted to ensure that the new system functioned properly. The IT infrastructure of healthcare facilities was built, data was standardized to ensure uniformity in data format and presentation. The National Health Insurance Scheme in November 2013 rolled out the electronic claim system nationwide.

They concluded that the electronic system reduced errors in claim processing, time taken to process and pay and also minimized abuses of the system by detecting fraud. This notwithstanding, in 2017 a World Bank report stated that only 8 percent of total claims came through the electronic claim system. The report recommended that the system be expanded and refined to add algorithms for automated vetting and create connections to other public health databases (Wang, Otoo, & Dsane-Selby, 2017).

Due to challenges healthcare facilities face in accessing the internet, the NHIS in 2016 lunched a claim generation software that operates fully offline. This allowed workers to interact with the internet only when necessary for system updates and claims submission.

There is a growing perception that the delays in imbursement of claims by the government (NHIA) negatively affect healthcare provision by private healthcare providers under the NHIS. Under the NHIS Act, Private Hospitals are at liberty to decide whether to enroll on to the Scheme or otherwise, unlike the public hospitals which are under compulsion to be accredited and provide service to card bearers. Revenue sources of private hospitals in Ghana mainly come from customers who pay for point-of-service healthcare, clients with private commercial insurance and reimbursement obtained from NHIA for NHIS certified hospitals. Due to delays in claims processing and payment, private hospitals under the NHIS often face a number of problems in providing healthcare to clients. To this end, the research seeks to find the effects of the delays in payment of claims by the NHIS on service delivery by private healthcare providers.

CHAPTER THREE
METHODOLOGY

3.0 This section explains how data was collected and the tools to be used in the data collection process and its eventual analysis. It covers study site, ethical consideration, sampling technique, target population and the tools used in the data analysis.

3.1 Study sites

The target population for the study is NHIS accredited Private Hospitals in the Ga West and North Municipality of the Greater Accra (GA) region. These two sites were selected and the reason for choosing the site is for convenience and especially considering the time at disposal. The total number of NHIS accredited private hospitals in both municipality is 26 and data was taken from 23 of the accredited hospitals. These healthcare facilities deliver a variety of healthcare services consistent with the requirements of the NHIS Act 2003 (Act, 650).

3.2 Ethical consideration

In order not to have breached ethical protocols, an introductory letter from the University of Ghana containing the specific data required for the study was sent to the Municipal Health Directorate for consideration, authorization, and assistance. The head of the Municipal Health Directorate then through a covering letter introduced the researcher to the various hospitals from which data was expected to be collected. Upon reaching each hospital, approval from the senior administrator was sought before administering the questionnaire as recommended by (Flynn *et al*, 1990). This was done to ensure the authority's involvement in providing the relevant data for the research.

3.3 Sampling technique

According to Saunders et.al, (2007), Sampling is the selection of a part of a group or an aggregate with a view to obtaining information about the whole. For this study, Ga West and North Municipalities in the GA region were chosen as the study site. Inside these two municipalities are 26 NHIS accredited private hospitals. Questionnaires were administered to 23 hospitals out of the total number 26 NHIS accredited private hospitals. These hospitals were purposely chosen to facilitate data collection.

3.4 Data collection

The research is purely centered on primary data. In each of the accredited hospitals, questionnaires were administered to senior staff of the hospital such as Hospital Administrator, Accountants, and Claim Officers. The above officers were purposely chosen to answer the questionnaires since in the context of private hospital management, they greatly contribute to decision making on resource allocation.

The questionnaire was structured around four (4) themes namely; Claim Management, Reimbursement, Service Delivery and OPD Attendance (Hardon *et al*, 2001; Manongi *et al*, 2006). The above themes dominate in typical hospital management. For instance data on how long it takes to process a claim and how often the hospitals submit claims to the NHIA was collected on claim management. Data on how long it takes for the NHIA to reimburse hospitals for submitted claims were also collected. Data on the hospital's ability to procure both drugs non-drug consumables as schedule were collected.

3.5 Study Design

Designing a research plan means formulating detailed steps for the study stating clearly pertaining assumptions, models to be used, how the data will be solicited and evaluated to achieve the research objectives as explained by Creswell (2009)

The research adopts a multiple linear regression model to analyze data to establish the association between delays in payment of NHIS claims and healthcare delivery in terms of the impact the former has on the later. The study is mostly quantitative, however, qualitative description will be used to describe some variables based on the judgments of respondents.

3.6 Model Specification

The research is designed to develop a model that establishes the relationship between the delays in payment of NHIS claims and service delivery of private hospitals. The study used six multiple linear regressions to establish the relation. Multiple regression analysis is an analysis that simultaneously examines the effect of more than a single independent variables on one single dependent variable at a time.

Pearson Product-moment Correlation Coefficient

It is a measure of the magnitude of the linear relationship between two variables the service delivery (y- dependent variable) and processing time, mode of payment, payment period and staff adequacy (x- independent variable). The Pearson correlation is defined only if both of the standard deviations are finite and both of them are nonzero. The population correlation coefficient ρ_{xy} between two random variables x and y with expected values μ_x and μ_y and standard deviations δ_x and δ_y is defined as:

$$\rho_{X,Y} = \operatorname{corr}(X,Y) = \frac{\operatorname{cov}(X,Y)}{\sigma_X \sigma_Y} = \frac{E[(X-\mu_X)(Y-\mu_Y)]}{\sigma_X \sigma_Y},$$

Where *E* is the expected value operator, *cov* means covariance, and, *corr* a widely used alternative notation for the correlation coefficient.

It is a corollary of the Cauchy-Schwarz inequality that the correlation cannot exceed 1 in absolute value. The correlation coefficient is symmetric: corr(*X*,*Y*) = corr(*Y*,*X*).

The Pearson correlation is +1 in the case of a perfect direct (increasing) linear relationship (correlation), −1 in the case of a perfect decreasing (inverse) linear relationship (autocorrelation), according to Dowdy & Wearden, (1983), and some value between −1 and 1 in all other cases, showing the degree of linear dependence between the variables. As it gets closer zero there is less of a relationship (closer to uncorrelated). The nearer the coefficient is to either −1 or 1, the stronger the correlation between the variables.

If we have a series of *n* measurements of X and Y written as x_i and y_i where i = 1, 2, ..., *n*, then the sample correlation coefficient can be used to predict the population Pearson correlation *r* between *X* and *Y*. The sample correlation coefficient is written

$$r_{xy} = \frac{\sum_{i=1}^{n}(x_i-\bar{x})(y_i-\bar{y})}{(n-1)s_x s_y} = \frac{\sum_{i=1}^{n}(x_i-\bar{x})(y_i-\bar{y})}{\sqrt{\sum_{i=1}^{n}(x_i-\bar{x})^2 \sum_{i=1}^{n}(y_i-\bar{y})^2}},$$

Where x and y are the sample means of *X* and *Y*, and s_x and s_y are the sample standard deviations of *X* and *Y*.

3.7 Multiple Linear Regression Model

Multiple linear regression analysis refer to the study of the dependence of one variable, the dependent variable, on one or more other variables, the predicted variables in order to estimate and/or predict the mean or average value (population) of the former in terms of the known or fixed values (repeated sampling) of the latter.

According to Bowerman & O'Connel (2003) simple linear regression model assumes that there is a straight-line relationship between the dependent variable service delivery (procurement drugs, availability of drugs, availability of basic non consumables, improvement in revenue generation and cash flow, not understaffed and invest in capital equipment) and the independent variable includes processing time, mode of payment, payment period and staff adequacy.

The multiple linear regression model is given by;

$$SD_I = \beta_o + \beta_1 PP_i + \beta_2 MP_i + \beta_3 PT_i + \beta_4 SA_i + \varepsilon_i \quad (1)$$

Where SD is Service Delivery and the following constitute Service Delivery;

- Procurement of Drugs
- Availability of Drugs
- Availability of basic non drug consumables
- Improvement in revenue generation and cash flow
- Not under staffed and
- Invest in capital equipment

The following constitute independent variables;

- Payment Period (PP)
- Mode of Payment (MP)

- ❖ Processing Time (PT)
- ❖ Staff Adequacy (SA)

Analysis of Variance (ANOVA)

According to Weiss (2005), it offers techniques for comparing means of multiple populations, that is, the means of a single variable for multiple populations. This kind of ANOVA is called a one-way variance analysis because it compares the mean for populations of a variable resulting from another variable, called the factor, being classified.

Assumptions of One-way ANOVA

- Simple random samples
- Independent samples
- Normal populations
- Equal standard deviations

One-way ANOVA Table

Source of Variation	Degree of Freedom	Sum of squares	Mean sum of squares	F-statistic
Treatment	k – 1	SSTR	MSTR = $\frac{SSTR}{k-1}$	F = MSTR/MSE
Error	N – k	SSE	MSE = $\frac{SSE}{N-k}$	
Total	N – 1	SST		

SSTR and MSTR are sum of squares and mean sum of squares of treatment respectively.

SSE and MSE are sum of squares and mean sum of squares error respectively

CHAPTER FOUR
DATA ANALYSIS, PRESENTATION, AND DISCUSSION

4.1 Introduction

The section provides results assessment, presentation of outcomes and discussion of result from data collected from the field. The chapter presents a discussion on the impact delays in payment of NHIS claims has on service provision of private healthcare facilities in the Ga West and North Municipalities of the GA Region. Specifically, the study sought to establish whether a delay in claim payment by the NHIA affects healthcare service provision in private hospitals. Also, the research explored the operational challenges faced by private hospitals resulting from delays in claim imbursement by the NHIA.

The quantitative data collected under the survey was coded for the analysis with the use of SPSS (V. 25) and Microsoft Excel (V. 2019) for the analysis of the quantitative data. The researcher thoroughly discussed the qualitative data in relation to the study objectives using a semantic approach. The analysis is consistent with the stated objectives of the study. The researcher administered 23 questionnaires which are fully completed and represented in the tables.

4.2 Data Presentation and Analysis

The analysis and data presentation of the study comprises of the three sections namely; descriptive statistics, multiple linear regression analysis and semantic presentation of result.

4.2.1 Descriptive statistics

This portion of the write-up include the number of hospitals visited, gender of the respondent, the job title of the respondent, year of establishment of the private health facility, the number of years of working and academic qualification of the respondent.

Table 4.1: Names of selected Health Facility Visited

Hospital Name	Abbreviation
Betmis Maternity Home	BMH
Bloomingdale Medical Centre	BMC
Hady Maternity Home	HMH
Maxbeth Maternity Home	MMH
Hoben Clinic	HC
Alama Maternity	AM
Lizziv's Clinic	LC
Lucy Memorial Hospital	LMH
Edith's Maternity Home/Clinic	EMHC
Kemet Hospital	KH
Mawusi Maternity Home	MMH
Rhama Maternity Home	RMH
Holy Dove Hospital	HDH
Urgent Care Hospital	UCH
Obeyeyie Medical Center	OMC
Shalom Clinic	SC
Sky View Hospital	SVH
Aneja Hospital Ltd.	AHL
BJ Medical Center	BMC
M&D Medical Center	MMC
Unimed Clinic	UC
Deseret Hospital	DH
St Moses Community Hosp.	SMCH

Source: Field work, 2019

4.2.1.1 Gender of the respondent

The study categorizes the gender of informants into male and female. The outcome of the finding indicates that more than half (56.5%, n = 13) of the informants were male while females constituted 43.5% (n = 10) of the sampled population.

Table 4.2: Gender of the informants

Gender	Frequency(F)	(%)
Male	13	56.5
Female	10	43.5
Total	23	100.0

Source: Fieldwork, 2019

4.2.1.2 Job title of the respondent

The study examined the respondent job credentials in the private health sector. The study result indicates that most (47.8%, n = 11) of the respondent are administrators. Also, this is followed by a claims officer which constitutes 43.5% (n =10) of the study population. In addition, an accountant and other profession were considered in the sampled population

Table 4.3: Job title of the respondent

Job Title	F	%
Claims Officer	10	43.5
Accountant	1	4.3
Administrator	11	47.8
Others	1	4.3
Total	23	100.0

Source: Field work, 2019

4.2.1.3 Year of Establishment

The study investigates the year of establishment of these selected private health facilities. The outcome of this investigation revealed that majority (65.2%, n = 15) of the selected private health facilities were established between 2007 and 2013. Moreover, between 2000 to 2016 and 2014-2019; the study outcome revealed the same number (n = 3) of health facilities were set up which constitutes 13.0% of the sampled population. Also, only two of the selected health facilities were set up in 1994 to 1999 which constitutes 8.9% of the selected private health facilities.

Table 4.4: Year of establishment

Establishment	F	%
2000-2006	3	13.0
2007-2013	15	65.2
2014-2019	3	13.0
1994-1999	2	8.7
Total	23	100.0

Source: Fieldwork, 2019

4.2.1.4 Years of Work

The study assessed the respondent years of work in their respective private health facilities. Table 4.4 shows that more than half (60.9%, n =14) of the respondent had spent between 3 to 5 years working in their respective private health facilities. Also, some (21.7%, n = 5) of respondent posited that they have work for at most 2 years, while a small number (13%, n =3) of respondents claimed that they have worked between 6 and 10 years. Furthermore, only one of the respondent states that he has worked between 16 and 20 years.

Table 4.5 Years of Work

Years of work	F	%
0-2	5	21.7
3-5	14	60.9
6-10	3	13.0
16-20	1	4.3
Total	23	100.0

Source: Fieldwork, 2019

4.2.1.5 Academic Qualification of the respondent

The study evaluates the academic qualification of the respondent operating at the selected private health facilities. Importantly, all the selected respondent were educated with either diploma/HND or bachelor degree qualification. The outcome of the study revealed that majority (52.2%, n =12) of the respondent had obtained bachelor degree certificate whiles the minority (47.8%, n =11) of the respondent had obtained a Diploma/Higher National Diploma.

Table 4.6: Educational Qualification of the respondent

Qualification	F	%
Diploma/HND	11	47.8
Degree	12	52.2
Total	23	100.0

Source: Fieldwork, 2019

4.2.1.6 Operational challenges posed by delays in payments of claims

The study also sought to ascertain the operational challenges posed by the delays in the payment of claims by NHIA. Below are the responses some of the participants stated;

According to one of the respondents they have difficulties in paying creditors on time (BMH) and delay in meeting obligations to suppliers (KH) constitutes to their challenges. Furthermore, unable to provide NHIS clients with certain drugs (MMH), insufficient drugs to administer to patients (HDH). The respondents continued by indicating that they have difficulty in administering NHIS Drugs (UCH) and unable to purchase drugs as plan and difficulty in paying salaries (OMC). Additionally, they have difficulty in paying suppliers on time (SC) and delay in payment of suppliers (SVH) pose a challenge. Moreover, some private facilities complained about delay in payment of salaries in months with low turnover from private Insurances. Unavailability of some drugs for NHIS clients and Delay in payment of tax (withholding) (AHL). Also, delay in paying creditors (BMC) and delay in payment of salaries (UC). Difficulty in paying creditors on time (DH) and Challenges in procuring NHIS drugs and delay in procuring new equipment (MCH)

4.2.2 Reliability

Reliability is defined as the degree to which the scales or items used in a survey do provide consistent outcome when surveying other similar populations (Saunders et al, 2011). It is a way of measuring the stability of constructs used for a particular study. There are three main types of reliability that are of concern to researchers in social sciences. These are internal consistency, split-half reliability and test-retest reliability (Malhotra, 2007).

This research, nonetheless, focused its attention on verifying the internal consistency of the constructs using Cronbach's alpha. The internal consistency test of each construct is presented in Table 4.6 below.

Table 4.7: Cronbach's Alpha for Constructs

Constructs	Cronbach's Alpha	Number of Items
Payment period	0.791	6
Mode of payment	0.837	4
Processing Time	0.724	6
Staff adequacy	0.841	3

Source: SPSS output

Hair et al (2006) propose that a Cronbach's Alpha above 0.6 is acceptable. The results of the internal consistency test indicated that all the constructs have a Cronbach's Alpha of more than 0.70. The Cronbach's Alphas of all the dimensions were above 0.7. These findings imply that there is a high level of internal consistency between the items in the four construct and as such these constructs are reliable. A high level of alpha is also an indication of the high level of correlation of items in the individual construct, a necessary condition for constructing a summated scale. To explore the Impact delays in claim payment by the NHIA has on service delivery in private hospitals as well as the challenges faced by private hospitals resulting from delays in claim imbursement by the NHIA, the items under these constructs were summed up to represent the main construct they measured.

4.2.2 Multiple Linear Regression Analysis

Multiple linear regression was used in the research to evaluate the connection between dependent and independent variables. The research used as statistical techniques, the Pearson's correlation coefficient, one-way variance analysis, and multiple regression analysis.

4.2.2.1 Multiple linear Regression of Procurement of Drugs as planned and covariates

Correlation of the study variables

The study employed Pearson moment product of coefficient correlation to determine the linear association between the research variables. The research variables include dependent variable (procurement of drugs as planned) and independent variables: Staff adequacy (Adequate staff manage claims), Processing time (Number of weeks to process a claim), Payment period (Period it takes to receive reimbursement from NHIA) and Mode of payment (How the reimbursement is received from the NHIA).

Table 4.7 illustrates the correlations between the individual pair of variables with the coefficient of correlation ranging from -1 to 1 ; it is for the purpose of measuring the strength of the linear relationship between two variables. The number of pairs of data values for calculating each coefficient is also presented in the table.

The study outcome indicates that procurement of drugs as planned has either a positive or negative correlation coefficient with the independent variables as follows: with staff adequacy (adequate staff manage claims), it was 0.394 which implies weak positive degree of association; mode of payment (how the reimbursement is received from the NHIA), it was -0.498 which implies

moderate negative degree of association; processing time (the number of weeks to process), it was -0.325 which implies weak negative degree of association; payment period (the period it takes to receive reimbursement from NHIA), it was -0.331 which implies weak negative of association.

Moreover, the p-value of the correlation between drug accessibility and adequacy of employees (p-value = 0.001) and payment method (p-value = 0.008) is less than 0.05 which makes it statistically significant.

Table 4.8: Correlation analysis of procurement of drug and the covariates

Correlation	Procurement	Staff Adequacy	Processing Time	Payment Period	Mode of Payment
Procurement	1.000	**0.394**	-0.325	-0.331	**0.498**
Staff Adequacy	**0.394**	1.000	-0.143	-0.167	0.329
Processing Time	-0.325	-0.143	1.000	-0.089	-0.413
Payment Period	-0.331	-0.167	-0.089	1.000	-0.190
Mode of Payment	**0.498**	0.329	-0.413	-0.190	1.000

Source: SPSS output

The adjusted R-Squared statistic, which is better suited for comparing models or autonomous variable, was 24.7%. The R-Squared statistic indicates that 38.4 percent of the variation in drug procurement is explained by the model as fitted. The residual average value is a standard error estimated at 1.028. The residual is examined to determine any significant correlation according to the way they are ordered in the data file; this is done using the Durbin-Watson (DW) statistic. (1.750) The P-value is greater than 0.05, therefore there is no sign of serial autocorrelation on at the 95% confidence level.

Table 4.9: Model summary for procurement of drug and covariates

R	RS	ARS	SEE	DW
.619[a]	0.384	0.247	1.028	1.750

Source: SPSS output

One-way Analysis of Variance

The study result from the one-way analysis of variance indicates that since the P-value in the ANOVA table is less than 0.10. This proves that there is a relatively significant relationship between the variables at the 90.0% confidence level.

Table 4.10: ANOVA of procurement of drugs and covariates

Model	SS	df	MS	F	Sig.
Regression	11.841	4	2.960	2.800	.057[b]
Residual	19.029	18	1.057		
Total	30.870	22			

Source: SPSS output

Regression Coefficient

The Table 4.9 demonstrates the results of fitting different linear regression models to explain the association between procurement of drugs as planned (PD) and 4 independent variables such as staff adequacy (SA), processing time (PT), payment period (PP) and mode of payment (MP). The equation of the fitted model is

$$PD = 3.826 + 0.308 * SA - 0.221 * PT - 0.582 * PP + 0.832 * MP$$

All the four factors have been taken into account in this regression equation. If you hold all the four factors at zero, procurement of drug as planned in a private hospital will increase by 3.826. The findings also shows holding all other independent variables constant, a unit increase in staff adequacy (adequate staff managing claims) leads to a 0.308 increase in procurement of drugs as planned; a unit increase in processing time (number of weeks to process) leads to a 0.221 decrease in procurement of drugs as planned; a unit increase in payment period (period it take to receive reimbursement from NHIA) will result in a 0.582 decrease in procurement of drugs as planned and a unit increase in mode of payment (how the reimbursement is received from the NHIA) will lead to a 0.832 increase in procurement of drugs as planned. Based on the study result, none of the independent variables was statistical significance in predicting the procurement of drugs as planned at the private hospitals.

Table 4.11: Regression coefficient of procurement of drugs

	UC		SC		
Model	B	Std. Error	Beta	t	Sig.
(Constant)	3.826	2.458		1.556	0.137
Staff Adequacy	0.308	0.269	0.226	1.146	0.267
Processing Time	-0.221	0.237	-0.193	-0.930	0.364
Payment Period	-0.582	0.441	-0.255	-1.318	0.204
Mode of Payment	0.832	0.611	0.296	1.361	0.190

Source: SPSS output

4.2.2.2 Multiple linear Regression of Availability of Drug and covariates

Correlation of the study

The study employed Pearson moment product of coefficient correlation to determine the linear association between the study variables. The research variables include dependent variable (availability of drug) and independent variables: Staff adequacy (Adequate staff manage claims), Processing time (Number of weeks to process a claim), Payment period (Period it takes to receive reimbursement from NHIA) and Mode of payment (How the reimbursement is received from the NHIA).

Table 4.10 illustrates the correlations between the individual pair of variables with the coefficient of correlation ranging from -1 to 1; it is for the purpose of measuring the strength of the linear relationship between two variables. The number of pairs of data values for calculating each coefficient is also represented in the table. The P-value also tests the estimate's statistical significance.

The study outcome indicates that availability of drugs has either positive or negative correlation coefficient with the independent variables as follows: with staff adequacy (adequate staff manage claims), it was 0.639 which implies moderate positive degree of association; mode of payment (how the reimbursement is received from the NHIA), it was 0.453 which moderate positive degree of association; processing time (the number of weeks to process), it was -0.417 which implies a moderate negative degree of association; payment period (the period it takes to receive reimbursement from NHIA), it was -0.268 which implies weak negative of association.

In addition, the p-value of the correlation between availability of drugs and adequate staff managing claims (0.001), number of weeks to process a claim (0.016), period it takes to receive reimbursement from NHIA (0.008) and how the reimbursement is received from the NHIA (0.015) is less than 0.05 making it statistically significant.

Table 4.12: Correlation analysis of the availability of drugs and the covariates

Correlation	Availability of drug	Staff Adequacy	Processing Time	Payment Period	Mode of Payment
Availability of drugs	1.000	0.639	-0.447	-0.268	0.453
Staff Adequacy	0.639	1.000	-0.143	-0.167	0.329
Processing time	-0.447	-0.143	1.000	-0.089	-0.413
Payment period	-0.268	-0.167	-0.089	1.000	-0.190
Mode of payment	0.453	0.329	-0.413	-0.190	1.000

Source: SPSS output

The adjusted R-Squared statistic scored 49.5 percent, which is more appropriate for comparing models or independent variable. The R-Squared statistic indicates that 58.7 percent of the variation

in drug accessibility is accounted for by the model as fitted. The average value of the residuals is a standard error of the estimate 0.617. The residual is examined to determine any significant correlation according to the way they are ordered in the data file; this is done using the Durbin-Watson (DW) statistic. (1.984) The P-value is greater than 0.05, therefore there is no sign of serial autocorrelation on at the 95% confidence level.

Table 4.13: Model summary of the availability of drugs and the covariates

R	RS	ARS	SEE	DW
.766[a]	0.587	0.495	0.617	1.984

Source: SPSS output

One-way Analysis of Variance

The study result from the one-way analysis of variance indicates that since the P-value in the ANOVA table is less than 0.05. This demonstrates that there is a comparatively important association between variables at the confidence level of 95.0 percent

Table 4.14: Anova of availability of drugs and the covariates

Model	SS	Df	MS	F	Sig.
Regression	9.748	4	2.437	6.394	.002[b]
Residual	6.861	18	0.381		
Total	16.609	22			

Source: SPSS output

Regression coefficient

The Table 4.13 presents the outcome of fitting different linear regression models to explain the association between availability on drugs (AV) and 4 independent variables such as staff adequacy

(SA), processing time (PT), payment period (PP) and mode of payment (MP). The equation of the fitted model is

$$AV = 3.505 + 0.524 * SA - 0.294 * PT - 0.322 * PP + 0.208 * MP$$

All the four factors have been taken into account in this regression equation. If you hold all the four factors at zero, the availability of drug will decrease by 3.505 in a private health facility. The result also indicates that holding constant all other independent variables, a unit increase in staff adequacy (adequate staff managing claims) leads to a 0.524 increase in availability of drugs; a unit increase in processing time (number of weeks to process) leads to a 0.294 decrease in the availability of drugs; a unit increase in payment period (period it take to receive reimbursement from NHIA) will lead to a 0.322 decrease in availability on drugs and a unit increase in mode of payment (how the reimbursement is received from the NHIA) will lead to a 0.208 decrease in availability on drugs. Based on the study result, adequate staff managing claim is statistical significance in predicting the availability of drugs.

Table 4.15: Regression coefficient of availability of drugs and the covariates

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	P-value
(Constant)	3.505	1.476		2.374	0.029
Staff adequacy	**0.524**	**0.162**	**0.524**	**3.243**	**0.005**
Processing Time	-0.292	0.142	-0.347	-2.051	0.055
Payment period	-0.322	0.265	-0.192	-1.214	0.241
Mode of payment	0.208	0.367	0.101	0.566	0.578

Source: SPSS output

4.2.2.3 Multiple linear Regression of Availability of Basic Non-Drug Consumables and covariates

Correlation of the study variable

The study employed Pearson moment product of coefficient correlation to determine the linear association between the study variables. The research variables include dependent variable (availability of basic non-drug consumables and covariates) and independent variables: Staff adequacy (Adequate staff manage claims), Processing time (Number of weeks to process a claim), Payment period (Period it takes to receive reimbursement from NHIA) and Mode of payment (How the reimbursement is received from the NHIA).

Table 4.14 illustrates the correlations between the individual pair of variables with the coefficient of correlation ranging from -1 to 1; it is for measuring the strength of the linear relationship between two variables. The number of pairs of data values for calculating each coefficient is also demonstrated in the table. The P-value also tests the estimate's statistical importance.

The study outcome indicates that availability of basic non-drugs consumables has a either a positive or a negative correlation coefficient with the independent variables as follows: with staff adequacy (adequate staff manage claims), it was 0.400 which implies weak positive degree of association; mode of payment (how the reimbursement is received from the NHIA), it was 0.177 which implies weak positive degree of association; processing time (the number of weeks to process), it was -0.107 which implies weak negative degree of association; payment period (the period it takes to receive reimbursement from NHIA), it was 0.045 which implies weak positive of association.

In addition, the p-value of the correlation between the availability of drugs and staff adequacy (p-value = 0.005) is less than 0.05 making it statistically significant.

Table 4.16: Correlation analysis of availability of basic non-drugs consumables and the covariate

Correlation	Non-Drug consumable	Staff Adequacy	Processing Time	Payment Period	Mode of Payment
Non-Drug Consumable	1.000	0.400	-0.107	0.045	0.177
Staff Adequacy	**0.400**	1.000	-0.143	-0.167	0.329
Processing Time	-0.107	-0.143	1.000	-0.089	-0.413
Payment Period	0.045	-0.167	-0.089	1.000	-0.190
Mode of Payment	0.177	0.329	-0.413	-0.190	1.000

Source: SPSS output

The adjusted R-Squared statistic scored 0.5 percent, which is more appropriate for comparing models or independent variable. The R-Squared statistics suggest that the model, as it is fitted, accounts for 17.8% of the variation in the accessibility of non-drug consumables. The average value of the residuals is a standard error of the estimate 0.929. The residual is examined to determine any significant correlation according to the way they are ordered in the data file; this is done using the DW statistic. (1.984) The P-value is greater than 0.05, therefore there is no sign of serial autocorrelation on at the 95% confidence level.

Table 4.17: Model summary

R	RS	ARS	SEE	DW
.421[a]	0.178	0.005	0.929	2.303

Source: SPSS output

One-way Analysis of Variance

The study result from the one-way analysis of variance indicates that since the P-value in the ANOVA table is greater than 0.05. This shows that there is a comparatively insignificant association between factors at the confidence level of 95.0 percent

Table 4.18: Anova of availability of basic of non-drug consumables and the covariates

Model	SS	df	MS	F	Sig.
Regression	3.350	4	0.838	0.972	.447[b]
Residual	15.519	18	0.862		
Total	18.870	22			

Source: SPSS output

4.2.2.4 Multiple linear Regression of improvement in revenue generation and cash flow and covariates

Correlation of improvement in revenue generation and cash flow and covariate

The study employed Pearson moment product of coefficient correlation to determine the linear association between the study variables. The research variables include dependent variable (improvement of revenue generation and cash flow) and independent variables: Staff adequacy (Adequate staff manage claims), Processing time (Number of weeks to process a claim), Payment

period (Period it takes to receive reimbursement from NHIA) and Mode of payment (How the reimbursement is received from the NHIA).

Table 4.17 illustrates the correlations between the individual pair of variables with the coefficient of correlation ranging from -1 to 1; it is for the purpose of measuring the strength of the linear relationship between two variables. The number of pairs of data values for calculating each coefficient is also displayed in the table. The P-value also tests the estimate's statistical importance.

The study outcome indicates that improvement in revenue generation and cash flow has a either a positive or a negative correlation coefficient with the independent variables as follows: with staff adequacy (adequate staff manage claims), it was 0.368 which implies weak positive degree of association; mode of payment (how the reimbursement is received from the NHIA), it was 0.245 which implies weak positive degree of association; processing time (the number of weeks to process), it was -0.343 which implies weak negative degree of association; payment period (the period it takes to receive reimbursement from NHIA), it was -0.379 which implies weak negative of association.

In addition, the p-value of the correlation between improvement of revenue generation and cash flow and staff adequacy (p-value = 0.027) and payment period (p-value = 0.035) are less than 0.05 making it statistically significant.

Table 4.19: Correlation analysis of improvement in revenue generation and cash flow

Correlation	Improvement	Staff Adequacy	Processing Time	Payment Period	Mode of Payment
Improvement	1.000	**0.368**	-0.343	**-0.379**	0.245
Staff Adequacy	**0.368**	1.000	-0.143	-0.167	0.329
Processing Time	-0.343	-0.143	1.000	-0.089	-0.413
Payment Period	**-0.379**	-0.167	-0.089	1.000	-0.190
Mode of Payment	0.245	0.329	-0.413	-0.190	1.000

Source: SPSS output

The ARS statistic, which is more appropriate for the use of comparing models or independent variable scored 21.0%. The RS statistic suggests that the model, as fitted, accounts for 35.3% of the changes in the improvement of revenue generation and cash flow. The average value of the residuals is a standard error of the estimate 0.868. The residual is examined to determine any significant correlation according to the way they are ordered in the data file; this is done using the Durbin-Watson (DW) statistic. (2.453) The P-value is greater than 0.05, therefore there is no sign of serial autocorrelation on at the 95% confidence level.

Table 4.20: Model summary of improvement in revenue generation and cash flow

R	RS	ARS	SEE	DW
.594[a]	0.353	0.210	0.868	2.453

Source: SPSS output

One-way Analysis of Variance

The study result from the one-way analysis of variance indicates that since the P-value in the ANOVA table is less than 0.10. This demonstrates that there is a comparatively significant association between variables at the confidence level of 90.0 percent.

Table 4.21: Anova of improvement in revenue generation and cash flow

Model	SS	Df	MS	F	Sig.
Regression	7.404	4	1.851	2.458	.083[b]
Residual	13.553	18	0.753		
Total	20.957	22			

Source: SPSS output

Regression coefficient

The Table 4.20 demonstrate the outcome of fitting different linear regression models to describe the relationship between improvement of revenue generation and cash flow (IRG) and 4 independent variables such as staff adequacy (SA), processing time (PT), payment period (PP) and mode of payment (MP). The equation of the fitted model is

$$IRG = 5.471 + 0.309 * SA - 0.345 * PT - 0.712 * PP - 0.158 * MP$$

All the four factors have been taken into account in this regression equation. If you hold all the four factors at zero, improvement of revenue generation and cash flow will increase by 5.471 in a private health facility. The findings also indicates that holding all other independent variables constant, a unit increase in staff adequacy (adequate staff managing claims) leads to a 0.309 increase in improvement of revenue generation and cash flow; a unit increase in processing time (number of weeks to process) leads to a 0.345 decrease in improvement of revenue generation and

cash flow; a unit increase in payment period (period it take to receive reimbursement from NHIA) will lead to a 0.712 decrease in improvement of revenue generation and cash flow and a unit increase in mode of payment (how the reimbursement is received from the NHIA) will lead to a 0.158 decrease in improvement of revenue generation and cash flow.

From the study result, none of the independent variables is statistically significant in predicting the improvement of revenue generation and cash flow in a private health facility.

Table 4.22: Regression coefficient of improvement in revenue generation and cash flow

Model	UC		SCB		
	B	SE		t	PV
(Constant)	5.471	2.075		2.637	0.017
Staff adequacy	0.309	0.227	0.275	1.362	0.190
Processing Time	-0.345	0.200	-0.365	-1.724	0.102
Payment period	-0.712	0.372	-0.378	-1.912	0.072
Mode of payment	-0.158	0.516	-0.068	-0.306	0.763

Source: SPSS output

4.2.2.5 Multiple linear Regression of Not Under Staff and covariates

Correlation analysis of Not Under Staff and covariates

The study employed Pearson moment product of coefficient correlation to determine the linear relationship between the study variables. The research variables include dependent variable (not under staff) and independent variables: Staff adequacy (Adequate staff manage claims), Processing time (Number of weeks to process a claim), Payment period (Period it takes to receive

reimbursement from NHIA) and Mode of payment (How the reimbursement is received from the NHIA).

Table 4.21 illustrates the correlations between the individual pair of variables with the coefficient of correlation ranging from -1 to 1; it is for the purpose of measuring the strength of the linear association between two variables. The number of pairs of data values for calculating each coefficient is also presentd in the table. The P-value also tests the estimated cor's statistical significance.

The study outcome indicates that not under staff has a either a positive or a negative correlation coefficient with the independent variables as follows: with staff adequacy (adequate staff manage claims), it was 0.738 which implies strong positive degree of association; mode of payment (how the reimbursement is received from the NHIA), it was 0.223 which implies weak positive degree of association; processing time (the number of weeks to process), it was 0.147 which implies weak positive degree of association; payment period (the period it takes to receive reimbursement from NHIA), it was -0.011 which implies weak negative of association.

In addition, the p-value of the correlation between improvement of revenue generation and cash flow and staff adequacy (p-value = 0.00) is less than 0.05 making it statistically significant.

Table 4.23: Correlation analysis of not under staff

Correlation	Not under staff	Staff Adequacy	Processing Time	Payment Period	Mode of Payment
Not under staff	1.000	**0.738**	0.147	-0.011	0.223
Staff Adequacy	**0.738**	1.000	-0.143	-0.167	0.329
Processing Time	0.147	-0.143	1.000	-0.089	-0.413
Payment Period	-0.011	-0.167	-0.089	1.000	-0.190

Mode of Payment	0.223	0.329	-0.413	-0.190	1.000

Source: SPSS output

The adjusted R-Squared statistic, which is better suited for comparing models or independent variable, scored 56.6%. The R-Squared statistics suggest that 64.5 percent of the variation in drug accessibility is accounted by the model as fitted. The average value of the residuals is a standard error of the estimate 0.678. The residual is examined to determine any significant correlation according to the way they are ordered in the data file; this is done using the Durbin-Watson (DW) statistic. (2.262) The P-value is greater than 0.05, therefore there is no sign of serial autocorrelation on at the 95% confidence level.

Table 4.24: Model summary Not Under Staff

R	RS	A RS	SEE	DW
.803[a]	0.645	0.566	0.678	2.262

Source: SPSS output

One-way Analysis of Variance

The study result from the one-way analysis of variance indicates that since the P-value in the ANOVA table is less than 0.05. This demonstrates that there is a comparatively significant association between variables at the confidence level of 95.0 percent.

Table 4.25: Anova of improvement in revenue generation and cash flow

Model	SS	Df	MS	F	Sig.
Regression	15.022	4	3.755	8.162	.001[b]
Residual	8.282	18	0.460		
Total	23.304	22			

Source: SPSS output

Regression coefficient

The Table 4.23 demonstrates the outcome of fitting different linear regression models to describe the relationship between not under staff (NUS) and 4 independent variables such as staff adequacy (SA), processing time (PT), payment period (PP) and mode of payment (MP). The equation of the fitted model is

$$NUS = -1.842 + 0.910 * SA + 0.328 * PT + 0.343 * PP + 0.339 * MP$$

All the four factors have been taken into account in this regression equation. If you hold all the four factors at zero, not under staff will decrease by -1.842 in a private health facility. The findings also indicates that holding all other independent variables constant, a unit increase in staff adequacy (adequate staff managing claims) leads to a 0.910 increase in not under staff; a unit increase in processing time (number of weeks to process) leads to a 0.328 increase not under staff; a unit increase in payment period (period it take to receive reimbursement from NHIA) will lead to a 0.343 increase in not under staff and a unit increase in mode of payment (how the reimbursement is received from the NHIA) will lead to a 0.339 increase in not under staff.

Based on the study result, none of the independent variables is statistical significance in predicting the not under staff in a private health facility.

Table 4.26: Regression coefficient of not under staff

Model	UC		SCB		
	B	SE		t	P-value
(Constant)	-1.842	1.622		-1.136	0.271
Staff adequacy	**0.910**	**0.177**	**0.768**	**5.128**	**0.000**
Processing Time	0.328	0.157	0.329	2.097	0.050
Payment period	0.343	0.291	0.173	1.177	0.255
Mode of payment	0.339	0.403	0.139	0.842	0.411

Source: SPSS output

4.2.2.6 Multiple linear Regression of investment in capital equipment and covariates

Correlation of the study variables

The study employed Pearson moment product of coefficient correlation to determine the linear relationship between the study variables. The research variables include dependent variable (investment in capital equipment) and independent variables: Staff adequacy (Adequate staff manage claims), Processing time (Number of weeks to process a claim), Payment period (Period it takes to receive reimbursement from NHIA) and Mode of payment (How the reimbursement is received from the NHIA).

Table 4.23 illustrates the correlations between the individual pair of variables with the coefficient of correlation ranging from -1 to 1; it is for the purpose of measuring the strength of the linear relationship between two variables. The number of pairs of data values for calculating each coefficient is also displayed in the table. The P-value also tests the estimated cor's statistical significance.

The study outcome indicates that investment in capital equipment has a either a positive or a negative correlation coefficient with all the independent variables as follows: with staff adequacy (adequate staff manage claims), it was 0.738 which implies strong positive degree of association; mode of payment (how the reimbursement is received from the NHIA), it was 0.223 which implies weak positive degree of association; processing time (the number of weeks to process), it was 0.147 which implies weak positive degree of association; payment period (the period it takes to receive reimbursement from NHIA), it was -0.011 which implies weak negative of association.

In addition, the p-value of the correlation between investment in capital equipment and staff adequacy (p-value = 0.00) is less than 0.05 making it statistically significant.

Table 4.27: Correlation analysis of invest in capital equipment

Correlation	Not under staff	Staff Adequacy	Processing Time	Payment Period	Mode of Payment
Not under staff	1.000	**0.738**	0.147	-0.011	0.223
Staff Adequacy	**0.738**	1.000	-0.143	-0.167	0.329
Processing Time	0.147	-0.143	1.000	-0.089	-0.413
Payment Period	-0.011	-0.167	-0.089	1.000	-0.190
Mode of Payment	0.223	0.329	-0.413	-0.190	1.000

Source: SPSS output

The adjusted R-Squared statistic, which is more suitable for the use of comparing models or independent variable scored 20.8%. The R-Squared statistic suggests that the model, as fitted, accounts for 35.2% of variability in investment in capital equipment. The average value of the residuals is a standard error of the estimate 0.803. The residual is examined to determine any significant correlation according to the way they are ordered in the data file; this is done using the

Durbin-Watson (DW) statistic. (2.243) The P-value is greater than 0.05, therefore there is no sign of serial autocorrelation on at the 95% confidence level.

Table 4.28: Model summary of invest in capital equipment

R	RS	ARS	SEE	DW
.593[a]	0.352	0.208	0.803	2.243

Source: SPSS output

One-way Analysis of Variance

The research result from the one-way analysis of variance indicates that since the P-value in the ANOVA table is less than 0.1This demonstrates that there is a comparatively significant association between variables at the confidence level of 90.0 percent.

Table 4.29: Anova of invest in capital equipment

Model	SS	Df	MS	F	Sig.
Regression	6.303	4	1.576	2.443	.084[b]
Residual	11.610	18	0.645		
Total	17.913	22			

Source: SPSS output

Regression coefficient

The Table 4.26 demonstrate the outcome of fitting different linear regression models to explain the association between investment in capital equipment (ICV) and 4 independent variables such as staff adequacy (SA), processing time (PT), payment period (PP) and mode of payment (MP). The equation of the fitted model is

$$ICV = 1.478 + 0.483 * SA + 0.098 * PT - 0.118 * PP + 0.534 * MP$$

All the four factors have been taken into account in this regression equation. If you hold all the four factors at zero, investment in capital equipment will increase by 1.478 in a private health facility. The result also demonstrates that holding all other independent variables constant, a unit increase in staff adequacy (adequate staff managing claims) leads to a 0.483 increase in investment in capital equipment; a unit increase in processing time (number of weeks to process) leads to a 0.098 increase investment in capital equipment; a unit increase in payment period (period it take to receive reimbursement from NHIA) will lead to a 0.118 decrease in investment in capital equipment and a unit increase in mode of payment (how the reimbursement is received from the NHIA) will lead to a 0.534 increase in investment in capital equipment.

Based on the study result, staff adequacy is statistical significance in estimating the investment in capital equipment in private health facility.

Table 4.30: Regression coefficient of investment in capital equipment

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	P-value
(Constant)	1.478	1.920		0.770	0.451
Staff adequacy	**0.483**	**0.210**	**0.465**	**2.297**	**0.034**
Processing Time	0.098	0.185	0.113	0.530	0.602
Payment period	-0.118	0.345	-0.068	-0.343	0.735
Mode of payment	0.534	0.478	0.249	1.117	0.279

Source: SPSS output

CHAPTER FIVE
CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This part recaps the study results and provide recommendation for policy-making as well as opportunities for further studies. The NHIS undoubtedly remains one of the major sources of revenue to hospitals in Ghana.

5.2 Conclusion

This study sought to establish the impact delay in claim payment by the NHIA has on the service delivery of private healthcare providers in the Ga West and North Municipalities of the Greater Accra region. The preliminary study covered 23 out of 26 NHIS accredited private hospitals in the above-mentioned municipalities.

The findings indicated that there is both positive and negative association between the dependent and independent variables considered under this research. The association,, however, was a weak one in almost all the regression equations analyzed. An indication that, private healthcare providers are able to provide healthcare services (procurement of drugs as plan, availability of drugs, procurement of non-drug consumables, improvement in revenue generation and cash flow, hire adequate staff and investment in capital equipment) without major difficulties emanating from the delay in receiving reimbursement from the NHIA. From the study, all the respondents agreed to the fact that payment or reimbursement of claims from the NHIA takes more than 8 months and in most cases run into years which is a major departure from the standard four weeks (*Nation Health Insurance Act 2003 (Act 650)* after submission of claims, yet they are able to provide healthcare services.

This implies that private hospitals in the Ga West and North Municipalities rely heavily on other sources of revenue apart from the reimbursement unpredictably received from the NHIA in operating these facilities. This finding is in direct opposition with the findings made by Sakyi et.al (2012) concluding that public hospitals depend very much on funding from the NHIA to the extent that cash flow problems often reduce their purchasing power. In the researchers' interaction with the majority of the respondents, they indicated that the private hospitals receive revenue from clients using Private Commercial Health Insurance Schemes which reimbursement comes promptly as opposed to the NHIS. The hospitals also rely heavily on clients who pay cash at the point of service. Just like government provides public hospitals with subsidies, owners of these hospitals occasionally injects equity into the running of private hospitals. These conclusions are reinforced by the analysis of the number of NHIS clients the hospitals receive in a month compared to the total number of both out and in-patient attendance in a month. This comparison indicates that the percentage of non-NHIS clients received in a month far exceeds that of the NHIS client received in the same period and this accounts for the fact that though claims from the NHIA does not come on time, private healthcare providers are able to provide healthcare services.

The study also sought to identify some of the operational challenges posed by the delay in payments of claims by the NHIA to private hospitals. Pervasive in the challenges enumerated by the respondents include difficulty in administering NHIS drugs, paying creditors on time and paying salaries in months with low turnover from private insurance schemes. From the challenges provided by the respondents, it is evident that the private hospitals in the study site are not heavily affected by the delay in payment of reimbursements from the NHIA.

5.3 Recommendation

Notwithstanding the fact that private hospitals in the Ga North and West Municipalities seems to be doing well in terms of providing healthcare services even in the face of the delay in claims paid by the NHIA, it is recommended that government put in place claim payment policies that that will facilitate the quick reimbursement of claims to private hospitals in Ghana. This is necessary to ensure that the private sector continues to partner government in the effort making healthcare more accessible to the general public (increasing access) which is a key objective of introducing in Ghana the NHIS.

5.4 Limitation and Further studies

Though the study provides a good basis for policy making regarding claims management, it is limited to only Ga West and North Municipalities. This due to the constraint imposed by the time available for the research. The study is limited to the extent that it could not explore all the operational challenges faced by private hospitals under the NHIS.

Further studies can be done to establish the extent of the impact of the delay in claim payments by looking at the amount of revenue generated from the NHIS and the other sources of revenue to the private hospitals. The study can also be extended to NHIS accredited private hospitals in the whole of the GA region.

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