KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY
KUMASI

EVALUATING THE EFFECTS OF CAPITATION AS AN ALTERNATE PAYMENT METHOD FOR THE NATIONAL HEALTH INSURANCE SCHEME AS AGAINST DIAGNOSTIC RELATED GROUPINGS: CASE STUDY OF AHAFO - ANO SOUTH DISTRICT OF GHANA

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DECLARATION

I declare hereby that this thesis submission is the product of my own work towards the Master of Science in Health Informatics and that, to the best of my knowledge, it does not contain any material previously published by any other person nor material which has been accepted for the award of another degree of the University, except in cases where due acknowledgement has been made in the text.

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DEDICATION

I dedicate this work to my mum, Madam Margaret Tang and to my lovely wife, Mrs. Prisca Faakum Domoh together with all the children. Thank you all for your support, love and care. God bless you all.

ABSTRACT

Health insurance is a method of pre-financing the services of health used by subscribers belonging to a health insurance scheme. The method implored for the transfer of funds from the health insurance organization which is the purchaser of the health care service to the providers of that service is known as Provider Payment Method. In this study, we seek to evaluate the effects of Capitation as an additional payment method of the National Health Insurance Scheme in the Ahafo - Ano South District of Ghana as compared to Diagnostic Related Groupings. Secondary data of purposely chosen health facilities were collected from the scheme and compared with data obtained from these health care providers to ensure consistency. The results from the analysis conducted revealed that there was a statistically significant increase ($p < 0005$) in the overall cost of claims paid to providers from the period before the introduction of Capitation to period after it was introduced. On the other hand, the paired samples t-test conducted to evaluate the impact of Capitation on health facility attendance within the district revealed that there was no statistically significant difference in the rate of attendance, t (30) = -0.11, p= 0.991], the Eta squared statistic (0.0004) indicated that the implementation of the Capitation as an alternate payment method has had very small or no effect (insignificant) on the rate of attendance at health facilities within the study area. Finally, the paired samples t-test conducted to evaluate the impact of the Capitation payment method on membership revealed a statistically significant increase in the total number of members registered with the scheme from the period before Capitation (M (Average cost of claims) = 28, 900, SD= 3, 898.21) to period after Capitation [M= 37, 100, SD= 2, 675.19), t (24) = 6.514, p= 0.000]. The Eta squared statistic (0.65) indicated a large effect with a substantial difference in the rate at which clients registered and joined the scheme in the district before and after the introduction of Capitation. The study conducted suggests that the introduction of Capitation for the

two-year period (2012 and 2013) showed a significant increase in the cost of claims but maintained the rate of attendance to health facilities as there was no statistically significant increase. However, the membership increased substantially in 2012 to 2013, the period of implementation as compared to the period before the introduction of Capitation (2010 to 2011) when it was only the Ghana Diagnostic Related Groupings.

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LIST OF ACRONYMS

CBHI	Community Base Health Insurance
CHPS	Community-Based Health Planning and Services
DHMT	District Health Management Team
DMHIS	District Mutual Health Insurance Scheme
DRG	Diagnostic Related Grouping
FFS	Fee-for-Service
GHS	Ghana Health Service
MHO	Mutual Health Organization
MOH	Ministry of Health
NGO	Non-Governmental Organization
NHIA	National Health Insurance Authority
NHIF	National Health Insurance Fund
NHIS	National Health Insurance Scheme
SRN	State Registered Nurse
SSNIT	Social Security and National Insurance Trust
WHO	World Health Organization

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CHAPTER ONE

1.0 Introduction

In this chapter, a brief description of the background of the study is treated. The problem statement, the objectives, research questions, significance scope limitations and organization of the study are also considered.

1.1 Background of the Study

In Africa, where most countries have smaller economies as well as similar smaller economy countries all over the world have for the past century formulated health sector reforms which rather widen inequities in the access of health care that is affordable. An increased dependence on out-of-pocket payment coupled with health care provided for by private individuals and organizations has led to health care accessed on the ability-to-pay, and this is highly disadvantageous to the countries with lower economies. In 2005, the World Health Assembly demanded universal coverage in health systems across the globe. This, the World Health Organization (WHO) defined as providing "access to adequate health care for all at an affordable price". The above definition countenance an increase integration in the provision of healthcare as well as its financing (McIntyre *et al.*, 2008).

Universal coverage in a health system is attained when inhabitants of a country are all capable of accessing quality basic healthcare at an affordable price. This can only be realized when there are enough healthcare facilities provided and with a means to financing the healthcare that will yield the needed quality of care without considering the ability to pay (Amporfu, 2013).

There is a raging discussion across the globe on the financing of healthcare particularly among countries with smaller economies. They continuously interrogate several health

financing systems to come out with what is best for them as a result of the fact that they have very low budgets for healthcare (Dalinjong and Laar, 2012). The cost of health financing presents a major challenge in developing countries and this leads to a substantial drain on expenditure patterns of most households thereby making health insurance, a social intervention policy, the best option. However, government under-funding, huge user fees, and unapproved payments are some of the problems that pose a threat to health financing and result in disadvantage to the poor of the needed health care. (Kumi-Kyereme and Amo-Adjei, 2013). The World Bank also said that developing countries are overwhelmed with making available health care facilities to cater for their population's health care needs. Decreasing and sometimes unavailable budgetary support for the delivery of health care services, ineffectiveness and mismanagement in providing public health, very poor public health service quality and the consequential application of user charges are a reflection of the inability of the state to meet the needs in terms of health care provision to the poor and marginalized in society (World Bank, 1993).

The WHO concept of equity in the financing of health states that the required health service must be offered to all individuals seeking health care on the terms of the individual's payment abilities. The resultant effect therefore is to provide a system of health financing that protects the poor and the most vulnerable in society from the unwelcome cost of illness by pooling risk and resources from a larger population. Hence, health insurance should be provided to the citizens to reflect a system of social justice. (Kumi-Kyereme and Amo-Adjei, 2013)

1.1.1 Health Insurance in Ghana

The National Health Insurance Scheme (NHIS) of Ghana was created in 2003 through an Act of parliament, ACT 650, and backed with a Legislative Instrument, LI 1809,

2004. This provided the basis to create a Mutual Health Insurance Scheme (MHIS) at the district level with the objective of guaranteeing access to basic healthcare services to all people living in Ghana, particularly the underprivileged and the vulnerable with quality and basic health care services (Yevutsey and Aikins, 2010). Mensah *et al.* (2010) also stated that the mission of the NHIS is 'to ensure equitable universal access for all residents of Ghana to an acceptable quality of essential health services without out-of-pocket payment being required at the point of service use.' The National Health Insurance Authority (NHIA) therefore was created out of the National Health Insurance Act 2003, Act 650, as a corporate organization, with perpetual succession, an Official Seal, that can sue and be sued in its own name. The main objective of the Authority is to ensure that implementation of a national health insurance policy is implemented with the assurance of access to basic healthcare amenities to all residents.

However, continuing sustainability of the National Health Insurance Scheme is threatened by continues major challenges, those concerning health seeking behavior changes of the insured i.e. user moral hazard and those concerning practices of the health providers i.e. provider moral hazard (Yawson *et al.*, 2012). The NHIS as created by Act 650 provides funding for health care financing from a fund established by the Act known as the National Health Insurance Fund (NHIF), which derives its income from two major areas which are also a creation of the act. The two are the National Health Insurance Levy (NHIL), this levy is a top up of the Value Added Tax (VAT) by a 2.5 percentage and the second one is from the existing Social Security and National Insurance Trust (SSNIT) which also transfers 2.5 percent to the NHIF. In addition to these sources, budgetary support that are allocated annually by the central government and approved by Ghana's parliament to the NHIF, investment returns that

accrue from surplus funds of the NHIF which are invested by the NHIA and aids from philanthropic persons or organizations that are donated to the NHIF (Odeyemi and Nixon, 2013).

Also, contributions known as premium are paid by the informal sector members from the age range of 18 to 69 as well as processing fees which are also paid by all other categories of subscribers including the informal but excluded are the indigents and pregnant women category that do not pay anything at all to subscribe for membership. However, these payments do not add up to the NHIF for redistribution to support the provision of service at the district level, they are rather held by these districts as administrative support.

1.2 Problem Statement

Health insurance is a means of pre-financing the health services used by subscribers belonging to a health insurance scheme. The method implored for the transfer of funds from the health insurance organization which is the purchaser of the health care service to the providers of that service is known as Provider Payment Method.

Fee-for-service (FFS) was the method used to pay for all services when Ghana started its National Health Insurance. This is a method where the health provider attends to the insurance client and then afterwards sends a bill for payment listing all the things that were done for the client and the accompanying charge for each individual item on the bill. This method has proven all over the world to lead to rapid cost escalations and therefore poses major threats to the continuous existence of any health insurance scheme across the globe if applied alone as a payment method without blending other methods to serve as a balance or control. It was therefore no surprise at all when the Ghana NHIS witnessed rapid cost inflation with the application of FFS alone.

The NHIA in tackling the rapid cost of inflation introduced the Ghana Diagnostic Related Groupings (G-DRG) in 2007/2008 to cater for services and standard itemized fees to cater for medicines for NHIS subscribers. Diagnostic Related Groupings (DRG) is a payment method where rates paid to providers of health care are fixed for a given group of diagnoses. Even though the G-DRG was introduced as a control many of the District Mutual Health Insurance Schemes (DMHIS) throughout the country are running out of funds to pay providers in recent times and their continuous indebtedness to health care providers compel them not to render service to active card bearing subscribers of the NHIS with some health service providers even threatening to stop their services completely if their indebtedness is not settled. With future sustainability concerns, the NHIA in 2012 introduced capitation as an alternate payment method in the Ashanti Region to be combined with the existing payment methods. With capitation, all health service providers are paid a pre-determined fixed rate typically in advance, to provide enrolled individual of a particular provider with a defined set of services for a fixed period of time. This payment method caters for only outpatient care which is normally the lowest level of walk in, and is the most important start of the health care systems. The DRG for services and Itemized Fees for medicines system are reserved to cater for higher levels of care.

1.3 Objective of the Study

The objective is categorized into general and specific.

1.3.1 General objective

The main aim of the research is to evaluate the effects of capitation as an alternate payment method of the NHIS in the Ahafo - Ano South District of Ghana as compared to Diagnostic Related Groupings

1.3.2 Specific Objectives

The specific objectives are to:

1. Evaluate the effect of capitation on the overall cost of claims paid to providers in the district as compared to Diagnostic Related Groupings.
2. Evaluate the effect of capitation on attendance to health facilities as compared to Diagnostic Related Groupings.
3. Evaluate the effect of capitation on NHIS membership Subscription as compared to Diagnostic Related Groupings.

1.4 Research Questions

The research questions to be addressed by the study are as follows;

1. What is the effect of capitation on the overall cost of claims paid to providers in the Ahafo - Ano South District as compared to Diagnostic Related Groupings?
2. What is the effect of capitation on attendance to health facilities within the Ahafo - Ano South District as compared to Diagnostic Related Groupings?
3. What is the effect of capitation on NHIS membership Subscription as compared to Diagnostic Related Groupings?

1.5 Significance of the Study

This study will add to the knowledgebase and also enhance literature in the area of the subject under investigation. It will further serve as a base for future researchers with similar interest to conduct further studies around the subject area and in related fields.

1.6 Scope of the Study

The research work covered the operations of the NHIS within the Ahafo - Ano South District with emphasis on implementation of capitation and it's after effects.

1.7 Limitation of the Study

Even though the other districts in the Ashanti Region includes metropolitan and municipal settings, time and resource constraint only allowed for the study to be conducted in only the Ahafo – Ano South District.

1.8 Organization of the Study

There are a total of five (5) chapters in all in this research.

Chapter one comprises the introduction together with the background. Further relevant sections address the problem statement, the research questions, the objectives of the study, the significance of the study, the scope as well as the limitation of the study and lastly the organization of the study. The second chapter, two (2) is dedicated to the review of literature. Several opinions from diverse authors were reviewed on the subject area. The methodology of the research is considered in Chapter three (3) while the Findings, Analysis and Discussions of Results are presented in Chapter four (4). Finally chapter five provides the summary,

recommendations and conclusion.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

Health is defined as not simply the absence of disease and infirmity, but a state in which one is complete in terms of physical, metal and social well-being (WHO, 1948). Consequently, this definition leads to a position that health care is a product of an interaction process between varieties of institutions. (Twumasi and Bonsi, 1975)

2.1 Early Emergence of Health Care Systems in Ghana

Before the coming of the white man, recognized and established health practitioners were only the native health practitioners in the country. Ghana's health care system, both modern and traditional has evolved through various historical, economic, political and social stages to get to the current stage it finds itself. However, the relevance of these perspectives cannot be overemphasized.

2.1.1 Modern Health Care System Pre-Colonial Time

Many academics have vehemently disagreed on the development of modern health care system in Ghana. Ghana's modern health care system's development can be characterized into three major phases. The period 1471 to 1844 can be described as the first phase which witness the beginning and consequent formation of biomedicine. The colonial masters at the time of the introduction of this new health system saw and made it their sole preserve to protect themselves from the probable contraction of contagious diseases from the native blacks that they colonize or from their supposedly unclean environment. (Senah, 2001).

Senah (2001) further indicated Ghana's colonial health care system's second phase came into being after the bond of 1844. This bond was signed between some local chiefs and the British. The bond of 1844 as it was called did not only allow for the development of Christian missionary engagements in the hinterland and other commercial activities of the European, but it also promoted consciousness that the for colonial asters to enjoy good health, they had to ensure that the health requirements of the natives blacks were also met as they intermingled on a daily basis. The colonial masters as result then extended health service facilities and other sanitary services to domestic servants as well as native blacks serving in the civil and military that interacted constantly with them. (Senah, 2001)

The final and third phase of the colonial health service came about in 1901 when the Asante kingdom was defeated and the subsequent seizure of the territories in the north. There was speedy development in the establishment of infrastructural amenities under the governorship of Sir Gordon Guggisberg. In 1923, Guggisberg built the Korle-Bu Hospital which was among others used by Africans and for research purposes especially research into tropical diseases (Senah, 2001). However, the discrimination continued in the provision of health care and even became institutionalized. European clients were not allowed to be seen by African medical personnel and even some Africans that were considered to be of high value. Although these African medical personnel especially Ghanaian physicians acquired substantial medical competence through the arduous training they had received to outweigh the capabilities of their colonial counterparts, they had to still contend with unacceptably lower salaries and accept placement for professional rank lower than them. (Patton, 1996) this stalled the growth of Ghanaian health professionals in rank and number and also went contrary to the ethical position in the profession of health care.

Consequently, Ghana could only boast of two Medical Officers of African Origin by 1922 and three by 1927. The number increased to six by 1929 and up to ten in 1938. From the 1940s, colonial Ghana experienced an increase in the number of health workers that were natives as it recorded over 350 nurses with the number of trained midwifes being over 400 by 1952 and these were spread across the country (Patterson, 1981). There was a tremendous increase in health workers that were Ghanaians and more so professional women health workers resulting from the fact that a school for Native Authority Health Staff was established at Kintampo and an only women recruiting nursing school established in Kumasi for State Registered Nurses (SRNs) (Osei-Boateng, 1992).

2.1.2 Modern Health Care System Post-Colonial Time

There was such a shuttering consequence of colonialism that even in 1957, the time Ghana had its independence, the health sector of the country was in a terrible condition. The man that led his country to independence from colonial rule, Dr. Kwame Nkrumah broke away from colonial choices and set out new objectives to embrace certain fundamental ideologies of socio-political significance that concentrated on the wellbeing and requirements of the Ghanaian people above all else. He did this by providing a widespread health care system coupled with the introduction of a well-organized social welfare service to serve as a means to launch major development projects in Ghana (Nkrumah, 1969). In 1962, the University of Ghana Medical School was established by President Nkrumah to train locally Ghanaian nationals in biomedicine. In appreciating the need for health infrastructure as a means of growth, he expanded the Korle-Bu hospital into a modern teaching hospital to enhance the training of the physicians in the medical school (Brobby and

Ofosu-Barko, 2002).

The state catered for all the cost incurred by the health sector and eventually provided free of charge service to all citizens of Ghana who attended state institutions for health care. The number of health centers increased substantially in the country from ten (10) to forty-one (41) between 1957 and 1963 (Senah, 2001). It became evident that the Nkrumah government concentrated more on the needs in terms of health care of the country and also the development of human resource than other sectors as available statistics show that the overall spending on health improved to 8.2% in 1969 from an earlier 6.4% in 1965 (Patterson, 1981). However, there was a decline in the quality of health care by the late 1960s as successive governments did not prioritize health care and did not channel much resources to the health care system and therefore teaching

facilities, medical books, equipment, educators and other medical aids became very scarce as a result of the underfunding of the health care system (Osei-Boateng, 1992). With removal the of free health service due to the worsening economic conditions, access to basic health care became a foremost challenge as financing by the citizens for health care became a difficult task.

2.2 Health Financing

Health financing reforms are a fundamental part of health sector development in developing countries. The international debate on health financing currently is focused on the necessity to change the extreme dependence on out-of-pocket payment as a means of financing health care and to move towards an insurance type of funding where the system includes a bigger component of risk pooling to provide much protection for the less privileged in the society (Bennett and Gilson, 2001).

The 58th World Health Assembly took a resolution that encouraged Member States to provide for health financing methods that includes increased risk-sharing arising from prepaid financial contribution so as to decrease impoverishment and disastrous health expenditure of individuals seeking health care (WHO, 2005). Abiiro and McIntyre (2012) argued that, universal health system ensures that the much needed health care is available and that all individuals gain sufficient access without the need to pay instantly from their pocket at the point of access. He further added that the main mechanisms for achieving universal coverage in health care is to make available a risk pooling health care financing system that generates resources through compulsory insurance contributions and/or taxes to fund the health needs of the citizens.

Universal coverage leads to equity, and this is attained when all citizens enjoy financial protection from health expenses and are able to adequately access the needed

healthcare. (Amporfu, 2013) therefore sees it as a means of achieving health equity and has strongly advocated for it to be instituted. Zikusooka *et al.* (2009) held that equitable financing is based on three mechanisms: Financial protection:- where everyone that requires health services should be able to have access regardless of the ability or inability to pay and the cost of health care should not threaten households' livelihoods; progressive financing:- where payments towards future health care expenses should be made based on one's ability to pay, and that the wealthy ones that a superior ability to pay should take greater portions of the payments to cover the less privilege with lower incomes, and finally, the third which is cross-subsidies:- this extends subsidies covering the healthy as well as the ill and across the rich to that of the poor. Hence, a financing mechanism is described as equitable when it provides greater coverage for a larger percentage of the populace, enhances cross-subsidization and progressive kinds of contributions.

Moreover, there are in existence a combination of financing mechanisms as well as sources used in the health area which differs significantly both between and within states as well as the general framework of policy change. Therefore, the variation in directions which health financing reforms are assuming comes as no surprise at all. Countries such as most of those in Sub-Saharan Africa have set out objectives of health financing reforms that concentrate on generating more of stable incomes for health care primarily while considering equity as mostly a secondary objective. However, tackling fragmented and inequitable health financing approaches is the focus in many other countries such as those in Latin America (Bennett and Gilson, 2001).

According to Bennett and Gilson (2001), the major health financing mechanisms are provided as follows: **Tax-based financing:-** where government pay for health care services with generated revenue accruing from taxes such as income, corporate, value

added, import duties and other earmarked taxes like cigarette and alcohol taxes; **Social insurance financing:-** where a health fund usually created from the payroll contributions of workers pays for their health care services. These contributions are mostly a percentage of total salary paid by both the employer and the employee and the fund is most of the time independent of government but has a well-structured regulatory framework in place. Membership for social health insurance is mandatory (although the self-employed groups may be voluntary) and there is an explicit crosssubsidization from the healthy to the ill as premiums are not linked to the expected cost of treatment for an individual but to the average cost of care for the whole of the group. **Private insurance: -** where premiums are linked to the expected cost of treatment. Hence, people with high health risk pay more and those with low health risk pay less. Most of private insurance are motivated by profit and their funds are held by private companies and there is a very limited cross-subsidy between clients with different health risk. **User fees: -** where direct payments are made corresponding to a set tariff by the patient to access health care service. There is no mutual support whatsoever by way of insurance and this happens mostly in low and middle income countries where this is the common way to pay for privately provided service and some component of public sector service as well. **Community-based health insurance: -** where the premiums of social health insurance are usually set in accordance with the risk level of the average member in the community with no attempt to target higher premiums from high risk groups or lower premiums from low risk groups. However, membership enrollment is voluntary and not meant for only the employed unlike the social health insurance and the funds are normally held by

private non-profit entities.

Generally, systems of health care, particularly, those in the advancing world hinge on a blend of financing mechanisms rather than on only one. For example, you would find that Community-Based Health Insurance Schemes (CBHI) are often introduced in areas where there have already substantial user fees in place as payment modes and user fee systems are normally employed in the setting of prevailing tax-funded systems (Bennett and Gilson, 2001).

2.3 Health Financing In Ghana

The matter of healthcare financing in Ghana has journeyed through an elongated and snaky path from the days of colonial rule through the First Republic led by Osagyefo Dr. Kwame Nkrumah the great, the nation's founder and continued through the 'cash and carry' system introduced by the Governments of President Jerry John Rawlings who led both the Provisional National Defense Council (PNDC) and the National Democratic Congress (NDC) and finally through to the present regime of insurance to finance healthcare introduced by the New Patriotic Party (NPP) headed by President John Agyekum Kuffour. President John Evans Atta Mills of the NDC Government continued to refine the health insurance system and his successor under the same NDC Government President John Dramani Mahama has maintained the system to secure the desires of Ghanaians.

There were no user charges at all in the First Republic as these were eradicated in government health facilities leading to the provision of free medical health services all over the nation in all public health institutions (Mensah *et al.*, 2010; Yevutsey and Aikins, 2010). The Government of the Convention Peoples' Party led by Dr. Kwame Nkrumah stated:

> "We shall measure our progress by the improvement in the health of our people. The welfare of our people is our chief pride and it is by this that my government will ask to be judged" (Nkrumah, 1969).

Therefore, the financing of health care in Ghana originated with a scheme that delivered public health care services free of charge to all citizens after independence through a tax funded system (Blanchet *et al.*, 2012). Filled with nationalistic passion and in line with his Socialist philosophy and aided by a relatively buoyant economy, Dr. Kwame Nkrumah gave priority attention to social welfare services including education and health. Indeed basic education was made free and compulsory public institutions that offered health services were also made virtually free. This is confirmed by Apoya and Marriott (2011) who noted that Ghana's new Government at Independence in 1957, was devoted to a welfare state that considered greatly an expansion plan in health care delivery as well as free health care for all.

Following the overthrow of the First Republican Government of Dr. Kwame Nkrumah, healthcare financing in Ghana witnessed a complete 'U-Turn' as some cost sharing was introduced by the military regime through to the Second Republican Government. The policy of cost sharing was maintained and implemented through to the Third Republic (Senah, 2001). Senah (2001) further claimed however that, the result of the world-wide recession recorded in the 1970s progressed into the 1980s and was still hardly felt by the country and throughout this 'lost decade' there was steady decline experienced by the economy. There was a stagnated economic activity resulting from the lack of raw materials and very high operation cost with a drastic drop in production and export of cash crops (Senah, 2001; Blanchet *et al.*, 2012). Huge budgetary deficits coupled with very poor fiscal management occasioned a high inflation and lowered the living standards for a large section of the populace. This

resulted in a miserable health sector with inadequate financial resources resulting in a badly affected drug supply and other medical supplies and an overall deteriorating quality of care (Senah, 2001; Blanchet *et al.*, 2012).

The Government of the PNDC which overthrew the Third Republican Government was compelled to speedily initiate measures to alleviate the ailing health sector from collapsing in the near future and therefore entered into an International Monetary Fund (IMF) and World Bank program to achieve economic austerity and structural adjustment. The Hospital Fees Regulation of 1963, Legislative Instrument (L.I. 1277) which existed at the time was withdrawn and substituted with the Hospital Fee Regulation, 1985 (L.I. 1313) in 1985, authorizing the charging of fees for services such as consultation, laboratory, and procedures such as diagnostics. It also charged fees for dental services as well as medical and surgical services, the rest include medical examinations, and hospital accommodation among others (Atim *et al.*, 2001; Yevutsey and Aikins, 2010; Seddoh and Akor, 2012). Yawson *et al.* (2012) further argued that, the introduction of user fees for health care at that time resulted in a severe and substantial decrease in the use of health care and therefore made the underprivileged unable to gain access while Odeyemi and Nixon (2013) held that the significant rise in user fees introduced in the public sector was aimed to recover at least 15% of expenditure that was recurrent and had undesirable magnitudes in access to health services, particularly for the less privilege in the Ghanaian public. Some of the restrictions that arose comprised long delays in gaining access to health services and incomplete prescription purchases. The introduction of user fees coupled with scarce budgetary support revealed among others a precarious shortage in logistical and medical supply, weak management systems, nonfunctional and obsolete medical equipment, and

low motivation of health professionals thereby subjecting hospitals to minimal delivery of essential services (Atinga *et al.*, 2012).

L.I. 1313 considered exclusions in two groups, full exemptions including immunization against any disease, leprosy, tuberculosis and cold storage of dead bodies normally requested by some State department/agency and partial exemptions including services to health personnel, antenatal and postnatal services, meningitis, yaws, treatment at child welfare clinics, chicken pox, etc. (Atim *et al.*, 2001). In 1992 However, a policy for the total cost recovery of drugs known commonly as 'cash and carry' was announced by the PNDC government which arose in the further increase of legal user-fee payment in government health facilities across the country. The general goal of a cost–sharing policy introduced by the Ministry of Health (MOH) was intended to maximize income from user-fees and to use the income for the provision of quality health care as well as make such services available (Senah, 2001).

Arrangements under the 'Cash and Carry' system were such that the government provided salaries and emoluments and all other entitlements for the doctors, nurses and all other healthcare workers while the patient at the point of seeking healthcare, provided payment for drugs and some medical consumables for their own use anytime they visited the hospital. The 'Cash and Carry' system also considered and provided free of charge, medical care for all children under the age of five years, the aged above 70 years and pregnant women for their ante-natal care. All of the above categories were under an exemption programme that came with the implementation of the 'Cash and Carry' system of health financing (Yawson *et al.*, 2012). Seddoh and Akor (2012) noted that the 'Cash and Carry' system resulted in a deterioration in service utilization ensuing in the consistent drop in the per capita OPD attendance from an initial figure of 1.9 in 1970 to 0.3 in 2000. They further noted the absence of a clear cut regulation or method

in identifying the various kinds of persons that were to enjoy exemptions as a study revealed 84% of qualified patients were not exempted at that time (Seddoh and Akor, 2012). There was broadly diverse knowledge particularly in the implementation of exemptions among various providers including whether or not the exemption of a disease so identified also included all other investigative cost accompanying it before diagnosis (Seddoh and Akor, 2012).

One major disadvantage of the 'Cash and Carry' system of health financing as identified through its implementation was that, most people only visited the hospitals at the terminal stages of their lives when they realize that nothing else can be done about their sickness besides going to the hospital and this is always because they cannot afford the instant out of pocket payment required of the them when the go to hospitals. As a result of the 'Cash and Carry' system many needless and preventable deaths were recorded.

2.4 History of Health Insurance in Ghana

The 'Cash and Carry' scheme of financing health became so unpopular, particularly its adverse impacts on the underprivileged, that the regime directed researchers to conduct studies into the possibilities of other healthcare financing options, particularly insurance-based (Atim *et al.*, 2001). There have in fact been proposals since the early 1980s to create and implement a NHIS (Yevutsey and Aikins, 2010), but Seddoh and Akor (2012) suggested that the first proposal for a NHIS for the whole of the country was available in 1970 and this was portion of a broad proposal to attain recovery of cost and safeguard the underprivileged but instead, FFS was introduced in 1971 and the insurance idea was relegated to the background. Afterwards, experts of different kinds, including international and local have been contacted by the MOH to conduct studies and make commendations for the implementation of a NHIS. According to Huff-Rousselle and Akuamoah-Boateng (1998), a national insurance scheme was proposed

for Ghana in 1985 and was to be managed by a privately run central agency, the National Insurance Company to pay private providers through a fee-for-service system for ambulatory care and itemized billing for hospital care was not implemented, and the government was publicly criticized. Beneficiaries were to be those in the formal employment sector, including cocoa farmers and civil servants.

Dr. Ineke Bossman who was the District Medical Officer of Health and doubled as the Administrator at Nkoranza, had inspiration from the model of Bwamanda Hospital which operated a Health Insurance Scheme in Zaire and introduced a Health Facilitybased Health Insurance at the Saint Theresa's Hospital, Nkoranza which was under the Catholic Diocese of Sunyani between 1989 and 1993 as a direct response to the evidently clear adverse outcomes of the FFS (Seddoh and Akor, 2012). Even though the Nkoranza scheme recorded substantial enrollment of membership, the absence of community ownership and segregation of the poorest of the poor were shortfalls. The Nkoranza experience with its challenges nevertheless inspired others set up insurance schemes. In 1993, the Society of Private Medical Practitioners set up the foremost private mutual health insurance known as Nationwide Mutual Medical Insurance Scheme in the country (Atim *et al.*, 2001) which however collapsed in 1998 due to inadequate premium and delayed reimbursement of claims resulting in underservicing of clients by providers. Non-Governmental Organizations (NGOs) and some development partners also sponsored new district schemes at locations across the country notably, Damango in the north, Drobo, Duayaw Nkwanta, Berekum in the Brong Ahafo Region and others in the Dangme West districts in the Greater Accra.

In 1993, the MOH started the piloting of insurance schemes together with some stakeholders who also started exploring alternate financing models in the form of

CBHI. A notable characteristic of these CBHI's was that all of them were created and managed by health care providers who most often than not were the owners (Apoya and Marriott, 2011). A private consultancy group produced a report on the feasibility study for the creation of a NHIS in Ghana and submitted a definite proposal to the MOH in the month of August 1995. The substance of this report stated that a centralized national health insurance organization ought to be created to provide a mandatory "Mainstream Social Insurance Scheme" for all SSNIT contributors and all cocoa farmers registered. The report furthermore suggested a pilot "rural-based community-financed schemes" to cater for the non-formal sector but contained no further details or suggestion as to the mode the MOH was to ensure implementation (Atim *et al.*, 2001; Yevutsey and Aikins, 2010).

The MOH succeeded in initiating a pilot scheme in 1997 for a NHIS in four districts which are, New Juaben, Suhum/ Kraboa/ Coaltar, South Birim, and South Kwahu of the Eastern Region of the country. The intended purpose was to examine the several features as outlined in the proposal for the NHIS and then expand its operations nationally at a later time. However, the political will required to see through the implementation was lacking and it therefore did not materialize while stirring arguments as to the course of healthcare financing policy in general and particularly the pilot scheme (Atim *et al.*, 2001; Apoya and Marriott, 2011).

In 1999, a fresh policy branded formally as a "multi-scheme approach," was introduced by the MOH to create an enabling environment to promote creativity and innovation in the NHIS sector all through the nation and also to make available favorable policy framework, suitable environment and to provide backing for initiatives from community NGOs, local and the private sector (Atim *et al.*, 2001). This led to a first-hand model of the CBHI scheme and also Mutual Health Organization (MHO), both

founded on the ideologies of social harmony and also community ownership as well as democratic control. Partly because of the favorable condition created by the MHO and external development partners, the MHO model gained grounds very rapidly and as a result increased the number of schemes all over the nation from 3 in 1999 to 258 by 2003 with a very low population coverage of not more than 2% of the entire country (Apoya and Marriott, 2011).

2.5 The National Health Insurance Scheme

In the year 2001, the necessary steps in developing the NHIS in Ghana started to replace the 'Cash and Carry' system which required instant payments from the pocket at the points the services are delivered (Sodzi-Tettey *et al.*, 2012). Ghana's NHIS was created through ACT 650, an Act of parliament in 2003 and backed with LI 1809 a Legislative Instrument in 2004. This provided the basis for the institution of a Mutual Health Insurance Scheme (MHIS) at the district level with the objective of ensuring the provision of basic healthcare services to all residence of Ghana, especially the underprivileged and the vulnerable with quality and elementary health care services (Yevutsey and Aikins, 2010). Mensah *et al.* (2010) also stated that the mission statement of the NHIS is captured as 'to ensure equitable universal access for all residents of Ghana to a suitable quality of needed health services without out-ofpocket payment being required at the point of service use' while Jehu-Appiah *et al.* (2012) maintained that it was to address the financial limitations for the underprivileged and improve equity in access to care. The NHIA was therefore created under Act 650, the National Health Insurance Act in 2003, as a corporate body with perpetual succession, an Official Seal, that can sue and be sued in its own name. The main objective of the Authority is to supervise the execution of a national policy on health insurance that secures access to the most basic services of healthcare to all people living in Ghana.

However, continuous existence of the NHIS is threatened by continuous major challenges, those concerning health seeking behavior changes of the insured i.e. moral hazards arising from the user and those emanating from the health providers i.e. moral hazards associated with the provider (Yawson *et al.*, 2012). The sources from which the NHIS mobilize income to finance healthcare as provided by Act 650, accrues from the NHIF, a fund that is a creation of the Act (Mensah *et al.*, 2010). The NHIF amasses revenue through two main sources which are also a creation of the act. They include a 2.5 percent top up of the Value Added Tax (VAT) and a transfer of 2.5 percent from the contributions of the SSNIT. In addition to these two, three other sources include the proposed allocation from the yearly budget of the government which is backed with parliamentary approval to the NHIF, income generated through the investment of leftover funds remaining in the NHIF by the NHIA and finally, grants and donations from philanthropic individuals and organizations to the NHIF (Odeyemi and Nixon, 2013). However, Amporfu (2013) noted that the NHIS mobilize income from six sources: the Health Insurance Levy comprising 67% of total revenue, insurance premiums comprising 5.0%, SSNIT contributions making up 15.6%, investment income accounting for 17%, sector budget support of 2.3%, and other sources making up the last 0.2% of the total revenue.

Atinga *et al.* (2012), held that the NHIS was finally introduced in Ghana in 2005 to resolve the myriad of difficulties handed down to the health sector from the 'Cash and Carry' system. They further added that an internal market arrangement was created, in which the provision of health service and the mode of paying for health services are provided under diverse platforms with the appearance of the NHIS. As part of its responsibilities, the governing body of the NHIS which is the NHIA purchases health services for policy holders while the Ghana Health Service (GHS) and the MOH

through their establishments including hospitals, clinics and health centers provide the needed services. The NHIA embodies the interest of the public and guarantees that they access all the benefit packages of health services required of them as specified in the insurance protocol. Important health needs of the public are identified by the NHIA and then provider institutions are then contracted to provide healthcare services to its registered and active members (Atinga *et al.*, 2012).

The NHIS is managed nationally by the NHIA and has offices across all the ten regional capitals of Ghana, these Regional Offices work together with the Health Directorates of the Ghana Health Service in all the regions to ensure the appropriate running of the Schemes while undertaking Monitoring and Evaluations activities as well as providing support for the DMHISs (Yevutsey and Aikins, 2010).

2.6 Provider Payment Mechanisms

In any health insurance system, beneficiaries' pool their resources together by agreeing to make payments regularly over a time period and these contributions are spread over all the members who then are provided services according to their individual health needs.

Critical issues to be considered in starting a health insurance system that will operate professionally and effectively include but not limited to how to mobilize money from residents to form a pool that will pay for services delivered, the kind of services that form the benefit package or services that are covered by the system and more importantly, how these services rendered to the subscribers are paid for or purchased on their behalf; known also as provider payment method. Consequently, the mechanism employed for the transfer of funds from the purchaser of the healthcare services delivered to the provider of these services is called the provider payment method. Tang

et al. (2012) categorized provider payment methods into three, consisting of **Retrospective** which pays after service delivery with examples such as the case-based or DRG, FFS, and unit flat rate, then **Prospective** such as capitation, salary and global budget, and then finally the **Mixed Payment Methods**. Each of these provider payment methods comes with varied merits and demerits in when it comes to cost plus quality of healthcare and as a result, effectively and professionally accomplished health insurance schemes provide a mixture of the available provider payment methods, in a manner that balances the merits and the demerits of the various methods. Many countries across the globe are increasingly in favor of applying the mixed payment methods of paying providers to control rapid escalations in the cost of providing healthcare services (Tang *et al.*, 2012).

2.7 Payment Systems under the NHIS

The NHIS of Ghana begun with the itemized fee for service method of provider payment as the means to pay for all services under the scheme (Sodzi-Tettey *et al.*, 2012). With this method of payment, the provider after rendering service to a client will submit a bill listing every single item used and all the things that were done for the client and then cost each of them to make the sum total payment required. All across the globe, the FFS method of payment has proven to have a high propensity to cause a swift escalation in cost and as a result poses a major sustainability risk to the existence of any health insurance scheme when practiced single-handedly as the sole payment method without considering mixing other methods to serve as controls. Expectedly, the Ghana NHIS recorded rapid cost inflation in its operations with a lot of misunderstanding and disagreement arising from the lack of standard fees charge across board. However, Dalinjong and Laar (2012) thought that the fee for each service in the FFS payment method was unattractive because it was found to be low thus resulting in

the unwillingness of particularly private providers to partake and also that it involves a lot of paperwork resulting from the requirement of providers to submit comprehensive evidence on all services and charges when submitting claims.

In May 2008, the NHIA introduced an improved provider payment system the GDRG to cater for services and standard itemized fees for medicines for NHIS subscribers to change the itemized fee for service at all levels beginning from the primary care all through to the tertiary facilities (teaching hospitals) (Sodzi-Tettey *et al.*, 2012). However, the FFS system was still maintained for medicines but only that their prices were standardized uniformly and agreed by all across the country. DRG is a method of payment whereby fixed payment rates are given to providers for a given group of diagnosis. In this method of payment, all diagnoses that are related are put together in a group and the average cost for treatment in the group is calculated.

Health providers then are paid in accordance with the given diagnosis to their patient. Claims forms are used under the DRG system to request for payments after the provider has provided services. These claim forms are filled by the providers and then submitted to the health insurance scheme for them to check their veracity through a vetting process before making payments. This whole process of claims is administratively cumbersome and complicated thereby demanding heavily, the time of the provider of health service, the staff of the insurance scheme and the NHIA as well. The DRG for service however does not do away entirely with cost escalations as they are still incentives to increase cost although these are much on the lower side than the itemized FFS.

2.8 Capitation international best practice indicates that no payment method for providers is perfect, therefore the law that created Ghana's NHIS allowed for the establishment of multiple provider payment methods and one such method is capitation.

The LI 1809 that came with the law explicitly stated capitation as a provider payment method that can also be consideration under the NHIS.

Nudd (1993) argued that, a capitation-based resource provision scheme is progressively encouraged as a costing policy to combine resources, improve services, motivate responsibility and manage care properly. Basically, capitation costing can be seen as a prospective reimbursement method where the health provider is paid a fixed amount per person served for a well-defined variety of services and a stated time duration. He identified three vital essentials of capitation from the above definition: (1) a predetermined charge that is agreed-upon is prepaid for care and there is no variation in terms of the value or the intensity of the services; (2) there is an enrollment system of some sort where specific capitated patients are typically tied to payments; and (3) the full financial risk is born by the provider if expenses surpass payments. All these features combine to give the provider a solid motivation to manage care prudently. On the other hand, the provider gets to retain part, if not all of the savings in the case the medical costs are within the capitated payment (Nudd, 1993).

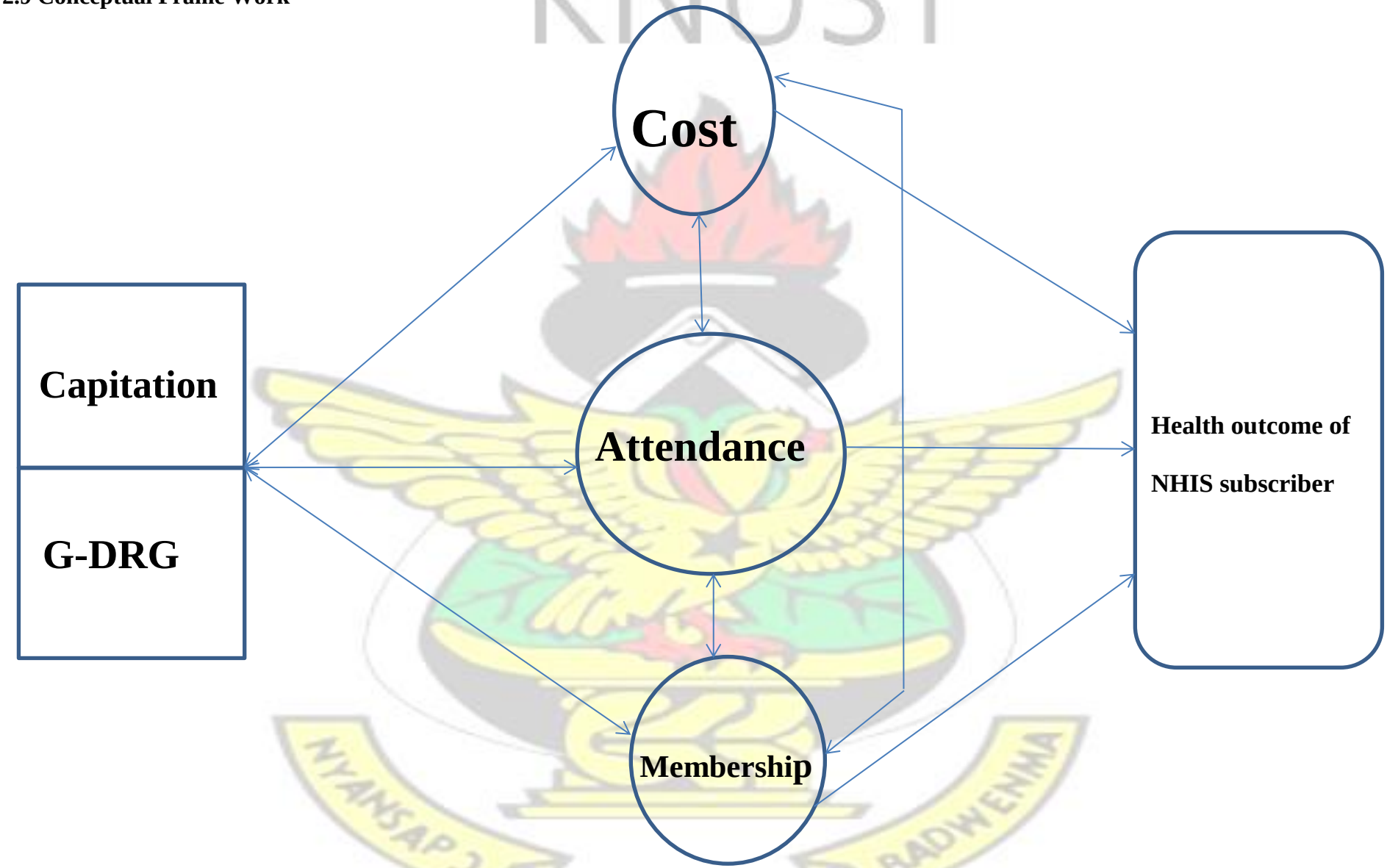
Rice and Smith (1999) also defined capitation as ‘‘the amount of health service funds to be allocated to a person with certain features for the service in question, for the time frame in question, subject to any overall budget constraints’’. Operationally, a system of capitation places a ‘price’ on the head of each resident. He further maintained that the principal reason for many capitation systems is that of safeguarding control of spending and that there would be no interest in setting prospective budgets if the level of health care expenses were found to be without any problems.

According to Carrin and Hanvoravongchai (2003) Capitation payments means a system through which health service providers such as hospitals or private General

Practitioners accept an agreed flat rate of payment per individual that belongs to a National Health Insurance Service system, a social, community or private health insurance system and then in return for this flat fee, provide a pre-defined healthcare package for the client or patient. These capitation payments are not always uniform and are adjustable for the various health risk associated with the individual such as old age and those with chronic illness as is the case in some countries like the UK, Denmark and Italy. However, the practice in the US is that, both outpatient and inpatient care are pervasive in terms of capitation payments more so along the context Of Health Maintenance Organizations (HMOs) or managed care plans (Carrin and Hanvoravongchai, 2003).

The reforms that are proposed in Ghana do not entirely relegate the existing provider payment methods to the background but instead it introduces capitation as an alternate payment method for a well-defined level of care which is the walk in outpatient care at the primary level. The outpatient care is the very first level of care that is provided to any patient that walks in to seek health care and hence, everybody goes through this fundamental base of the healthcare system. The Itemized Fee for medicines system and the DRG for service are then reserved for higher levels of care.

2.9 Conceptual Frame Work



Conceptual frame work

The health outcome of a subscriber of the NHIS is most paramount and is influence positively by the membership being active. An active member of the NHIS can attend a health facility anytime the need arises at a cost that is affordable and to be paid for by the NHIS and not the subscriber. The NHIS pays for the service rendered to the subscriber through the G-DRG and Capitation.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter is of two parts, the first part of this chapter gives a succinct description of the profile of the study area, that is, the Ahafo- Ano South District.

The second part focuses on the methodology by outlining the methods implored in collecting information to assess the impact of Capitation on the overall cost of claims paid to service providers, attendance to health facilities and on membership registration and renewal in the Ahafo- Ano South District of the Ashanti region of Ghana.

3.2 Profile of the Study Area

The Ahafo Ano South District is among the 30 Administrative districts in the Ashanti Region. It was part of the then Ahafo Ano District Council until 1988 when it became a substantive district in fulfillment of the then decentralization programme of the PNDC. The district which was created under Legislative Instrument 1401 is situated along the North-Western part of the Ashanti Region on latitude $6^0$42'N, and longitude $1^0$45'N and $2^0$20'' W. It shares boundaries with Tano District in the Brong Ahafo Region to the north, Atwima District to the south, Ahafo Ano North District to the west and then the Offinso District to the east all within the Ashanti Region. It has a total surface area of around 1241 km sq., which represents 5.8% out of the total surface area in the region. It can be concluded from the above description that the Ahafo-Ano South district can be considered to be in the forest belt of Ghana (Ahafo-Ano South District Assembly, 2013).

Mankranso is the District Capital of Ahafo-Ano South and is positioned 34km northwest of Kumasi and is on the main Kumasi-Sunyani highway. Major towns in the district that are of notable economic value include Mpasaaso No. 1 & No. 2, Kunsu, Adugyama, Ahwerewam, Pokukrom, Sabronum, Wioso, Abesewa and Domeabra.
The district comprises of 10 Area councils which are sub divided into a total of 42 Electoral areas.

Among the foremost crops cultivated in the district are plantain, cocoyam, maize, cassava, tomatoes and okro. Cocoa is the cash crop. There is a thick forest with timber in abundance resulting in a lot of chain saw operators doing business in the district. Key among the problems in the district is water supply which leaves most of the communities depending on boreholes with frequent break downs and ultimately relying on streams for their water supply. However, Mankranso Township has a mechanized pipe borne water system.

About 80% of the farmers are into cocoa and maize farming as well as vegetables and plantain farming. The rest indulge in petty trading, chain saw operating and a few are civil servants. Sawmills are found in the District as a result of the chain saw operators. There is no major festival in the district; the only one in the district is the Akwasidae which is observed by the Chiefs and people every forty days. Meanwhile, the District is divided between Christians and Muslims (Ahafo-Ano South District Assembly, 2013).

The Ahafo-Ano South District containss a total population of 121,659 out which the males are 50.8 percent and the females are 49.2 percent according to the 2010 population and housing census report of the Ghana Statistical service. The agricultural industry alone in the district is estimated to engage about 76 percent of the working

population. There are natural resources such as sand deposits, clay, granites outcrops, manganese and gold with specific areas like Sabronum, Kunsu and Barniekrom having gold deposits (Ghana Statistical Service, October 2014).

MAP OF AHAFO - ANO SOUTH

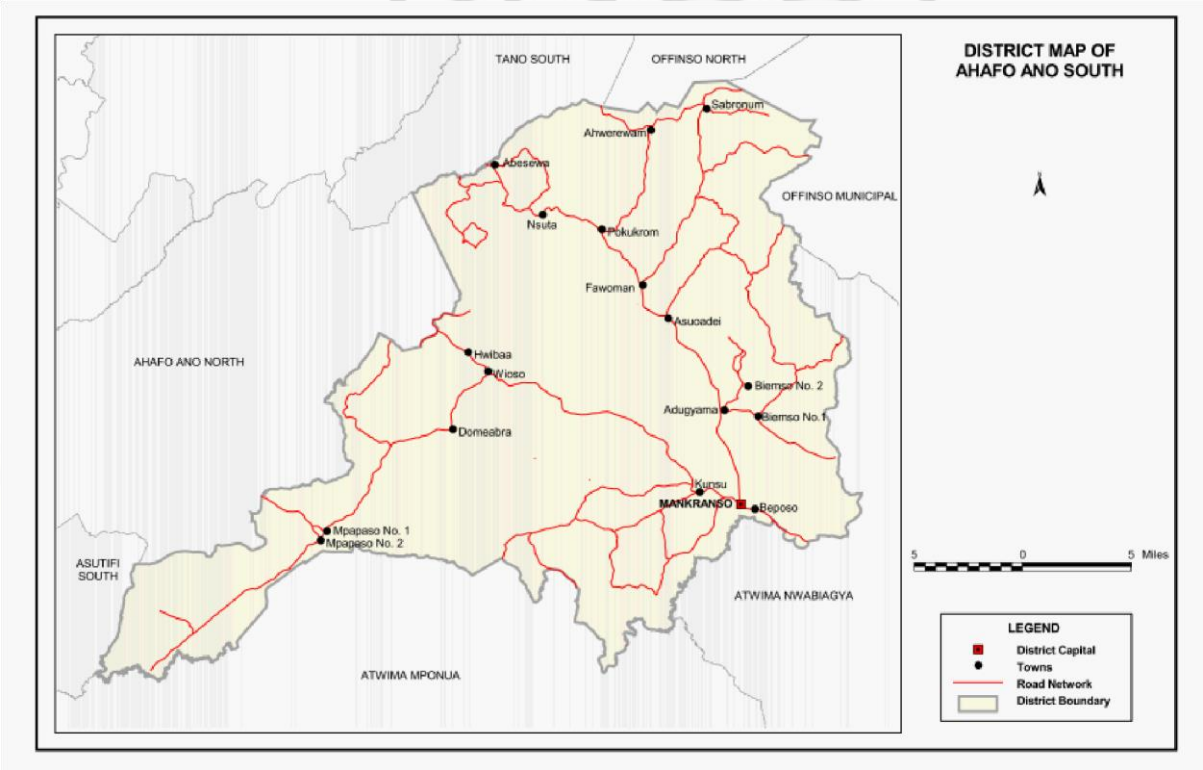


Fig 3.1 Map of Ahafo Ano South

Source: Ghana Statistical Services

3.2.1 Health Administration

The district is divided into 6 sub districts for healthcare delivery and they are Mankranso, Mpasaso and Wioso, the rest are Biemso, Pokukrom and Sabronum. Each sub district is endowed with at least one government health facility. The district also has other supporting health facilities provided by mission, private, Community-Based

Health Planning and Services (CHPS) compounds and finally traditional health care services. Service delivery is presented by qualified health employees.

The District Health Management Team (DHMT) manages the health sector in the district and the setup comprises the District Director of Health Services, Technical officer in charge of Epidemiology, District Biostatistician, District Public Health Nurse, District Accountant, and the District Officer in charge of Nutrition as the key members. Other stakeholders are representatives from the District Assembly, Ghana Education Service, Ministry of Agriculture, and the NHIS.

3.2.1.1 Distribution of Health Facilities

There are two hospitals, six health centres, six CHPS compounds, three maternity homes/clinics, and two diagnostic centres. The lists of health facilities providing health services in the district is provided as appendix II.

3.3 Approach to the study

In this research work, the quantitative approach is employed to seek responses to research questions demanding numerical data and the qualitative method for research questions demanding textual data. Research questions such as impact or contribution of the Capitation to the overall cost of claims paid to service providers, impact or contribution of the Capitation to rate of health facility attendance will be examined using the quantitative approach.

3.4 Research Strategy

This research will try to describe the pattern of the relationship between Capitation and its contribution to the overall cost of claims paid to service providers. The study will further examine the effects of the introduction of the Capitation on the rate of attendance

to health facilities and also on membership registration and renewal in the Ahafo- Ano South District of the Ashanti region of Ghana.

Morris and Wood (1991), cites that a case study strategy is the most appropriate if one desires to achieve an in-depth appreciation of the perspective of the research and the procedures being enacted. Therefore a case study approach will be the nature and pattern of this study.

A case study was undertaken in the natural setting where the researcher had only a slight manipulation over the happenings. It also allowed the use of random probability sampling in which there was equal selection chances for every member of the population under study as a sample.

Also, besides the point that the situation under examination is a contemporary issue, the adoption of a case study will permit for extrapolation of the findings to general populations with comparable characteristics. The result may be used for similar NHIS facilities in the country.

A better appreciation of the performance of the NHIS Capitation program since its inception in 2012 is required and consequently historical or time series research would be used. This would permit for the study of trends covering the past four years from 2010- 2013.

3.5 Data Collection Technique

This study makes use of only secondary or existing data.

3.6 Population

The study population consisted of all the healthcare providers accredited by the NHIS to provide care to its members and all active cards bearers of the NHIS in the district.

The accredited health providers include one government district hospital, one private hospital, four public health centers, two mission health centers, three private maternity homes/clinics, six CHIPS compounds and two diagnostics centers.

The difficulty involved in studying all the healthcare providers under the NHIS Capitation program in the Ashanti region of Ghana necessitated the choice of the few healthcare providers in the Ahafo- Ano South District of the Ashanti region in Ghana. This is to guarantee representation and generalization of the research outcome.

3.7 Sampling Design & Sampling Size

Purposive sampling was used in the choice of health providers. The selection was based on providers that existed throughout the period of the study and hence had the required data for use in the analysis. 15 accredited health providers existed throughout the study period and had data on cost and attendance between 2010 and 2013 and were thus selected. They included Mankranso District Hospital, Nana Afia Kobi Hospital, Mpasaso Health Centre, Sabronum Health Centre, Pokukrom Health Centre, Wioso Health Centre, St. Edwards Health Centre (Adugyama) and St. John's Health Centre (Domeabra). The rest are Anitemfe CHPS Compound, Essienkyem CHPS Compound, Kunsu Dotiem CHPS Compound, Mpasaso Dotiem CHPS Compound, Adom Maternity Home, St. Ann's Maternity Clinic and the Maranatha Maternity Clinic.

3.8 Data Collection and Processing Procedure.

Data on cost of claims paid to health providers was obtained from forms that were given out by the researcher to the health providers to fill in all the payments they received from the NHIA and to also indicate the number of NHIS clients that visited their facilities in all the months of the period of the study. The form used for the data

collection is provided as appendix III. These forms were gathered and compiled into tables and the figures were compared with figures obtained by the same form that was given to the claims and accounts department of the Ahafo-Ano South NHIS district office for consistency. Membership data for the period of the study was also obtained from The District MIS Officer and the District PRO through annual reports on membership.

For the purposes of maintaining and achieving consistency, editing of the gathered data was conducted to eradicate any error that posed a danger to the dependability of the study. Exactness, reliability and completeness of the evidence were checked from the investigation and the secondary sources conducted.

Finally, the data were converted into forms such as figures, tables and charts with respect to frequencies and percentages with the help of the Predictive Analysis Software (PASW Statistics for Windows, Version 18.0) and Microsoft Excel (2013 version).

3.9 Ethical considerations

Ethical clearance was first sought from the concerned authorities to see to it that ethical guidelines were maintained. A letter was sent to the district directorate of health service and permission was granted for the study to be conducted in the district while all the accountants of the various health provider facilities were duly schooled on the rational for the study and their consent sought as well.

The researcher therefore created awareness to the respondents that any information that they provide will not be used against them but treated with all confidentiality to help them understand the effect or impact made by the Capitation program.

CHAPTER FOUR

RESULTS

4.1 Introduction

This section presents the findings of the study undertaken and gives interpretation to the data obtained. It discusses into detail the field work carried out as well as the results obtained.

4.2 Participating Health Facilities in the District

The table 4.1 below shows the participating district in the study and how they are represented in the results

Table 4.1 The Participating Health Facilities in the District

Label	Name of Health Provider	Representation
1	Adom Maternity Home	(Adom)
2	Anitemfe Chps Zone	(Anite)
3	Bonkwaso Maternity Home	(Bonk.)
4	Essienkyem Chps	(Essien)
5	Kunsu Dotiem Chps Zone	(Kunsu)
6	Mankranso Government Hospital	(Mank.)
7	Mpasaso Dotiem Chps Zone	(Mpasa)
8	Mpasaso Health Centre	(Mpasa)
9	Nana Afua Kobi Clinic	(NanaK)
10	Pokukrom Health Centre	(Poku)
11	Sabronum Health Centre	(Sabro)
12	St. Ann's Maternity Home (Asibey Nkwanta)	(St. Ann)
13	St. Edward's Health Centre (Dwinyama)	(St. Edw)
14	St. John's Health Centre (Ahafo Ano South)	(St. Joh)
15	Wioso Health Centre	(Wioso)

Source: Annual report (2010- 2013), Ahafo-Ano South

4.3 Cost of claims paid to providers

With the introduction of the Health Insurance Capitation, total cost of claims paid to healthcare providers increased among all the health facilities surveyed in this study. The minimum percentage increase in monthly cost of claims paid to healthcare providers was 8.58 (recorded at Mpasaso Dotiem CHPS Zone) and the maximum was 50.70 (Mpasaso Health Centre). The total cost of claims paid to all healthcare providers increased by 24.9%. This is seen in Table 4.2 in the next page.

Table 4.2 Average Cost of Claims Paid To Providers Before and After Capitation

Name of health facility	Before Capitation		Ave. Cost before CAPITATION in GH¢	After Capitation		Ave. Cost After CAPITATION in GH¢	Ave. Diff.	Percent (%)
	2010	2011		2012	2013			
1 (Adom)	7,775.54	9,249.11	**8,512.33**	12,411.90	12,109.35	**12,260.62**	3,748.30	**18.04**
2 (Anite)	4,185.50	7,429.58	**5,807.54**	13,638.26	16,912.30	**15,275.28**	9,467.74	**44.91**
3 (Bonk.)	8,826.03	9,435.05	**9,130.54**	6,800.99	21,436.66	**14,118.82**	4,988.28	**21.46**
4 (Essien)	6,640.32	8,184.27	**7,412.30**	9,748.96	8,740.83	**9,244.90**	1,832.60	**11.00**
5 (Kunsu)	0.00	8,982.07	**4,491.04**	9,849.05	11,368.42	**10,608.74**	6,117.70	**40.52**
6 (Mank.)	379,575.20	414,178.13	**396,876.67**	611,791.18	752,029.24	**681,910.21**	285,033.55	**26.42**
7 (Mpasa)	22,859.99	33,664.33	**28,262.16**	35,663.32	31,466.66	**33,564.99**	5,302.83	**8.58**
8 (Mpasa)	9,144.62	16,699.23	**12,921.93**	43,892.90	35,106.61	**39,499.75**	26,577.83	**50.70**
9(NanaK)	81,579.62	269,517.39	**175,548.51**	337,239.66	228,044.52	**282,642.09**	107,093.58	**23.37**
10(Poku)	26,154.64	30,015.46	**28,085.05**	67,917.37	79,128.27	**73,522.82**	45,437.77	**44.72**
11(Sabro)	35,610.23	44,650.82	**40,130.53**	58,015.18	65,697.77	**61,856.48**	21,725.95	**21.30**
12(St. Ann)	27,167.39	19,037.40	**23,102.40**	32,552.74	30,932.22	**31,742.48**	8,640.08	**15.75**
13(St. Edw)	93,589.73	120,603.20	**107,096.46**	132,656.86	161,653.18	**147,155.02**	40,058.55	**15.76**
14(St. Joh)	37,103.98	59,615.42	**48,359.70**	62,608.22	84,455.75	**73,531.99**	25,172.29	**20.65**
15(Wioso)	27,954.64	31,043.57	**29,499.10**	48,534.90	55,232.47	**51,883.68**	22,384.58	**27.51**
TOTAL	**768,167.42**	1,082,305.03	**925,236.22**	1,483,321.49	1,594,314.23	**1,538,817.86**	613,581.64	**24.90**

Source: Annual report (2010- 2013), Ahafo-Ano South

Figure 4.1 below depicts the trend observed in cost with the introduction of Capitation in 2012. Cost of claims paid to providers increased over time with the implementation of the Capitation program.

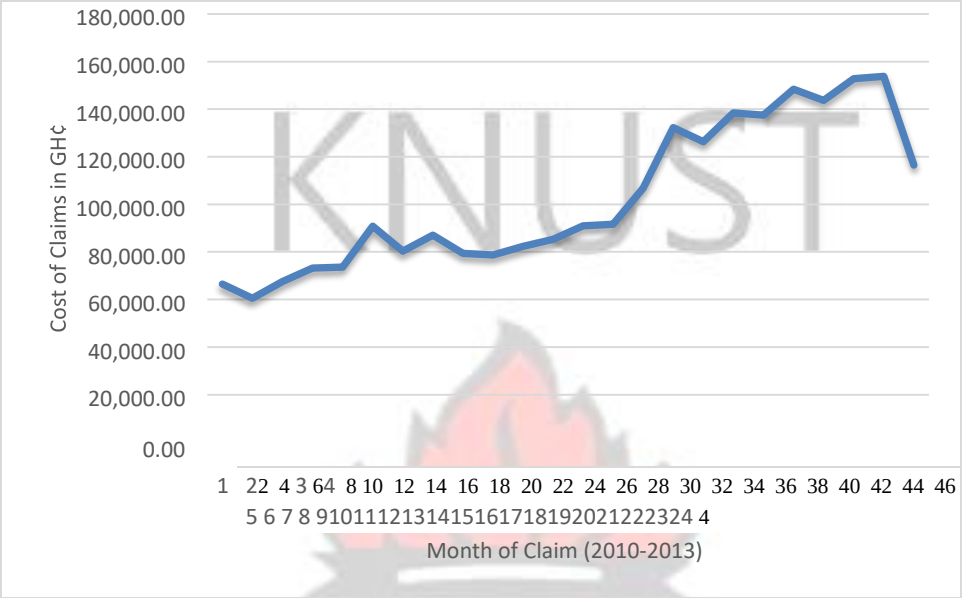


Figure 4.1 Rising Total (Monthly) Cost of Claims

The paired samples t-test was conducted to evaluate the impact of Health Insurance Capitation on the overall cost of claims paid to providers in the Ahafo- Ano district of Ghana (i.e. to ascertain the relevance of growth in cost of claims arising after the implementation of the Capitation program). There was a statistically significant increase in the overall cost of claims paid to providers from period before Capitation (*M (Average cost of claims)* = GHS 6, 1682, *SD*= GHS 104, 930) to period after Capitation [*M*= GHS 102, 590, *SD*= GHS 173, 970), *t* (30) = -2.712, *p*< 0.0005]. The Eta squared statistic (0.20) indicated a large effect with a substantial difference in the cost of claims paid to providers in the Ahafo- Ano district before and after the introduction of Capitation (Appendix A1).

Figure 4.2 below graphically depicts the growth observed in the total cost of claims before and after the implementation of the Capitation program. Each set of bar shows

the average cost of claims paid in the same corresponding month before and after capitation. The blue bar represents payments made before capitation and the red bar represents payments made after the introduction of capitation averagely for the same month.

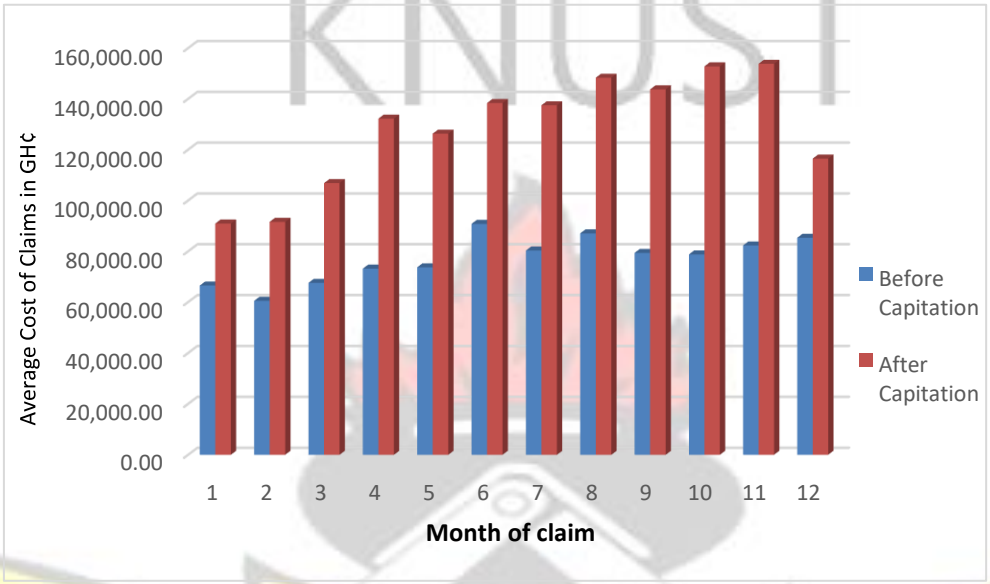


Fig. 4.2 Growth Observed In Average Cost Of Claims (2010- 2013)

4.3.1 Capitation and G-DRG Analysis

4.3.1.1 Capitation versus G-DRG in relation to Total Cost of claims

The total cost paid to the facilities surveyed (Providers) involved the G-DRGs that were charged in addition to Capitation. Table 4.3.1 on the next page presents the annual G-DRGs and Capitation for all the health facilities surveyed. It can be seen from the table that the G-DRGs exceeded the amounts charged annually for Capitation in almost all the health facilities surveyed from 2012 to 2013. This possibly might have inflated the total cost of claims paid to providers.

Table 4.3: Capitation and Total Cost of Claims paid to Providers, 2012- 2013 (GHS)

Name of health facility	2012			2013		
	Total G-DRG (GHS)	Capitation (GHS)	**% share of Capitation in total Cost paid to providers**	Total G-DRG (GHS)	Capitation (GHS)	**% share of Capitation in total Cost paid to providers**
1 (Adom)	10,053.43	**2,358.47**	19.00	10,095.99	**2,013.36**	16.63
2 (Anite)	7,603.21	**6,035.05**	44.25	11,801.73	**5,110.57**	30.22
3 (Bonk.)	5,663.91	**1,137.08**	16.72	14,863.96	**6,572.70**	30.66
4 (Essien)	3,979.40	**5,769.56**	59.18	12,001.28	**5,845.54**	32.75
5 (Kunsu)	4,656.03	**5,193.02**	52.73	6,780.94	**4,587.48**	40.35
6 (Mank.)	475,896.76	**135,894.42**	22.21	611,790.75	**140,238.50**	18.65
7 (Mpasa)	20,747.28	**14,916.04**	41.82	18,007.58	**13,459.08**	42.77
8 (Mpasa)	12,055.01	**31,837.89**	72.54	20,373.55	**14,733.06**	41.97
9(NanaK)	232,481.39	**104,758.27**	31.06	110,488.28	**117,556.24**	51.55
10(Poku)	25,366.57	**42,550.80**	62.65	42,548.43	**36,579.84**	46.23
11(Sabro)	21,018.85	**36,996.33**	63.77	38,191.25	**27,506.52**	41.87
12(St. Ann)	14,441.11	**18,111.63**	55.64	15,352.94	**15,579.28**	50.37
13(St. Edw)	73,801.80	**58,855.06**	44.37	106,837.61	**54,815.57**	33.91
14(St. Joh)	23,829.02	**38,779.20**	61.94	51,076.16	**33,379.59**	39.52
15(Wioso)	16,838.50	**31,696.40**	65.31	25,888.65	**29,343.82**	53.13
TOTAL	**948,432.27**	**534,889.22**	36.06	**1,088,932.73**	**505,381.51**	31.70

Source: Annual report (2010- 2013), Ahafo-Ano South

4.4 Membership (NHIS Subscription)

Like the total cost of claims paid to providers, total number of clients estimated and classified as active members of the NHIS scheme also increased appreciably after the introduction and implementation of the Capitation payment method. The highest percentage increase in active membership registration across all the months surveyed was 19.04 (with peaks in February) and the minimum was 5.03 registered in the month of October. The annual total number of active members which is made up of both renewals and new member registration increased by 12.41% after the introduction and implementation of the Capitation payment method. Table 4.4 on the next page presents the details of the growth.

Table 4.4 Average Active Monthly Enrollment Before and After Capitation

Month	Before Capitation		Ave. Enrollment before Capitation	After Capitation		Ave. Enrollment After Capitation	Ave. Diff.	Percent (%)
	2010	2011		2012	2013			
Jan	26,936	23,442	25,189	34,847	38,571	36,709	11,520	18.61
Feb	28,764	22,755	25,760	35,628	40,122	37,875	12,116	19.04
Mar	29,480	23,074	26,277	35,899	39,754	37,827	11,550	18.02
Apr	30,264	23,345	26,805	35,692	39,980	37,836	11,032	17.07
May	30,835	24,501	27,668	35,264	41,477	38,371	10,703	16.21
Jun	31,653	26,696	29,175	33,515	41,110	37,313	8,138	12.24
Jul	32,573	26,688	29,631	33,445	41,461	37,453	7,823	11.66
Aug	33,714	27,760	30,737	34,341	39,767	37,054	6,317	9.32
Sep	34,328	29,839	32,084	34,185	39,220	36,703	4,619	6.72
Oct	35,003	31,661	33,332	35,915	37,805	36,860	3,528	5.03
Nov	28,058	32,927	30,493	37,573	35,218	36,396	5,903	8.83
Dec	25,819	34,477	30,148	36,784	33,933	35,359	5,211	7.95
TOTAL	**367,427**	**327,165**	**347,296**	**423,088**	**468,418**	**445,753**	**98,457**	**12.41**

Source: Annual report (2010- 2013), Ahafo-Ano South

Figure 4.3 below depicts the pattern observed in membership with the introduction of Capitation in 2012

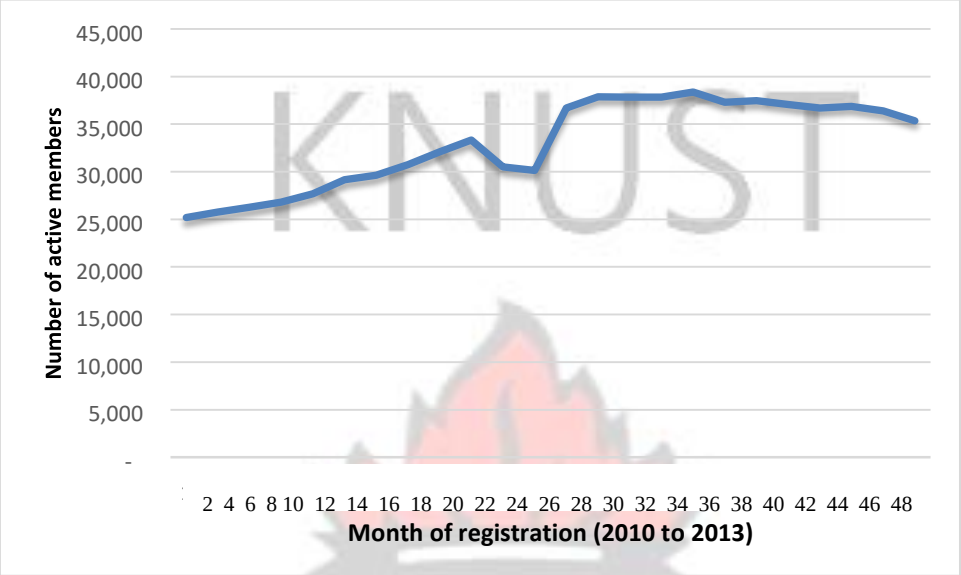


Fig. 4.3 Pattern Observed In Membership from 2010 to 2013

The paired samples t-test was conducted to evaluate the impact of the Capitation payment method on membership and affiliation with healthcare providers in the Ahafo-Ano district of Ghana. There was a statistically significant increase in the total number of members registered with the scheme from the period before Capitation (*M (Average cost of claims)* = 28, 900, *SD*= 3, 898.21) to period after Capitation [*M*= 37, 100, *SD*= 2, 675.19), *t* (24) = -6.514, *p*= 0.001]. The Eta squared statistic (0.65) indicated a large effect with a substantial difference in the rate at which clients registered and joined the health insurance scheme in the Ahafo- Ano district before and after the introduction of Capitation.

Figure 4.4 below graphically depicts the trend observed in membership (2010- 2013)

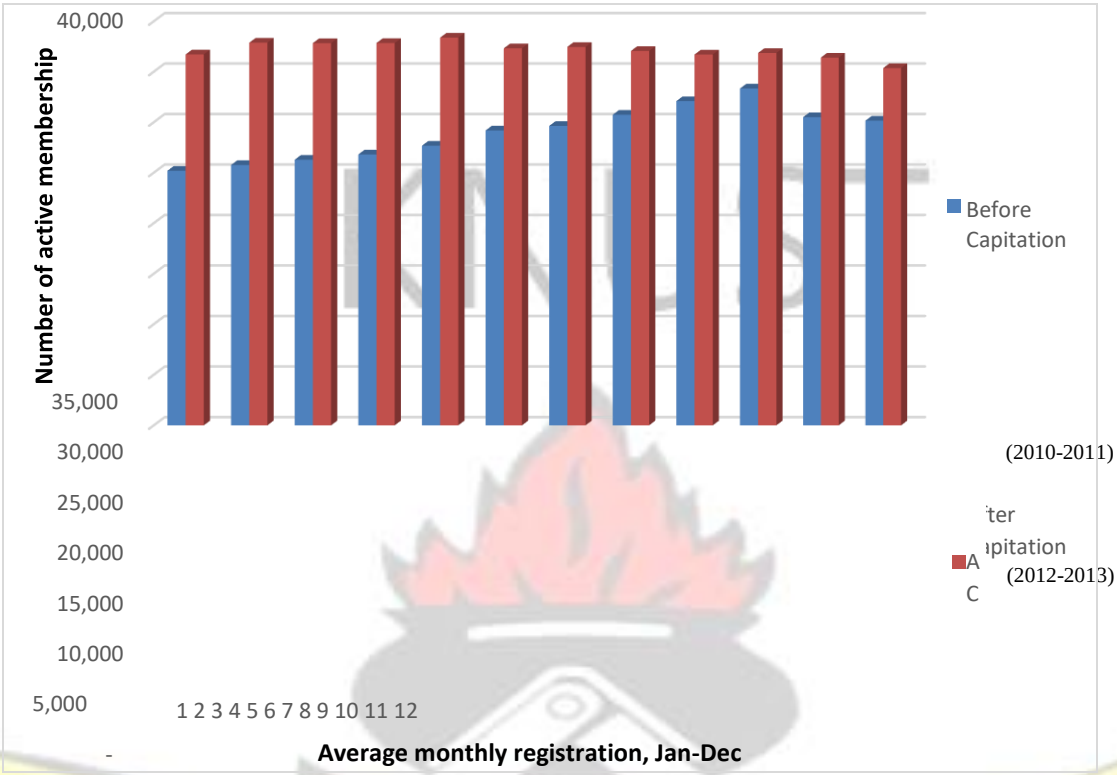


Fig. 4.4 Trend Observed In Membership (2010- 2013)

4.5 Attendance at health facilities

With the introduction of Health Insurance Capitation, there was a decrease in the rate of facility attendance in 40.0% of the health facilities surveyed under this study. This is seen in Table 4.3 on the next page. The highest percentage increase in rate of attendance at health facility was 34.7% (at Anitemfe CHPS Zone). On the whole, the total annual attendance at all the health facilities surveyed increased by only an insignificant 0.04% after the introduction of the Capitation program in 2012.

Table 4.5 Rate of Health Facility Attendance before and After Capitation

	Before Capitation		Ave. Attendance before CAP	After Capitation		Ave. Attendance After CAP	Ave. Diff.	Percent (%)
	2010	2011		2012	2013			
1 (Adom)	793	942	867.5	1003	685	844	-23.5	-1.37
2 (Anite)	635	1162	898.5	1593	2114	1853.5	955	34.70
3 (Bonk.)	987	986	986.5	916	2230	1573	586.5	22.91
4 (Essien)	984	1197	1090.5	801	874	837.5	-253	-13.12
5 (Kunsu)	0	1424	712	1207	1696	1451.5	739.5	34.18
6 (Mank.)	32396	34244	33320	26963	29002	27982.5	-5337.5	-8.71
7 (Mpasa)	2670	4571	3620.5	3520	3130	3325	-295.5	-4.25
8 (Mpasa)	1506	2949	2227.5	2713	3740	3226.5	999	18.32
9(NanaK)	5057	17233	11145	14648	12057	13352.5	2207.5	9.01
10(Poku)	3811	4869	4340	4658	6275	5466.5	1126.5	11.49
11(Sabro)	5197	7569	6383	5316	6703	6009.5	-373.5	-3.01
12(St. Ann)	3026	2157	2591.5	2002	1860	1931	-660.5	-14.60
13(St. Edw)	9042	15419	12230.5	11119	13956	12537.5	307	1.24
14(St. Joh)	4991	7241	6116	5074	7285	6179.5	63.5	0.52
15(Wioso)	4155	5776	4965.5	4309	5701	5005	39.5	0.40
TOTAL	**75250**	**107739**	**91494.5**	**85842**	**97308**	**91575**	**80.5**	**0.04**

Source: Annual report (2010- 2013), Ahafo-Ano South

Figure 4.5 below depicts the pattern observed in health facility attendance from 2010 to 2013

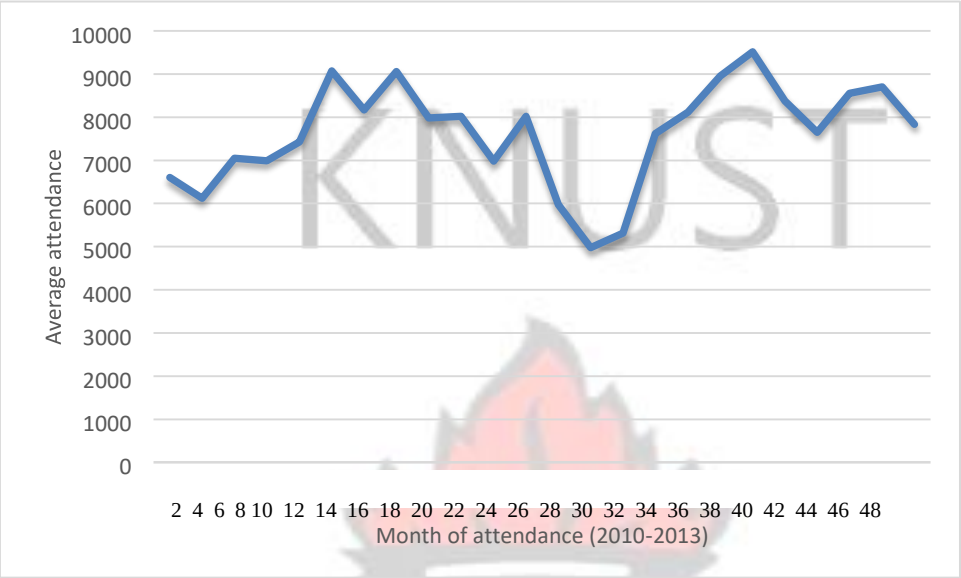


Fig. 4.5 The Pattern Observed in Health Facility Attendance from 2010 to 2013

The paired samples t-test was conducted to evaluate the impact of Health Insurance Capitation on attendance at health facilities within the Ahafo- Ano South District of Ghana. There was no statistically significant difference in the rate of attendance at health facilities within the Ahafo- Ano South District from the period before Capitation (M (Average cost of claims) = 6,099.60 SD= 8430.20) to the period after Capitation [M= 6,105, SD= 7,103.93), t (30) = -0.11, p= 0.991]. The Eta squared statistic (0.0004) indicated that the implementation of the Capitation program has had very small or no effect (insignificant) on the rate of attendance at health the facilities within the study area.

Figure 4.6 below graphically depicts the trend observed in health facility attendance

(2010- 2013)

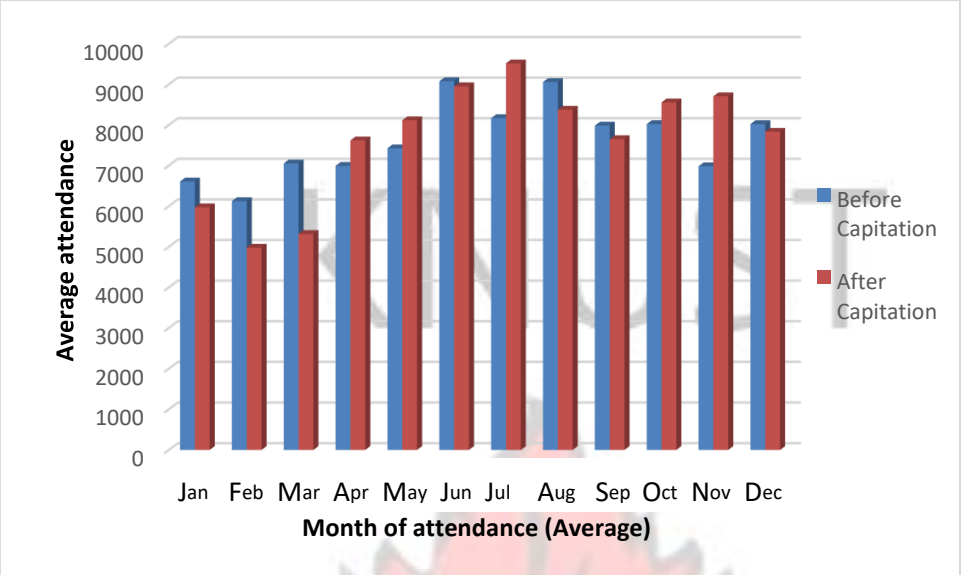


Fig. 4.6 Trend Observed In Health Facility Attendance (2010- 2013)

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATION

5.0 Introduction

This study was undertaken to evaluate the effects of capitation as an additional payment method of the NHIS in the Ahafo - Ano South District of Ghana as compared to Diagnostic Related Groupings taking into account in terms of objectives the cost implications, the attendance and the membership as well.

This chapter presents the summary findings of the study in relation to the objectives and research questions of the study, conclusion as well as recommendations.

5.1 Conclusion

The general conclusion from the study conducted appears to suggest that the introduction of capitation for the two year period (2012 and 2013) shows a significant increase in the cost of claims but maintained the rate of attendance to health facilities as there was no statistically significant increase. However, the membership increased substantially in the period of implementation as compared to the period before the introduction of capitation (2010 and 2011).

5.1.1 Cost of claims paid to providers

The introduction of capitation increased the overall cost of claims paid to providers in the Ahafo – Ano South District. This increase was recorded in all the health facilities that were studied. The paired samples t-test conducted to evaluate the impact of Health Insurance Capitation on the overall cost of claims paid to providers shows a statistically significant increase in the overall cost of claims paid to providers from period before Capitation (*M (Average cost of claims)* = GHS 6, 1682, *SD*= GHS 104, 930) to period

after Capitation [*M*= GHS 102, 590, *SD*= GHS 173, 970), *t* (30) = 2.712, *p*< 0.0005]. The Eta squared statistic (0.20) indicated a large effect with a substantial difference in the cost of claims paid to providers in the Ahafo- Ano district before and after the introduction of Capitation. The result from the cost analysis reveals that capitation as an additional payment method did not reduced or maintains the cost of claims paid to health providers. However, to sustain the NHIS, an intervention such as capitation is meant to contain cost and not rather lead to significant increases in cost as seen in this research.

5.1.2 Attendance at health facilities

The introduction of capitation resulted in a decreased in the overall rate of facility attendance in the district compared with the diagnosis related groups. A decrease in 40.0% of all facilities surveyed was recorded in terms of attendance to these facilities and the overall total annual attendance at all health facilities surveyed only managed to increase by an insignificant 0.04%.

The paired samples t-test conducted to evaluate the impact of Health Insurance Capitation on attendance at health facilities within the Ahafo- Ano South District of Ghana, showed there was no statistically significant difference in the rate of attendance at health facilities within the Ahafo- Ano South District from the period before Capitation (M (Average cost of claims) = 6,099.60 SD= 8430.20) to the period after Capitation [M= 6,105, SD= 7,103.93), t (30) = -0.11, p= 0.991] and the Eta squared statistic (0.0004) indicated that the implementation of the Capitation program has had very small or no effect (insignificant) on the rate of attendance at health the facilities within the study area. Principally, this result is indicative of the fact that capitation as an additional payment method has effectively reduced the rate of attendance to health facilities in actual terms. This is because a substantial increase in the number of active

clients within the period of implementation of capitation as shown in the membership analysis in this research would have also increased the attendance rate as well. It can therefore be concluded that capitation as a result of tying each individual client to a particular health facility, had a positive impact on the NHIS as it was able to maintain attendance even when there were more active member available to engage in provider shopping in the absence of any check mechanism in place. These findings are similar to Tran *et al.* (2012) who studied the Effects of capitation payment method on costs and indicators of health insurance services at four district hospitals in Thanh Hoa province, he compared capitation which was piloted in two of the hospitals to the other two which was using the FFS method. The study concluded that the growth rate of average cost per number of medical visits/episodes in all levels of hospitals piloting capitation was lower than that in hospitals adopting FFS method.

5.1.3 Membership (NHIS Subscription)

Like the total cost of claims paid to providers, the introduction of capitation as a payment method witnessed an increase in the total number of clients estimated and classified as active members of the NHIS scheme which means that many more clients renewed their subscription with a lot more registered newly to join the scheme. The highest percentage increase in active membership registration across all the months surveyed was 19.04 (with peaks in February) and the minimum was 5.03. The annual total number of active members which is made up of both renewals and new member registration increased by 12.41% after the introduction and implementation of the Capitation payment method. The paired samples t-test conducted to evaluate the impact of the Capitation payment method on membership revealed a statistically significant increase in the total number of members registered with the scheme from the period before Capitation (*M (Average cost of claims)* = 28, 900, *SD*= 3, 898.21) to period after

Capitation [*M*= 37, 100, *SD*= 2, 675.19), *t* (24) = -6.514, *p*= 0.000]. The Eta squared statistic (0.65) indicated a large effect with a substantial difference in the rate at which clients registered and joined the health insurance scheme in the Ahafo- Ano district before and after the introduction of Capitation. This therefore suggests that the introduction of capitation as an additional payment method had no negative effect on the membership drive of the NHIS but rather recorded a substantial increase in membership.

5.2 Recommendation

It is recommended that further research is required in this area to understand especially the reasons for the increase in the cost of claims paid to health providers as revealed and to suggest solutions to sustain the scheme.

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APPENDICES

Appendix I

T-Test

Table A1.1 **Cost of claims paid to providers**

Paired Samples Statistics for Cost of claims paid to providers

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Before Capitation	6.1682E4	30	1.04930E5	19157.45879
	After Capitation	1.0259E5	30	1.73970E5	31762.43453

Table A1.2

Paired Samples Correlations for Cost of claims paid to providers

		N	Correlation	Sig.
Pair 1	Before_Capitation & After_Capitation	30	.944	.000

Table A1.3

Paired Samples Test for Cost of claims paid to providers

	Paired Differences					t	df	Sig. (2tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1 Before Capitation - After Capitation	-4.09054E4	82607.49892	15081.99686	-71751.58959	-10059.29551	-2.712	29	.011

Table A2.1 Membership and Affiliation to scheme

Paired Samples Statistics for Membership and Affiliation to scheme

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Before_CAP	2.89E4	24	3898.209	795.719
	After_CAP	3.71E4	24	2675.193	546.071

Table A2.2

Paired Samples Correlations for Membership and Affiliation to scheme

		N	Correlation	Sig.
Pair 1	Before_CAP & After_CAP	24	-.754	.000

Table A2.3

Paired Samples Test for Membership and Affiliation to scheme

		Paired Differences					t	df	Sig. (2tailed)
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper			
Pair 1	Before_CAP - After_CAP	-8.205E3	6170.368	1259.521	-10810.268	-5599.232	-6.514	23	.000

A 3.1 Rate of attendance at health facilities

Paired Samples Statistics for rate of attendance at health facilities

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Before_Capitation	6.0996E3	30	8430.19822	1539.13658
	After_Capitation	6.1050E3	30	7103.93179	1296.99456

Table A3.2

Paired Samples Correlations for rate of attendance at health facilities

		N	Correlation	Sig.

Pair 1	Before_Capitation & After_Capitation	30	.958	.000

Table A3.3

Paired Samples Test for rate of attendance at health facilities

		Paired Differences					t	df	Sig. (2tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	Before_Capitation - After_Capitation	-5.36667	2605.68353	475.73055	-978.34489	967.61155	-.011	29	.991

Appendix II

Lists of Health Facilities Providing Health Services in the District Hospital

- Mankranso District Hospital
- Nana Afia Kobi Hospital

Health Centres

- Mpasaso Health Centre
- Sabronum Health Centre
- Pokukrom Health Centre

- Wioso Health Centre
- St. Edwards, Adugyama
- St. John's (Domeabra)

CHPS Compounds

- Anitemfe CHPS Compound
- Essienkyem CHPS Compound
- Kunsu Dotiem CHPS Compound
- Mpasaso Dotiem CHPS Compound
- Adukrom CHPS Compound
- Biemso 2

Maternity Homes/Clinics

- Adom Maternity Home
- St. Ann's Maternity clinic
- Maranatha maternity Clinic

Diagnostic Centres

- MDS Global Laboratory
- St Edward's Scan centre

Appendix III

COST OF G-DRG CLAIMS PAID TO HEALTH FACILITIES FOR THE PERIOD 2010 TO 2013 NAME OF FACILITY:……

Month of Claim	Amount of G-DRG claims paid in Ghana cedis (GHc)			
	2010	2011	2012	2013
January				
February				
March				
April				
May				
June				
July				
August				
September				
October				
November				
December				
TOTAL				

NAME OF RESPONDANT:…… ……SIGN……

CAPITATION FUNDS PAID TO HEALTH FACILITIES FOR THE PERIOD 2012 TO 2013

NAME OF FACILITY:……

Month of Claim	Amount of Capitation funds recieved in Ghana cedis (GHc)	
	2012	2013
January		
February		
March		
April		
May		
June		
July		
August		
September		
October		
November		
December		
TOTAL		

NAME OF RESPONDANT:…… ……SIGN……

DATA COLLECTION ON ATTENDANCE TO HEALTH FACILITIES FOR THE PERIOD 2010 TO 2013

NAME OF FACILITY:……

Month of Claim	Number of NHIS clients visit			
	2010	**2011**	**2012**	**2013**
January				
February				
March				
April				
May				
June				
July				
August				
September				
October				
November				
December				
TOTAL				

NAME OF RESPONDANT:……SIGN……