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An Assessment on the Effect of Capitation on Cost and Utilization of Health Services: A Case of The National Health Insurance Authority of Ghana.

Trondheim, June 2017.

Supervisor: Professor Jon Magnussen



Declaration

I, Elvis Bossman, do hereby declare that the thesis entitled “An Assessment of the Effect of Capitation on Cost and Utilization of Health Services: A Case of the National Health Insurance Authority of Ghana” is the result of my own original research work conducted under the supervision of Professor Jon Magnussen and that no part of this research work has been presented in parts or in whole for another degree in this university or elsewhere.

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Dedication

This work is dedicated to Nana Kwadwo Boahen II (my father) and Mad. Cynthia Mensah (my mum) who have worked tirelessly to bring me this far.

Also to Daniel Mensah & Kwame Barnie (my uncles), Afia Appiah-Kubi, and my siblings: Mavis Bossman, Dorcas Bossman, Linda Bossman-Yeboah and Princess Nana A. Boahemaa.

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Definition of Terms and Acronyms

Terms /Acronyms	Explanation
Provider shopping	The practice where patients or clients move from one provider to the another with same ailment or other complaints when course of a current treatment is not completed.
Mystery shopping	Where purchaser tries to find irregularities in services provision by intentionally seeking health care under disguise at selected health facilities
ACT 650	The is the act of parliament that established that National Health Insurance Scheme in Ghana
LI809	The law that made provision in ACT 650, the inclusion of provider payment methods in the Ghana National Health Insurance.
Enrollees	
DiD	Difference-in-Difference
OPD	Out Patient Department
IPD	In Patient Department
NHIA	National Health Insurance Authority
G-NHIS	Ghana National Health Insurance Scheme
NHIS	National Health Insurance Scheme
FFS	Fee-For-Service
OOPs	Out-of-Pocket (payment)
DRG	Diagnostic Related Groupings
G-DRG	Ghana Diagnostic Related Groupings
PPP	Preferred Primary Provider
PPM	Provider Payment Method
PHC	Primary Health Care
OECD	Organization for Economic Co-operation and Development
LEAP	Livelihood Empowerment Against Poverty Program
NHF	National Health Fund (Poland)

EHIF	Estonian Health Insurance Fund
SCHIA	State Compulsory Health Insurance Agency (Latvia)
TPFs	Territorial Patient Fund (Lithuania)
NHIF	National Health Insurance Fund
DHIF	District Health Insurance Fund (Romania)
NSCL	National Conference of State Legislators
GDHS	Ghana Demographic Health Survey

Abstract

It is common knowledge that responsiveness towards healthcare utilization, cost of service delivery in terms of cost containment may be influenced by the method of reimbursing service providers. Most often it has the hypothesis is that, capitation form of reimbursement reduces cost of drugs and services, checks over prescription, unnecessarily referral which in the long run leads to over utilization of services. The aforementioned, if left unchecked culminates in escalating cost of health care. To assess the impact of capitation as a provider payment method in the operations of the National Health Insurance Authority of Ghana. We use data categorized under two main groups; the capitated group and the non-capitated group to examine the impact of the capitation policy on health service utilization and expenditure in the outpatient department.

The study employed difference-in-difference approach in analyzing the difference in the trends before and after the introduction of the capitation policy. Multiple linear regression model was used to estimate effects on cost per member and utilization per member between the two groups and the two periods.

Findings from the study reveals that, there was a general decline in the in OPD cost per member and OPD utilization per member at result of the capitation policy. Evidence from the study indicates that enrollees in the Ashanti region which represent the capitated group significantly consumed less health services per member by 1.793 units as compared to the Brong-Ahafo region (non-capitated group). Although the capitation coefficient on OPD cost per member indicated a decline, evidence from the results shows that the decline was not statistically significant.

In conclusion, there was a considerable evidence to reject the claim that there is statistically significant difference between OPD utilization per member between the capitated and the non-capitated group before and after the introduction of the capitation policy. In contrast to the study hypothesis, it failed to reject the null hypothesis that trend between the two groups within the two period has no different effect on the cost of services per member because of the capitation policy. Access to data and the use of data on cost which was not adjusted for inflation were the limitations that challenged the study.

Chapter 1

1.0 Introduction

1.1 Background

The theme of this thesis is “*An Assessment on The Effect of Capitation on Cost and Utilization of Health Service: A Case of The National Health Insurance Authority of Ghana*”. According to a study in nine developing countries in Africa and Asia, there was a common trend in an increase in enrolment in government health insurance which impacted on the government quota on spending on health care delivery. In these countries, we witness a shift towards Universal health coverage taking into account the move towards an expanded benefit package and a corresponding decrease in household out-of-pocket payment. This has necessitated an assessment of the effects and make adjustments in policy and implementation (1). The World Health Organization paper on technical briefs for policy makers indicated that over 150 million households face financial catastrophe as a result of having to pay for health care. The availability of health services requiring out-of-pocket payments, low household capacity to pay, and lack of prepayment mechanisms for risk pooling forms the pre-requisite upon which catastrophic expenditure can thrive. When there is lack of a good mechanism to shield the disadvantage groups of the population like the elderly, handicapped, chronically ill etc. , it leads to catastrophic health expenditure due to their greater need of health service than other groups (2). Among the many alternative routes to harnessing universal health coverage is the utilization of the health insurance model and the selection of an appropriate provider payment system to reimburse service providers. There is still not sufficient evidence to guide us make recommendation on the most appropriate payment mechanism taking into consideration the contextual framework of different countries. There is a continual revision of provider payment methods globally especially among developing countries of which Ghana is not an exception.

Under the Ghana National Health Insurance Scheme (NHIS), health services are bought mainly through Fee-For-Service (FFS), Diagnosis Related Groupings(DRG) and lately capitation is being piloted in the last couple of years in the Ashanti Region. Methods of paying providers have had an effect on provider behavior within the NHIS (3). Accordingly, payment methods have to be carefully selected and implemented in a way that incentivizes providers to exhibit appropriate behaviors and reduce the risk of perverse incentives. Moral hazards challenging the scheme in the

form of fraud and abuse have been estimated to be costing the scheme between 5 and 10% of claims costs. Initiatives taken by the NHIA such as centralized claims processing, clinical audits and linking of diagnoses to treatment, to mention a few, have had an effect of reducing the prevalence of fraud and abuse, but more needs to be done(4)(3). Over the past decade, Ghana has made transitions through the Fee -For-Service (FFS) to Diagnostic Related Grouping (DRGs) to Capitation payment mechanism which hitherto to the introduction of the National Health Insurance Scheme was characterized by out-of-pocket payment and for that matter fee for service. Ghana's National Health Insurance Authority (NHIA) paid for all healthcare services for its enrollees through fee-for-service arrangements with providers prior to 2007, but could not escape from the swift cost escalation of healthcare due to huge claims payment resulting mostly from increased utilization(5). The National Health Insurance Authority annual report for 2009 indicated that, total disbursements for claims payment increased from GH¢ 7.60 million in 2005 to GH¢35.48 million in 2006 showing an increase of 367% (not adjusted for inflation). This payment method was, however, reformed in 2007 to reflect patients' disease episode which is termed Ghana Diagnostic Related Groupings) to cater for services and arrest the galloping health expenditure which has also proven not efficient hence the recent introduction of other cost containment measures with the intention to help mitigate this problem (3). Ghana is not absolved of the global challenge on the rising cost of health care and must therefore devise and implement prudent health policy and financing measures that would contribute to mitigating the effects of these challenges. This will help to adequately protect the population against catastrophic health expenditures and thereby, promote good health and vitality for an improved socio-economic development (6).

Recently the increasing claims costs have placed the scheme under severe financial pressure. This has contributed to the scheme's inability to pay claims in time to healthcare providers for services rendered to NHIS subscribers. This situation is also partly as a result of increase in the active membership of the scheme, as well as an escalation in medical costs, especially the cost of medicines. The cost of providing health care to NHIS subscribers has increased much faster than the financial resources allocated to the scheme since 2005. The NHIS has therefore experienced persistent and increasing annual deficits since 2009. Delays in reimbursing providers have on several occasions led to the withdrawal of services to NHIS subscribers by providers. It has also led to unauthorized copayments and denial of service to NHIS subscribers which has had the effect of lowering confidence in the scheme(7). With the support of the World Bank , a capitation system

of health financing was introduced in 2012 on pilot basis in the Ashanti Region due to its central location and heterogeneous infrastructure and culture, with one year mandate ending in 2013 after which it would be evaluated to inform roll out in the other regions of Ghana (3). Capitation is a provider payment method in which providers are paid typically in advance, thus a pre-determined fixed rate to provide a defined set of services for each individual enrolled with the provider for a fixed period of time (8)(9). The cost saving potential that capitation provides have endeared it as a better alternative to fee-for-service and diagnostic related groupings DRG (10).

The current payment reform on per capita basis is being piloted in the Ashanti region of Ghana does not completely replace the already existing method of reimbursing service providers but rather meant for a specific level of care thus the primary outpatient care which is essentially the foundation of the healthcare systems. Under the current per capita system in Ghana, the reimbursement to providers will cater for selected OPD primary care cases while reserving itemized medicines and DRG for services to the higher level of care (5). Most Social Health Insurance services that could once be relied upon are no longer able to keep pace with the ever-increasing cost of medical treatment. Finding a more appropriate way to reimburse healthcare providers for services rendered has been focal point for deliberation by most health policy makers most especially in resource challenge regions of the world to deal with the challenges bedeviling social health insurance. In this part of the world there is a continual and rapid reformation as far as provider payment method is concerned all geared towards coming out with a suitable reimbursement mechanism. This is mainly to address issues relating to cost containment and to effectively manage utilization of health service, ultimately mitigating the negative effects and preserving the positive ones (11). One of the focus of the Government of Ghana as far as providing affordable care and making health care accessible to all revolves around an efficient health system. The decision to choose among the various payment mechanisms should be premised on the objectives of the healthcare system and should be consistent with the broader goals of health financing and delivering system. If the goal is to promote cost containment among providers, then payment systems with incentives to reduce the volume and intensity of services provided may be most effective (12). The issue of financial sustainability has always been the main hurdle of the National Health Insurance Authority (NHIA) due to the rising cost of health expenditure, claims payment hence the introduction of capitation. The capitation system is also expected to improve cost containment, share financial risk among scheme providers and subscribers and introduce

managed competition for providers and choice for patients (5). As a number of policies has been employed to improve accessibility and reduce cost of healthcare service delivery, it has become very vital to be aware of the potential effects the current payment mechanisms most especially capitation on cost and utilization of health services in the country as plans are underway for its national roll-up.

Currently one of the main headaches for Ghana health sector is the mechanism of reimbursing health providers which is vital for enhancing the efficiency and equity of Ghana's health sector (5). The effect of capitation as a provider payment in relation to cost of services and utilization of services are less well studied and understood. This thesis then seeks to contribute to this limited knowledge by assessing the impact of a shift by Ghana's National Health Insurance Authority (GNHIA) from reimbursing healthcare providers on a Diagnostic Related Groupings basis to Capitation payment in Ghana. It will help healthcare professional and planners to modify, emphasize, strengthen and select the best and more effective provider payment method of reimbursing health facilities. In spite of the wealth of literature available globally documenting the impact of health financing modules on the health sector, there is still scarcity of literature on the African experience as far as provider payment mechanisms is concern and for that matter capitation. The aforementioned gaps form the foundation of the present study. The study document can serve as a secondary source data for further study of economic importance in future. Also, it will also help to refocus future health professional and planners to think how they will deal this fast-growing problem in coming days

In most developed and developing countries, Per-capita form of reimbursement is well rooted. The introduction of capitation in Ghana is walking an already proven and tried road that many other countries have already successfully used (13). Capitation has been utilized by the British National Health Service for decades and has become more complex over time with frequent generations of reform but the fundamental principle is one of per capita payment. Thailand is also applauded globally as a middle-income country that now successfully covers almost all its citizens with health insurance using capitation as the foundation of paying its providers and reserves methods such as DRG for the higher referral level. Also Chile and Estonia are examples of middle income countries successfully using capitation as one of their methods of reimbursing health service providers and it has been effective in harnessing or approaching universal coverage with health insurance (14). The effect of the capitation on cost and utilization of health services in Ghana remains unknown

and this study seeks to identify this effect. It takes into consideration that the differences in changes in membership has no effect on the trends in total cost and total utilization thus, the trend in both period will be identical in the absence of the capitation policy change. The sustainability of social health insurance in most low and middle-income countries is more likely dependent on the cost of providing health care to its populace. Specifically, the cost of drugs and the cost of provision of services in both the outpatient department (OPD) and inpatient department (IPD) culminates the growth of the total cost of healthcare delivery as far as the Ghana national health insurance is concern.

The research seeks to address the following research question;

1. Did capitation effectively reduce utilization of hospital Outpatient attendance (OPD)?

The null hypothesis (H_N) to be tested here is that; there is no statistically significant difference between the OPD contacts per member before and after the introduction of the capitation policy in the capitated in comparison with non-capitated group.

2. Did capitation effectively reduce the cost of outpatient care(OPD) from health providers?

The null hypothesis (H_N) is that; the trends between the two-time period before and after the introduction of capitation has no different effect on the cost of services per member.

1.2 Objectives

The aim of per capita payment system of reimbursement is to financially cushion and reduced the impoverishing effect of health expenditure which includes household total expenditure arising from out-of-pocket expense, taxes and pre-payment for health insurance. This financial objective does not take into accounts the effects of this payment mechanism on utilization of services by subscribers. In an attempt to interpret the effect of the capitation policy, the use of services must be considered concurrently with the financial goals. This paper then tries to assess the effect of capitation (possibly and/or DRG financing) on the costs and utilization of services in the NHIA of Ghana. Specifically, the objectives of this paper are to;

1. To assess the effects of capitation on cost of OPD services and whether they different from those under DRG in Ghana
2. To find out the effect of capitation on utilization of OPD health services vis-à-vis DRG in Ghana

1.3 Organization of Chapters

The next chapter after the background of the study including the research questions and objectives is chapter two where there is a description of a health care in Ghana. Here there is a general overview of the health system in Ghana and also this is the section where a description of financing models use in Ghana are explained and defined. This was followed by chapter three which deals with the theoretical background and reviewing of literature about provider payment models and their expected effect on efficiency, quality, access and cost. Also, evidence of similar or related studies are included in this chapter. Chapter four covered the various materials and method that were employed to successfully carry out the study. It included, information on the Study area, period and methods for data collection, sampling procedure, data analysis, ethical consideration for the study. Also, explained in this section is a summary of statistics of the data, description of the difference-in-difference method and the variables of interest in our study. Chapter five gives a presentation of the results from the analysis and goes further to discuss this finding obtained from this study. The final chapter comprised the section where the concluding comments, recommendations and limitations pertaining to the study are outlined.

Chapter Two

2.0 Health Care in Ghana

2.1 Reforms in Ghana's Health System

Ghana has made significant progress in the quest to harness universal health coverage for its population during the past decades. The pre- independence or colonial era was characterized by private Out-Of-Pocket (OOP) payment for health services. Public financing was mainly for expatriate civil servants. The development of a comprehensive, affordable and universally accessible national health system for the population was then not a priority for the government at the time (7). The idea behind Ghana's Health Insurance goes back to 1957 around the time Ghana gain independence where free health care was implemented. The National Health Service was then set up by the first president of the republic which was solely financed from state revenue. Its aim was to secure financial risk to everybody for health services at no cost, which meant the poor were protected against from financial shock. Inequalities in terms of service delivery was identified in addition the poor quality of medical services thus, the scheme was skewed in favor of the urban population to the neglect of the rural poor (15). The quality of medical service was also poor. A little over a decade later in 1970, Ghana experienced economic shocks and began structural adjustment programs. The new government at the time introduced a token user fee or nominal payments for health services to patients to curtail abuses in the previous system like unnecessary visits by patients for hospital procedures and meant to bridge the gap between the rural poor and the urban community. The small user fees charged in a way culminated in the establishment of the principle of payment for health care utilization by shifting some of the financial risk to the patient. In 1985, a fully-fledge user fee (cash & carry) was introduced, this policy excluded majority of people from access to healthcare. This user fee system, known by the term 'cash and carry,' had negative consequences in accessing health services, especially for the poorest in Ghanaian society. During the 1990s community-based mutual health insurance schemes begun to spring out alongside the cash and carry system (15). The year 2000 was characterized by high-out -of-pocket expenditure on health and very low utilization of health services. Limitations included long delays in accessing health services and incomplete prescription purchases. In other to extend social health protection to the less privilege and the poor by providing them to asses to good health services

through Ghana National Health Insurance policy to cushion the disadvantage population against catastrophic health expenditure (16).

2.1.1 Purchasing Reforms in Ghana

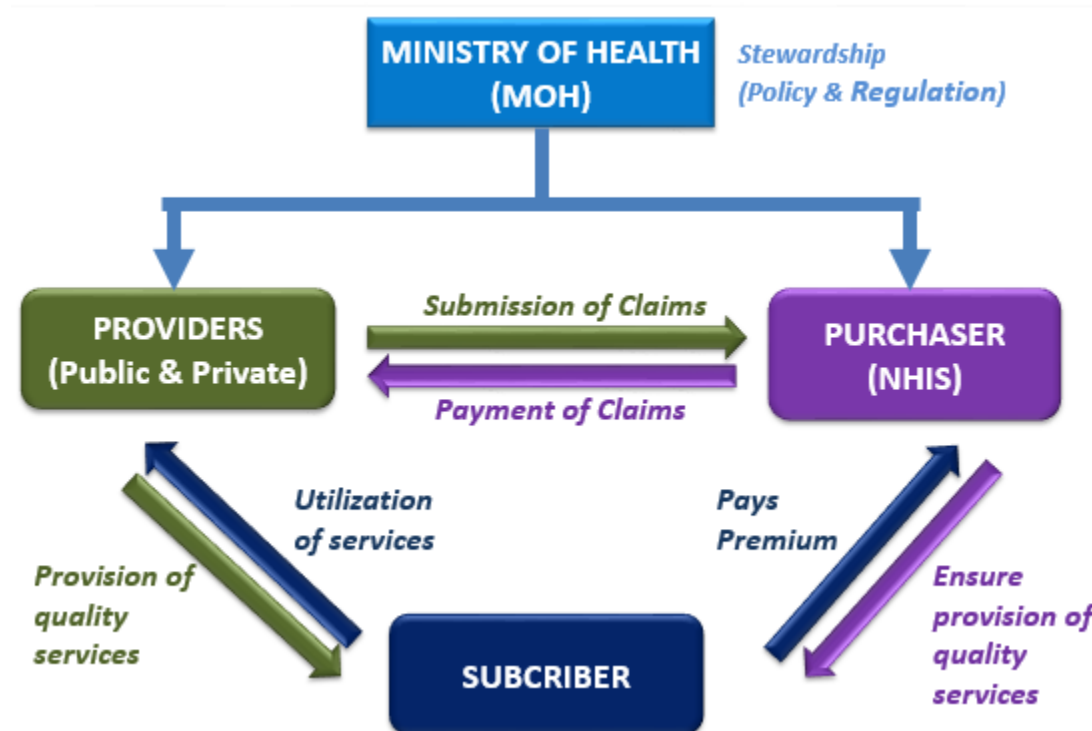
The system where health services used by residents are pre-paid is termed as Health Insurance. In health insurance, payments made are spread over the subscribers and over time in the form of some agreed regular contribution. Services are provided according to need (1). Among the vital questions to address in forming an effective and efficient health insurance system takes into account the following; how money is collected from residents and pooled to pay for services, what services are covered by the insurance or the benefit package and how these services are bought or paid for on behalf of its members also termed as the provider payment method. Prior to the introduction of National Health Insurance Authority (NHIA) in 2003, the Ministry of Health in Ghana was the authorized purchaser of health for the population and the Ghana Health Service (GHS) being the provider of health services. Private health facilities were solely access on out-of-pocket basis. The Ghana National Health Insurance Authority (GNHIA) is the purchaser responsible for health care purchasing in Ghana after it was established and given that mandate in 2003. A pre-requisite for the design, development and implementation of changes in health care purchasing strategies is dependent on the existence of a purchaser. Health care purchasing requires operating systems, policies and procedures to realize purchasing policy decisions. The NHIA value chain which was adapted in 2010 captures this requirements in its framework for securing financial risk protection in health care purchasing (17).

2.2 The Ghana National Health Insurance Authority -NHIA

The Ghanaian Government passed legislation by an Act of parliament (Act 650) which established its own National Health Insurance Scheme (NHIS) in 2003 as a sequel to transformational changes in its healthcare financing over the past decades. The aim of the NHIS is focus on achieving universal coverage for the population as a whole and to replace the “Cash and Carry” system in order to secure financial risk protection against the cost of healthcare services for all its residents. The National Health Insurance Law was meant to provide a policy and regulatory framework for health insurance that would enable the nation to achieve the goal of equitable access to basic health care in relation to need rather than socio-economic or socio-cultural status (5). The objectives of

the National Health Insurance Policy were spelt out in the National Health Insurance Law, 2004; (LI 1809). The National Health Insurance Act, 2003 (Act 650) also provided guidelines for the operations of the various schemes (16).

Figure 1: The Main Players in The NHIA Architecture

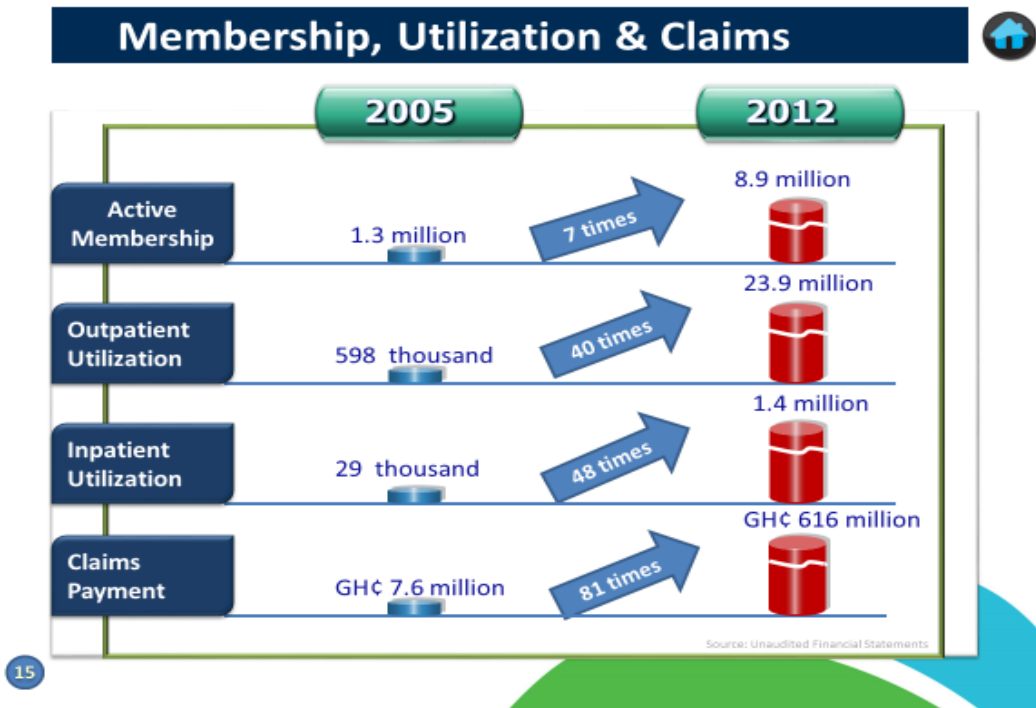


Source: (NHIA, 2012)

Per the health insurance legislative framework Regulation 37(2) L.I.1809, the NHIA is mandated to secure a uniform method of paying accredited providers for services rendered to NHIS clients. The law made provision for the following payment mechanism fee-for-service, capitation DRG and other mechanisms recommended by the NHIA (5). Itemized fee-for-service method of reimbursing providers was initially utilized by the NHIA for each service rendered by the service providers. The challenge with this method was absence of cost containment measures as there was not uniformity in the tariffs or rates for treating same conditions at different facilities from various district offices. The Ghana Diagnosis Related Groups (G-DRGs) was then introduced in 2008 to curtail inequities associated with the fee-for-service method by paying service providers with the same fixed tariffs for conditions that fall under the same diagnostic category. The G-DRGs however could not do much to contain the escalating cost and ensuring efficiencies the delivery of

services especially on OPD services. The average outpatient claims almost doubled between 2007 and 2009. In the quest by the NHIA to curb the issue of cost escalation and apparent supplier - induced demand, it decided to pilot a capitation payment system in 2012 in the most populated region the country that accounts for 25% of the total NHIS payment to service providers (3).

Figure 2: NHIA Trend Membership, Utilization by Enrollees and Cost of Claims (2005-2012)



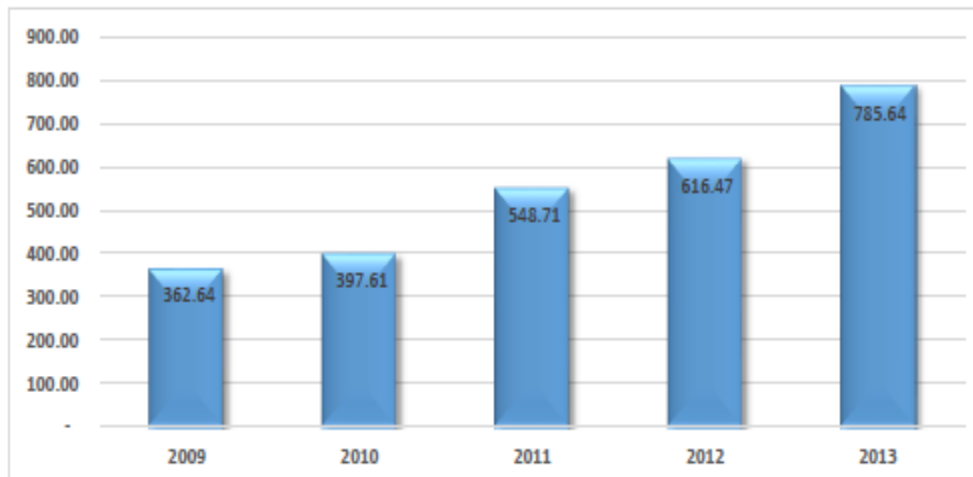
Source:(NHIA 2012)

2.2.1 Cost-Containment Strategies

Cost containment is a policy issue that addresses the question on the appropriate amount that should spend on health care. The goal of cost-containment is to either stabilize public health spending per capita or to moderate the growth rate of public expenditure for health per capita. There is still the need by most low income and developing countries to come out with the right and even a minimum amount of resources in addressing the issue on how to curtail the escalating cost of health care (9). According to the NHIA report in 2012, management put in place measures to minimize abuse and fraud in the system and also to contain the increasing cost of claims over the years that is bedeviling it. The rise in the cost of claims is attributed to the surge in the number of active members and other moral hazards that are associated with Insurance Schemes. Provider

payment methods are other ways of controlling the level and growth of health expenditure by influencing the price of health care in a direct way and also impacting on the quantity of care supplied by the providers in an indirect way. The incentives created by the provider payment method causes a reaction on the health service providers to change their pattern and volume of care (9,18).

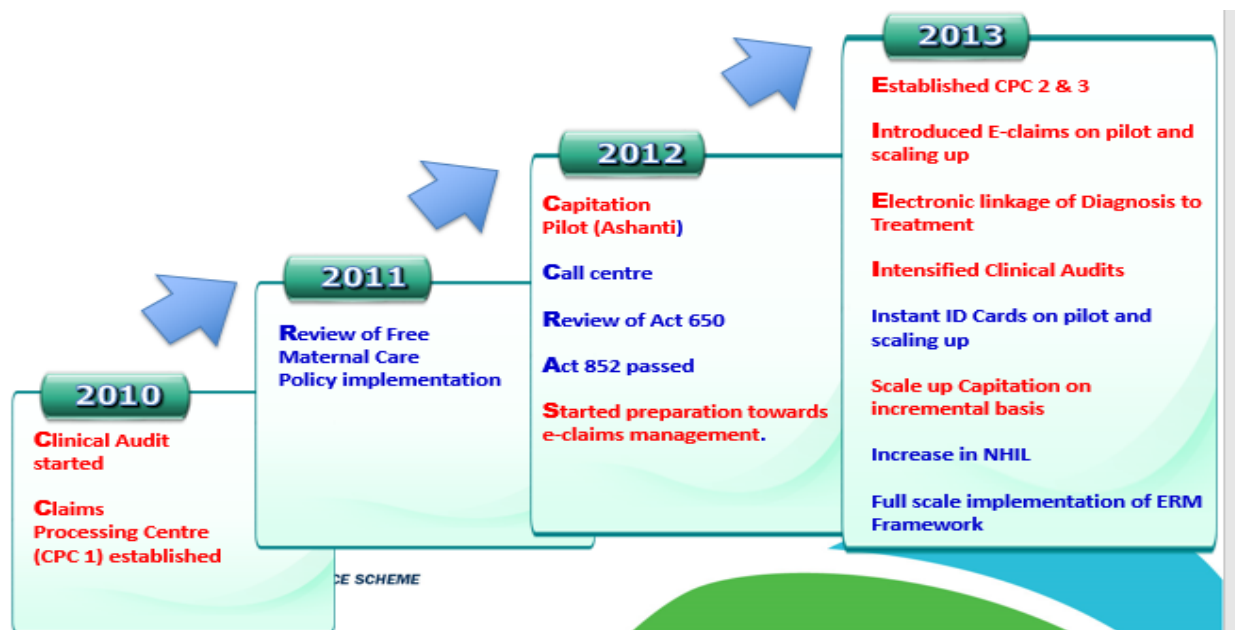
Figure 3: Claims Payment Trend 2009-2013 (GHc Millions)



Source:(NHIA,2013)

In the case of the Ghana National Health Insurance Authority (G-NHIA), various cost containment measures were enacted to arrest the galloping cost of health care. Some of the measures employed to mitigate this challenge includes; enhancement of the Clinical and Internal Audit Divisions, linking treatment to diagnosis to improve the rational use of drugs, the establishment of Claims Processing Centers (CPCs), Using mystery shopping(i.e. where the purchaser tries to find irregularities in service provision by intentionally seeking care under disguise) to identify inefficiencies and abuse in the entire NHIS system for redress, introduction of the new claims module to facilitate electronic claims processing and inject efficiency into claims management and recently the introduction of capitation as an additional provider payment mechanism, beginning with a pilot in the Ashanti Region. These measures yielded considerable achievements. For instance, an amount of GHc6.7m was retrieved from health care providers after clinical auditing of such facilities. Also, the CPC is able to make an appreciable cost savings by an average of 15% of claims submitted. Savings on claims in 2010 and 2011 cumulatively yielded GH¢17.3million (16).

Figure 4: Application of Cost -Containment Measures Between 2010 and 2013



Source:(NHIA,2013)

2.3 Introduction of Capitation in Ghana

In Ghana, capitation is being introduced as a reimbursement mechanism for majority of Out-Patient care (OPD). Under the Ghana capitation model, clients are encouraged to voluntarily choose their Preferred Primary Provider (PPP). A client can only have one PPP. Clients were asked to make a first, second and third choice not because they could use all 3, but provides an alternative new PPP in the event that they could not be tied to their first choice PPP (10). It is essential that a base package of services that can be reasonably made accessible to every Ghanaian, whether they live in a complex urban metropolis or a remote rural area, is paid for by the standard capitation rate across the country. Based on a mapping of provider service location and availability, a basic minimum package of services that is reasonable to expect to be made available at every outpatient department (OPD) has been defined. This defined package is subject to regular review and modification to fit the experiences and the evolving context of Ghana rather than fixed and for ever unchangeable (19).

2.3.1 Capitation Basket – Benefit package

The package of services referred to as the Primary Health Care (PHC) bundle comprises of general OPD consultation with a trained primary care prescriber for most common diagnoses and routine upkeep care for non-insulin-dependent diabetes and hypertension. Also, maternity consultation and services with a midwife or doctor for Antenatal and Postnatal care is also included in the basket of services. Normal delivery that was initially inclusive in the PHC bundle to be provided by PPP has been removed from the PHC bundle in response to concerns raised by providers about quality of care and is paid for by DRG. The effects of its exclusion will be closely monitored as part of the M&E of the capitation pilot. Selected medicines for the most common diagnoses at PHC level and antenatal and postnatal conditions. Selected laboratory examinations like Hemoglobin estimation, Blood Sugar, Urine routine examination, Pregnancy test, Venereal Disease Research Laboratory test (VDRL) that match the selected primary care conditions and that can be carried out even where there is not laboratory because rapid test kits that do not require a laboratory test, which are: Blood film for Malaria parasites (3).

2.3.2 Setting NHIS Per Capita Rate

In dealing with averages, the denominator used to calculate the average matters. The per capita rate is an average rate per person who has chosen a particular PPP and has been enrolled. It is a per head rate based on active NHIS subscribers. Ghana's per capita payment is therefore different from the reimbursement per visit which is a per encounter rate based on actual visits to a provider by active NHIS subscribers. The denominator for calculating the two rates are different. Calculation of the per capita rate is based on the total outpatient claims that were paid for outpatient services rendered to NHIS subscribers in Ashanti region. Under capitation the total cost of providing care under the defined basket of services is divided by the total number of subscribers registered with the Preferred Primary Provider (PPP) (20). The cost of the per capita rate is GHC1.75 for accredited providers for OPD encounter or visit and it is paid to every provider every month for all NHIS subscribers who have chosen that provider as their PPP whether they fall sick. From health care services utilization data for NHIS subscribers as well as utilization data of the Ghana Health Service and other research findings indicate that on average, subscribers use OPD services twice in a year. The GHC 1.75 per capita amount translates to GHC 21 per annum and this amount is then transferred for all subscribers enrolled with a PPP to cater for only OPD cases

that are included in the capitation basket. Since providers will be paid in advance on monthly basis for all subscribers enrolled with the provider irrespective of whether or not they fall sick and seek medical care. The capitation amounts are based on enrolment and not encounters or visits. It is also important to note that the per capita amount was calculated based on the current payment for outpatient services and covers outpatient non-specialty cases only. The program is then closely monitored and the necessary adjustments made. Providers will still be reimbursed for all OPD specialty cases that are not included in the capitation basket as well as all inpatient cases under the prevailing method of payment, that is, the Ghana Diagnosis Related Groupings (G-DRG) (19).

Chapter Three

3.0 Literature Review

3.1 Introduction:

A number of articles have been found on the impact of capitation system of health financing but not much was found regarding the African perspective and for that matter Ghana. This chapter therefore seeks to review theoretical literature on provider payment mechanisms, their incentives, framework for setting capitated rates, purpose and merits of capitation as well as empirical studies on the effects of provider payment mechanisms, particularly capitation, on health outcome.

A major obstacle confronting most developing nations is finding a most suitable way of achieving the universal health coverage by making provision for access to basic health services for its citizens. Specifically, policies that cushions its citizens from the risk of financial hardship or poverty arising from out-of-pocket expenditure. Issues of efficiency, quality of care and financial sustainability is inimical with an increase in coverage in this countries (21). According to a study from OECD countries on provider payment and cost containment, there is a rising demand among purchasers, providers and patients to achieving a cost- effective quality healthcare service (22). The increasing demand has necessitated more attention on the best way to curtail needless demand for healthcare and adopting an appropriate provider payment mechanism. The motivation by either the provider, purchaser or patient may differ with regards to efficiency, quality and utilization of provider facilities as far as payments systems are concerned. Avoiding waste, increasing accessibility, improving quality, permit choice of physician by the patient, and ease of implementation should be taken into consideration when choosing a payment method (9).

3.2 Provider Payment Mechanisms

Provider payment systems and institutional structure together forms the two main components of buying health care. The mandate of giving purchasing function to an institution and how this institution interacts with other health policy institutions and health service providers embodies what an institutional structure entails. Provider payment systems are the basis on which funds are transferred from the purchaser of health care services to the service providers, combined with all supporting systems, such as management information systems and accountability mechanisms that accompany the payment method (12). Contracts with health institution or providers are ways by

which provider payment systems can be operationalized as it also serves as the purchasers' enforceable legal mechanism in an effort by purchasers in distributing resources to qualified parties in order to obtain the delivery of a defined services to a population. Most reforms in buying health care globally are turning their attention on changing the institutional framework of buying healthcare by separating health purchasing and provision of healthcare delivery which is termed purchaser-provider split (23).

It is common knowledge among policy makers that the framework and level of provider payment is basic as far as influencing provider behavior is concern. It is very vital to consider when payment rates are set in the attempt to properly define provider payment methods. The characterization of the methods employed to transfer funds from the purchaser of health services to the provider can be looked at in three main dimensions all geared at addressing equity enhancement, quality of care to patients, encouraging access the basic health services for patient (12). The aforementioned objectives take into account the effective and efficient use of resources especially cost containment. To start with, determination of the amount of funds paid to providers can be looked at in terms of if the payment rate for a set of services is determined after the services are delivered or whether payment rate for a set of services is determined prior to the services being delivered thus either prospectively or retrospectively. Under retrospective payments the purchaser bears all the financial risk as oppose to prospective payment where some of the risk is transferred from the purchaser to the service provider. Another parameter for characterization is done by considering if reimbursement to provider is made before(prospectively) or after (retrospectively) service delivery. The third parameter takes into account the inputs used to provide services which is the recurrent costs of providing services are financed or outputs produced, such as cases treated, bed-days completed, or individual services provided when characterizing provider payment method (12).

Table 1: *Payment Method and Their Incentives Created*

Payment Method	Unit of Service	Retrospective/ Prospective	Main Incentive Created
Line item budget	Functional budget categories	Either	Little flexibility in resource use, cost control of total cost, poor incentives to improve productivity.
Global budget	Health facility	prospective	Not always linked to performance indicators, cost-shifting possible if global budget covers limited services, rationing may occur
capitation	Per person to a health care provider who acts as a fund holder	Prospective	Incentives to undersupply, strong incentives to improve efficiency that may cause providers to sacrifice quality, rationing may occur, improves continuity of care
Case-based payment	Per case or episode	prospective	Incentives to reduce services per case but increase number of cases, incentives to improve efficiency per case
Per diem	Per day	prospective	Incentives to reduce services per day but increase length of stay (if per diem rate is above marginal costs)
Fee-for-Service	Per unit of services	retrospective	Incentives to increase units of service

Source:(Maceira, 1998)

3.3 Types of Provider Payment Methods

Provider payment method (PPM) in brief can be simply defined as the process employed by purchasers of health care service to transfer or allocate resources to health service providers. In the other words the mechanism for transfer of pooled funds to providers on behalf of the population. There are several different methods that can be used to pay providers under a health insurance scheme. These include Fee-For-Service (this is often itemized), Diagnosis Related Groupings (DRG), Capitation etc. There is no single ideal system and each system has merits and demerits. For best results, most successful health insurance schemes typically use a mixture of methods. A good combination of methods in a way that permits the advantages and disadvantages of the different methods to balance each other. It should also take into consideration the pros and cons of the various payment mechanisms, individual country context including economics and history is the best approach (11). In Ghana itemized Fee-For-Service (FFS) for non-insured clients for both services and medicines, Diagnosis Related Groupings (DRG) for insured clients (Services only), Itemized Fee for service (FFS) to pay for medicines for insured clients and capitation are currently the ways for reimbursing providers for OPD services rendered or to be delivered (24)(3).

3.3.1 Line-item budget

The allocation of a fixed amount to a health care provider to cover specific input costs (such as personnel, utilities, medicines, and supplies) for a certain period. Typically, providers have limited flexibility to move funds across line items. Under line budget payment method, payment rate is set prospectively and also the payment are made prospectively to the providers. Generally, all payment under the line-item-budget are based on inputs. Under provision of services, referral to other providers, increase inputs, no incentive or mechanism to improve the efficiency of the input mix, incentive to spend all remaining funds by the end of budget year are motivations created under line item budget (11).

3.3.2 Fee-For-Service

This is a payment mechanism is a good example of retrospective form of paying providers. That is the reimbursement rate is selected in the course of service delivery or afterwards. Often it is known to be cost enhancing rather than cost reducing. Irrespective of the fact that prices for each

services are set in advance, service providers are not tied to the type and number of services to be delivered (11). It can be envisaged that the use of fee-for-service is likely to incur vital administrative expenditure taking into consideration the resources needed for billing, reimbursement of fees, monitoring etc. Another major downside is the also the incentive fee-for-service create systematically to permit more health services than actually needed (9).

Globally experience over time shows that it is a system that can lead to very rapid inflation of costs and threaten the sustainability of health insurance. This was evident in a Danish study in 1987 in which a fully capitated payment was replaced by a payment partly based on fees, this change led to a direct surge in the services that generate extra fees(25). Also in another related study in the United States cited in the same review, reiterate that's health services is systematically higher when fees are used to pay providers, as compared to providers that face incentives aiming at controlling treatment and resource use. There was a 41% more hospitalization in health services provision among a sample of 349 physicians utilizing FFS than those using prepayment scheme (9). Notwithstanding the popularly known pitfalls of permitting inflation in expenditure which is detrimental to sustainability, its establishment requires very little know-how. FFS can be effective when checks are enacted to control the negative incentives associated with this payment method. Germany is a typical example of a country that have successfully utilize FFS in it health insurance by putting in place mechanisms to counteract these pitfalls(26).

3.3.3 Activity Based Financing

Activity Based Financing often termed as Diagnostic Related Groupings(DRG) is a classification of hospital case types into groups that are clinically similar and are expected to have similar hospital resource use. The groupings are based on diagnosis-related groups and it defines each case based on the diagnosis and other features of the case into groups. The payment rate varies depending on the resource intensity of the DRG. Service providers under this form of reimbursement are paid an inclusive flat sum for patient treatment according to the diagnostic group. This form of mechanism deters health service providers to deliver services within the overall confine of the fix payment schedule hence its anticipated to be another good cost containment tool (9).

Many developed countries e.g. USA and U.K, use DRG as part of their payment systems. Evidence of the impact of this method on services delivery is cited in a WHO review paper by Carrin and Hanvoravongchai in 2003 on provider payments and tools for cost containment. According to the paper there is a decline in the growth rate significantly on the cost of U.S Medicare program as a result of the DRG introduction. Also, the adoption of DRGs in 1993 in Germany as an alternative to per diem payment led to both a decrease in the length of stay and a rise in the hospital admissions, resulting in a rise in the number of hospital days per 1000 population. As a result, the rate of increase of hospital costs hardly changed (9). Healthcare providers under the DRG system fills claims forms for payment upon delivery of services to clients. Before reimbursement are effected by the NHIA, individual claims forms are vetted for accuracy and validity. This is a tedious process that put lot of strain administratively on the service providers, the district offices and the NHIA in terms of the heavy demand of time needed to properly prepare and process the claims. The DRG for services is still prone cost escalation though they are comparatively not as much as under itemized fee for service. Under the DRG method, medicines at all levels remain under itemized fee for service hence the potential of major cost escalation is also strong(5).

3.3.4 Capitation

Capitation is a fixed amount of money per patient per unit of time paid in advance to the service provider for the delivery of health care services. Capitation rates are developed using local costs and average utilization of services. It is per capita payment systems that are based on the number of people covered rather than services provided, with payment rates to providers both set and made prospectively (27). A predetermined fixed rate is given to the provider in advance to provide a define set of services for each person enrolled under the provider. Under this mechanism, the provider is responsible for the loses if they incur cost more than what is agree in the per capita budget. This creates incentives to provide fewer services and to check abuse and fraud in claims redemption (16). The issue of under provision of necessary services is curbed if patients are in the position to choose a different provider when they are not content that is providers lose financially when there is competition and patients have a choice.

Under the Ghana National Health Insurance, the fixed sum is typically stated on Per Member Per Month basis. Member in this context is referring to the NHIS clients tagged to the accredited providers. The NHIS subscribers choose a preferred primary provider (PPP) to provide all the

services captured in the capitation basket in exchange for the capitation rate under this system of reimbursement. The total capitation amount is transferred to the provider at the beginning of the service period. The amount is calculated based on the total number of members who have selected a given provider (20).

3.4 Evidence on Effectiveness of Capitation

Indications from various research shows that the use of capitation as a payment mechanism can lead to low expenditure on health without affecting the quality or access. Health planners and economist are increasingly promoting capitation as a very vital approach to slow the escalation of health care expenditures. Capitation payments method are designed to do away with healthcare service of questionable value and to reverse the current incentive of healthcare providers under fee-for-service to increase their income through the provision of more services. There is also a great incentive to maintain or improve patients health, prevent unnecessary hospital admissions so as to increase their net income if they can lower cost for the fixed payment (18). Through capitated managed care as a reimbursement mechanism, providers have significantly achieved lower spending. A reviewed of 14 studies in the U.S by the Lewin Group in 2004 reports savings harnessed through the use of Medicaid managed programs using the capitated payment. The review found clear evidence of cost saving, mainly from utilization of less in-patient services. Savings from managed care program under capitation in Michigan was 9 %, 14%, 16%, and 19% in the years 2001, 2002, 2003 and 2004 respectively. The Kentucky region also witnessed a surge in savings resulting from its capitation program from 1999 to 2003 fiscal years. In-patient expenditure decreased by significantly by 27% under Ohio Medicaid program (28).

A comprehensive review of evidence by a policy research firm cited in NCLS briefs for state legislators on health cost containment and efficiencies indicated that Payment approaches involving risk-sharing with provider as the case of capitation are associated with lower service use and cost, compared with fee-for-service arrangements. The report also made reference to a 2008 article in 'the New England Journal of Medicine that reported a reduction in cost in experiments with capitation in commercial insured populations (18). In a study by Cole et.al in the year 1994 to assess the impact of PPM on health outcomes, by forming two groups in a psychiatric center and exposing them to two different payment methods. One group covered under the capitation system of payment and the other financed under fee-for -service. Results from these study indicated that

patients under the capitated group spent fewer days as compared to the control group and yet outcomes within the two groups shows no significant difference (29). Studies in Vietnam shows a reduction in hospitalization and shortened duration of services indicating apparent cost saving measures by the service providers under capitation. Results from a different study in Vietnam on the impact of hospital capitation payment shows that the providers reacted to this payment method by cutting cost. the total recurrent expenditure declined by an average of 5% on both OPD contacts and IPD admissions (30).

3.5 Potential Merits of Capitation System

Sharing of financial risk among the principal stakeholder (providers, schemes and subscribers), better provider-patient relationship and introduce managed competition for providers and choice for patients to increase the responsiveness of the health system are among the aims of bringing on board the capitation system of reimbursing provider under the NHIS of Ghana. Other major reasons that influenced the introduction of this policy includes; improving cost containment as a result of the galloping cost of claims, enhancing efficiency and effectiveness of health service through the rational use resources and also to address difficulties in forecasting and budgeting allocations for service providers. In addition to this, capitation is being introduced to curb some imbalances created by the G-DRG e.g. OPD supplier-induced demand and also to make claims processing simpler and easier for both purchaser and the service provider (5)(20).

An assessment of the expenditure to service providers and the National Health Insurance Scheme with regards to claims preparation and processing encourage the decision to go back and define a way of implementing the per capita payment system which was initially outlined for use in Ghana during the period when LI 1809 that came with Act 650 was drawn (20). The LI1809 made a provision in the NHIS law (Act 650) that implemented NHI in Ghana the institution of variety of payment methods including capitation. It made mention specifically per capita payment as one the ways of paying service providers under the NHIS to be considered for use. This payment reform (per capita payment) is been instituted to replace DRG for services and FFS for medicines at the primary care level but this other reimbursement for these services will be retained at specialist OPD clinics, Hospitals referrals and IPD services (20).

Table 2: Examples of Countries with Its Structural and Provider Payment Reforms

Country	Institutional structure reforms	Provider payment reforms
Bulgaria	The NHIF was established as the single health purchaser in 1999 as an independent public entity under a tripartite (employers, state, insured persons) governance arrangement.	PHC providers are paid a per capita payment by the NHIF, with remote region supplement. Outpatient specialty care and laboratories are paid on a fee-for-service basis. Hospitals are paid through a case-based payment system.
Czech Republic	Since 1992, nine statutory insurance funds are the health purchasers. Each fund is managed by a director accountable to a supervisory board and a board of directors. The national insurance fund is governed by the Assembly of Representatives and a board of directors and supervisory board, with representatives of the ministries of finance, health and social affairs, the insured and employers.	PHC was first paid for according to salaries, then on a fee-for- service basis, and now is paid for by means of capitation. A bonus is paid in addition to the capitation rate if cost containment targets are met. Hospitals were paid according to a point-based fee-for-service system, which was changed in 1997 to a budget system to control costs, with a movement toward case-based payment.
Estonia	The EHIF was established in 2001 as a public independent legal body (replacing the Central Sickness Fund and 17 regional sickness funds) and is now a single purchaser. The EHIF is governed by a supervisory board with	PHC providers are paid by means of a combination of capitation, fee-for-service payments for preventive and other priority services, and a basic monthly allowance. Hospital payment was initially based on cost and volume contracts with the EHIF, based on a fee-for-service maximum price list, with a move toward case-based

	representatives of the state, employers and the insured	payment. As of 2008, hospitals receive 50% of their payment based on DRGs and 50% based on the fee-for-service calculation.
Lithuania	The SPF was introduced in 1992 as a single purchaser under the MOH in order to finance large hospitals (piloting). In 1996, the insurance system was expanded to involve all health care institutions. The SPF was allocated as government responsibility, and 10 TPFs were established. In 2003, the SPF again became subordinate to the MOH and the number of TPFs was reduced to 5, covering two counties each.	PHC providers are paid by a combination of capitation and fee-for-service payments for preventive and other priority services. Some elements of bonus payments for productivity and preventive indicators are being introduced (2008). Hospitals are paid through a case-based payment system (national case-mix), with ceilings on the volume of services. In 2008, the decision was made to shift to a DRG-based system in the next 2 to 3 years. Long-term cases (tuberculosis, psychiatry, nursing) are paid on a per diem basis.
Poland	In 1999 there were 16 regional sickness funds that purchased services for the insured population, and a separate purchaser for uniformed public employees. In 2003 the funds were merged into a single purchaser, the NHF, accountable to the government	PHC providers are paid by means of capitation, with age adjustments. With fragmented hospital payment systems previously in use, the NHF introduced a unified case-based payment system for hospitals that is based on department, length of stay and hospital level, rather than diagnosis.
Romania	42 DHIFs were established in 1998 to purchase health care services. In 2004, purchasing was centralized from district to national level. The	PHC providers are paid through a mix of capitation (70%) and fee-for-service payments (30%) for preventive and health promotion services. The DHIFs initially paid

	NHIF is governed by a Council of Administration that includes representatives of the government (Ministries of Health, Labor and Social Protection, and Finance), trade unions and employers' associations	hospitals according to historical budgets, then global budgets and then introduced a per diem system. In 2002, the DHIFs began piloting a case-based payment system with national roll-out beginning in 2004.
Latvia	In 1994 the SSF was established with a decentralized structure of 35 "local account funds" that acted as multiple purchasers. These funds were consolidated into 8 sickness funds in 1997. In 1998, the name of the SSF was changed to the SCHIA, under the MoH. The system changed again in 2004, with the 8 sickness funds converted to 5 territorial branches of the SCHIA.	PHC providers are paid by means of capitation, with supplements for family physicians with higher qualifications. Hospitals are paid on a per-case basis, combined with bed day payments. Hospital budgets are capped at the regional level, and a point system is in place to determine when individual hospitals exceed their expected volume and how to reimburse excess services

Source:(Kutzin, 2010)

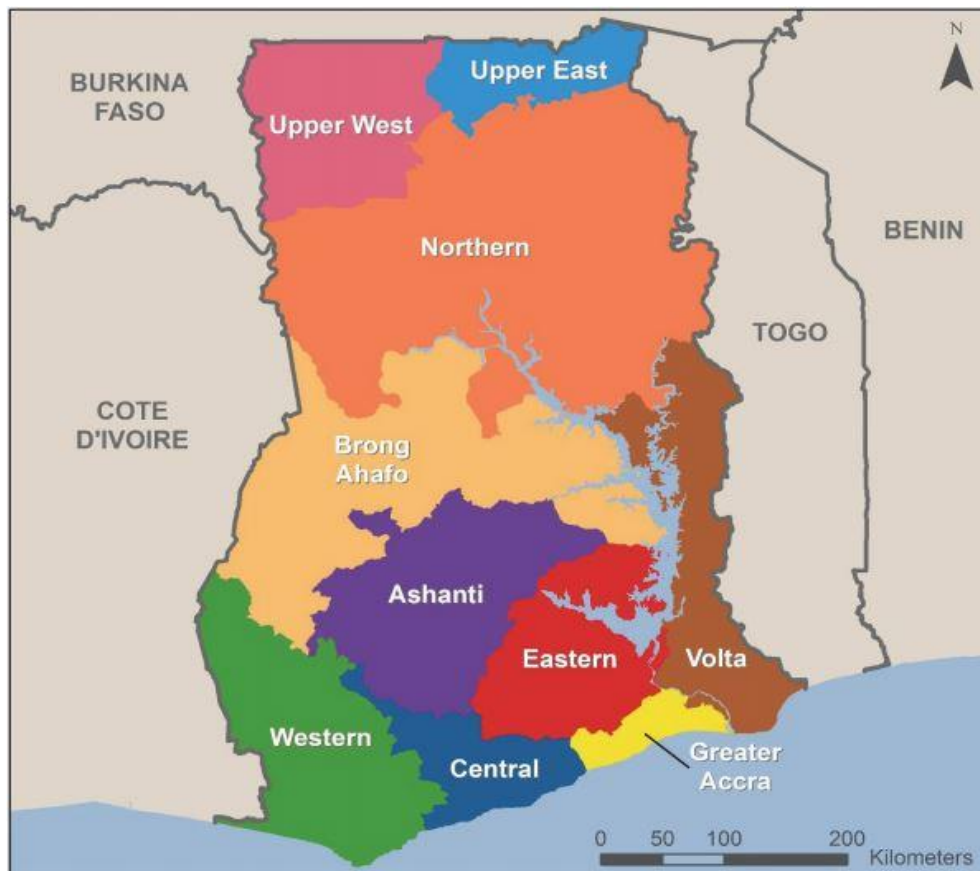
CHAPTER FOUR

4.0 Data and Methods

4.1 Background to The Study Area

The research will be done in two regions in Ghana, the Ashanti region and the Brong-Ahafo region which has twenty-seven 24 and nineteen 18 administrative districts respectively. The Ashanti region is chosen because capitation method was piloted there and it's fully operational. The Brong-Ahafo region was selected to represent the non-capitated or DRG group due to its proximity to the latter and also due to similar characteristics they share together. Since capitation has been the mode of payment used by NHIA since January 2012 in the Ashanti region, it means that pre/post comparisons could be made on cost and utilization for better evaluation of the program.

Figure 5: Map of Ghana showing all the 10 Administrative and Political Regions



Source:(GDHS, 2014)

The Authority has ten (10) Regional Offices in all the ten political regions of the country which report to the Head Office through the Membership & Regional Operations Directorate and are headed by Deputy Directors. The Regional Offices supervises the operations of District offices in the respective regions. The Authority has a total of 159 district offices & 5 registration centers which report to the Membership & Regional Operations Directorate through the Regional offices and are headed by Managers. Registration of members and renewal of membership of the scheme are done at the district offices(31). At end of year 2010, 34% of the total population totaling 8,163,714 were active members of the NHIS. Out of these, Ashanti region had the highest membership with over 1.5million active members followed by Brong-Ahafo Region with little over 1 million active members. Also, there was an increase in membership from 8,885,757 in 2012 to 10,145,196 in 2013. At the end of 2013, active membership of the Scheme stood at 38% of the national population. The 2013-year review witnessed an increase in NHIS enrolment. The total active membership of the Scheme increased from 8,227,823 in 2011 to 8,885,757 in 2012 representing an increase of approximately 8%. The high patronage expresses the confidence residents in Ghana have in the scheme(27).

The active subscriber base of the NHIS as at December 2014 was 10.5 million. Over 29 million attendances at healthcare facilities were made on account of the NHIS in 2014. Currently, 69% of NHIS registered subscribers are exempted from paying premiums. These include SSNIT contributors and pensioners, persons under 18 years old, persons 70 years old and above, pregnant women, indigents (the core poor), persons with mental health conditions, categories of disabled persons designated by the Minister responsible for Social Welfare, as well as beneficiaries of the Livelihood Empowerment Against Poverty Program (LEAP). These exempt categories count for close to 69% of registered members of the scheme, and as a consequence only an estimated 31% of members pay contributions, which contributions are also not at fixed actuarially determined rates(27).

Table 3: Total NHIA Active Membership in Ghana by Region

Region	New	Renewals	Active Membership	Percent of Total
Ashanti	472,903	1,242,485	1,715,388	17%
Brong Ahafo	405,088	948,752	1,353,840	13%
Central	382,595	484,341	866,936	9%
Eastern	337,097	773,024	1,110,121	11%
Greater Accra	565,281	714,976	1,280,257	13%
Northern	391,728	488,789	880,517	9%
Upper East	166,538	476,740	643,278	6%
Upper West	99,620	322,797	422,417	4%
Volta	326,243	584,326	910,569	9%
Western	297,477	664,396	961,873	9%
Total (National)	3,444,570	6,700,626	10,145,196	

Source: (NHIA, 2013).

Table 4: List of NHIA District Offices in The Two Regions (Groups)

GROUP	NUMBER of DISTRICT	DISTRICT Name	Group	NUMBER of DISTRICT	DISTRICT Name
Capitated / treatment group [ashanti Region]	24	Adansi North	Non-capitated / control group [brong-ahafo region]	18	Sene
		Adansi South			Wenchi
		Afigya Sekyere			Berekum
		Ahafo Ano North			Sunyani
		Ahafo Ano South			Atebubu
		Amansie Central			Kintampo south
		Amansie East			Asunafo north
		Amansie west			Tano south
		Asante akim north			Kintampo north
		Asante akim south			Jaman south
		Asokwa sub metro			Nkoranza
		Atwima mponua			Techiman
		Atwima nwabiagya			Asunafo south
		Bosomtwe			Tain
		Bantama			Dormaa
		Ejisu			Pru
		Ejura			asutifi
		Kwabre			
		Manhyia			
		Obuasi			
		Offinso			
		Sekyere east			
		Sekyere west subin			

Source:(NHIA, 2010)

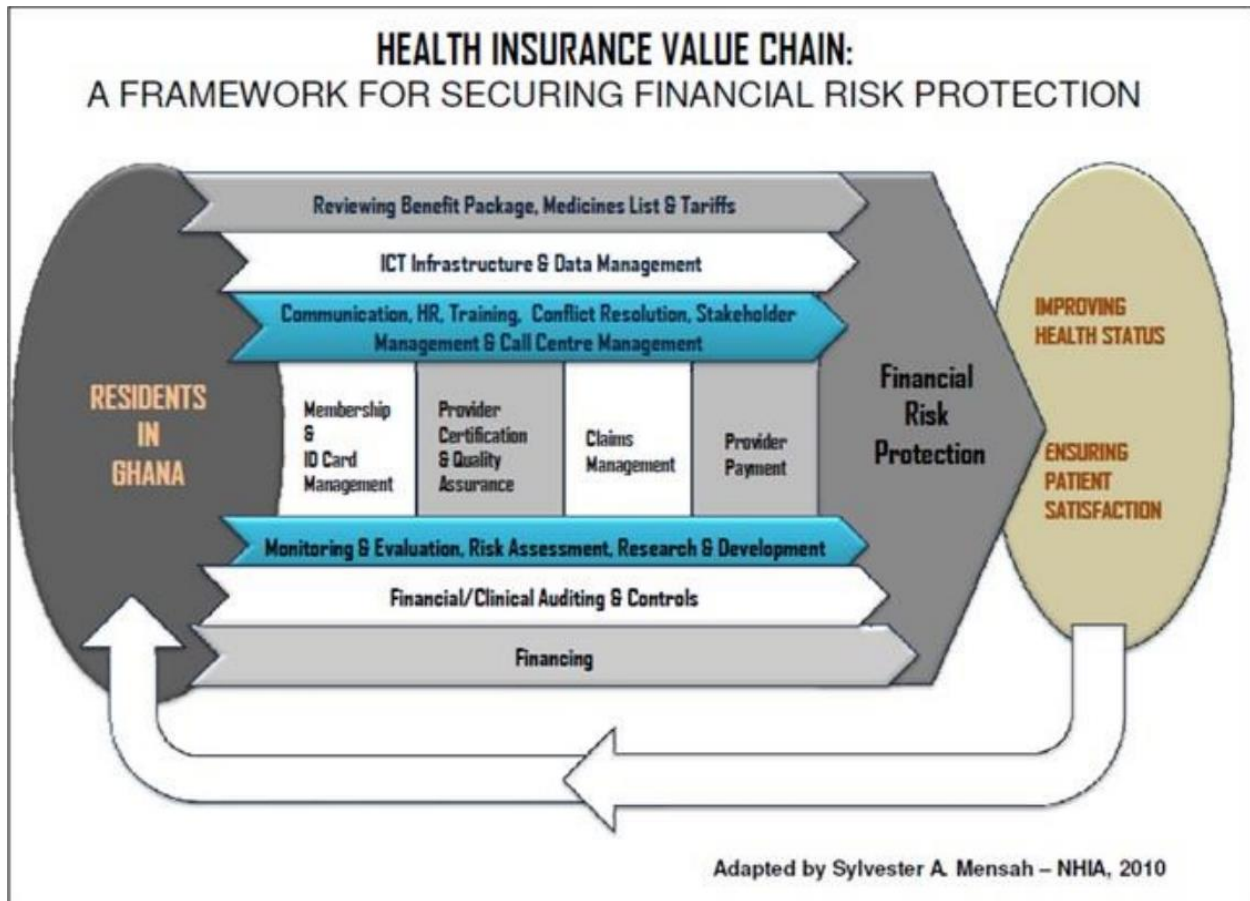
4.2 Profile of the National Health Insurance Authority

The National Health Insurance Authority (NHIA) is a statutory body mandated to secure the implementation of the National Health Insurance Scheme. It is responsible for the registration, licensing and regulation of health insurance schemes in the country. It also has role of supervising the operations of the District Health Insurance Schemes (DHIS), grant accreditation to healthcare providers and also monitors their performance for efficient and quality service delivery. It is responsible for managing the National Health Insurance Fund and devising mechanisms to ensure that indigents are adequately catered under the NHIS. It is estimated that 95% of disease conditions reported in Ghana is covered under the benefit package of the NHIS for its members without co-payment or quota on usage of any form (5).

4.2.1 NHIA Value Chain

The value chain captures a framework for securing financial risk protection, client satisfaction and improved health status for residents in Ghana. The value chain demonstrates how NHIA delivers value to subscribers through its primary and supporting activities. The primary activities are membership registration and ID card management, provider accreditation and quality assurance, claims management and provider payments. These are supported by secondary activities which include research and development, monitoring and evaluation, an ICT infrastructure and data management, financial and clinical audits, effective communication with internal and external publics, human resource management, conflict resolution and stakeholder management. Another key supporting activity is financing, which refers to how funds are mobilised from different sources to pay for services rendered under the NHIS services (16).

Figure 6: NHIA Value Chain



Source: (NHIA, 2011)

4.3 Utilization of Service

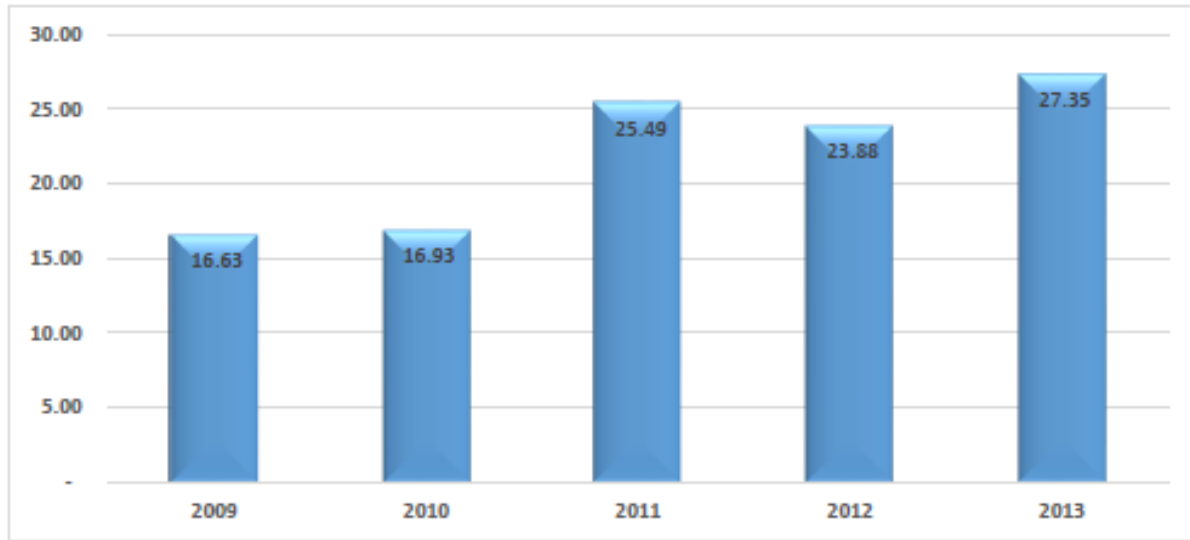
Financial sustainability of the scheme remains a big challenge to management given the increasing demand for health insurance and its consequent increase in health care service utilization. Other challenges identified include demand and supply side moral hazards, non-adherence to the gate keeper system and efficiency challenges. Apart from the variety of conditions captured in the NHIS benefit package under OPD services and IPD services; all emergency cases are catered for. Medical emergencies and surgical emergencies due to accidents, Pediatric, obstetric and gynecological emergencies including caesarean sections are covered under the NHIS package. Also, included this package is oral Health services, eye care services and maternity care. Rehabilitation other than physiotherapy, prosthesis, cosmetic surgeries and aesthetics treatment (20).

4.3.1 Outpatient Utilization Trend

The National Health Insurance Authority of Ghana takes care of Consultations including reviews for its insured clients for OPD contacts at the provider sites. The following conditions treated at outpatient setting for its members. laboratory investigations, x-rays, ultrasound scans for general and specialist out-patient services, opportunistic infections arising from HIV/AIDS treatment. In addition to the OPD services, drugs prescribe on the National Health Insurance Scheme Medicines List, traditional medicines approved by the Food and Drugs Board and prescribed by accredited medical and traditional medicine practitioners. Also, day surgical operations, including hernia repairs, incision and drainage of abscesses, and excision of lumps and hemorrhoidectomy. Physiotherapy at the out-patient department, Malaria, acute respiratory tract infection, diarrheal disease, skin disease and ulcers, hypertension, acute eye infection, rheumatism, anemia, intestinal worm's disorders, acute ear infection, typhoid fever, dental caries, diabetes mellitus, STIs, asthma and others (general and specialist) (5).

According to the NHIA report in 2013, outpatient usage raised by over twenty-eight-fold thus, from 0.6 million in 2005 to 16.9 million in the year 2010. The following year in 2011 witnessed an increase in OPD utilization again to 25.5million. However, in 2012, outpatient utilization decreased to 23.9 million and then again, an increase to 27.35million in the year 2013 as shown in figure 4. The decline in 2013 is partly attributable to the introduction of capitation payment system in the Ashanti region and as result culminated in the reduction in provider shopping and multiple visits to health care providers (5).

Figure 7: Outpatient Utilization Trend in Millions (2009-2013).



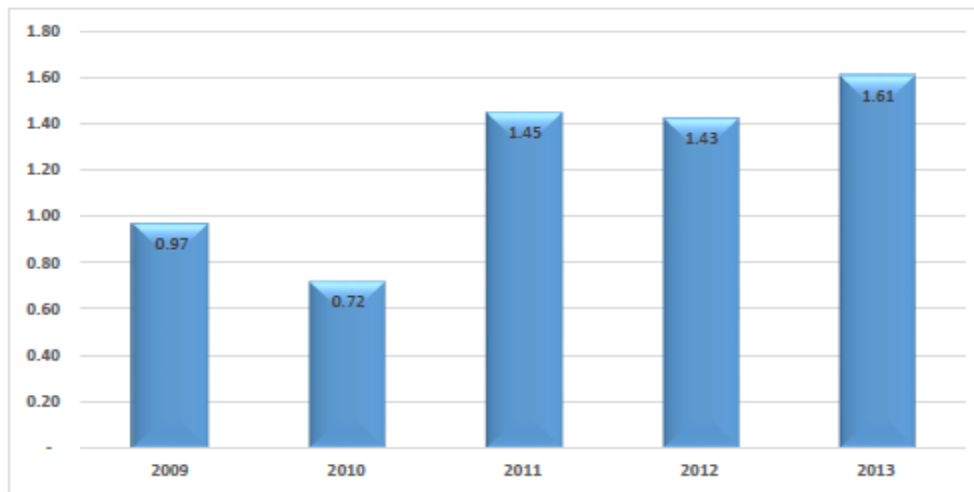
Source: (NHIA, 2013)

4.3.2 Inpatient Utilization Trend.

Services like investigations including laboratory investigations, x-rays and ultrasound scans for in-patient care, Processing for blood and blood products. Malaria, acute respiratory tract infection, diarrheal disease, skin disease and ulcers, hypertension, acute eye infection, rheumatism, anaemia, intestinal worm's disorders, acute ear infection, typhoid fever, dental caries, diabetes mellitus, STIs, asthma and in-patient physiotherapy are also taken care of under the NHIA benefit package. Also, captured within the package are Cervical and breast cancer treatment, diagnosis and complications from other cancers, e.g. anaemia or obstruction. Where available feeding, accommodation in the general ward and also Surgical operations, including appendicectomy(5).

Inpatient utilization increased over thirty-fold from 28,906 in 2005 to 973,524 in 2009 but dropped to 724,440 in 2010. The decline in utilization in 2010 could be because primary healthcare is becoming more efficient and as such enrollees were seeking early treatment which also led to a decline in inpatient cases. Another reason was that in previous years' detentions were being billed as inpatients instead of outpatient and behavioral change on the part of providers due to effective clinical audit. In 2012, inpatient admissions decreased to 1,428,192 from the previous year as shown in the figure below (5).

Figure 8: In-patient Utilization in Millions



Source: (NHIA, 2013)

4.4 Study Design

The study utilizes difference-in-difference design using quantitative method to assess the effects of capitation on cost and utilization of health services under the national health insurance platform in Ghana. This method was employed to make comparison of both cost of OPD services and OPD utilization rates across districts in the two groups. The units of observation which in this case is the administrative districts of the NHIA was intentionally selected base on convenience and certain characteristics that suits the study thus, those operating under capitation and those not operating under capitation which is respectively categories as capitated and non-capitated group. The period under consideration within which data will be collected is three years prior to and after the pilot of capitation which is 2010 to 2014 in the capitated group and same time frame will be considered for data collection in the non-capitated group. The active membership of the population in each district will be taking into consideration for an effective evaluation of the capitation program.

4.5 Study Population and Sampling Procedure

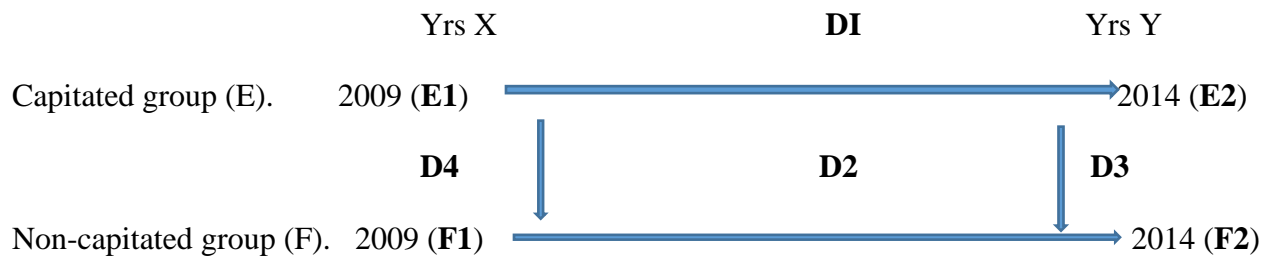
The study population included district offices of the National Health Insurance Authority in the Ashanti and Brong-Ahafo region of Ghana representing the capitated group and non-capitated

group respectively. In all, there are 43 administrative districts within the two regions under study. Convenience sampling method was employed in each of the two groups in the selection of districts to include in the study, thus one group affected by the capitation program and another not affected by it. Ashanti region was conveniently selected to represent the capitated group because it is currently the only region that has successfully piloted and implemented the capitation policy and also meets the goal of the experiment. Brong-Ahafo region was also conveniently chosen as the non-capitated group due to its close proximity to the capitated group and other similar characteristics. Each group will be divided into three strata, Urban, Peri-urban and Rural, under each stratum two administrative offices was selected to form the basis comparison between the two groups. Out of the 43 district offices in the study population, 12 district offices were used for study with six districts in each group. The sample size used for the study represents more than a quarter of the study population.

4.6 Data Collection and Data Analysis and Processing

To obtain reliable data and achieve the stated goal of the study, both primary and secondary sources was consulted. In each district, electronic data on utilization of services and cost of reimbursement prior to and after the implementation of capitation was solicited. Specifically, data on total active membership for each administrative district office, total utilization both out-patient and in-patient attendance, yearly cost of OPD drugs and services. Data collected from the district offices were reconciled with data from the NHIA head offices for accuracy and validity. Also, data from documentary sources such as NHIA reports from 2010 to 2014 and other research related to this study was considered.

Difference-in-difference technique was employed to analyze the data using IBM SPSS Statistics 23. The data was analyze based on the stated objectives of the study. Regression models was generated to help analyze and interpret the difference-in-difference effects. Empirical and theoretical analysis of the data collected was based on the literature review on capitation payment.



Two differences in outcomes were considered

- The change after versus before the implementation of the capitation program in the capitated group. $D1 = E2 - E1$
- The difference after and before the date of the implementation of capitation in the non-capitated group $D2 = F2 - F1$
- Beyond the background trend, the changes in outcome that are related to the implementation of capitation was evaluated from the difference in difference analysis as follows;

$$DID = (E2 - E1) - (F2 - F1)$$

4.7 Argument for DID Analysis

Difference-in-difference analysis was employed help in the estimation of the causal effect of the capitation health program being used in the Ashanti region of Ghana taking into consideration that the study is not a randomized control trial. Simply outcomes were observed for the two groups for two periods where one of the groups is exposed to a policy in the second period but not in the first period. On other hand the second group is not expose to the policy in either of the periods (32). To satisfy the assumption for validity of DID analysis, the two groups were compared. One group that is affected by the capitation program (Ashanti region) and another not exposed to the program (Brong-Ahafo region) representing the capitated group and non-capitated group respectively. The outcomes before and after the implementation of the program was considered in both groups. Additionally, it is very vital to establish that the changes in the expose group is because of the capitation program or policy and not because both groups were different from each other from the start. This is one key assumption upon which the difference-in-difference analysis was premise, that is to say both the capitated group and the non-capitated group have a common trend in the outcome variable before the implementation of the policy (33).

Regression was used to determine the policy impact on the two comparison groups and the two periods on cost of health care delivery and healthcare utilization as far as NHIA is concern. The general model used for the estimation was based on the table 5 below.

Table 5: Basis for Difference-In-Difference Estimates

Treat \ Post	Pre (2009 - 2011)	Post (2012 - 2014)
Non-Capitated group	$\bar{y}_{nc,pre}$	$\bar{y}_{nc,post}$
Capitated group	$\bar{y}_{c,pre}$	$\bar{y}_{c,post}$

$$DD = (\bar{y}_{c, post} - \bar{y}_{c, pre}) - (\bar{y}_{nc, post} - \bar{y}_{nc, pre})$$

The regression model used for our analysis takes into account the level of development of an area in finding out the effect of capitation of on health cost and utilization outcomes. The model tries to examine the differences in effect that the capitation policy has in the rural area, rural-urban and urban areas.

$$Y_{it} = \beta_0 + \beta_1 * Treat + \beta_2 * Post + \beta_3(Treat * Post) + d_1 * R + d_2 * RU$$

Y_{it} :

Outcome variable (dependent variable).

Treat

- Ashanti (Capitated group) = 1
- B/A (Non-capitated group) = 0

Post:

- 2012-2014 (Post-Exposer Period) = 1
- 2009-2011 (Pre-Exposer Period) = 0

Treat.Post:

Capitation = interaction between Treat and Post (variable of interest)

- Ashanti Region (2012-2014) = 1
- Ashanti Region (2009-2011) = 0
- Brong-Ahafo (2012-2014) = 0
- Brong-Ahafo (2009-2011) = 0

R: Dummy variable

- R= 1 if Rural area,
- R = 0 if otherwise

RU: Dummy variable

- RU=1 if Rural-Urban area,
- RU=0 if otherwise

4.8 Outcome Variables

Most often changes in provider reimbursement methods are employed by policy makers to achieve desired objectives. The nature and form of this payment method can be made available to the service provider either before or after the service has been rendered. The characterization associated with the payment mechanisms may have an influence on variety of outcomes pertaining financing models especially in social health insurance systems. Provider payment system creates incentives among purchaser, providers and even clients. Notable among them is the incentive to check out abuses regarding cost and consumption of services, which is mostly the resultant implication from service providers responds. The responds of health care providers to provider payment reforms are easily manifested when evaluated on Out-patient department (OPD) and In-patient(IPD) basis in terms of cost and utilizations of services. The introduction of capitation payment in Ghana is to arrest the galloping cost of services and the consumption of unnecessary services leading to wastage of resources which threatens the sustainability of the NHIS in the country. The fix sum used in per capita payment is typically defined on per member per month basis under the National Health Insurance Scheme platform in Ghana. This implies that cost/member and utilization/member will be a good estimate for the evaluation of the capitation policy. The NHIS capitation system in Ghana is designed to cater for primary care services which are typically provided at the OPD level, hence IPD services are not included in the capitation basket. Also, the cost of drugs for both OPD services and IPD services are still reimbursed under FFS using the NHIA medicines list which contains a list of drugs and prices associated with it. In conclusion, the cost of OPD services per member and OPD utilization per member remains the best choice as the major dependable variable used for this study.

Table 6: Descriptive Statistics of the Data on Outcome Variables

DESCRIPTIVE STATISTICS			
Outcome Variable		Ashanti Region (Capitated)	Brong.Ahafo Region (Non-capitated)
	<i>Year</i>	<i>Mean (Min. – Max.)</i>	<i>Mean (Min. – Max.)</i>
<i>Total utilization/member</i>	2010	2.5021 (1.02-6.21)	2.4514 (1.72-2.99)
	2011	4.0846 (1.89-7.05)	2.2148 (1.12-3.07)
	2012	2.5661 (0.84-4.69)	3.9937 (2.91-5.26)
	2013	2.4195 (0.90-4.69)	3.1463 (2.26-3.83)
	2014	2.5953 (.01-3.92)	3.1045 (2.19-5.20)
<i>OPD utilization/member</i>	2010	2.3819 (1.01-5.87)	2.3771 (1.69-2.88)
	2011	3.9140 (1.84-6.81)	2.1231 (1.07-2.94)
	2012	2.4283 (0.79-5.76)	3.8471 (2.80-4.95)
	2013	2.2754 (0.83-4.50)	3.0368 (2.20-3.66)
	2014	2.8144 (1.97-3.72)	3.0133 (2.16-4.98)
<i>Cost.OPD drug</i>	2010	23.4625 (9.95-57.83)	23.3445 (16.59-28.28)
	2011	32.9140 (15.40-56.93)	27.9083 (20.87-32.36)
	2012	24.2068 (7.54-52.26)	30.7739 (22.43-39.63)
	2013	38.8263 (15.39-74.93)	85.8870 (25.19-380.95)
	2014	50.4583 (21.48-97.24)	34.1667 (22.01-71.44)
<i>Cost.OPD.services</i>	2010	21.3491 (9.06-52.62)	20.1650 (14.33-24.43)
	2011	28.9195 (13.60-50.30)	26.1952 (19.59-30.37)
	2012	14.5849 (4.54-31.49)	32.2716 (23.52-41.55)
	2013	18.9307 (6.67-33.19)	31.5411 (21.03-52.82)
	2014	38.9224 (23.87-56.57)	28.7310 (2.62-71.54)

4.9 Ethical Reflection

Clearance was sought from the Department of Public Health and Nursing, NTNU. Notifications were given to regional directors of the National Health Insurance Authority in both Ashanti and Brong-Ahafo region of Ghana and also district managers were notified at the various districts under consideration.

Chapter Five

5.0 Results and Discussion

5.1 Introduction

From administrative districts, gathered data was examined to find out how OPD usage responded to the introduction of the capitation policy by National Health Insurance Authority. The impact of the policy on the OPD expenditure was also assessed, especially how the cost of OPD services responded to the capitation policy. With capitation being piloted in the Ashanti Region of Ghana since the year 2012 pending its national roll out, we took advantage of and used it as our capitated group and picked Brong-Ahafo as our control group. With lots of similar characteristics between the two groups in terms of culture geography etc., trend between the two groups was followed prior to and after the implementation of the policy to find the differences in trends between the two different time periods

Pre – post assessment was used to evaluate the change resulting from of the capitation implementation and its resultant outcome thus outcomes after implementation in comparison with those before the program started. Multiple regression technique was employed in this study to determine the effect of capitation on health cost and health utilization (visits) related indicators and also the relation of this effects in Rural, Rural-urban, and the Urban population in Ghana. The regression models account for the two groups, two time periods and the capitation policy.

5.1 Results

Considering the financial incentives that capitation provides, it is estimated that health care providers are likely to cut down cost. An assessment on the impact of the capitation policy on outcomes relating to cost and utilization was done while trying to find the disparity between capitated group and the non-capitated group. The total yearly expenditure of drugs per member and expenditure of services per member were used as the cost -related indicators. This examination was done on OPD basis for both cost and utilization of services. From the regression analysis utilized, results indicating a positive sign on capitation coefficient means that increase in this variable has a corresponding effect of the dependent variable in the model and likewise a negative sign predicts a decreasing effect on the dependent variable. The P-value of a particular parameter determines the significance level of its estimates. At 5% margin of error, the P- value should be or

below 0.05 for that parameter to be significant. In the models generated for this study, p – values should be or below 0.05 for a particular model to be significant at 5% error level

5.2 Capitation Impact of Cost

Table 6 shows estimates of capitation on the total cost of OPD services per member and OPD drugs cost per member and also takes into account the level of development of the districts used as our samples for the study. Generally, the introduction of capitation is expected to lead to a decline in the total OPD expenditure per member. The coefficient from the regression model generated shows an expected negative sign which meant there was a decrease in the total cost per member in the capitated group in comparison with the non-capitated group. Additionally, new regression models were generated to examine the individual indicators of total expenditure per member and how they independently reacted to the introduction of the capitation policy as shown in table 6

Table 7: Impact of Capitation on Cost of OPD Services

	COST OF SERVICES					
	OPD service/member		OPD drugs/member		Total Cost/member	
	<i>Coeff.</i>	<i>Sig.</i>	<i>Coeff.</i>	<i>Sig.</i>	<i>Coeff.</i>	<i>Sig.</i>
(Constant)	24.376	.000	37.453	.027	49.521	.000
Treat	1.954	.727	2.470	.901	4.425	.705
Post	7.668	.137	24.649	.177	11.799	.271
Treat.Post	-8.656	.233	-14.916	.561	-3.054	.840
Rural	-6.737	.124	-23.332	.133	-11.602	.203
RuralUrban	3.139	.469	-12.147	.430	9.459	.298
Adjusted R ²	.058		-.004		.041	

As expected the coefficient (-3.054) on capitation for the total cost of OPD per member indicated a negative sign from the regression model but did not show statistically significant effect (P >.05).

This outcome is substantiated by the 4.1% of the variability in Total OPD cost per member that is explained by the introduction of the capitation policy. Districts in the rural areas experience a decline of 11.602 units in total OPD cost per member compared to the districts in the urban areas. From table 6, further models were generated specifically on the indicators that culminates in the total OPD cost/member to evaluate their individual impact on the capitation policy. These indicators were yearly cost of OPD drugs per member and the yearly cost of OPD services per member.

5.2.1 Impact of Capitation on Cost Of OPD

Results from table 6 shows outcomes from multiple linear regression conducted to examine the impact of capitation on cost of OPD drugs. Although the cost of OPD drugs is not captured in the capitation basket, estimates show was a decrease in the OPD drug cost per member decreased in the capitated group in comparison with the control or non-capitated group. However, the resultant declined of 14.916 units demonstrated a statistically insignificant ($P > .05$) effect. Estimates from model generated in rural areas and the rural-urban areas show a decline in the cost of drug per member by (-23.332) and (-12.147) respectively as compared to urban areas.

The cost of OPD services which is solely reimbursed on per capita basis. Estimates from the coefficient of capitation from the linear regression under the cost of OPD services column shows an anticipated decrease in the cost outpatient services per member. From the table, the capitation coefficient indicated a decline by (-8.656) units per a member in the capitated group in comparison with the non-capitated group. However, the estimated difference from the linear regression model between the two groups is small and not statistically significant ($P > .05$). The regression model also demonstrated a decrease in the cost of OPD services per member by 6.737 units as compared to the urban area in the capitated group. This result is further emphasized with the minimal percentage of 5.6% of variability in the cost of OPD services per member that is explained by the capitation policy. From the results in the table 6, we fail to reject the claim of the null hypothesis that the trends between the two periods before and after the introduction of capitation has no different effect on the cost of services per member.

5.3 Capitation on Utilization of Health Service

Outpatient department attendance and in-patient department contact represent the two main indicators of health service utilization in Ghana. The introduction of capitation payment method is to incentivize health care providers to cut down the volume of service provided specifically at the outpatient department. From table 7, the coefficient of capitation shows an expected negative sign (-1.192) which represent estimates from the regression model. The negative sign means a decline in the total utilization per member which is attributed to the introduction of the capitation policy in the capitated group. The decline which is attributed capitation to shows a statistically significant level of (.006) which is also explains almost 35% of the variability in total utilization.

Although the capitation basket or benefits does not include in-patient services, a regression model was run on the in-patient utilization to find out if the introduction of capitation on OPD contacts had an indirect influence on IPD usage. The coefficient for inpatient department contacts per member shows a decline. The decrease in IPD contacts as indicated in the Table 7 is very small (-.007) and highly insignificant ($P > .05$) with just 13.4% of the variance accounted for indirectly by the capitation policy change.

Table 8: Effect of Capitation on Utilization of Health Services

	UTILIZATION OF HEALTH SERVICE					
	OUT.patient/member		IN.patient /member		Total.Util/member	
	<i>Coeff.</i>	<i>Sig.</i>	<i>Coeff.</i>	<i>Sig.</i>	<i>coefficient</i>	<i>significance</i>
(Constant)	1.771	.000	.072	.047	1.889	.000
Treat	1.000	.055	.070	.081	1.070	.057
Post	1.152	.018	.040	.279	1.192	.023
Treat.POST	-1.793	.007	-.007	.892	-1.192	.006
Rural	-.175	.648	-.026	.390	-.333	.419
RuralUrban	1.305	.001	.036	.221	1.345	.002
Adjusted R ²	.275		.134		.349	

5.3.1 Impact of Capitation on OPD Attendance

For outpatient department attendance per member, the capitation coefficient on utilization for the model indicated a predicted negative outcome which implies a decrease in the outpatient utilization per member in the capitation group thus by 1.793 units as compared to the non-capitated group. This estimated effect is strongly significant ($P = 0.007$) in the regression model as shown in Table 7. Results from this model shows that outpatient attendance increases significantly in the Rural-urban population by 1.305 units than in the urban population. An R^2 value of .275(27.5%) determines the proportion of variability in the outpatient attendance per member that is explained by the capitation program. With the significance level of .007 ($P < .05$), we can conclude that the trend in utilization between the capitated group and the non-capitated group are different during the period following the introduction of the capitation policy and then we reject the null hypothesis as far as utilization of OPD contacts per member is concerned.

5.4 Discussion

The goal behind this study is to fundamentally assess how per capita form of reimbursement affects the following provider payment outcomes; OPD utilization per member, cost of OPD drugs per member and cost of OPD services per member. The introduction of capitation as part of the provider payment mechanism by the National Health Insurance Authority(NHIA) of Ghana is meant reduce some of the current misuse of care and resultant costs escalation. Under the Diagnostic Related Grouping DRG system which hitherto to the introduction of capitation in the year 2012 was used in both groups to reimburse providers, a client can seek for care from several providers with the same condition and sometimes even on the same day. This can lead to unnecessary consumption of resources and medicines at each stage. This is a duplication and abuse of scarce staff and financial resources. By assigning subscribers to a PPP of their choosing it reduces fragmentation of care and introduces continuity of care for clients. It will also enable proper implementation of a referral system. This will ultimately curb unwarranted usage of services, hence lead to a decline in health service utilization. Per-capita as fundamentally defined and established globally, is likely an appropriate reimbursement system for the current objective of the NHIA to ensure efficiency in its operations especially in terms of cost management and utilization of health services.

The results from the study shows that factors like provider reimbursement mechanisms affects significantly utilization of health services in general. It was evidently clear that clients in the Ashanti region which represent the capitated group significantly consumed less health service per member after the introduction of capitation in 2012 as compared to the NHIA clients in Brong-Ahafo region (Non-capitated group) which is characterized by DRG/FFS. Before the policy change (2009-2011) the total utilization per member in both groups were experiencing similar trends of increasing health utilization service which also affect the total expenditure on health care.

The negative incentives that DRG created prior to the introduction of capitation in the year 2012 permitted this similar trend in provider utilization per member and expenditure between the two groups. Findings from the study indicates that the total number of outpatient contacts or attendance per member decreased in the capitated group as compared to the non-capitated group. The declined OPD contacts per member demonstrated a strongly significant effect. The respond by OPD utilization per member to the per capita payment method conforms with the incentives that capitation provides to cut down on unnecessary usage of services.

Almost all OPD services are inclusive in the capitation basket. Estimate from study shows the cost of OPD services declined in the capitated group during the post-capitation period. According to evidence from the study, even though the total OPD cost per member including cost of OPD service and drugs per member saw a declined within the period of interest, the change was not statistically significant. Estimates from the results reveal that health care providers within the district offices reacted to the per-capita payment system by cutting down cost. According to the unadjusted data used for the analysis on cost, the total OPD cost decreased in the capitated group in comparison with the non-capitated group within the policy exposure period (2012-2014). This findings from this study is in agreement with a Vietnamese study on the responds of hospitals to capitation payment in which they responded by cutting cost, hence a decrease in expenditure as a result of capitation policy. Although the cost of drugs per the capitation basket is not captured, OPD drug cost per member from our study also experience a declined in the capitated group during the post policy exposure period. The decline in OPD drug cost per member can be explained by incentive that capitation method permits in assigning one client to one health provider. This feature of the per capita payment serves as a check against provider shopping where clients visits several providers with the same condition and consumes medicines at each stage. Also, the normal scenario is that drugs are prescribe to patients after the provision of service either consultation,

diagnostics etc. By simple interpretation, a decline in cost of services will lead to a corresponding decrease cost of drugs.

Chapter six

6.0 Concluding Comments

6.1 Conclusion

In summary, findings have important empirical and policy implications. There is evidence to support that health care providers in the capitated group tended to have a minimal OPD attendance per member and also a comparatively decreasing cost of OPD services per member in comparison with the Non-capitated group. To maximize profit, health care providers paid under capitation are encouraged to invest public health education for clients enrolled with them. Health education if adhered to by subscribers will lead to a decrease in the prevalence of disease which will directly result in a decline in utilization of services. Also, due to the risk sharing characteristic of per capita form of payment, providers are more likely to be vigilant and expedient not to provide services to non-insured clients who visit their facility with the identity of an active card bearing member which was usually the case under the DRG mechanism. The issue of under provision of services by health providers to maximize profit is a well-known pitfall of the capitation method. The capitation system within the Ghana National Health Insurance has a built-in mechanism to check this shortfall. It gives enrollees the right to change their PPP if they are not content with the services provided. This built-in mechanism encourages health care providers to provide better services to satisfy their clients so as to keep their subscribers for fear of losing them to other facilities. How much a health provider is reimbursed under capitation in Ghana is dependent on the number of enrollees assigned to it. This implies that the greater the number of enrollees and the provider's capacity to keep them, the more money is paid to the provider. Indirectly per capita form of reimbursement allows competition among providers to entice enrollees. There is consistency of care with guaranteed follow-ups and appropriate referrals where necessary since each subscriber is tied to a particular provider who has access to the medical history of the subscriber.

6.2 Recommendation

Taking into account the implications of this study suggest that there is the need by policy makers in Ghana to consider how the decline in utilization and expenditure arising out of capitation will impact on the health outcomes of the enrollees. Further study should be conducted to assess if the decline in utilization and cost is because providers do not deliver less than the needed services to

enrollees under the capitation. Also, the Monitoring and Evaluation (M&E) department of the NHIA should be in position to constantly check and curtail the negative incentives that per capita payment system permits and that providers are fair to the list of services under the capitation basket.

6.3 Limitation of The Study

Currently Institutions in Ghana are not obliged to make available information to the general public on request because the propose Right to Information Law is still under consideration. Because of the difficulty associated data acquisition, the study could not use all data from the NHIA district offices as it was originally intended which was to have increased the sample size hence a more robust and valid results. One important limitations this study was that the data on the cost of OPD services was not adjusted for inflation which could have influence the results from the analysis.

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