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Comparative Study of Mortality Rate before and after Introduction of NHIS: A Case Study of Navrongo

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Abstract: The National Health Insurance Scheme (NHIS) was introduced in the year 2003 but became effective in 2005. The major aims of the insurance scheme was to make easy access to health care and also make health service delivery affordable to all people especially to the poor and the vulnerable groups in the society. The data for this research work was taken from the health information unit of War Memorial Hospital in the Kassena Nankana East District to research on the topic, a comparative study of mortality rate before and after the implementation of the insurance scheme. Secondary data before the introduction of the NHIS was taken from 2001 to 2004 and after NHIS was also taken from 2008 to 2011. The objectives of the comparative study was to assess whether there has been reduction in mortality rate after the implementation of the NHIS in the Kassena Nankana East District, to evaluate patients attendance before and after the introduction of the scheme and to again determine whether there is an association between the number of deaths and NHIS. In analysing the data, the t-test and chi square distribution were used to discover that, the NHIS has helped reduce mortality rate, increased patients' attendance and lastly, revealed that the mortality rate is dependent on NHIS which means that as many people continue to use NHIS, the mortality rate will continue to reduce in the years ahead.

Keywords: National Health Insurance Scheme (NHIS), Mortality Rate, Patient, Health Care Delivery, Cash and Carry System.

1. Introduction

Mortality rate is the ratio of death to the population of the area expressed per 1000 per year. Death is a sad event that can befall anyone at any time. Countries with very high fertility rates are normally reported to have the highest mortality rate. Africa countries with poor health conditions and inadequate availability of medical care are often faced with high mortality rates in areas such as, maternal, infant and child mortality. The NHIS was designed to insure the national population for a comprehensive health care delivery at affordable cost to everyone especially the poor and the vulnerable groups in the country. It is also a prepaid where one can be attended at the hospital by health officers without them demanding for money for the service granted unless the patient request for extra health services that are not covered by the NHIS and this for some years have been able to reduce mortality rate over the years.

Good health boosts quality educational attainment, income and so reduces poverty. A country's economic development is closely interrelated with the health status of its population; the efficient and equitable health care system is therefore an important instrument in breaking the vicious cycle of poverty and ill health. Also, a country can highly be productive when its citizens, especially the active population, are strong and healthy. However, Ghana being a developing country is faced with challenges such as high poverty level and unemployment. Because of this, most Ghanaians especially the poor and the vulnerable in the society are not able to afford the cash and carry system of health delivery in the country. In some cases too, there can be a delay in patients seeking medical care because they have not enough money to pay their hospital bills. The cash and carry system resulted in many Ghanaians losing their loved ones untimely. It was a system which had no human face. There is empirical evidence that shows that, with the introduction of user fees there was a decrease in service utilization especially among the poor who were domiciled in the rural areas. You can therefore imagine what happened to an unconscious patient who was rushed to the hospital and had no money to pay for the health service. NHIS was therefore introduced in Ghana in 2003 to be able to address situations as mentioned above.

It is on this background that this paper attempts to make a comparative study on mortality rate before and after the NHIS was implemented in the country.

The objectives of this paper are:

- To assess whether there has been reduction in mortality rate after the implementation of the NHIS in the Kassena-Nankana East District.
- To evaluate patients' attendance before and after the NHIS.
- To determine whether the implementation of the NHIS has improved the general health status of the people.

- To determine whether there is an association between the number of death and NHIS.

Most developing countries are faced with issues such as; very high unemployment and poverty as well, which makes it difficult for some of their members to seek early health treatment from qualified health officers when the need arises. This may be due to the fact that, they do not have enough money to pay for their hospital bills. Also, the development of every country greatly depends on the health status of its members and this was one of the motives why the NHIS was implemented in this country. Since the NHIS covers about 95% of diseases reported at the hospital by patients, it has made it possible for the rich, the poor, and the sick to have access to the health care easily. A good number of researchers have carried out many researches to verify its impact on countries that have implemented the insurance scheme.

In Africa, the average number of live births per woman is 5 to 6 children. The actual number of pregnancies needed to produce this number of live births would be higher because not all pregnancies come to term and a number of infants are not able to survive. But countries with the highest rate of fertility also have the highest mortality rate such as maternal, infant, and child mortality.

2. History of NHIS

Germany is noted to have the world oldest NHIS through the world oldest universal health care system with origin dating back to Otto von Bismarck social legislation. It included bills such as the Health Insurance Bill of 1883, Accident Insurance Bill of 1884 and Old Age and Disability Insurance Bill of 1889. Britain under the National Insurance Act 1911 was the first to implement the NHIS which covered most employed persons and the financial dependents. The NHIS in 1948 was extended to all legal residents and later the NHIS was implemented by most countries after the Second World War purposely to make health delivery affordable to all.

2.1 NHIS in Ghana

The NHIS was formally introduced by former President, John Kuffuor in 2003 and formally launched in December 2004. It was made mandatory for all Ghanaians to be members. This idea was to aid in bridging the gap between the poor and the rich in terms of affordability of health service.

2.1.1. Types of NHIS in Ghana

There are three permissible types of NHIS which are operated in the country. These are;

- 1) District Mutual Health Scheme (DMHS)

The DMHS is a type of health insurance which is operational in every district in Ghana. Since it is a public scheme, any Ghanaian can be registered under DMHS. A number of mutual health organizations (MHO) were formed purposely to provide financial protection against potentially catastrophic cost of a limited range of inpatient services. One could also transfer his insurance policy after registering in his former district (x) and later move to a different district (y) without having to create a new insurance policy at his new place. Most people who are normally under this type of health insurance scheme are considered to be indigent. Indigents are classified as those people who

- Have no visible source of income
- Have no fixed abode
- Are not living with an employed person with a fixed abode
- Have no consistent source of support from another person

Ghanaian worker pays two and half percent of their social security contributions into this fund and the VAT rate in Ghana also have two and half percent component that goes into the fund. This means that the DMHS greatly depend on subsidies mostly received from National Health Insurance Authority (NHIA) which provide about 80-90% of their revenue.

2) The Private Commercial Health Insurance Scheme

This type of insurance scheme is operated by approved companies in the country. One can just walk into any of such companies and buy an insurance policy for himself and dependant(s) as well. It is not a public health insurance scheme and its members are expected to pay some money. The private commercial health insurance scheme does not receive subsidy from the national health insurance fund and it starts operating effectively when members pay a security deposit.

3) The Private Mutual Health Insurance Scheme

It is the last type of permissible health insurance in the country in which any group of people, being members of a church or social group come together and make contributions to cater for their health needs. This will provide services approved by the governing council of the scheme. The private mutual health insurance scheme is also not entitled to any subsidy from the national health insurance fund.

All the types of NHIS in Ghana are regulated by the National Health Insurance Council (NHIC).

2.1.2. *The premium of NHIS*

The enrollees pay different premiums ranging from GH¢7.20 and GH¢48 depending on the socioeconomic status. The extreme poor, children (those less than 18 years) whose parents are

enrolled, the elderly (>70 years), the indigents, pensioners under the social security scheme and pregnant women are exempted from paying the premium.

2.1.3. Service delivery system

Once you registered, you are given an Identity Card (ID) with which one can easily have access to the benefits of the NHIS. One can seek health care from any hospital in any part of the country. Health services are provided without asking patients to pay any money unless they ask for extra services that are not covered by NHIS. But rather their bills are then sent to their scheme providers (district, private scheme or mutual scheme) which then pay the money to the hospital. A valid NHIS can be used to purchase prescribed drugs at accredited pharmacies.

2.1.4 The benefits of the NHIS across the board

The Government came out with a minimum benefit package of diseases which every district-wide scheme was to cover. This package covered about 95% of diseases in Ghana. The NHIS is to assure a specified minimum health care benefit package to all Ghanaians at the point of service within five years following its implementation. Diseases covered included: Malaria, Diarrhea, Upper respiratory tract infection, Skin Diseases, Asthma and so on. However, all district-wide schemes were given the right under the law to organize their schemes to cover as many diseases and services as they desire, provided it was approved by the National Health Insurance Council. Certain diseases were however excluded from the benefit package because they were considered to be too expensive to treat. Therefore other arrangements had to be considered to enable people get these diseases treated. Diseases currently not covered are: Optical aids, Orthopedic aids, Beautification Surgery, Supply of AIDS drugs, treatment of Chronic Renal Failure etc are excluded in the insurance package. These diseases constitute only 5% of the total number of diseases that Ghanaians suffered from that are not included in the list.

The European Report on Development (2010) documented the effect of NHIS on antenatal care and its major objectives were to identify and treat problems during pregnancy. It was realized that, screening for complications and advice such as birth preparedness, place of delivery, and referral of mothers with complications to different hospitals happened during antenatal care visit. It was recommended that women without complications after birth normally have at least four antenatal care visits.

A research conducted in Ghana (September 2009) with the aim of finding out whether;

- There have been differences in the NHIS enrolment rate among different socio-economic groups?

- How the implementation of NHIS has affected health service utilization and out-of-pocket payments?

In a household survey that was carried out, it was realized that, the percentage of ill or injured respondents who sought health care from a trained medical provider in the two weeks before the survey nearly doubled from 37 percent at baseline to 70 percent between 2004 and 2007 respectively at end line. Those who reported self-treatment decreased significantly as did the proportion who sought care from an informal/traditional provider such as unqualified traditional healers. This means that, those who were enrolled into the insurance scheme had increased as compared to those who were not insured (88 percent versus 43 percent). In addition, the insured were half as likely to have visited unqualified traditional healers and less likely to use a medication at home.

It was also found that, the proportion of individuals hospitalized in the past 12 months decreased slightly between 2.4 percent to 1.9 percent in 2004 and 2007 respectively. It also reported that the decrease might be due to a number of factors, including

- Increased use of preventive care,
- Earlier care seeking for illness, or
- Increased use of preventive care associated with the NHIS.

The rate at which patients were detained at the hospital reduced because the average number of nights spent at the hospital decreased significantly during the study period, from 11 to 5 nights. There was also a significant decrease in the proportion of hospitalized individuals reporting that, they were kept at the hospital longer than medically necessary due to inability to pay their bills. At end line, none of the insured inpatients had been detained at the hospital for delayed payment as compared to those who were not insured.

In the household survey, it was observed that NHIS has some effect on out-of-pocket (OOP) expenditure because there was a substantial increase in care-seeking during the time when NHIS was implemented. The average expenditures for treatment among those who sought formal care decreased from 43,604 to 19,898 Cedis. In the end line sample, those covered by NHIS at the time of seeking health care paid 8,429 Cedis, compared to 56,760 Cedis for those who were uninsured. Also, expenditures among those who seek outpatient care in formal health facilities decreased substantially, from 21,293 Cedis in 2004 to 13,748 Cedis in 2007. At end line, the total OOP expenditures for patients covered under NHIS were about 20 percent of the amount paid by the uninsured.

A research on Ghana's National Health Insurance Scheme in the Context of the Health MDGs (Joseph M., Joseph R. and Christopher. M., 2009) with an objective to determine whether the NHIS was fulfilling its purpose in the context of the Millennium Development Goals (MDG). The propensity

Score Matching techniques were used in the research which documented that, NHIS women display a lower probability to experience an infant death or birth complications than non-members and also have higher probability to deliver at a hospital and with professional assistance. On the other hand non NHIS members have a low probability of receiving significantly more extensive postnatal care and prenatal checkups more often and their children are not better protected by vaccinations as compared to NHIS members.

It was concluded that non-members will continue to face very high payments for hospitalization resulting from birth complications with probably poor outcomes. Furthermore NHIS members have more preventive checkups and outpatient attendance, including prenatal care, the uninsured clearly have unmet health needs. Unfortunately, it is such unmet health needs that result in birth complications and maternal or foetal death. Uninsured women are more likely to delay seeking health care, develop obstetric complications and die (Mensah and Oppong, 2007). Increased enrolment in NHIS may produce better maternal and overall health outcomes for Ghanaians.

A research on the relationship between income and child health (Janet Currie and Wanchuan Lin, 2007) found the relationship between health of children from both poor and rich families. It was stated that about 17 percent of all U.S. children less than eighteen years live in poor families which means that poor children were more likely than others to suffer from many chronic conditions and injuries. Poor children of school age were reported to be absent during school days as a result of illness and injury than other children. Since injuries are the leading cause of death among children older than one year which is much common among children from poor homes as compared to those from high-income families.

The Ghana Ministry of Health (MOH 2008) also came out that the introduction of the NHIS have a positive and significant effect on members especially the pregnant women who are entitled to:

- a) Free formal antenatal check up before delivery
- b) High probability of delivery in a health centre
- c) The probability of being assisted during delivery by a trained health personal.

Mensah et al. (2010) also conducted a research and found that, the NHIS has yielded some verifiable positive impact. It was also documented that, women who were health insurance members were more likely to seek maternal health care and were less likely to experience complications during and after delivery

In a survey in Oyo State, Nigeria, Health Science Journal, Volume 5, Issue 2(Dr. A. G. Salaudeen, 2011) reported that, before the NHIS implementation, there used to be a total of 8,550 patients who were seen in the clinic while a total of 20,872 patients were seen after the implementation. The effects of national health insurance scheme on utilization of health services at

Unilorin Teaching Hospital staff clinic, Ilorin, Nigeria also indicated that females made more visits than males. . However, the lowest frequency of patients with the lowest number of patients was seen in the month of April that was before the commencement of NHIS. The sex distribution of patients before the NHIS was 3,079 males and 5,496 females and 7,849 males and 13,013 females after the implementation of NHIS.

It was reported in the same research (Dr. A. G. Salaudeen, 2011) that Baltimore, USA, also had their share of health insurance effect on utilization of health facilities. The emergency department reported that, health insurance has increased utilization of non-urgent use of the emergency department due to increase in the number of patients that were seen at the emergency department. In a similar report in Taiwan, the utilization of prenatal and intra-partum care services considerably increased upon the implementation of NHIS. For example women who received amniocentesis increased by 246% while women who did German measles test increased by 355%. Generally, the NHIS is found to increase the intensity of utilization.

Since the vision of NHIS was to secure universal coverage and access to adequate and affordable health care in order to improve the health status of all members, the NHIS has provided equal access to benefit packages of the health insurance scheme irrespective of one's socio-economic status. The NHIS has had a great impact on both the poor and the vulnerable in the society unlike in the past where patients were required to pay some money (cash and carry system) at every point of health service delivery. Health coverage of the poor has been a perennial concern in the world and that was why Ghana's NHIS has been structured to provide coverage for a significant population of the poor and vulnerable in the country. These include; insured parents with children under the age of 18 years, the elderly, pregnant women and indigent. These groups together constitute about 70% of the total registered membership of the NHIS.

Mostly, it is the poor and the venerable groups in the society that have great positive impact of the programmed. The NHIS is also seen as prepaid which one can be attended to at the hospital by health officers without them demanding for money for the service rendered unless the patient request for extra health services that are not covered by the NHIS.

The Institute of Medicine (IOM), (American journal of public health -2009) conducted a research to find the correlation between un-insurance and death. Their objective was to evaluate the relationship between un-insurance and death, they came out with an estimation that 18,314 Americans aged between 25 and 64 years die annually because of lack of health insurance, comparable to deaths that were caused by diabetes, stroke, or homicide in 2001 among age group of 25 to 64 years. It was noted that, insured Americans were more likely to obtain recommended screening and care for chronic

conditions and less likely to suffer undiagnosed chronic conditions. A conclusion was made that un-insurance was associated with high mortality.

In 2004, the Institute of Medicine (IOM) report observed "lack of health insurance causes roughly 18,000 unnecessary deaths every year in the United States." While a 2009 Harvard study estimated that 44,800 excess deaths occurred annually due to lack of health insurance. The six reports created by the Institute of Medicine (IOM) found that the principle consequences of un-insurance were that; Children and Adults without health insurance did not receive needed medical care; they also typically live in poorer health and die earlier than children or adults who have insurance. Health insurance provides access to affordable health care and it offers financial protection from unexpected health care costs. The financial stability of a whole family can be put at risk if only one person is uninsured and needs treatment for unexpected health care costs is high. The overall health status of a community can be adversely be affected by a higher percentage of uninsured people within the community.

It was estimated in 2008 that the uninsured would spend \$30 billion for healthcare and receive \$56 billion in uncompensated care, and that if everyone was covered by insurance scheme then the overall costs would increase by \$123 billion. Other studies projected that the uninsured would spend \$30 billion out-of-pocket and an estimated \$43 billion would be covered through various government subsidies including Medicare and Medicaid, leaving \$13 billion (less than 1% of annual spending) uncompensated. Uninsured Americans were less likely to have regular health care and use preventive services. They were also more likely to delay seeking health care, resulting in more medical crises, which are more expensive than ongoing treatment for such conditions as diabetes and high blood pressure. A study published in JAMA (Hadley and Jack, 2007) concluded that uninsured people were less likely than the insured to receive any medical care after an accidental injury or the onset of a new chronic condition. The uninsured with an injury were also twice as likely as those with insurance to have received none of the recommended follow-up care, and a similar pattern held for those with a new chronic condition. Uninsured patients are twice as likely to visit hospital emergency rooms as those with insurance; burdening a system meant for true emergencies with less-urgent care needs.

In 2008 researchers with the American Cancer Society found that individuals who lacked private insurance (including those covered by Medicaid) were more likely to be diagnosed with late-stage cancer than those who had such insurance. According to the RAND health insurance experiment, individuals with higher Coinsurance rates consumed less health care than those with lower rates. The experiment concluded that with less consumption of health care there were generally no loss in societal welfare but, for the poorer and sicker groups of people there were definitely negative effects. These

patients were forced to forgo necessary preventative care measures in order to save money leading to late diagnosis of easily treated diseases and more expensive procedures later.

The greatest expectation of Ghanaians about the NHIS was to reduce the burden of health care cost on households. The preceding discussions have established that access and use of health care facilities have increased with NHIS membership. The data shows that households registered with the NHIS benefit in terms of out-of-pocket (OOP) expenditures at health care facilities compared to those that are not registered.

A survey that was conducted on 2008 citizen's assessment of the NHIS (2009) by the national development planning commission and their goal was to ascertain from the citizens' perspective whether NHIS provides effective health care financing arrangements for the poor. It was reported that less than 30% of persons who had valid NHIS cards spend cash at health facilities. This was far less than the 90% of persons who were not registered with the scheme. Persons with NHIS valid cards may incur OOP because of two things:

- Illness that is not covered by the scheme (even though by regulation about 95% of all conditions are covered).
- Illness may involve other medications that are not covered by the scheme.

In the case of socio-economic status, considering days where the cash and carry system was used, the health need of an individual was only attended to after some payment was made even in emergency cases. The cash-and carry system was not helpful because, patients who did not have the ability to pay for medical services were turned away from hospitals only to die at home. A research in the year 2008 documented by Asante, F. and Aikins, M. 2008 that, nearly 87% of the poorest and 20% of households expressed great satisfaction with the NHIS for providing them affordable health care financing . Although both groups expressed a high degree of satisfaction that, the NHIS serves the needs of the poor more, in spite of the fact that a lot of the poor still remain outside the scheme because of what they perceive as high premium charges. Also, in their research, less than 50% of the respondents that were involved were from various income groups that were also satisfied with the emergency services they received under the NHIS. More than 76% of respondents in each regional level were either satisfied or very satisfied with the performance of the NHIS, except in Greater Accra Region where 58.8% indicated they were either satisfied or very satisfied with the performance of the scheme. It also recorded the highest proportion of respondents (31.5%) who were either dissatisfied or very dissatisfied with the performance of the scheme.

Households from all the regions were of the view that utilization of health resources was high, with Ashanti Region topping the list with 92% and Upper West Region being the least with 60.1%. More than 50% of the respondents from the Western, Central, Eastern, Ashanti, Brong Ahafo, and

Upper East Regions, were satisfied with virtually all the aspects of the NHIS including registration of members, accreditation of providers, provision of exemptions, collection of premium, procedure to access benefits and renewal of membership.

A study conducted in the Eastern Region documented (Asenso-Okyere *et al.*, 1997) that 80% of surveyed households had experienced difficulties in paying their medical bills at some stage in the past (Asenso-Okyere *et al.*, 1997). Sulzbach *et al.*, (2005) found the cost of basic outpatient care (including informal care and transportation) generally ranged between 2.20 GH¢ (\$1.60) and 2.90 GH¢ (\$2.07). This was high considering that the average Ghanaian earns less than 1.10 GH¢ a day (GLSS5). Moreover, higher level health care appears to be much more expensive. According to De Graft-Aikins (2007), controlling one case of diabetes cost between \$106 and \$638 per month in 2007. The monthly average salary of civil servants, who were at higher risk of diabetes, lay at \$213 in the same year (De Graft-Aikins, 2007).

There has been a rapid increase in the number of people registered with NHIS since its inception in 2003 and only those with valid ID cards were able to actually have access to NHIS benefits. Initially, ID cards were possessed by 6.8% of the population in 2005, but increased to 19.3% in 2006 (Government of Ghana, 2007). Member satisfaction with the scheme appears to be high. Asante and Aikins (2008) found that 97.2% of card carrying members surveyed were happy enough with the scheme and wanted to continue to be members of the scheme.

The introduction of the NHIS also appears to have increased utilisation of formal health care facilities which was one of the major goals of the scheme. Use of outpatient and inpatient department services almost doubled between 2005 and September 2007, according to the Ministry of Health (2008). This data appears to demonstrate that the introduction of the NHIS has been welcomed by a significant proportion of the Ghanaian population.

The objective of a research by the Women in Informal Employment; Globalizing and Organizing (WIEGO) Social Protection (Laura Alfes, 2009) was conducted to determine the general impact of the NHIS on informal workers, to identify the specific barriers that workers faced in accessing its services and also to determine whether the NHIS has created any sense of solidarity between formal and informal workers in Ghana. One feature of the NHIS was the way through the establishment of a system where formal workers, through the 2.5% SSNIT deductions, subsidise health insurance for informal workers. According to their research, the focus group sessions revealed that there was a generally positive feeling about the NHIS from the participants. It was mainly those who were actually card carrying members who felt the most positive about the scheme. This would seem to corroborate Asante and Aikins' (1998) when they also found that over 90% of card carrying members were satisfied enough with the NHIS.

It was also documented that, card carrying participants stated that, the NHIS has helped them to better care for themselves and their families' health by removing the financial barrier of out-of-pocket payments at the point of service. Two women spoke of the way in which the NHIS had allowed them to care for their sick children at a time when they were short of cash. One of the women felt she had benefitted from the NHIS which she could not have been able to afford during the cash and carry system. The scheme has also allowed some of the women to take better preventive care of their health by going for regular blood pressure checkups. This was a significant finding, considering the high levels of hypertension amongst Ghanaian women in Accra (De Graft Aikins, 2007). Those who were not card carrying members were unsurprisingly far less positive about the NHIS. Although agreeing that the scheme was a very good idea in theory, and that it was much better than the cash and carry system.

In the 2010 annual report of the National Health Insurance Authority (NHIA), it was recorded that outpatient utilization has increased over twenty-eight fold from 0.6 million in 2005 to 16.9 million in the year 2010. 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 attributed to the following reasons;

- Members are seeking early treatment and thereby reducing inpatient cases.
- Primary healthcare is becoming more efficient.
- Detentions were being billed as inpatients in prior years instead of outpatient.
- Providers are changing their behaviour due to effective clinical audit.

The major successful story of NHIS is its high patronage by residents in Ghana. As at 31st December 2010, over 18 million Ghanaians had subscribed to the scheme out of which over 8 million representing 34% of the population are active card bearers. The high patronage attests to the fact that Ghanaians have embraced the NHIS as the preferred health care financing mechanism.

No wonder Ghana received an award from the United Nations Development Programme (UNDP) and the World Health Organization (WHO) for showing leadership in health insurance implementation within the southern countries. It was in recognition of Ghana's leadership role in providing financial risk protection against cost of health care services for its population, especially the poor and vulnerable in the society.

With free maternal health care was introduced in July 2008 to help Ghana meet Millennium Development Goals (MDG) 4 and 5. Under this programme pregnant women were to receive free medical care. As at the end of 2010, a cumulative total of 1,394,445 pregnant women (PW) representing 7.7% of total number registered had subscribed to the scheme.

According to a research on evaluating the effects of the National Health Insurance Act (Sarah, Bertha and Gertrude 2005) which aim was to evaluate the effects of the National Health Insurance Act in Ghana. The districts Nkoranza and Offinso were considered in their research. Inpatient findings were based on household members who were hospitalized in the past year, and inpatients discharged from one of the selected hospitals during their study period. Malaria was the most frequently cited reason for hospitalization.

Reproductive health, surgery, and respiratory problems were also reported with some frequency. In their research again, the majority of respondents were women. Insured inpatients from both surveys spent a median of five nights in the hospital, compared to seven nights for uninsured in the household survey, and four nights for uninsured in the patient exit survey.

It was recorded that some hospitals detained inpatients due to inability to pay their bills while this was not a problem for insured patients. A significant number of uninsured patients were affected by this practice (20 percent and 15 percent of uninsured in the household and patient exit surveys respectively). This was primarily an issue in mission hospitals, and resulted in patients staying an additional three nights on average. Contrary to the outpatient findings, insured patients were significantly more likely to report satisfaction with the inpatient health care they received more than the uninsured.

Whereas insurance membership had little effect on out-of-pocket payments for outpatient care, enrolment in insurance resulted in lower payments for inpatient care. For both of their surveys, uninsured respondents living in districts with CBHIs paid the most for inpatient health care. Insured household respondents paid an average of 59,000 Cedis, compared to 491,000 Cedis for uninsured patients. The differential between insured and uninsured respondents in the patient exit survey was even greater than the average payment for insured patients which was 15,000 Cedis, compared to 349,000 Cedis for uninsured patients. On the same survey (Sarah, Bertha and Gertrude 2005), the majority of women in both samples received at least four prenatal consultations, the standard of care for Ghana. Most women received prenatal care from a nurse or midwife, and insured women more frequently sought this care from the private rather than the public sector. It was documented that, among women in the household survey, one-third delivered at home, although this was less common among insured women. The majority of women (80 percent) had a delivery attended by nurses or midwives, although insured women were significantly more likely to deliver with a physician. The most obvious difference in delivery patterns among insured and uninsured women was the rate of caesarean deliveries. It was reported that insured women in Nkoranza had twice the rate of caesareans than uninsured women in the same district, and five times the rate of women in Offinso.

Comparing average prenatal and delivery payments among women in the household sample, insured women paid much less for delivery care, 71,000 Cedis, compared to 178,000 Cedis for uninsured women in Nkoranza. Insured women in the patient exit survey also paid significantly less than their uninsured counterparts. Their survey also showed that insurance membership offers significant protection for women in both surveys and uninsured household respondents paid nearly 10 times more for inpatient care than insured respondents whereas uninsured patient exit respondents paid 13 to 23 times more than their insured counterparts. Insured household pregnant respondents paid 2.5 times less for delivery care than uninsured women and insured patient exit respondents paid 3–5 times less than uninsured respondents. A research was conducted in Nigeria which purpose was to empirically examine the impact of NHIS in Cross River State. It was documented in the research (December 2010) that in 2005 only 48 and 35 percents of the children within the ages of zero-to-one year old were fully immunized against tuberculosis and measles respectively. Between 1998 and 2005, 28 percent of the children within the ages of 5 years who suffered from diarrhoea received adequate treatment. Between 1997 and 2005 only 35 percent of births in Nigeria were attended by skilled health personnel. Furthermore, between 2000 and 2004, only 28 percent of Nigerians in every 100,000 persons had access to physicians (UNICEF, 2006; World Bank, 2007; UNDP, 2008). The health situation in the country shows that only 39 percent in 1990 and 44 percent of Nigerians in 2004 have access to improved sanitation. It was reported that in 1990/92 and 2002/04, 13 percent and 9 percent of Nigerians were undernourished respectively (UNDP, 2008). Factors that impede quality health care delivery in Nigeria include; inability for patients to pay for healthcare services (Sanusi & Awe, 2009), gender bias due to religious or culture beliefs (NCBI, 2009) and inequality in the distribution of healthcare facilities between urban and rural areas (Omoruan, Bamidele & Philips, 2009).

The American Journal of Scientific Research (2010) had a report on awareness and perception of NHIS among radiographers in South East Nigeria. Their study was conducted to assess the knowledge and attitude towards the scheme among radiographers in South East, Nigeria.

According to the American Journal of Scientific Research (2010) conducted by the Radiographers however showed positive attitude towards the scheme. They agreed that NHIS is capable of improving healthcare delivery in Nigeria and admitted their willingness to participate in the scheme. Onuekwusi et al (1998) further maintained that successful implementation of the NHIS to a large extent depends on the perception and attitude of the healthcare providers. In their earlier work done to access the awareness and perception of NHIS among Nigerian healthcare professional, it was reported that one year after the launching of the NHIS, Nigerian healthcare professionals who were major stake holders in the programme have grossly inadequate knowledge of the rudimentary principle of the operation of a social health insurance scheme, Onuekwusi et al (1998). In a related work done to

assess the perception of NHIS among healthcare consumers, the report shows that 65% of the respondents have received treatment from registered healthcare providers under the NHIS programme. Their analysis of the attitude of the radiographers towards the scheme showed that the radiographers agreed that NHIS was capable of improving healthcare delivery in Nigeria. These findings were in accord with the findings of Osuorji (2006) where more than 90% admitted their belief in the programme's ability to improve healthcare delivery in Nigeria and the radiographers would not want the programme to be discontinued. They concluded that, equity in the provision of healthcare is very important particularly to alleviate the suffering of the masses that lack adequate access to basic and quality healthcare services. It was in recognition of this that the Federal Government of Nigeria established the National Health Insurance Scheme (NHIS).

Healthcare professionals' knowledge and attitude towards the scheme is important to the successful implementation, since they influence both the quality and cost of healthcare through their influence on the nature and quality of treatment required. Another research on the effects of the National Health Insurance Scheme in Ghana in March 2011 which used the variation over time and enrolment induced by the National Health Insurance to assess the impact of the Scheme in Ghana. Evidence on how the National Health Insurance Scheme affected the utilization of health care services and out-of-pocket expenses were presented. It reported, access to health insurance is expected to reduce out-of-pocket health expenses (Xu et al., 2003; Chaudhury and Roy, 2008). Uninsured households needed to devote a larger part of their budget in fixing their health problems, i.e. spending on healthcare, which divert resources (Gertler and Gruber, 2002; Chetty and Looney, 2006). Also the health insurance might have opposite effect on health (Goldman et al. 2007; Miller et al. 2009; Barros 2009). On the other hand, utilization of healthcare services might increase and there might be changes to the quality of care as well as to the quantity of care. Thirdly, health shocks might diminish the capacity of the household to generate income because, if a household member is not healthy enough to work and a better health insurance leads to better health, then NHIS might cushion households against this labor productivity channel (Currie and Madrian, 2005)

3. Materials and Methodology

3.1. Study Area

The area of study is Kassena-Nankana East District in the Upper East Region. Navrongo is in the north east of Ghana, beside the Burkina Faso border. It Coordinates: 10°53'5"N 1°5'25"W. It is the capital of Kassena-Nankana East District – which is within the Upper East Region of Ghana. The people of Navrongo are a mixture of Nankani speakers from Zecco in what is now Burkina Faso, and

Kassena Kasem speakers from Tielebe (also in Bukina Faso). The Kassena arrived first in the area, whilst the Nankani arrived later after experiencing pressure from Mossi expansion. The population is now split fairly between the Kassena and the Nankani speakers. Majority of them are Christians and a few them are Muslims and Traditionalist.

4. Data Presentation and Analysis of Results

Data obtained from the hospital were analyzed by using the t-test to assess the secondary data in order to determine the significance impact of the NHIS on mortality rate before and after it was implemented in the Kassena-Nankana East District. Besides that, bar and pie charts as well as graphs will be used to show the difference in mortality rate and also help check the attendance of patients before and after the NHIS. The secondary data that was taken from the health information unit was analyzed and interoperated.

Table 1 is the presentation of mortality rate before the NHIS was implemented in the district. According to the table, both the total number of deaths and mortality rate continue to increase each year. The data taken from the year 2001 to 2004 indicated 465 being the highest number death recorded before the NHIS out of a total number of 6764 patients’ visit to the hospital.

Table 1: Mortality rate before NHIS

	2001		2002		2003		2004	
Months	Deaths	Rates	Deaths	Rates	Deaths	Rates	Deaths	Rates
Jan	30	5.29	24	3.95	31	5.64	37	6.58
Feb	21	4.64	29	3.90	30	6.25	39	8.67
Mar	14	2.52	27	5.31	34	6.00	40	5.90
Apr	25	6.85	31	6.65	31	4.87	37	6.24
May	15	4.05	26	3.76	32	5.18	39	5.55
Jun	31	8.05	23	5.18	34	4.46	38	7.10
Jul	27	6.84	28	4.80	33	9.32	42	9.88
Aug	30	3.77	32	5.14	35	7.03	35	5.09
Sep	33	4.13	25	3.57	34	6.09	39	7.77
Oct	25	4.46	30	5.52	30	6.17	37	6.92
Nov	28	3.29	33	4.76	37	7.58	42	7.42
Dec	30	5.0	37	6.28	39	5.61	40	7.58
Totals	309	58.54	345	58.82	400	74.20	465	84.70

Source; War Memorial Hospital, Navrongo. (2012)

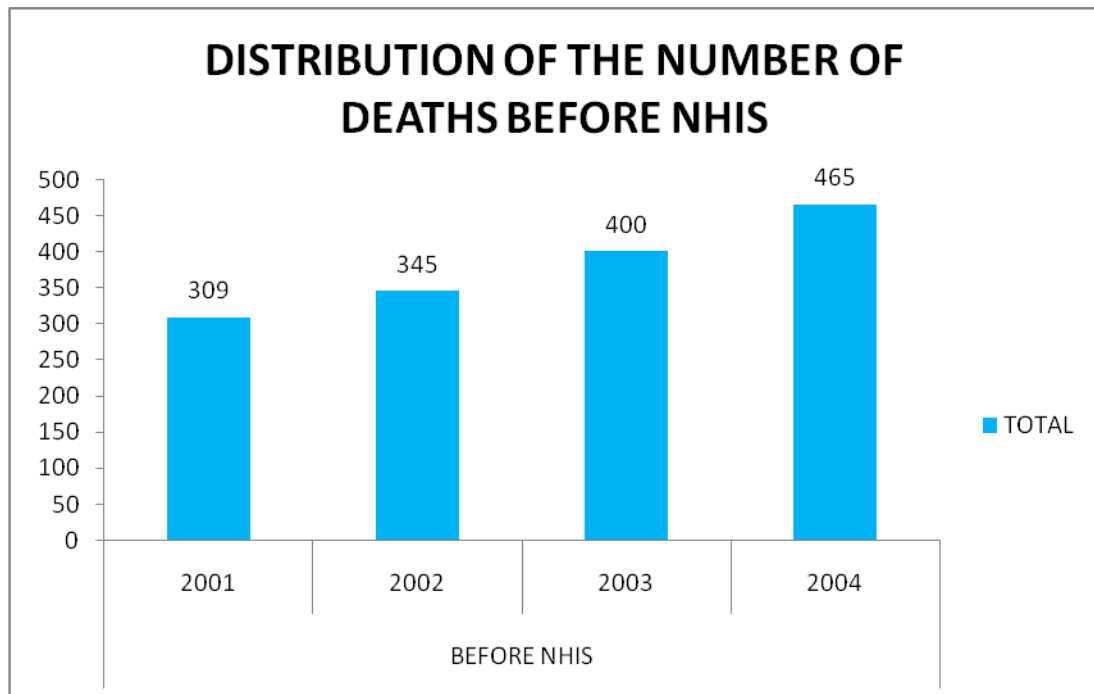


Fig. 1: Distribution of the number of deaths before NHIS from 2001 - 2004

Figure 1 shows a clear picture of what happened in four years (2001-2004) before the insurance scheme was effective in the district. This means that many people are likely to die as we move from one year to the other. Also, the mortality rate continue increase because during the cash and carry system where the health needs of the people were only attended to after some money have been paid to the health officers before they are treated. The system turned so many patients away that reported sick at the hospital and did not have enough money to pay.

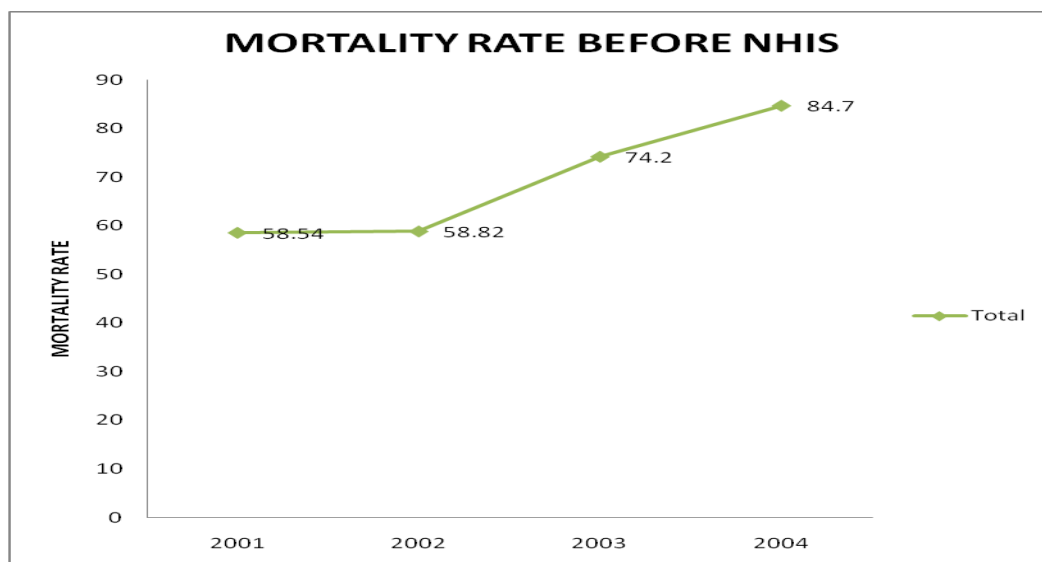


Fig. 2: Mortality rate before NHI from 2001 - 2004

Before the NHIS, the cash and carry system was used in which patients were only treated after some payments were made. From the diagram the mortality rate increased each year as some patients died at the hospital because they do not have enough money to pay to the health officers before health service was administered to them. The hospital also recorded high mortality rate because most patients who do not have enough money for treatment practice self medication and only report at the hospital when the sickness is so serious only to meet their untimely death.

Table 2: Mortality rate after NHIS

	2008		2009		2010		2011	
Months	Deaths	Rates	Deaths	Rates	Deaths	Rates	Deaths	Rates
Jan	17	2.15	20	2.88	17	1.81	16	2.32
Feb	15	2.23	19	3.05	14	1.94	14	2.54
Mar	18	2.62	12	2.11	18	2.21	12	1.68
Apr	16	2.75	17	3.31	12	1.78	13	1.76
May	14	2.69	14	2.99	13	1.63	18	2.66
Jun	15	2.72	13	2.96	20	2.56	14	2.08
Jul	18	2.57	12	1.98	12	1.33	16	2.00
Aug	15	1.59	18	2.34	15	1.68	19	2.01
Sep	16	1.86	15	1.68	11	1.09	12	1.23
Oct	19	1.90	18	1.93	17	1.74	14	1.32
Nov	17	2.19	16	2.29	16	2.13	16	1.68
Dec	15	2.50	15	2.60	19	2.36	15	1.65
Totals	195	27.77	189	30.12	182	20.32	179	22.83

Source; War Memorial Hospital, Navrongo. (2012)

Table 2 consists of mortality rate after the implementation of NHIS with the year 2009 recording the largest mortality rate within the four years of study after the scheme which was from 2008 to 2011. By comparison, it is realized that the mortality rate for each month decreased as compared to the death rate before the NHIS. This could be due to the fact that as more education was done on NHIS many people took advantage of the scheme.

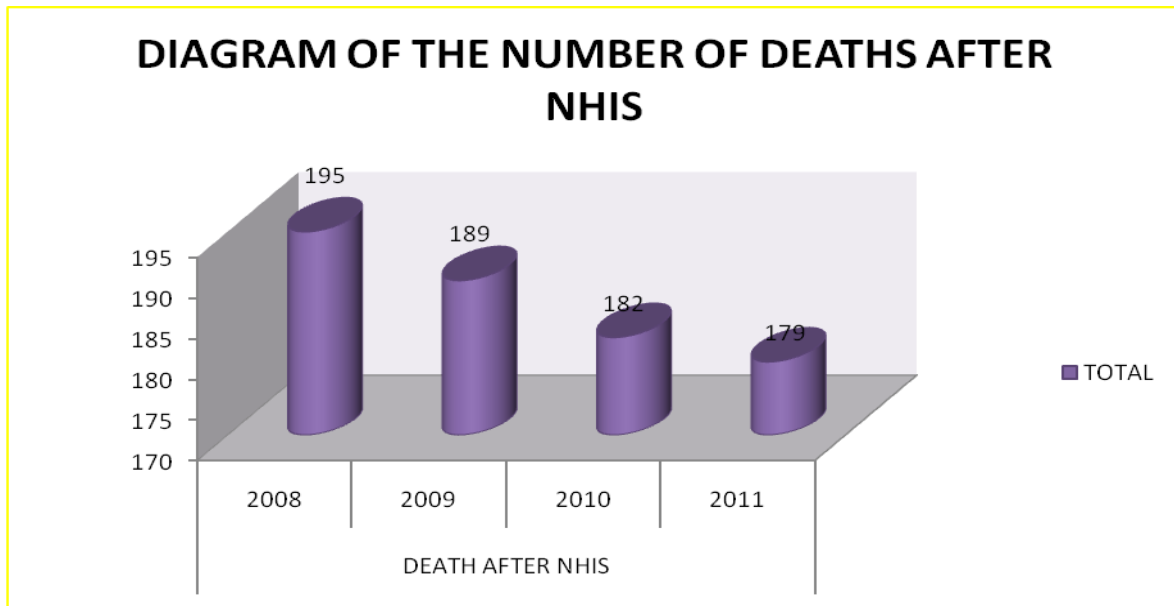


Fig. 3: Number of deaths after NHIS from 2008 – 2011.

Fig 3 is a presentation of the number of deaths after the NHIS shows that there have been a great positive impact on the lives of people as the number of deaths will continue to reduce. The highest number of deaths was recorded was 195 in 2008 and the lowest was recorded in the year 2011 as 179.

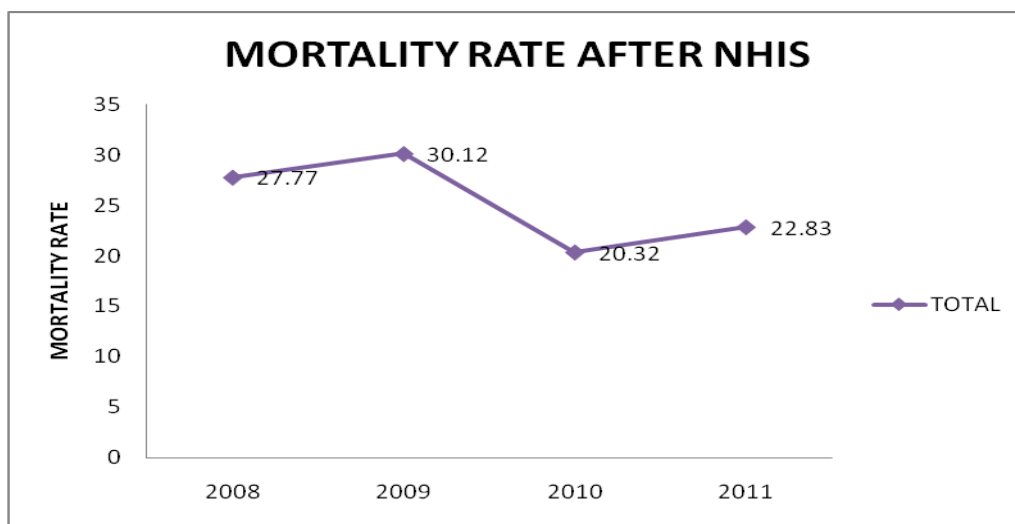


Fig. 4: Mortality rate after NHIS from 2008 – 2011.

After the NHIS was implemented, the hospital recorded a mortality rate of 27.77% in the year 2008 which sharply increased to 30.12% in 2009. The death rate later decreased in 2010 to 20.32% and increased slightly to 22.83% in 2011. This means that more lives can be saved through the use of the NHIS in the years ahead.

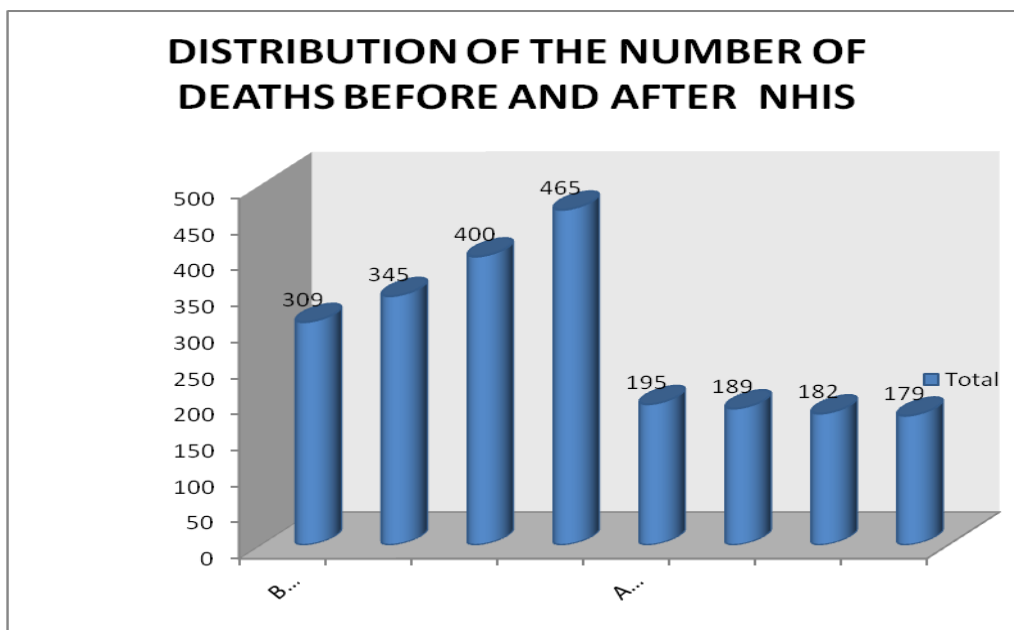


Fig. 5: Number of deaths before and after NHIS

After comparing the two data, it was realized that number of deaths recorded at the hospital were high but some years after the NHIS was implemented, the number of deaths begun reducing. This means that as majority of the people continue to take advantage of the scheme, more lives will be save and it indirectly implies that the insurance scheme is a good thing that when properly monitored and financed can further reduce mortality rate in the years ahead.

Table 3: Patients attendance before NHIS

	2001	2002	2003	2004
Months	Attendance	Attendance	Attendance	Attendance
Jan	567	608	550	562
Feb	453	744	480	450
Mar	555	584	566	678
Apr	365	466	636	593
May	370	692	618	703
Jun	385	444	762	535
Jul	395	583	354	425
Aug	795	623	498	687
Sep	800	701	558	502
Oct	560	543	486	535
Nov	850	694	488	566
Dec	600	580	695	528
Totals	6895	7271	6691	6764

Source; War Memorial Hospital, Navrongo. (2012)

Table 3 gives a summary of patients’ attendance. The number of patients that visited the hospital from 2001 to 2004 was 27,621. By observation, the hospital had the highest patients visit in the month of November (850) in 2001 but the overall highest patients ‘attendance was recorded in the year 2002 (7271).

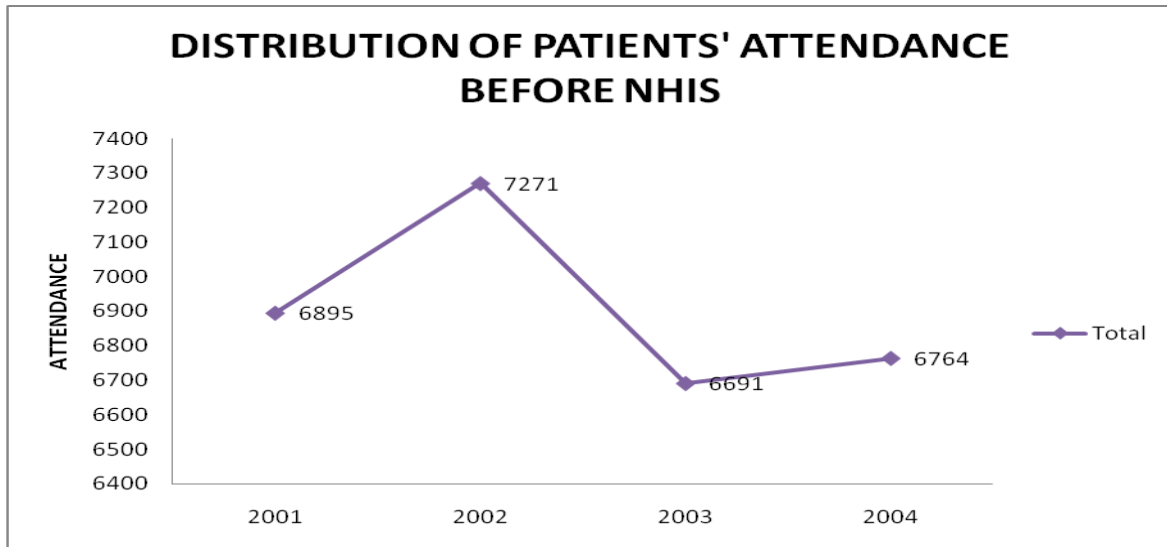


Fig. 6: Patients’ attendance before NHIS from 2001 - 2004

From Fig 6, 2001, the hospital recorded 6895 patients who visited the hospital which later increased to 7271 in the year 2002. The patients’ attendance sharply reduced to 6691 and increased slightly to 2004.

Table 4: Patients attendance after NHIS

	2008	2009	2010	2011
Months	Attendance	Attendance	Attendance	Attendance
Jan	792	694	938	690
Feb	672	621	720	552
Mar	688	570	813	715
Apr	581	513	674	739
May	520	468	796	677
Jun	552	439	782	673
Jul	701	605	904	800
Aug	942	770	895	947
Sep	858	892	1005	977
Oct	998	935	976	1061
Nov	775	700	751	955
Dec	601	577	804	909
Totals	8680	7784	10,058	9695

Source; War Memorial Hospital, Navrongo. (2012)

Table 4 contains the number of patients who visited the hospital. However, the year 2010 had the highest number of patients' attendance. Thus, many patients visited the hospital which had a positive impact on the mortality rate after the NHIS was fully implemented by reducing the death rates.

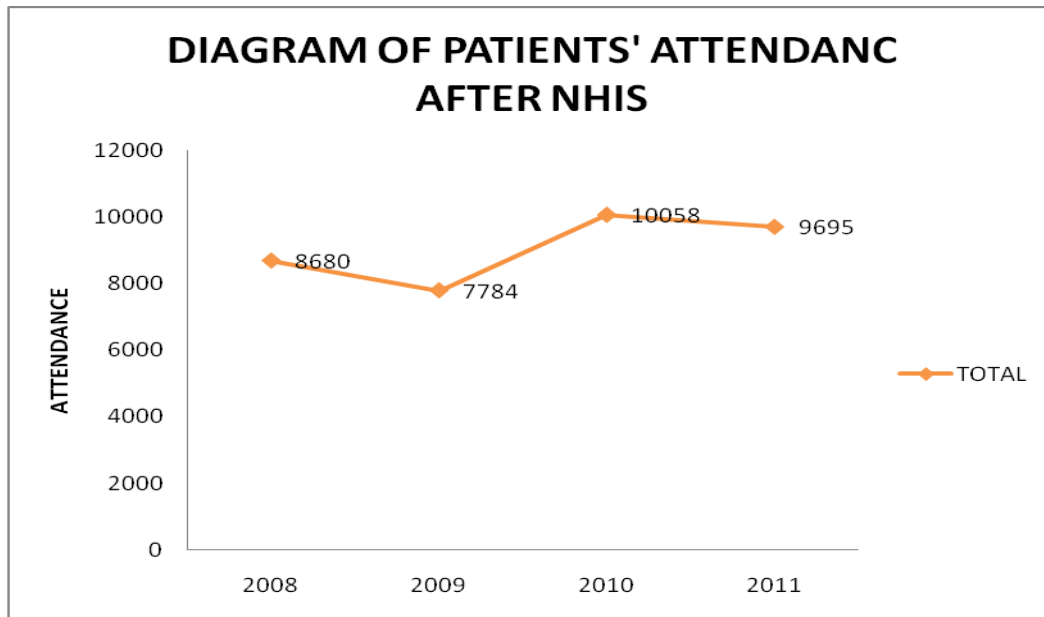


Fig. 7: Patients' attendance after NHIS

Some years after the NHIS became effective in the Kassena Nankana East District, in 2008, the hospital recorded 8680 patients' visits which later decreased to 7784 in the year 2009. However, the highest patients' visits within the four years of study (2008-2011) was the year 2010 which had 10058 but slightly decreased to 9695 in 2011.

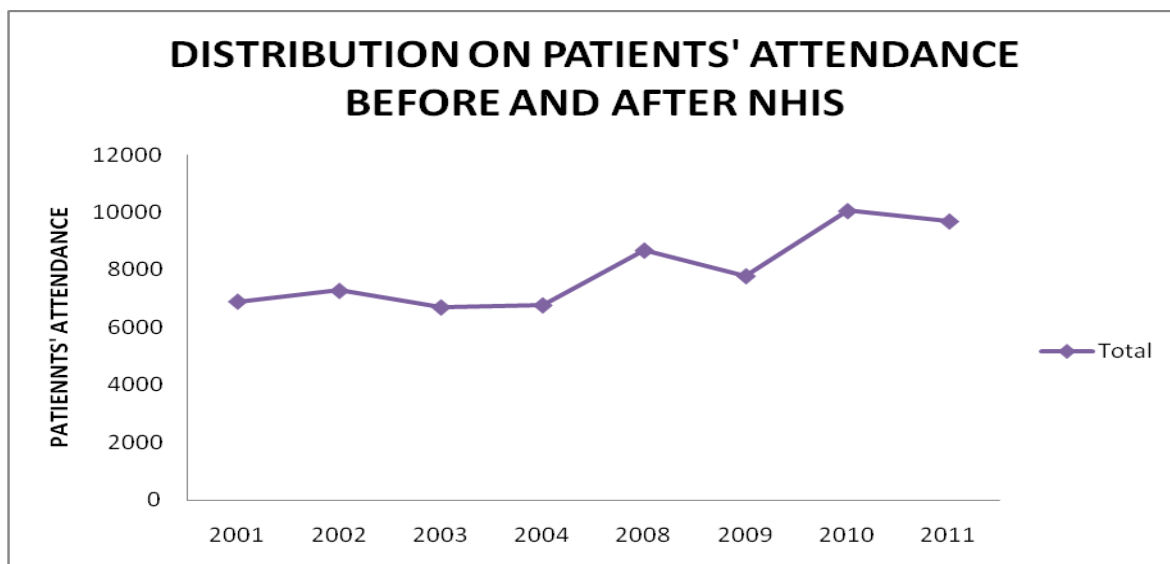


Fig. 8: Patients' attendance before and after NHIS

The diagram in Fig 8 shows the relationship between patients’ visits to the hospital before and after the scheme was implemented. Comparing the two attendances, one can say that the attendance after the NHIS was higher than before NHIS. The increased in patients visit could be due to some factors that the insurance scheme took care of. Some of which included; easy access to health care and free health treatment at the point of service delivery.

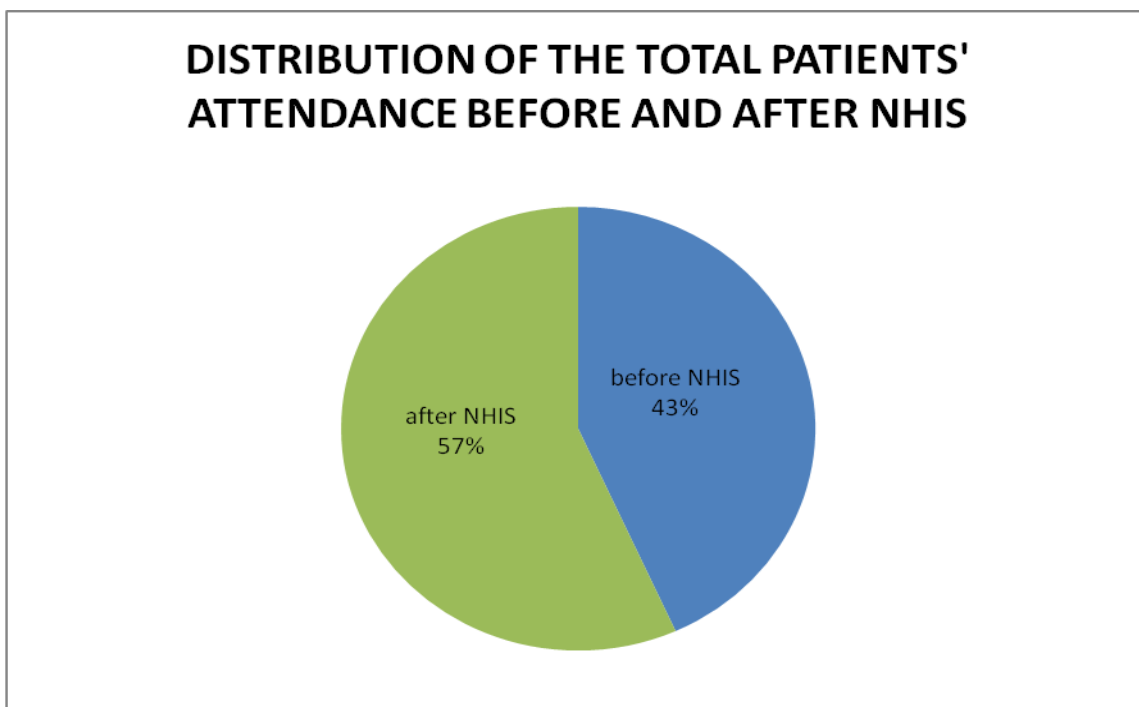


Fig. 9: Patients’ attendance before and after NHIS

The pie chart in Figure 9 summaries the total patients’ attendance before and after the introduction of the NHIS, the hospital recorded 57% visits after the scheme was introduced and 43% before the NHIS. Patients’ attendance has increased by 14% because health care was made affordable to all people and patients will prefer to seek health care at the hospital than to go to unqualified health officers for treatment. Increase in patients’ attendance also means that, the habits of practicing self medication at their various homes by patients were reduced as they take advantage of the scheme and seek treatment from doctors.

Considering fig 10, the mortality rate before and after the NHIS clearly shows that, NHIS has helped reduce mortality rate in the Kassena Nankana East District. Before the scheme the hospital reported 27% mortality rate and 73% was recorded after the scheme was implemented. There was a high reduction of 46% and this means that, more lives can be saved through the use of the scheme.

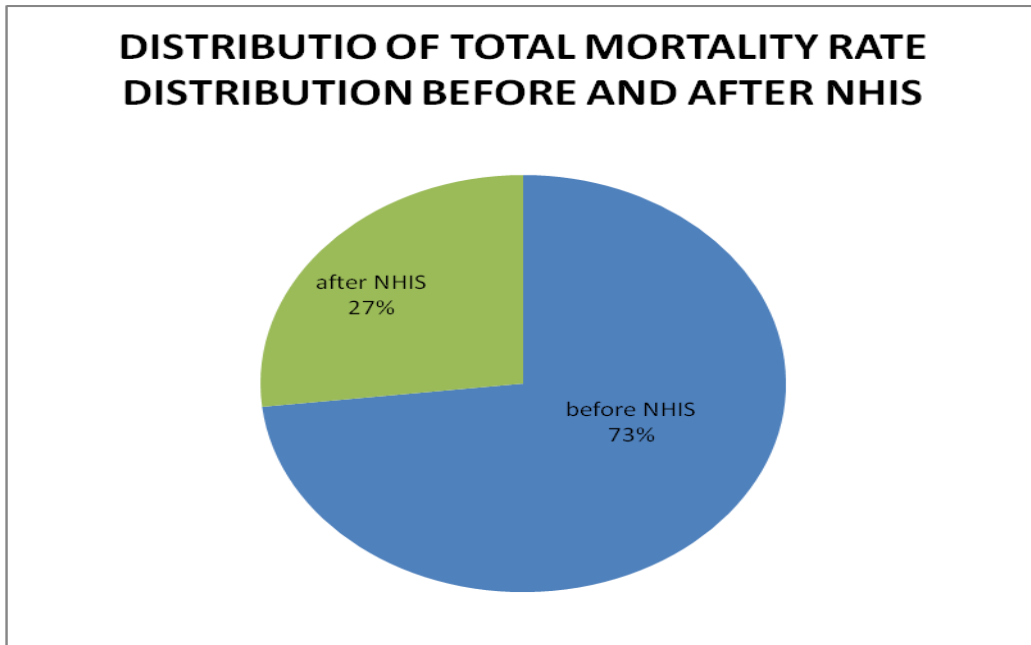


Fig. 10: Total Mortality rate before and after NHIS

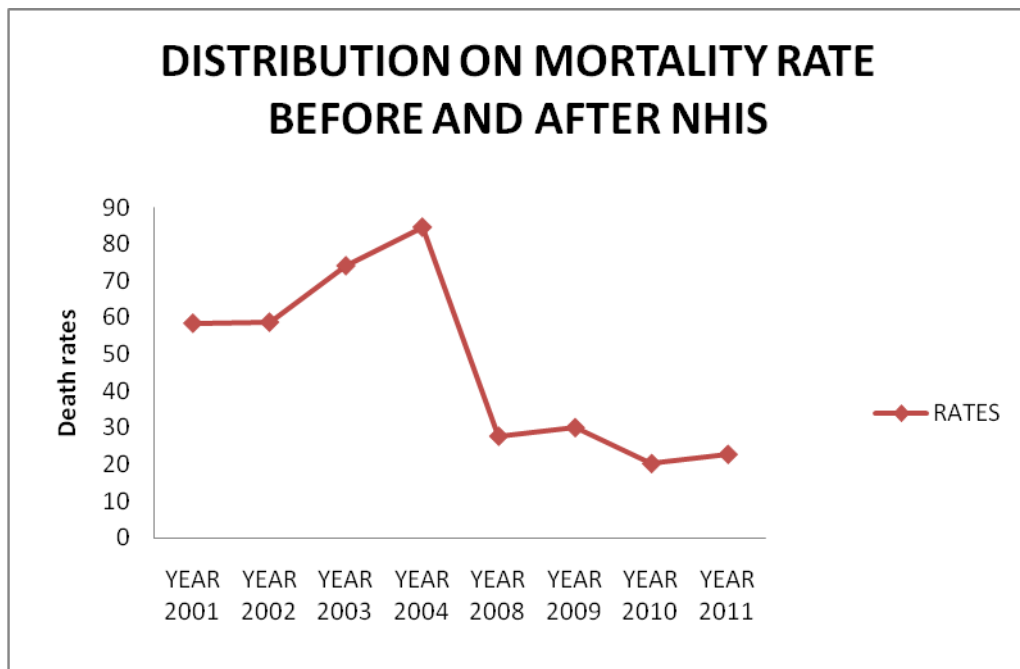


Fig. 11: Mortality rate before and after NHIS from 2001 – 2011.

Fig 11 shows the mortality rate recorded at the hospital. According to the graph, mortality rate decreased after the health insurance scheme was implemented and it is more likely to record lesser mortality rate in the years ahead when people continue use the NHIS.

5. Further Analysis of Findings

The paired samples test output provides the results of a t-test comparing the means of the variables (mortality before and after the NHIS). The significant t-test indicates that there is difference between the two variables. It also contains the upper and lower bounds of 95% confidence interval around the difference between the two means.

5.1. Interpretation of the Dependent t-test Analysis

From the paired sample statistics, the mean death before the NHIS was 24.5208 whilst that of after the NHIS was also 15.7917. It appears that a high number of deaths occurred before the scheme was implemented in the Kassena Nankana East District. Let us consider the output of the paired sample test before I draw a conclusion.

In the paired sample test, I draw a conclusion using the probability value and the significant level. The probability value was (0.00) and that of the significant level was also 0.05 but because the probability value is less than the significant level indicates that the null hypothesis should be rejected. Hence I reject the null hypothesis, which is, there is no difference in the mortality rate before and after the introduction of the NHIS.

Using chi square distribution:

We can use the following hypothesis system:

H₀: The number of death is independent on the NHIS

H₁: The number of death is not independent on the NHIS

Table 4. 5 Computation of the chi square test statistic

	1	2	3	4	TOTAL
BEFORE NHIS	309	345	400	465	1519
AFTER NHIS	195	189	182	179	745
TOTAL	504	534	582	644	2264

$$X^2 = X^2_{\alpha,df}$$

Where $\alpha = 0.05$

And $df = (r-1)*(c-1)$

But $r =$ total row

$C =$ total column

$R = 2$ and $c = 4$

$$\text{And } df = (2-1)*(4-1)$$

$$X_{cal}^2 = 17.4585$$

Since X^2 is less than X_{cal}^2 we reject the null hypothesis.

In conclusion, the number of death is dependent on NHIS.

5.2. Discussion of the Findings

The analysis of the data obtained from the health information unit (War Memorial Hospital) indicated that less number of deaths was recorded after the introduction of the NHIS because its members with active health insurance cards need not go through the stress of paying money at every point of health delivery. Active health insurance cards used by patients to seek health care or buy prescribed drugs from accredited pharmacies have their bills sent to the scheme provider who then pays the money to the hospitals patients were attended to.

The NHIS has provided equal access to benefit package irrespective of one's socio-economic status and financial risks of illness are equally shared among all members under the scheme. The NHIS which also covers about 95% of diseases had a great impact on its members which has made it possible for some poor and vulnerable groups in the society to recover from some diseases that they would have easily died because they do not have enough money to seek proper health care at the hospital. High increase of patients' attendance and low mortality rate indicate that most people are now aware of the scheme and are taking advantage of the scheme by visiting the hospital when the need arises. One of the reasons why the NHIS was implemented was to help reduce Out-Of-Pocket (OOP) among all people especially for the Kassena Nankana East District. By the introduction of the NHIS in Navrongo it has made it possible to;

- Reduce mortality rate
- Increase patients' attendance
- Improve the health status of the people of Navrongo especially those under the scheme.

The high number of patients' attendance and low death rate signifies that there has been a significant decrease in self treatment and increased in seeking of informal health care. From the result of the comparative study, one can also say that, the NHIS has really come to serve as a cushion to many because it does offer household income protection and they need not spend much on members that fall sick. Which means that, most of the poor, the insured parents with children less than 18 years, the vulnerable and the pregnant women are protected from untimely death.

Considering the Chi square, since the null hypothesis was rejected it means that there is an association between the number of death and the NHIS. This is to also say that, the number of death is

dependent on NHIS and if many people use the insurance scheme then number of death recorded is more likely to reduce in years ahead.

6. Conclusion

The NHIS has helped reduce mortality rate, increased patients' attendance as shown from the study. It has also been revealed from the study that the mortality rate is dependent on NHIS which means that as many people continue to use NHIS, the mortality rate will continue to reduce in the years ahead. The NHIS has helped to improve the health status of the people of Navrongo especially those under the scheme.

7. Recommendations

The health insurance should be made free for children less than 18 years irrespective of their parents being NHIS members. Because most children out of no fault of theirs are born into poor families that cannot even afford three square meals a day how much more getting money to enrol into the scheme for their children to also take advantage of the insurance scheme.

Since the main purpose of the NHIS is to make access to health care easy and affordable to be able to reduce mortality rate can be achieved by establishing more hospitals and health centres in the various communities. This will also help reduce over utilisation of the existing health facilities as there will be an increase in patients visit in the few hospitals existing.

More education should be done on the scheme especially in rural areas. This will convince the people to know the importance of the health scheme and will encourage them to always keep an active insurance card. The exercise will not only increase patients' attendance but also decrease mortality rate.

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APPENDIX

Paired Samples Statistics on mortality rate before and after NHIS

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	BEFORE NHIS(2001-2004)	24.5208	48	4.83775	.69827
	AFTER MHIS(2008-2011)	15.7917	48	2.82058	.40712

Paired Samples Correlations on mortality rate before and after NHIS

		N	Correlation	Sig.
Pair 1	BEFORE NHIS(2001-2004) & AFTER MHIS(2008-2011)	48	.131	.374

Paired Samples Test On Mortality Rate Before And After NHIS

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	BEFORE NHIS(2001-2004) - AFTER MHIS(2008-2011)	8.72917	5.27031	.76070	7.19883	10.25950	11.475	47	.000