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AN EVALUATION OF THE EFFECTS OF THE NATIONAL HEALTH INSURANCE SCHEME IN GHANA



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CONTENTS

Acronyms	ix
Contributors	xi
Acknowledgments	xiii
Executive Summary	15
1. Background	1
1.1 Overview of Health Care Financing in Ghana	1
1.2 National Health Insurance in Ghana.....	1
1.2.1 History of the National Health Insurance Scheme	1
1.2.2 Function of the NHIS.....	2
1.3 Overview of NHIS Evaluation Study	2
2. Methodology	5
2.1 Research Questions	5
2.2 Study Design	5
2.3 Selection of Study Sites	6
2.4 Sample Selection	6
2.4.1 Household Survey.....	6
2.4.2 Patient Exit survey	7
2.5 Data Analysis.....	9
2.5.1 Household Survey.....	9
2.5.2 Patient Exit survey	9
2.6 Limitations	10
3. Description of Study Sites	11
4. Operation of NHIS at the District Level	13
4.1 Registration and Premium Structure	13
4.2 Exemptions from NHIS Premiums	15
4.3 Waiting Period for NHIS Benefits	16
4.4 Challenges for DMHIS.....	16
5. Description of Survey Samples	18
5.1 Household Survey.....	18
5.2 Patient Exit Survey.....	22
6. Enrollment in NHIS	24

7. Effects of NHIS Implementation on Utilization of Health Care	29
7.1 Effects on Utilization of Care for Recent Illness	29
7.2 Effects of NHIS Implementation on Hospitalization.....	32
7.3 Effects on Utilization of Maternal Care.....	34
8. Effects of NHIS Implementation on Out-Of-Pocket Expenditures for Health Care.....	37
8.1 Effects on Expenditures for Recent Illness or Injury: Household Survey	37
8.2 Effects on Expenditures for Outpatient Care: Patient Exit Survey	38
8.3 Effects on Expenditures for Inpatient Care	39
8.4 Effects on Expenditures for Maternal Care.....	41
9. Conclusions and POLICY IMPLICATIONS.....	43
Annex A: Sample Size Calculations: Household Survey	47
Annex B: Bibliography	49

LIST OF TABLES

Table 2.1. Selected Study Districts by Scheme and Wealth Categories ..	6
Table 2.2. Number of Households and Individuals in Household Survey	7
Table 2.3. Number of Individuals in Patient Exit Survey	8
Table 3.1. Health Care Provision in the Study Districts	11
Table 4.1. Overview of District NHIS Registration and fees	14
Table 5.1. Household Survey Sample Characteristics: Households	18
Table 5.2. Household Survey Sample Characteristics: Individuals	20
Table 5.3. Rates of Insurance Coverage in Baseline and Endline Household Survey	21
Table 5.4. Type of Health Problem Among Those Reporting Illness in Past Two Weeks or Hospitalization in Past 12 Months: Household Survey.....	21
Table 5.5. Patient Exit Survey Sample Characteristics, 2007	22
Table 6.1(a). NHIS Coverage, by Wealth Quintile: Household Survey Data, 2007.....	24
Table 6.1(b). NHIS Coverage, by Wealth Quintile: Patient Exit Survey Data, 2007.....	24
Table 6.2. NHIS Coverage, by Health Status: Household Survey Data, 2007	25
Table 6.3. Predictors of Individual Enrollment in NHIS, Multivariate Logistic Regression: Household Survey Data, 2007.....	25
Table 6.4. Predictors of Individual Enrollment in NHIS, Multivariate Logistic Regression: Patient Exit Survey Data, 2007.....	27
Table 6.5. Receipt of Exemptions From NHIS Premiums, by Age Category and Quintile: Household Survey Data, 2007.....	28

Table 6.6. Household's Source of Money for Paying Premiums: Household Survey Data, 2007*.....	28
Table 7.1. Informal and Formal Care Seeking Among Those Reporting Illness in the Past 2 Weeks: Household Survey Data.....	29
Table 7.2. Informal and Formal Care seeking Among Outpatients at Health Racilities: Patient Exit Survey Data.....	30
Table 7.3. Perceived Severity of Illness: Patient Exit Survey Data, 2007	30
Table 7.4. Formal Care-Seeking Patterns Among Those Reporting Illness and Seeking Formal Care in the Past Two Weeks: Household Survey Data.....	31
Table 7.5. Formal Care-Seeking Patterns Among Insured and Uninsured Outpatients: Patient Exit Survey Data, 2007.....	32
Table 7.6. Characteristics of Hospitalization in Past 12 Months: Household Survey Data.....	33
Table 7.7. Characteristics of Hospitalization: Patient Exit Survey Data.	34
Table 7.8. Characteristics of Prenatal Care Among Women Who Delivered in Past 12 Months: Household Survey.....	34
Table 7.9. Characteristics of Delivery Among Women Who Delivered in Past 12 Months: Household Survey.....	36
Table 8.1. OOP Health Expenditures for Illness Episode in Past Two Weeks Among Those Who Sought Formal Care at Health Facilities: Household Survey Data (cedis).....	37
Table 8.2. Outpatient OOP Expenditures: Patient Exit Survey (cedis) ..	38
Table 8.3. OOP Expenditures for Hospitalization in Past 12 Months: Household Survey Data.....	39
Table 8.4. Inpatient OOP Expenditures: Patient Exit Survey (cedis)	40
Table 8.5. Payment for Hospitalization: Patient Exit Survey	40
Table 8.6. OOP Expenditures on Delivery Care	41
Table 8.7. Prenatal Care Expenditures: Patient Exit Survey (2007)	42
Table 8.8. Patient Exit Survey Respondents: Delivery Expenditures (2007).....	42

ACRONYMS

CBHI	Community-Based Health Insurance
DHMT	District Health Management Team
DMHIS	District Mutual Health Insurance Scheme
GHS	Ghana Health Service
HI	Health Insurance
JSS	Junior Secondary School
MHO	Mutual Health Organization
NHIC	National Health Insurance Council
NHIS	National Health Insurance Scheme
OOP	Out of Pocket (Expenditures)
SSNIT	Social Security and National Insurance Trust
USAID	United States Agency for International Development
VIP	Ventilated Improved Pit Latrine

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EXECUTIVE SUMMARY

In 2003, Ghana introduced a National Health Insurance Scheme (NHIS) that aimed to cover the entire population with affordable access to basic health services within five years. This report presents the results of a study evaluating the effects of the NHIS on health care utilization and out-of-pocket expenditures.

GHANA'S NATIONAL HEALTH INSURANCE SCHEME

The NHIS was established under the National Health Insurance Act of 2003. The NHIS is based on district-wide mutual health insurance schemes (DMHIS), which now operate in all districts in the country. At the end of 2008, 61% of the population was covered by the NHIS.

The NHIS benefits package covers over 95% of the most common disease conditions in Ghana, and includes outpatient and inpatient care; comprehensive delivery care; diagnostic tests; generic medicines and emergency care. The minimum annual NHIS premium is set by national regulation at 72,000 cedis (approximately US\$5) per person, but each DMHIS decides on the premium amount and has the option of gradating amounts according to income level. Children under 18, adults over 70 years, formal sector employees contributing to the Social Security and National Insurance Trust (SSNIT), and the indigent are exempt from paying premiums. As of July 2008, pregnant women are also exempt. At the end of 2008, about 70% of NHIS members were in the exempt category (NHIS 2008).

The NHIS is primarily financed by a sales tax levy (a 2.5% earmarked addition to the VAT); supported by 2.5% of SSNIT contributions, premiums and government budget allocations. All public health facilities are automatically accredited to participate in the scheme, while private health facilities must apply for accreditation to participate in the NHIS.

EVALUATION OF THE NHIS

In 2004, the USAID-funded Partners for Health Reform *plus* project, in collaboration with the Health Research Unit of the Ghana Health Service, initiated an evaluation of the NHIS. The evaluation focused on the following research questions:

- How has the Health Insurance (HI) Act been translated into implementation at the district level and to what extent do implementation practices reflect national level policy and guidelines?
- Are there differences in NHIS enrollment rates among different socio-economic groups?
- How has implementation of the NHIS affected health service utilization and out-of-pocket payments?

The impact evaluation employed a pre-post study design, with baseline data collected in 2004, shortly before the NHIS was rolled out in the study areas, and endline data collected in 2007. Household surveys were conducted in two districts (Nkoranza and Offinso) and a patient exit survey was conducted in primary health facilities and hospitals in six districts (Nkoranza, Offinso, Savelugu,

Ajumako, Kwahu South, and Ahanta West).¹ In addition, interviews with the managers of the DMHIS in all study districts were conducted at endline, to collect information on how the premiums were set, who was exempt from premiums, how enrollment and claims reimbursement worked and what challenges they faced.

HOUSEHOLD SURVEY

The household survey collected information on socio-demographic characteristics of households, health insurance membership, and health care utilization and payments associated with: (1) injury or illness in the two weeks preceding the survey, (2) hospitalization in the 12 months preceding the survey, and (3) delivery in the 12 months preceding the survey. The baseline survey covered 1,768 households; and the endline survey covered 2,560 households in the same communities visited at baseline.

PATIENT EXIT SURVEY

The patient exit survey collected information on socio-demographic characteristics of inpatients and outpatients exiting health facilities, the services they received and the out-of-pocket payments they made at the facility. The baseline survey covered 1,318 patients, and the endline survey covered 1,297 patients.

LIMITATIONS OF THE STUDY

It is important to note the limitations of the study. First, the household survey included only two of Ghana's 138 districts, which may limit the generalizability of the results. Second, the pre-post design of the study means that the effects of NHIS implementation we measured may be confounded by other health-related policy interventions that may have occurred in the three years between baseline and endline data collection. Lastly, sample sizes for some of our key indicators on health care utilization and expenditures are very small (particularly for hospitalization), and thus limit our ability to detect the effects of NHIS implementation.

FINDINGS

OPERATION OF THE NHIS AT THE DISTRICT LEVEL

The registration process varied across the seven DMHIS. The Ahanta West, Offinso, Ajumako, and Savelugu schemes had open registration throughout the year, while the Kwahu West, Kwahu South, and Nkoranza schemes had two registration periods called "minor" and "major" seasons, each lasting three to four months. These seasons follow the agricultural calendar, with the major season typically during the harvesting period when farmers are in a better position to pay the insurance premiums.

Registration fees, premium payments, and waiting periods were highly variable across districts. Annual registration fees (paid by all enrollees, including those exempt from premiums) ranged between 7,000 and 50,000 cedis² per annum, with most DMHIS collecting different fees for various sub-groups (e.g.

¹ An administrative split of some districts in Ghana resulted in seven districts at endline (Kwahu South was divided into 2 districts, Kwahu South and Kwahu West)

² Exchange rate at time of the endline survey (2007) | USD=9302 Ghanaian cedis.

children, SSNIT contributors, pensioners, renewing versus new members, etc.). All seven districts had one set premium for all members who were not exempt, rather than gradating the premium amount by income, as suggested by the national guidelines. Premiums varied from 72,000 cedis in Savelugu to 150,000 in Offinso.

In all districts, children under the age of 18 years and adults over 70 years were exempt from DMHIS paying premiums. Most districts also exempted the very poorest, but the methods for identifying this population varied widely. Health Insurance Committees, DMHIS management committees and special committees were cited by different scheme managers as having the authority to make these decisions.

Challenges mentioned by scheme managers include delays in issuance of cards, inadequate staff, lack of motivation of DMHIS staff, and lack of understanding of the need for health insurance by community members. Despite having an official waiting period of three months, actual waiting periods have been far longer for many enrollees. Another challenge concerns delays in the reimbursement of the district schemes from the NHI Fund. Managers mentioned that delays in reimbursement soured their relationship with the service providers in the district, who in some cases threatened to stop accepting DMHIS patients.

ENROLLMENT IN THE NHIS

Wealth was strongly associated with enrollment in NHIS. In the endline household sample, about half of the individuals in the richest wealth quintile were insured under NHIS, compared to less than one-fifth of individuals in the poorest quintile. A similar pattern was observed in the patient exit survey data, where NHIS coverage also increased with wealth quintile³: while 35 percent of the patients in the poorest wealth quintile were insured, twice as many in the richest quintile were insured.

In the household survey, individuals who were covered by NHIS were almost three times as likely to report an illness in the past two weeks, and were more than twice as likely to report a chronic health condition than the uninsured. Similarly, the patient exit survey data showed that NHIS enrolled patients were more than twice as likely to report a chronic illness: 28 percent of patients enrolled in NHIS reported such illness, compared to 14 percent of the patients who were not enrolled. These results provide some indication of adverse selection into NHIS, whereby those with poorer health status were more likely to enroll than healthier individuals.

Multivariate regression analyses indicated that likelihood of NHIS enrollment increased with education of the head of household and wealth; and that children and the elderly (those 70 years or older) were more likely to enroll compared to adults 18-49 years of age, a validation of the age-based premium exemption policies. Enrollment in NHIS was more likely if the individual was a female, had a reported chronic illness, belonged to a household headed by a female or a household participating in a community solidarity group. Residents of Offinso were less likely to enroll, compared to those in Nkoranza; this might be due to the higher premiums charged by the scheme in Offinso, and the fact that historical experience with community-based health insurance in Nkoranza may have increased demand for insurance.

Results from a similar regression analysis using the endline patient exit survey data also showed that likelihood of NHIS enrollment was higher among the elderly, compared to adults 18-49 yrs, but there was no evidence that children under 18 years were more likely to be enrolled. The patient exit data also

³ Separate asset wealth indices were constructed in the household and patient exit data.

indicated that likelihood of enrollment increased with wealth, education of the head of household, and membership in a community solidarity group. As in the household survey, chronic illness of the individual was strongly associated with higher likelihood of NHIS enrolment. Unlike the household data, however, there was no evidence from the patient exit data that individuals from households headed by a female were more or less likely to be enrolled compared to individuals in male-headed households.

Among NHIS members in the household survey, there were no statistically significant differences in the rates of premium exemptions across wealth quintiles. Those from the poorest households were only slightly more likely to be exempted from premium payments. Nearly all children under 18 years and those aged 70 years and over were exempt, which is consistent with the age-based NHIS regulations on premium exemptions. The main reason for non-enrollment in the NHIS, cited by households in which no one was enrolled, was that the premiums were unaffordable (76 percent); less than 2 percent gave lack of confidence in scheme management as a reason.

EFFECTS OF THE NHIS ON UTILIZATION OF HEALTH CARE

Outpatient

The percentage of respondents ill or injured in the two weeks before the survey who sought health care from a trained medical provider nearly doubled between 2004 and 2007, from 37 percent at baseline to 70 percent at endline. Those who reported self-treatment (using medication available at home) decreased significantly, as did the proportion who sought care from an informal/traditional provider (e.g. chemical seller, pharmacist, herbalist or traditional healer).

In the endline sample, among respondents who were recently ill, those enrolled in the NHIS were twice as likely to have sought care at a modern provider, compared to the uninsured (88 percent versus 43 percent). In addition, the insured were half as likely to have visited informal/traditional providers, and less likely to use a medication at home.

The patient exit survey data showed no evidence of a change in informal care-seeking or self-treatment among those who sought outpatient care in primary health care facilities, comparing baseline to endline. However, the patient exit survey found that insured patients were less likely to report self-medication or to use informal/traditional providers, compared to uninsured patients.

Hospitalization

In the household survey, the proportion of individuals hospitalized in the past 12 months decreased slightly between 2004 (2.4 percent) and 2007 (1.9 percent), but not by a statistically significant margin. This 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 average number of nights spent at the hospital decreased significantly during the study period, from 11 to 5 nights, and there was 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 bill. At endline, the hospitalization rate among those insured by the NHIS was significantly higher than for the uninsured (2.7 percent and 1.4 percent, respectively).

In the patient exit survey of inpatients, results from six hospitals indicate that there was a slight increase in the average number of nights spent in hospital, from 5.6 to 6.5, although this increase was not statistically significant. The proportion reporting they were detained due to inability to pay was halved,

from 8 percent to 4 percent. At endline, none of the insured inpatients had been detained at the hospital for delayed payment, compared to 12 percent of those who were not insured.

Maternal Care

Overall, maternal care patterns observed from the household survey remained largely unchanged pre- and post-NHIS implementation. There were no significant changes in the proportion of women who received any prenatal care, or in the average number of reported prenatal care visits between baseline and endline. However, it should be noted that levels of prenatal care were very high in the baseline. Insured women at endline had a significantly higher number of prenatal visits, compared to uninsured women. There were no significant changes in the location of delivery, presence of skilled attendant at delivery, or in the rate of a cesarean-section delivery during the study period. The proportion of deliveries that took place in a health facility was 54.5 percent in 2004, and remained virtually unchanged (54.9 percent) in 2007. The proportion of deliveries by cesarean-section also remained virtually unchanged (6.9 percent at baseline and 6.4 percent at endline).

Endline results found that women who were covered by the NHIS at time of delivery were significantly more likely to have a facility-based delivery as well as to deliver by cesarean-section, compared to uninsured women. The contrast between results from this comparison of insured to uninsured in the endline-only analysis, and results from the pre-post analysis (showing no impact of NHIS on maternal health behaviors), highlights a strong likelihood of selection bias in insurance enrollment. Essentially, higher SES women who are already more likely to have facility-based deliveries and c-sections are also more likely to enroll in the NHIS. Personal characteristics other than insurance status seem to be driving these maternal health outcomes.

EFFECTS OF THE NHIS ON OUT-OF-POCKET EXPENDITURES

Outpatient

In the household survey, the substantial increase in care-seeking for recent illness during the time period when NHIS was implemented was accompanied by a substantial reduction in out-of-pocket (OOP) expenditures for health care: average expenditures for treatment among those who sought formal care decreased from 43,604 to 19,898 cedis. In the endline sample, those covered by NHIS at time of seeking care paid 8,429 cedis, compared to 56,760 for those who were uninsured.⁴

In the patient exit survey, overall OOP expenditures among those seeking outpatient care in formal health facilities decreased substantially, from 21,293 cedis in 2004 to 13,748 cedis in 2007. At endline, total OOP expenditures for patients covered under NHIS were about 20 percent of the amount paid by the uninsured.

Hospitalization

In the household survey, OOP expenditures for hospitalization in the last 12 months decreased significantly from 359,518 cedis in 2004 to 195,370 cedis in 2007. The proportion of hospitalized individuals who said that they did not have enough cash to pay for the hospitalization decreased from 47 percent to 30 percent. While those covered by NHIS at time of hospitalization paid 7,753 cedis, the

⁴ These amounts include the cost of transportation to the health facility. All expenditures in 2007 have been adjusted for inflation.

uninsured paid 473,713 cedis. Moreover, while 69 percent of the uninsured said they did not have enough cash at home to pay their bill, this was the case for only 2 percent of the insured.

The results from the patient exit survey show a similar pattern: OOP expenditures decreased from 311,105 cedis in 2004 to 149,112 cedis in 2007; and those covered by NHIS paid 50,199 cedis compared to 578,715 cedis for the uninsured. While only 5 percent of NHIS-enrolled inpatients reported that they did not have enough cash at home to pay for the hospitalization, this was the case for 50 percent of the uninsured.

Maternal Care

In the household survey, average delivery expenditures declined from 111,570 cedis in 2004 to 75,418 cedis in 2007. Among women who delivered in a health facility, 9 percent did not have to pay anything at baseline, compared to 51 percent at endline. Average expenditures on prenatal care also declined, but the relative change was smaller and not statistically significant (49,238 to 42,789 cedis). However, the proportion of women who paid nothing for their prenatal care increased from 8 percent in 2004 to 43 percent in 2007.

Average expenditures for delivery in the patient exit sample decreased from 166,135 cedis to 117,462 cedis. While 62 percent of women at baseline were asked to pay for the delivery, this proportion had decreased to 33 percent at endline. At endline, insured women in the patient exit survey paid substantially less for their delivery compared to uninsured women, 546,406 and 37,134 cedis respectively. None of the NHIS-enrolled women were held at the hospital due to inability to pay, whereas 18 percent of uninsured women reported being detained.

CONCLUSIONS AND RECOMMENDATIONS

This study is one of the first to assess the effects of national health insurance in Ghana. The evaluation focused on NHIS implementation at the district level, factors associated with enrollment, and trends in health care utilization and expenditures. The results from this evaluation lead to several important policy implications, which are summarized below. It is hoped that these findings will assist the Government of Ghana in making necessary reforms to improve the performance of the NHIS and as a result, improve health and economic outcomes for all Ghanaians.

Towards equitable enrollment Study results showed that age-based premium exemptions, such as those for children under 18 and elderly adults over 70, have worked well, whereas exemptions for the poor have not been consistently implemented. These findings suggest that premium exemptions for the poorest socioeconomic groups need to be strengthened and more uniformly applied.

Addressing adverse selection Among those covered by NHIS, the study found higher rates of chronic illness, an indication of adverse selection. Scaling up of efforts to encourage all residents to enroll in NHIS, as suggested by the DMHIS managers interviewed for this study, may help address this problem.

Uneven gains in health care access The introduction of the NHIS was associated with significant increases in use of formal medical services for illnesses, and in significant decreases in self-treatment and informal care-seeking. Insurance has been very effective at reducing OOP expenditures for outpatient and inpatient care.

Conversely, according to our surveys the introduction of the NHIS was not associated with changes in use of maternal health services (prenatal care, skilled attendance at delivery, facility-based births, or

cesarean deliveries), although out-of-pocket expenditures for maternal care decreased significantly. While there is a general understanding of barriers to use of maternal health services, the evidence is largely anecdotal, and thus a systematic inquiry into these barriers, with a focus on non-financial barriers, is warranted.

Ongoing support to DMHIS To ensure the success of the NHIS, it will be important to provide adequate support and guidance to district-run schemes, and to address noted challenges including delays in issuance of cards, unmotivated staff, and lack of awareness and acceptance by district residents on the need for health insurance. Delays in reimbursements for health care providers also need to be remedied.

Maximizing resources Implementation of the NHIS has increased access to health care services, and our evaluation confirmed that enrolled individuals are more likely to seek care from formal providers for illness or injury. While this result demonstrates progress towards the goal of universal access, it also signals increasing burden on the public health infrastructure in Ghana. To ease these demands on overstretched facilities and staff, the Government of Ghana may wish to consider a potential increased role for the private health sector in the NHIS. Private providers can be viewed as a means to increasing access to essential services, and their full participation in the NHIS may serve to raise the quality of care through healthy competition between the sectors.

Ghana has made great strides in increasing access to essential health services for its populace. The evaluation shows that NHIS has contributed to increased utilization of health care from the formal health sector, and has drastically reduced OOP payments for these services. Positive impacts on maternal health care seeking, and in particular skilled attendance at delivery, have been elusive according to our survey results, although a significant decrease in OOP expenditures for these services was associated with NHIS enrollment. Despite some operational challenges, registration in district-run schemes is growing, and by focusing attention on increasing consumer awareness of the NHIS, improving targeting of the poor, and ensuring timely reimbursements to health providers, DMHIS performance can be enhanced.

I. BACKGROUND

I.1 OVERVIEW OF HEALTH CARE FINANCING IN GHANA

Since independence in 1957, health care financing in Ghana has gone through a number of significant transformations. At independence, the new Government committed itself to a welfare state system that included a “free health care for all” policy. User fees for health services were relatively low and were not aimed at cost recovery.

In 1982, user fees were introduced in government-run health facilities, in order to supplement limited health financing resources (aiming to recover 15 percent of health sector operating costs) and also to discourage unnecessary use of services (World Bank 2007). While meeting both of these goals, the fee-payment system known as “Cash and Carry” led to dramatic declines in health care utilization, with outpatient visits to hospitals dropping from 4.6 million to 1.6 million in 1985, when charges were first increased substantially.

Beginning in 1989, community-based health insurance (CBHI) schemes, also known as mutual health organizations (MHOs), were introduced in certain districts throughout the country. Coverage rates were highly variable by district, ranging from 2 to 25 percent. By 2003, such community schemes covered only a small portion (1 percent) of the country’s 19 million population, leaving many Ghanaians vulnerable in the event of a catastrophic illness.

I.2 NATIONAL HEALTH INSURANCE IN GHANA

I.2.1 HISTORY OF THE NATIONAL HEALTH INSURANCE SCHEME

In an attempt to increase access and improve the quality of basic health care services, the government of Ghana passed the National Health Insurance Act 650 (HI Act) in August 2003, establishing Ghana’s National Health Insurance Scheme (NHIS). The primary goal of the act was to improve access to and quality of basic health care services in Ghana through the establishment of district-wide insurance schemes. The policy objective states:

Within the next five years, every resident of Ghana shall belong to a health insurance scheme that adequately covers him or her against the need to pay out-of-pocket at the point of service use in order to obtain access to a defined package of acceptable, quality health services. (Government of Ghana 2004)

In addition to providing guidance on the structure of the district insurance schemes, the HI Act provides the legislative framework for the establishment of a regulatory body, the National Health Insurance Council (NHIC). The role of the NHIC is to register, license, and regulate health insurance schemes and to accredit and monitor health care providers operating under the schemes. It plays a key role in guiding implementation efforts and management of the National Health Insurance Fund. The HI Act authorized the NHIC to license any of the following schemes: District Mutual Health Insurance Schemes (DMHIS), Private Commercial Health Insurance Schemes, and Private Mutual Health Insurance Schemes. All public

health facilities are automatically accredited to participate in the scheme, while private health facilities must apply for accreditation to participate in the NHIS. A Legislative Instrument, outlining the regulations for implementation at the district level, was approved and published in January 2005.

I.2.2 FUNCTION OF THE NHIS

One of the key regulations specified in the legislation is the annual premium, set on a sliding scale at a minimum of 72,000 cedis per adult.⁵ In a typical two-parent family with three children, the entire family would be covered for 144,000 cedis per year (equivalent to about US\$11). Children (up to age 18), the elderly (age 70 and older), and the indigent were to be exempt from payment.

The NHIC developed the benefit package, which is intended to cover basic health care services, including outpatient consultations, essential drugs, inpatient care and shared accommodation, maternity care (normal and caesarean delivery), eye care, dental care, and emergency care. Certain public health services considered a public good, such as family planning and immunizations, were excluded from the benefit package, as it was assumed these services would continue to be provided for free at public health facilities. District health schemes were required to adhere to the defined benefit package.

Some services deemed either unnecessary or too expensive are excluded from coverage. These include cosmetic surgery, drugs not listed on the NHIS drugs list (including HIV/AIDS antiretroviral drugs), assisted reproduction, organ transplantation, and private inpatient accommodation.

To mobilize additional funds to support implementation of the district mutual health insurance schemes, the government of Ghana instituted a National Insurance Levy of 2.5 percent on specific goods and services made in or imported to Ghana. In addition, 2.5 percent of the 17.5 percent social security (known as SSNIT) contributions paid by formal sector employees are automatically diverted to support the NHIS. Accordingly, formal sector employees, their dependents, and SSNIT pensioners are automatically enrolled in their district scheme and are exempted from further premiums. For those in the informal sector, it was envisioned that community health insurance committees categorize residents into social groups based on economic status, and those identified as 'core poor' are exempt from paying premiums (Government of Ghana 2004).

With passage of the HI Act, a primary objective was for all Ghanaians to enroll in one of the three insurance schemes within five years. To achieve this goal, local district assemblies were tasked with the responsibility for initiating the DMHIS. Specifically, district assemblies are required to promote the schemes, identify human resources to provide technical support for the establishment of the schemes, and carry out social mobilization. The DMHIS are mandated to operate exclusively for the benefit of their members. By the end of 2008, Ghana's national insurance program covered 61 percent of the population, with DMHIS operating in all districts (Ghana NHIA 2008)

I.3 OVERVIEW OF NHIS EVALUATION STUDY

This report presents the results of an evaluation of the NHIS. The evaluation was developed to inform the government of Ghana, and in particular the Ghana Health Service (GHS), about the short-term effects of the insurance scheme on health care service utilization and expenditures. As the study was designed primarily to serve the needs of the GHS, it focuses upon health care provision at the district

⁵ All amounts in cedis given in this report are in old Ghanaian cedis. In 2007, there was a re-denomination of the currency, with 1 new Ghanaian cedi = 10,000 old Ghanaian cedis.

level. Accordingly, national policy and regulatory issues related to the NHIS are outside the scope of this study.

Specific objectives of the study include:

- Identifying who belongs to NHIS, and which household and personal characteristics predict enrollment in NHIS;
- Examining care-seeking behavior (for curative and maternity care) and how NHIS implementation affects access to and utilization of health care services; and
- Measuring levels of payment for health services and assessing how NHIS implementation affects out-of-pocket (OOP) payment for care.

The study evaluates household and patient exit interview data collected in 2004 and 2007 to assess the effects of NHIS implementation. The household survey was conducted in two districts in Ghana, while the patient exit survey was conducted in an additional five districts.

Although MHOs have become widespread in Africa, the attempt to build a national health insurance scheme based upon the MHO concept is novel. Accordingly, there is not a well-developed body of knowledge to guide the government of Ghana in this endeavor. While it is hoped that this evaluation will prove useful to the government of Ghana as it continues to improve the NHIS, the findings may have broader applications, particularly for other countries in the region that are considering implementing a national health insurance program.

2. METHODOLOGY

2.1 RESEARCH QUESTIONS

This study addresses the following research questions:

- How has the HI Act been translated into implementation at the district level and to what extent do implementation practices reflect national-level policy and guidelines?
- Are there differences in NHIS enrollment rates among different socioeconomic groups?
- How has implementation of the NHI affected health service utilization and OOP payments for care?

2.2 STUDY DESIGN

The overall design of the study is a before and after impact evaluation. The baseline evaluation results were presented in the paper “Evaluating Effects of the National Health Insurance Act in Ghana: Baseline Report”, available at www.healthsystems2020.org. Given the decentralized approach of the NHIS, the endline evaluation focuses on the effects of implementation of the NHIS in seven districts in Ghana, the same examined in the baseline study⁶. The preferred methodology for capturing the desired information (household assets, insurance membership, health care utilization, and OOP health care expenses) is to conduct population-based surveys in each district. However, this was not possible given the cost and time requirements of such surveys. Instead, two districts were selected for population surveys, and as a supplement, patient exit interviews were conducted in public facilities in all seven districts.

The household survey and the exit interview survey instruments for the endline study were structured to be as similar as possible to the baseline study. The questions posed to respondents addressed informal and formal care seeking, health care expenditures, insurance status, and household characteristics. Identical questions pertaining to household characteristics and assets were asked of both types of survey respondents, to make it possible to create comparable wealth indices between the household and patient exit respondents.

Cross-sectional household surveys were conducted in the Nkoranza and Offinso. The Nkoranza district had a private CBHI scheme in existence in 2004, while Offinso had no such scheme, allowing for a comparison of how districts both with and without health financing schemes adapted to NHIS guidelines.

Patient exit interviews were conducted in the following districts: Nkoranza, Offinso, Savelugu, Ajumako, Kwahu South, Kwahu West and Ahanta West.

Additionally, qualitative interviews were conducted with district scheme managers for anecdotal and contextual information. The interviews addressed several issues related to DHMIS implementation,

⁶ An administrative split of some districts in Ghana resulted in seven districts at endline (Kwahu South was split into two districts, Kwahu South and Kwahu West) whereas six districts were surveyed at baseline.

including how premiums and exemptions were set, the enrollment and reimbursement process, and any challenges they faced.

2.3 SELECTION OF STUDY SITES

The same study districts chosen for the 2004 baseline study were used in the endline survey, with the addition of Kwahu West. The districts were purposively selected to reflect: (1) sites with and without existing MHOs and (2) differences in the wealth classification of the district (e.g. “deprived” and “less deprived”). District health management team (DHMT) directors from districts under consideration were invited to a workshop in July 2004 to learn about the planned study and help guide the process. Six districts were selected to participate at the conclusion of this workshop. The districts are presented in Table 2.1 according to the criteria each meets. The asterisked districts, Nkoranza and Offinso, were selected for the household survey.

TABLE 2.1. SELECTED STUDY DISTRICTS BY SCHEME AND WEALTH CATEGORIES

Scheme category	Deprived district	Less-deprived district
Existing CBHI scheme	Nkoranza*	Kwahu South/Kwahu West
No pre-existing insurance scheme	Savelugu Ajumako Enyan Essiam	Offinso* Ahanta West

* Districts selected for the household survey in addition to the patient exit survey

2.4 SAMPLE SELECTION

2.4.1 HOUSEHOLD SURVEY

In both districts, multistage cluster sampling was used to select the households. Description of the sample size calculations for the household survey is presented in Annex A.

In each district, urban and rural municipalities were selected based on population size, geographic dispersion, and accessibility. Ghana classifies municipalities with more than 5,000 residents as urban (towns), and those with fewer residents as rural (villages). All urban towns in each district were selected into the sample. Villages were selected based on population size and geographic location in order to adequately represent the district. Accessibility to the site was also a consideration, as the fieldwork was conducted in the rainy season.

Samples were selected to ensure an equal split between insured and uninsured households in the sites where health insurance was available. In Nkoranza, data on membership in the CHBI scheme at baseline by municipality was obtained from the scheme manager, and this information as well as the number of households informed the sample selection. In Offinso, just number of households in each municipality was used to determine household sample sizes at baseline. At endline, sample selection was the same in both districts, and data on NHIS enrollment rates and total population were used to determine sample size for each municipality.

Baseline data collection took place between September and October 2004. Endline data were collected between September and October 2007.

The resulting household sample in the two districts is shown in Table 2.2.

TABLE 2.2. NUMBER OF HOUSEHOLDS AND INDIVIDUALS IN HOUSEHOLD SURVEY

Households	Nkoranza		Offinso	
	Baseline	Endline	Baseline	Endline
Insured	620	617	-	632
Uninsured	687	636	499	637
<i>Total</i>	<i>1,307</i>	<i>1,253</i>	<i>499</i>	<i>1,269</i>
Individuals				
Insured	3,108	2,869	-	2,113
Uninsured	3,539	2,963	2,819	3,814
<i>Total</i>	<i>6,647</i>	<i>5,832</i>	<i>2,819</i>	<i>5,927</i>

Two questionnaires were administered at selected households: a head of household questionnaire including a family roster, household characteristics (type of floor, water source, fuel source, etc.), and education and occupation information about the household head; and a treatment-seeking questionnaire for eligible family members. Eligibility for the curative module was restricted to household members who (1) had been ill or injured in the past 15 days; (2) had been hospitalized in the last 12 months; or (3) were women age 15-49 years who had given birth in the last 12 months.

2.4.2 PATIENT EXIT SURVEY

At both baseline and endline, the desired sample size for this survey was 1,300 patients. During the enumerator training at baseline, a mapping exercise was conducted with district staff, plotting each public health facility on a map of the district, and noting the type of facility and average daily patient volume. Facilities were selected to represent the various levels of health care as well as geographic location. Sample sizes for each facility were determined based on the type of facility (inpatient or outpatient) as well as patient volume. Across the six districts, 32 facilities were selected for the survey, including 24 primary health facilities (21 government health centers and three mission health centers) and eight hospitals/clinics (including four government and four mission facilities).

Outpatient exit interviews were conducted with clients leaving selected health facilities in the study districts using systematic sampling. Identified patients were intercepted at the exit of the facility and the study was explained to them to seek their consent. When patients were less than 15 years old, adult caregivers were asked to respond on behalf of the child.

At endline, data were collected in the same health facilities as baseline, but enumerators aimed for an equal sample of insured and uninsured patients per facility. In two districts, Nkoranza and Savelugu, obtaining the pre-determined number of uninsured patients was very challenging, as interviewers found out that nearly all who sought care at facilities were insured by the NHIS.⁷ Accordingly, interviewers had to visit the facilities on multiple days and/or wait at the facility much longer than planned to get the required number of uninsured patients. To avoid substantial delays in the data collection process, it was

⁷ According to health facility staff, the uninsured in these areas sought care primarily for very serious conditions and emergencies (e.g., accidents)

decided to increase the sample of insured and decrease the sample of uninsured patients in these two districts.

Table 2.3 shows the resulting sample size in the patient exit dataset: a total of 1,318 respondents at baseline and 1,297 at endline. In the baseline sample, 16 percent of outpatient respondents were enrolled in a CBHI scheme (all of them in Nkoranza and Kwahu South districts, where such schemes existed at the time), and 24 percent of inpatients belonged to a CBHI scheme. In the endline sample, 57 percent of outpatient respondents and 60 percent of inpatient respondents were insured by the NHIS.

TABLE 2.3. NUMBER OF INDIVIDUALS IN PATIENT EXIT SURVEY

Outpatient sample	Baseline		Endline	
	Insured by CBHI	Uninsured	Insured by NHIS	Uninsured
Nkoranza	55	45	66	36
Offinso	0	104	54	49
Ahanta West	0	50	28	22
Ajumako-Enyan	0	99	49	51
Kwahu South	48	152	111	90
Savelugu	0	73	53	26
<i>Total outpatient</i>	<i>103</i>	<i>523</i>	<i>361</i>	<i>274</i>
Inpatient sample				
Nkoranza	114	86	156	43
Offinso	0	97	50	47
Ahanta West	0	50	25	25
Ajumako-Enyan	0	100	55	45
Kwahu South	49	149	99	96
Savelugu	0	47	14	7
<i>Total inpatient</i>	<i>163</i>	<i>529</i>	<i>399</i>	<i>263</i>

At baseline, outpatient interviews were conducted from September to October 2004, and in Nkoranza and Offinso, immediately after the data collectors concluded the household survey. At endline, interviews were conducted from September to October 2007.

For the inpatient survey, a hospital nurse or DHMT staff member who attended the training conducted by the GHS study team conducted the exit interviews. The nurse would contact personnel on the ward and the dispensary for information about a patient's pending discharge date, as typically the last point of call for a discharged patient is the dispensary. When the discharged inpatient settled the hospital bill, the patient was directed to the nurse interviewer. The nurse explained the study and obtained the patient's consent before conducting the interview. As with the outpatient survey, if the inpatient was under 15 years old, the accompanying adult was asked to respond. Given the desired sample sizes and in some cases low patient volume, the inpatient survey took longer than the other surveys to complete -- inpatient interviews began in September 2007 and concluded in February 2008.

2.5 DATA ANALYSIS

Data entry was performed using Microsoft ACCESS data entry screens. Double entry was used to improve the quality of and validate the data. Initial data cleaning and verification was performed by the GHS; Health Systems 20/20 staff conducted further cleaning and variable generation. All data analyses were performed using Intercooled Stata 10.0.

2.5.1 HOUSEHOLD SURVEY

Sampling weights reflecting the probability of selection in the sample were computed and assigned to each household in the sample; each individual in a household was assigned the household's sampling weight. Weights were used in all analyses based on the household survey data.

Data on household assets and housing quality were used to construct wealth indexes at baseline and endline, employing principal components analysis. The indexes were used to differentiate households in five asset-based wealth groups (wealth quintiles) in each time period. A separate pooled wealth index was developed for the analyses using household survey data from baseline and endline samples.

The analytic methods we used include: (1) pre-post bivariate comparisons of key indicators related to our research questions; (2) multivariate regression analysis in the endline sample to identify characteristics associated with individual NHIS enrollment; (3) bivariate comparisons between insured and uninsured patients.

2.5.2 PATIENT EXIT SURVEY

For the baseline, patient exit interviews were conducted using systematic sampling without regard to insurance status. At endline, the sample was split equally between NHIS-enrolled and uninsured patients, to enable comparative analysis. Given that the uninsured sought care at health facilities at a much lower rate, we had to oversample this population to obtain roughly equivalent rates of uninsured and insured patients. The total number of insured and uninsured patients in the given category (inpatient or outpatient) was used to assign a weight to each observation in the endline dataset. The weights reflected the ratio of insured to uninsured patients seen at the facility in the month when the data was collected. All baseline observations were assigned a weight of 1. The pre-post comparisons using the patient exit data employed a paired t-test analysis whereby the pre-post pairs are defined at the facility level.⁸

The endline patient exit data were used to conduct analyses similar to those using the household data (such as investigating the determinants of NHIS enrollment, and comparison of insured to uninsured patients). These endline-only comparisons did not use sampling weights. A wealth index was created based only on the endline patient sample, using the same methodology as for the household sample. It should be noted that these wealth quintiles in the patient exit data reflect only the relative wealth among patients who were seeking care at the sampled health facilities, and do not reflect the wealth quintiles distribution of the general population in these districts.

⁸ At baseline, data on patient volumes at facilities were not collected, and these data were not available at endline. This factor determined the choice of analytic method used for the pre-post comparisons.

2.6 LIMITATIONS

There are a number of potential limitations to the conclusions that this study presents.

The household study included only two of Ghana's 138 districts, which may limit the generalizability of study results to the regional or national level. Second, the pre-post design of our study means that the effects of NHIS implementation measured may be confounded by the effect of other health-related policy interventions that may have occurred in the study districts in the three years between baseline and endline data collection. Third, the lack of panel data or an instrumental variable constrains our ability to account for endogeneity when measuring the impact of individual NHIS membership on utilization of care. Fourth, this study does not measure changes in the quality of health care in the study sites, which could be influenced by the NHIS and may be a potential confounder of the utilization and financial protection effects of NHIS. Lastly, sample sizes for some of our key indicators on health care utilization and expenditures are very small (particularly for rare health-related events, such as hospitalization), which limits our ability to detect the effects of the NHIS.

Additionally, the fact that this study draws from two different survey methodologies (household survey and patient exit interviews) is both a strength and a potential weakness. The strength derives from the fact that each method is ideally suited to elicit certain types of information – for example, whereas the household survey is well suited to inform on factors that predict individual and household NHIS enrollment and the impact of enrollment on health care utilization, the patient exit survey provides more accurate data for assessing the impact of insurance enrollment on OOP payments for facility-based care. In fact, certain analyses contained in this report were only possible to conduct with one but not both datasets. For example, the regression on predictors of delivering at a health facility could only be analyzed using household data, because the patient exit survey captured only those women who had presented at a facility to give birth.

The data from the two surveys differ in two additional ways. First, given the different methodologies utilized, recall error for information on health services and expenditures is likely to be more pronounced in the household survey than in the patient exit survey. Ability to recall information on health care services and payments was presumed to be better for patients who had just received health care treatment, as opposed to household respondents who were asked to recall information on services received and payments made in the past two weeks or in the 12 months prior to the interview. Second, respondents in the patient exit survey, by virtue of having sought treatment, are likely different (e.g., in terms of likelihood of being insured, or in health care behavior/motivation) compared to the household sample.

It is important to note that simple comparisons of insured to uninsured do not control for self-selection into the insurance. Differences between these two groups should not be interpreted as “causal” or due solely to the insurance. Those who enroll in the NHIS are likely different than those who choose not to enroll, on important unobservable (or endogenous) characteristics that are not measured by the survey, and are thus not controlled for in the analyses. Such endogenous factors may include, for example, personal motivation or preference towards health-related behavior. These factors may drive both the decision to enroll in insurance and health care outcomes that are influenced by insurance enrollment such as the decision to seek care at time of illness, and how much to spend on health care. Thus, differences in health care outcomes between insured and uninsured may be influenced by endogenous factors, and should not be attributed solely to insurance enrollment.

3. DESCRIPTION OF STUDY SITES

Table 3.1 summarizes the basic health service provision characteristics of the study districts. All districts are considered rural, with populations ranging from 104,178 in Ajumako Enyan Essiam to 171,413 in Kwahu South. All districts have at least one level-one hospital, and a variety of public and private health care providers and facilities.

TABLE 3.1. HEALTH CARE PROVISION IN THE STUDY DISTRICTS

	Nkoranza	Offinso	Ahanta West	Ajumako Enyan Essiam	Kwahu South	Kwahu West	Savelugu/Nanton
District Characteristics							
District population	128,960	138,676	114,932	104,178	171,413	120,000	109,442
Region	Brong Ahafo	Ashanti	Western	Central	Eastern	Eastern	Northern
Area (square kms)	2,340	1,255	673	541	1,462	414	1790.70
Health Care Infrastructure							
Number of government clinics	10	3	5	2	11	**	4
Number of health centres	2	4	2	7	4	6	3
Community health planning and services compound	1	0	5	3	0	2	1
Number of hospitals	1	2	1	1	2	4	1
Number of hospital beds	93	160	50	**	175	227	23
Number of mission clinics	0	2	0	0	0	0	0
Number of private clinics	1	4	2	2	**	7	1
Health Care Workers							
Number of physicians	4	7	1	1	5	3	1
Number of midwives	24	18	**	36	35	**	11
Number of nurses	35	63	50	20 (plus 21 auxiliary nurses)	65	**	36
Number of medical assistants	**	**	2	4	5	**	4

** Information not available

The following text box provides a general description of the districts included in the study.⁹

⁹ Information on the study districts at baseline.

BOX I. STUDY SITES

Ahanta West, Western Region

Ahanta West, one of 14 districts in the Western Region, is located in the southwestern part of the country and borders the Atlantic Ocean. Fishing and agriculture are the main industries.

Ajumako Enyan Essiam, Central Region

Ajumako is a mostly rural and predominantly agricultural district in the Central Region. About 80-90 percent of the working population are farmers. Cash crops such as cocoa and palm fruits are cultivated; plantain, maize, and cassava are also grown on a large scale.

Kwahu South, Eastern Region

Kwahu South is one of 15 districts in the Eastern Region. The predominant occupation in the district is subsistence agriculture, which employs about 50 percent of the working population. The service sector employs another 42 percent while 8 percent are employed by the industrial sector.

Kwahu West Municipal, Eastern Region

This is a newly created district, covering an area of about 414 square kilometers. The Municipal capital is Nkawkaw, located 241 kilometers NW of Accra. Primary sources of household income are business/trading, crop farming, livestock farming, fisheries, manufacturing and food processing.

Nkoranza, Brong Ahafo Region

Nkoranza is one of 19 administrative districts in the Brong Ahafo Region, situated in the central part of Ghana. The district is mostly rural and Nkoranza town, the district capital, has approximately 20 percent of the total district population. Agriculture is the predominant occupation.

Offinso, Ashanti Region

Offinso is one of 20 districts of the Ashanti Region. The leading economic activity in the district is agriculture. Only about 28 percent of women and 16 percent of men have no education – making the Offinso district much more educated than overall nationwide for both men and women (Ghana Statistical Service et al. 2004).

Savelugu/Nanton, Northern Region

Children under the age of 15 constitute 49 percent of the population in this district, a share much higher than the national average. The principal economic activities are subsistence agriculture and trade. Food crops such as maize, millet, and yam are grown throughout the district with limited areas utilized for cultivation of cash crops such as cashews.



4. OPERATION OF NHIS AT THE DISTRICT LEVEL

This section of the report summarizes the information on DMHIS structure, operations, and challenges, obtained from interviews conducted in 2007 (at time of the endline survey) with the DMHIS managers in the seven study districts. DMHIS managers provide oversight of district health schemes in coordination with a *management committee*, whose composition varies from one district to another.

4.1 REGISTRATION AND PREMIUM STRUCTURE

Registration in the DMHIS in the study districts is done both at the scheme offices and in the field through the assistance of the community premium collectors (or DMHIS agents). The Offinso scheme, for instance, has 70 agents throughout the district. However, most individuals in the district tend to register at the DMHIS office, to avoid the delays that can accompany processing membership cards when community members register with field agents. The delays are a result of agents waiting until they collect a sizable number of registrants before they take the payments to the DMHIS office.

The registration process varies across the seven districts; they generally have either open registration throughout the year, or two annual registration periods. The Ahanta West, the Offinso, Ajumako, and Savelugu schemes operate an open registration. Kwahu West, Kwahu South, and the Nkoranza district have two periods within the year for registration called “minor” and “major” seasons. The major season usually runs between October and January and the minor season between May and July to coincide with agricultural cycles. The major season is during the harvesting period, when farmers are in a better position to pay insurance premiums.

All who enroll in the insurance scheme, even those who are exempt from premium payments, must pay annual registration fees to receive insurance identification cards. Table 4.1 summarizes the registration schemes in the seven study districts.

TABLE 4.1. OVERVIEW OF DISTRICT NHIS REGISTRATION AND FEES

District	Annual premiums (cedis, ₵)	Registration fees (₵)	Registration periods	Number Enrolled	% of pop. covered (as of Sept 2007)
Kwahu West	₵100,000	Old members: ₵10,000 New members: ₵20,000 SSNIT contributors: ₵20,000	Major period: October to January Minor period: May to July	63,000	53%
Kwahu South	₵100,000	Old members: ₵10,000 New members: 20,000 SSNIT contributors: ₵20,000	Major period: October to December Minor period: April to July	47,275	27%
Ahanta West	₵100,000	Old members: ₵10,000 New members: ₵20,000 SSNIT contributors: ₵20,000	All year	54,000	52%
Offinso	₵150,000	SSNIT contributors: ₵50,000 Other members : ₵20,000	All year	50,000	Not specified
Nkoranza	₵80,000	Old members: ₵20,000 New members: ₵30,000	Major period: July to September/October Minor period: January to March	57,898	45%
Savelugu	₵72,000	Not specified	All year	30,010	28%
Ajumako	₵100,000	Adult members: ₵20,000–₵50,000 Pensioners: ₵20,000 Children under 18: ₵7,000	All year	35,000	50%

Overall, in spite of national guidelines, premium payments, registration fees, and waiting periods are highly variable between districts. Members of the scheme in the various districts covered in this study pay different amounts as premium and for registration in Ghana's NHIS.

In the Nkoranza district, all non-exempt community members pay a flat premium rate of 80,000 cedis. There is no gradation by income nor any differences for SSNIT contributors. The lack of differentiation in premiums was based on the argument that the wealthier community members do not accept that they should pay higher rates, since they invariably pay for their poorer relations. The registration fees paid are 20,000 cedis and 30,000 cedis for existing members and new members respectively.

The Offinso district has 150,000 cedis as the premium for those in the informal sector. The registration fees is set at 50,000 cedis (raised from 20,000 cedis at the beginning of the program). Those in the exempt category are in some cases asked to pay the same for the registration. SSNIT contributors do not pay premiums, but do pay for registration.

The Savelugu district scheme has a uniform premium for its members. The people in the payment bracket (18-69 years) pay 72,000 cedis, the minimum premium allowed in the NHIS legislative instrument. The premiums paid in most communities were the same for individuals in all wealth

quintiles. The district manager for Savelugu explained that managers perceive all community members to be poor.

The premium paid by residents of Kwahu West and South and the Ahanta West district is 100,000 cedis. Those in the formal sector were given identification cards upon registration after paying a registration fee of 20,000 cedis, since their premium has already been covered under SSNIT. In the case of renewing members, a registration renewal fee of 10,000 cedis is charged.

In the Ajumako district, the registration fee paid by the registrants in the formal sector depends on their rank. They pay a minimum of 20,000 cedis and a maximum of 50,000 cedis. Pensioners, however, pay 20,000 cedis while children below the age of 18 pay 7,000 cedis to register, provided their parents have also registered. Most of the registrants in the district pay a minimum premium of 100,000 cedis, but some pay higher premiums, in the range of 200,000 cedis to 300,000 cedis a year.

Most of the people covered under the scheme in the study districts were poor and could not pay the premium at the time of registration or make upfront payment; thus, the managers of the schemes introduced payment-by-installment plans, a manner of payment termed the “susu” system. Records of the installment payments are kept until the full premium is paid, at which point the enrollee is eligible for benefits. Those who can afford to make upfront payments are encouraged to do so.

4.2 EXEMPTIONS FROM NHIS PREMIUMS

In all districts, children under the age of 18 years and those over 70 years were exempt from paying premiums. In some cases, however, exempt individuals are required to pay a nominal registration fee. In addition, some districts use categorization into income levels as the basis for exemption. Those who are perceived to be at the bottom of the income scale are then exempted. The methods for determining the “poorest of the poor” varied widely. In some districts, it was done by the members of Health Insurance Committees in the communities. In other districts, the management committee takes the decision, while in still others special committees are formed to identify indigent, and thus exempt, individuals. The members of the special committees are usually the chiefs, tax collectors in the community, and other opinion leaders such as the pastors and traditional priests. However, decisions on who qualifies for premium exemptions are based on recommendations from the community level. According to the DMHIS managers who were interviewed:

“The community has to identify these people themselves because how can I go to a community and say I am looking for poor people.”

“The decision to exempt a person is taken at the Annual General Meeting of the scheme.”

“The community members determine those who are qualified to be exempted.”

“The core poor are those who do not have a definite place of abode (their own room to sleep in) and cannot afford three square meals a day.”

The poor in the exempt category are vetted regularly to know whether their conditions have changed so as to start paying the required premium for the scheme.

“An assessment of the person is always done by interviewing to ascertain the person’s income level and ability to pay.”

“Usually, only few people are categorized as poor by their own people. We asked a priest to give us a list of people in the congregation who are poor but he came with only five names. They don’t perceive their own people to be poor.”

Those in the exempt group based on poverty status are issued with cards, once certified by the management of the scheme. In some cases they may have to pay registration fees, which typically vary between 10,000 cedis and 20,000 cedis.

4.3 WAITING PERIOD FOR NHIS BENEFITS

In late 2007, the study districts had an official three-month waiting period before an enrollee could access health services. This period was reduced from an initial waiting period of six months, in place at the inception of the NHIS. Managers mentioned that this reduction in wait time has encouraged new members to join the scheme. Despite the official wait period of three months, observed waiting periods have been far longer for many enrollees, due to various operational problems. One DHMIS manager stated:

“Due to the inadequacy of staff and equipments (computers, printers, and cameras) in relation to the volumes of cards to be issued, the waiting period even sometimes exceeds six months.”

Another scheme manager stated that there was a suggestion to reduce the waiting period for pregnant women to one month. However, the waiting period in that district remained at three months at the time of the endline survey. The waiting period for those in the formal sector is usually three months as well. Apart from the identification cards that are distributed to enrolled residents, the schemes also give out attendance cards, which are used to check claims of health facility attendance.

4.4 CHALLENGES FOR DMHIS

Some of the challenges mentioned by scheme managers include delays in issuance of cards, inadequate staff, lack of motivation of DMHIS staff, and lack of understanding of the need for health insurance by community members. Others include transportation difficulties and delays in the reimbursement process.

Some managers mentioned that convincing district residents that it was in their interest to join the scheme by paying their premiums continued to be a challenge:

“The inhabitants of the districts feel the scheme was just a way to exploit them since even though they pay premiums; they still have to pay for certain drugs when they utilize the health facilities.”

A common question they hear from residents is:

“Why should I pay to the health insurance scheme when I know that I might not fall sick?”

Another challenge the schemes face is the delay in payment from the NHIC for reimbursement of provider claims submitted to the DMHIS. Sometimes, reimbursement payment for a given quarter is received almost half way into the following quarter, thus hindering effective and efficient planning:

“Sometimes I have to go to the council myself due to pressure from my providers. Reimbursement is irregular.”

“Reimbursement from NHIC is erratic thereby making planning difficult. The amount to be received is not always certain.”

This delay, according to the managers, affects their relationship with the service providers in the district:

“Now I am sitting on thorns because I have to pay my providers. They are even threatening to sack my clients from seeking health care from their facilities”

Scheme managers stated that in order to address these problems, the management at the headquarters should consider increasing the salaries of workers and introduce other incentives to motivate workers to work hard and to “sell” the program to members of the community. Some mentioned that workers should be placed on salary structures and not paid equally due to the differences in educational backgrounds of the scheme manager. It was commented that reimbursements should be made on time and more people should be employed to ensure that the schemes operate efficiently.

5. DESCRIPTION OF SURVEY SAMPLES

5.1 HOUSEHOLD SURVEY

Table 5.1 compares the socioeconomic characteristics of the baseline and endline samples from the household surveys conducted in Nkoranza and Offinso. Overall, there were general improvements in socioeconomic status, indicated by differences in wealth and education between the baseline (2004) and the endline (2007) survey. There were significant differences in the percentage of households with electricity (39 percent at baseline and 48 percent at endline) and households with ventilated improved pit (VIP) latrines (28 percent at baseline and 36 percent at endline). The average household size increased slightly, from 4.5 to 4.7, and a larger proportion of households were headed by females in 2007.

Comparison of NHIS-enrolled households with households that were not enrolled (using the endline data) shows that insured households were wealthier, headed by a more highly educated individual, and somewhat more likely to be headed by a female. A higher proportion of NHIS-enrolled households had at least one member who belonged to a community solidarity scheme.

TABLE 5.1. HOUSEHOLD SURVEY SAMPLE CHARACTERISTICS: HOUSEHOLDS

Variable	Pre-post comparison			Endline sample only		
	Baseline sample N=1,805	Endline sample N=2,520	<i>p-value</i>	Non-NHIS households N=1,273	NHIS households N=1,247	<i>p-value</i>
Percent with electricity	39%	48%	0.047	42%	58%	<0.001
Primary cooking fuel (column %)						
Charcoal	18%	19%	0.65	18%	21%	0.19
Firewood	82%	80%		82%	78%	
Other	0.5%	0.5%		0%	1%	
Main source of drinking water (column %)			0.12			0.12
Public tap	45%	46%		45%	48%	
Borehole	39%	43%		43%	44%	
River/surface	15%	7%		9%	6%	
Other	2%	3%		3%	2%	
Primary sanitation facility (column %)			0.15			0.08
Pit latrine	57%	48%		48%	49%	
VIP latrine	28%	36%		35%	39%	

Variable	Pre-post comparison			Endline sample only		
	Baseline sample	Endline sample	p-value	Non-NHIS households	NHIS households	p-value
Bush/field	14%	14%		16%	11%	
Other	1%	1%		1%	2%	
Household head's level of education (column %)			0.01			0.02
No education	42%	34%		36%	29%	
Primary/ JSS	50%	57%		56%	58%	
Secondary or higher	8%	9%		7%	13%	
Household head's occupation (column %)			0.09			0.11
Not working	7%	11%		10%	12%	
Farmer/fisherman	71%	65%		67%	63%	
Government worker	3%	5%		3%	7%	
Artisan	6%	6%		6%	6%	
Trader	10%	10%		10%	10%	
Other	3%	4%		5%	3%	
Head of household is female	28%	33%	0.016	34%	32%	0.022
Urban location	15%	12%	0.29	12%	13%	0.37
At least one household member in a community-solidarity group*	--	12%	--	10%	15%	0.03
Asset index quintiles (pooled baseline and endline data, column %)						
Poorest quintile	26%	15%	0.004			
Poor-middle quintile	22%	18%				
Middle quintile	21%	20%				
Middle-rich quintile	16%	23%				
Richest quintile	16%	24%				
Asset index quintiles (endline data only, column %)						<0.0001
Poorest quintile				25%	13%	
Poor-middle quintile				21%	19%	
Middle quintile				19%	21%	
Middle-rich quintile				19%	20%	
Richest quintile				16%	26%	
Mean household size	4.50	4.73	0.046	4.82	4.60	0.15

*Questions not asked at baseline

Table 5.2 presents the individual characteristics of all members of surveyed households. The distribution by age and sex was similar in the two time periods. There was a decrease in the proportion of individuals reporting illness or injury in the past two weeks, from 4.3 percent to 3.1 percent, and a decrease in the proportion who were hospitalized in the past 12 months, from 2.4 percent to 1.9 percent (although this difference was not statistically significant). Comparison of insured and uninsured individuals at endline shows that a higher proportion of NHIS-enrolled were older (above 50 years) and were female. A higher proportion of the insured, compared to the uninsured, reported chronic illness, a case of illness or injury in the past two weeks, and hospitalization in the past 12 months.

TABLE 5.2. HOUSEHOLD SURVEY SAMPLE CHARACTERISTICS: INDIVIDUALS

Variable	Pre-post comparison			Endline sample only		
	Baseline sample	Endline sample	<i>p</i> -value	Not insured	Insured under NHIS	<i>p</i> -value
	N=9,554	N=11,757		N=6,794	N=4,963	
Age category (column %)			<0.001			<0.001
0-4	15%	15%		16%	13%	
5-17	34%	35%		34%	38%	
18-34	25%	23%		26%	17%	
35-49	14%	13%		13%	13%	
50-69	8%	9%		8%	10%	
70+	3%	5%		3%	8%	
missing	1%	0.1%		0.2%	0.1%	
Sex (column %)			0.34			0.01
Female	52%	53%		52%	56%	
Male	48%	47%		48%	44%	
Reported illness or injury in past 2 weeks	4.3%	3.1%	0.03	1.9%	5.5%	<0.0001
Hospitalized in past 12 months	2.4%	1.9%	0.15	1.4%	2.7%	0.001
Gave birth in past 12 months (women under 49 only)	6.2%	5.2%	0.10	6.2%	5.2%	0.10
Reported chronic illness*	--	4%	--	2.8%	6.3%	<0.0001
Self-assessed health status*			--			0.2362
Very good	--	63%		63%	62%	
Good	--	36%		36%	35%	
Average	--	1%		1.1%	1.9%	
Poor	--	0%		0.3%	0.4%	

*Questions not asked at baseline

Overall coverage by NHIS in the two districts at time of the endline survey was 35 percent (Table 5.3). Health insurance coverage in Nkoranza increased from 35 percent (CBHI at baseline) to 45 percent (NHIS at endline), and NHIS coverage in Offinso was 25 percent at endline. Table 5.3 shows that at endline, a significantly higher proportion of individuals who experienced a recent illness/injury, or had hospitalization or delivery in the last 12 months, were insured.

TABLE 5.3. RATES OF INSURANCE COVERAGE IN BASELINE AND ENDLINE HOUSEHOLD SURVEY

Variable	Baseline sample	Endline sample	p-value	N	N
Percent of all individuals insured	23%	35%	0.0035	9,548	11,746
Percent of all household heads insured	24%	38%	0.0006	1,804	2,519
Percent insured among those hospitalized in past 12 months	15%	58%	0.0001	203	208
Percent insured among women who delivered in past 12 months	21%	39%	0.002	282	313
Percent insured among those reporting illness in past 2 weeks	22%	54%	0.0001	415	409
Percent insured among those reporting illness and seeking medical care in past 2 weeks	31%	68%	0.0007	177	309

There were no differences between baseline and endline in the pattern of illnesses or injuries reported by household survey respondents in past two weeks or in the reasons for hospitalization among those hospitalized in the past 12 months (Table 5.4). Among those who had been hospitalized, a larger proportion of those insured at time of hospitalization reported surgery, compared to those who were not insured (25 percent vs. 6 percent).

TABLE 5.4. TYPE OF HEALTH PROBLEM AMONG THOSE REPORTING ILLNESS IN PAST TWO WEEKS OR HOSPITALIZATION IN PAST 12 MONTHS: HOUSEHOLD SURVEY

	Pre-post comparison			Endline sample only		
	Baseline sample	Endline sample	p-value	Non-insured	Insured under NHIS	p-value
Type of recent illness or injury	N=415	N=409	0.99	N=169	N=240*	0.24
Malaria/Fever	38%	39%		40%	38%	
Respiratory problem (ARI)	5%	5%		7%	3%	
Diarrhoea	7%	8%		9%	6%	
Injury	8%	8%		10%	7%	
Aches and pains, other	43%	41%		34%	46%	
Reason for hospitalization	N=203	N=208	0.14	N=79	N=129**	0.03
Malaria	26%	15%		11%	19%	
Typhoid/enteric fever	19%	13%		20%	7%	
Surgery	8%	16%		6%	25%	

	Pre-post comparison			Endline sample only		
	Baseline sample	Endline sample	p-value	Non-insured	Insured under NHIS	p-value
Injury	9%	7%		10%	5%	
ARI	10%	6%		8%	4%	
Anemia	11%	3%		4%	1%	
Diarrhea	3%	6%		4%	8%	
Other	16%	35%		38%	32%	

*insured on date of survey

**insured at time of hospitalization

5.2 PATIENT EXIT SURVEY

In the endline patient exit survey, NHIS-enrolled patients are from households that are wealthier and headed by a more highly educated individual, compared to the uninsured patients (Table 5.5). As in the household survey, a higher proportion of NHIS-enrolled patients are from households in which a member belongs to a community solidarity scheme.

The distribution of reasons for seeking health care at the facility were very similar in the groups of insured and uninsured patients.

TABLE 5.5. PATIENT EXIT SURVEY SAMPLE CHARACTERISTICS, 2007

	Not insured by NHIS N=557	Insured by NHIS N=739	p-value
Household characteristics			
Percent with electricity	59%	82%	<0.001
Primary cooking fuel:			
Charcoal	33%	44%	<0.001
Firewood	60%	43%	
Other	8%	13%	
Main source of drinking water:			<0.001
Public tap	36%	45%	
Borehole	23%	21%	
River/surface	18%	6%	
Other	23%	28%	
Primary sanitation facility:			<0.001
Pit latrine	41%	28%	
VIP latrine	40%	54%	
Bush/field	11%	4%	
Other	9%	13%	

	Not insured by NHIS	Insured by NHIS	p-value
Household head characteristics			
Highest level of education:			<i><0.001</i>
No education	33%	29%	
Primary/JSS	52%	44%	
Secondary or higher	15%	27%	
Current occupation:			<i><0.001</i>
Not working	9%	15%	
Farmer/fisherman	47%	31%	
Government worker	8%	19%	
Artisan	13%	9%	
Trader	17%	19%	
Other	6%	7%	
Percent of households headed by female	28%	26%	<i>0.41</i>
Household has a member in solidarity scheme	25%	83%	<i><0.001</i>
Patient characteristics			
Age:			<i><0.001</i>
0-4	22%	11%	
5-17	13%	14%	
18-49	47%	47%	
50-69	12%	17%	
70 plus	6%	11%	
Patient is female	68%	62%	<i>0.032</i>
Reason for visiting health facility			
Malaria/Fever	20%	25%	
Respiratory problem (ARI)	11%	11%	
Diarrhoea	5%	6%	
Injury	5%	5%	
Aches and pains, other	34%	37%	
Delivery	13%	13%	
Prenatal or postnatal care	10%	3%	

6. ENROLLMENT IN NHIS

This section explores the association of socio-demographic and other personal or household characteristics with NHIS enrollment, to determine how NHIS enrollment varies across socioeconomic and demographic groups, and to explore whether there is evidence of adverse selection.

As shown in Table 6.1(a), wealth was strongly associated with enrollment in NHIS. In the endline household sample, about half of the individuals in the richest wealth quintile were insured under NHIS, compared to less than one-fifth of individuals in the poorest quintile.

TABLE 6.1(A). NHIS COVERAGE, BY WEALTH QUINTILE: HOUSEHOLD SURVEY DATA, 2007

	Not insured	Insured under NHIS	p-value
Quintile (row %)	N=6,783	N=4,958	<i><0.0001</i>
Poorest	82%	18%	
Middle-poor	70%	30%	
Middle	60%	40%	
Middle-rich	61%	39%	
Richest	49%	51%	
TOTAL	65%	35%	

A similar pattern was observed in the patient exit survey data, where NHIS coverage also increased with wealth quintile: 35 percent of the patients in the poorest wealth quintile were insured, while twice as many in the richest quintile were insured (Table 6.1-b).

TABLE 6.1(B). NHIS COVERAGE, BY WEALTH QUINTILE: PATIENT EXIT SURVEY DATA, 2007

	Not insured	Insured under NHIS	p-value
Quintile (row %)	N=557	N=739	<i><0.0001</i>
Poorest	65%	35%	
Middle-poor	47%	53%	
Middle	39%	61%	
Middle-rich	33%	67%	
Richest	29%	71%	
TOTAL	43%	57%	

In the household survey, individuals who were covered by NHIS were almost three times as likely to report an illness in the past two weeks, and were more than two times as likely to report a chronic health condition (Table 6.2).

TABLE 6.2. NHIS COVERAGE, BY HEALTH STATUS: HOUSEHOLD SURVEY DATA, 2007

Self-reported illness	Not insured	NHIS insured	p-value
Reported illness or injury in past 2 weeks	1.9%	5.5%	<0.001
Reported any chronic illness	2.8%	6.3%	<0.001
	N=6,794	N=4,963	

Similarly, the patient exit survey data showed that NHIS-enrolled patients were more than twice as likely to report a chronic illness: 28 percent of patients enrolled in NHIS reported such illness, compared to 14 percent of the patients who were not enrolled ($p < 0.001$).

Household survey data from Nkoranza and Offinso were used to conduct regression analysis of factors that were predictors of individual enrollment in NHIS, shown in Table 6.3. In the regression analysis, higher asset wealth quintile was strongly predictive of enrollment in NHIS. Education of the household head was also positively associated with likelihood of NHIS enrollment and Children and the elderly (the groups exempt from premium payments) were more likely to be enrolled, compared to adults 18-49 years old. There were no significant differences in enrollment detected between individuals living in rural and urban areas, but enrollment was more likely if an individual lived in Nkoranza (as compared to Offinso), which may reflect the historical experience in Nkoranza with CBHI and the lower premiums charged by the Nkoranza scheme. There was some evidence that living in a household headed by a female and membership in a community solidarity scheme¹⁰ (by at least one household member) was associated with higher likelihood of NHIS enrollment. The multivariate regression results also showed evidence of adverse selection in NHIS enrollment, whereby individuals with a chronic condition were significantly more likely to be enrolled compared to those without such conditions.

TABLE 6.3. PREDICTORS OF INDIVIDUAL ENROLLMENT IN NHIS, MULTIVARIATE LOGISTIC REGRESSION: HOUSEHOLD SURVEY DATA, 2007

Variable	Odds ratio	p-value
Male (Ref)	1.00	–
Female	1.20	0.002
Age 0-4 yrs	1.19	0.014
Age 5-17 yrs	1.65	0.000
Age 18-49 yrs (Ref)	1.00	–
Age 50 to 69 yrs	1.62	0.000
Age 70+	4.17	0.000
Household head: no education (Ref)	1.00	–
Household head: primary education	1.40	0.064
Household head: secondary or higher	1.99	0.019

¹⁰ This could be a church welfare committee, *susu* (savings group), funeral insurance, or other type of community solidarity group.

Variable	Odds ratio	p-value
Male household head	1.00	–
Female household head	1.24	0.065
Poorest quintile (Ref)	1.00	–
Poor-middle quintile	1.56	0.045
Middle quintile	2.31	0.001
Middle-rich quintile	2.30	0.004
Richest quintile	4.07	0.000
Nkoranza district (Ref)	1.00	–
Offinso district	0.38	0.000
Rural (Ref)	1.00	–
Urban	0.82	0.107
No HH members are part of community solidarity scheme (Ref)	1.00	–
At least one HH member part of community solidarity scheme	1.48	0.070
No chronic condition (Ref)	1.00	–
Self-reported chronic condition	1.92	0.001
Number of observations	11,622	

Results from a similar regression analysis using the endline patient exit survey data (Table 6.4) also showed that likelihood of NHIS enrollment was higher among the elderly, compared to adults 18-49 years, but there was no evidence that children under 18 years were more likely to be enrolled than this adult age group. The patient exit data also indicated that enrollment increased with wealth quintile and with education of the head of household. Similar to the evidence from the household data, the patient exit data showed that chronic illness of the individual and household membership in a community solidarity scheme were strongly associated with higher likelihood of enrollment. Unlike in the household data, however, there was no evidence from the patient exit data that individuals from households headed by a female were more or less likely to be enrolled compared to individuals in male-headed households.

TABLE 6.4. PREDICTORS OF INDIVIDUAL ENROLLMENT IN NHIS, MULTIVARIATE LOGISTIC REGRESSION: PATIENT EXIT SURVEY DATA, 2007

Variable	Odds ratio	<i>p</i> -value
Male (Ref)	1.00	–
Female	1.04	0.829
Age 0-4 yrs	0.73	0.153
Age 5-17 yrs	1.29	0.300
Age 18-49 yrs (Ref)	1.00	–
Age 50 to 69 yrs	1.89	0.009
Age 70+	7.57	0.000
Household head: no education (Ref)	1.00	–
Household head: primary education	1.17	0.443
Household head: secondary or higher	2.25	0.002
Male household head	1.00	–
Female household head	1.01	0.953
Poorest quintile (Ref)	1.00	–
Poor-middle quintile	1.61	0.079
Middle quintile	3.12	0.000
Middle-rich quintile	4.20	0.000
Richest quintile	3.02	0.000
Nkoranza district (Ref)	1.00	–
Offinso district	0.38	0.000
Ahanta-west district	0.27	0.000
Ajumako-Enyan district	0.16	0.000
Kwahu south & west district	0.19	0.000
Savelugu district	0.41	0.013
No HH members are part of community solidarity scheme (Ref)	1.00	–
At least one HH member part of community solidarity scheme	18.46	0.000
No chronic condition (Ref)	1.00	–
Self-reported chronic condition	2.28	0.000
Number of observations	1,252	

The household survey in Nkoranza and Offinso collected information on whether a household member enrolled in the NHIS had paid a premium for his/her last enrollment in the NHIS, or had been exempt. Among NHIS members, there were no significant differences in the rates of premium exemptions across wealth quintiles (range: 64 percent to 62 percent; see Table 6.5). Those from the poorest households

were only slightly more likely to be exempted from premium payments. Nearly all children under 18 years were reported as exempted from premium payments, as were adults 70 years and over, which is consistent with the age-based NHIS regulations on premium exemptions in force in 2007 (Table 6.5).

TABLE 6.5. RECEIPT OF EXEMPTIONS FROM NHIS PREMIUMS, BY AGE CATEGORY AND QUINTILE: HOUSEHOLD SURVEY DATA, 2007

Age category	Wealth quintile					TOTAL
	Poorest	2	3	4	Richest	
0-4	100%	100%	100%	100%	100%	100%
5-17	100%	100%	98%	100%	99%	99%
18-34	3%	10%	7%	2%	8%	6%
35-49	0%	2%	2%	1%	8%	4%
50-69	5%	11%	9%	8%	18%	11%
70+	94%	97%	100%	98%	97%	98%
TOTAL	64%	65%	59%	62%	60%	62%

The household survey collected some additional information related to NHIS enrollment, such as reasons for non-enrollment and source of premium payment. The primary reasons for non-enrollment in NHIS was that the premiums were unaffordable (76 percent). About half of households that enrolled used income from harvest to pay NHIS premiums, 22 percent had used a gift from a friend or relative, and 14 percent had used their savings (Table 6.6)

TABLE 6.6. HOUSEHOLD'S SOURCE OF MONEY FOR PAYING PREMIUMS: HOUSEHOLD SURVEY DATA, 2007*

Salary	9%
Income from harvest	51%
Savings	14%
Livestock sales	2%
Sales from goods/assets	7%
Loan from friend/relative	2%
Gift from friend/relative	22%
Other	1%
	N=1,317 households
* Multiple responses possible	

7. EFFECTS OF NHIS IMPLEMENTATION ON UTILIZATION OF HEALTH CARE

Household survey data were also used to assess how NHIS implementation has affected utilization of health services in Nkoranza and Offinso, and to compare those insured by the NHIS to the uninsured. Patient exit survey data are not suitable for this analysis.

7.1 EFFECTS ON UTILIZATION OF CARE FOR RECENT ILLNESS

Table 7.1 presents information on the informal and formal care-seeking practices of individuals reporting illness in the past two weeks based on the household survey data. As shown, the percentage of those ill or injured in the two weeks before the survey who sought health care from a trained medical provider nearly doubled, increasing from 37 percent at baseline to 70 percent at endline. Those who reported self-treatment (using medication available at home) decreased from 50 percent to 36 percent. At the same time, the proportion visiting a traditional healer or chemist/pharmacist (informal care provider) decreased from 76 percent to 44 percent.

While these substantial improvements in care seeking may be due to factors other than NHIS that may improve access to health care services (such as improvement in road infrastructure or supply of health care), it is likely that reduction of out-of-pocket payments, brought about by enrollment in NHIS, is the main driver. There were no substantial changes in the supply of health care (number of health facilities or trained providers), and expenditures on transportation to health facility did not change significantly in the two study districts for the household survey.

In the endline sample, among respondents who were ill in the two weeks before the survey, those enrolled in the NHIS were twice as likely to have sought care at a modern provider, compared to the uninsured (88 percent versus 43 percent) (Table 7.1). In addition, the insured were half as likely to have visited informal/traditional care providers, and less likely to use a medication at home.

TABLE 7.1. INFORMAL AND FORMAL CARE SEEKING AMONG THOSE REPORTING ILLNESS IN THE PAST 2 WEEKS: HOUSEHOLD SURVEY DATA

Variable	Pre-post comparison			Endline sample only		
	Baseline sample	Endline sample	<i>p</i> -value	Non-insured	Insured under NHIS	<i>p</i> -value
	N=415	N=409		N=169	N=240	
Used medication at home	50%	36%	0.009	43%	32%	0.102
Sought care from informal providers	76%	44%	<0.001	61%	33%	<0.001

Variable	Pre-post comparison			Endline sample only		
	Baseline sample	Endline sample	<i>p-value</i>	Non-insured	Insured under NHIS	<i>p-value</i>
Sought care at a modern health care provider	37%	70%	<0.001	43%	88%	<0.001

The patient exit survey found no evidence of a change in informal care seeking or self-treatment among those who sought outpatient care in primary health care facilities (Table 7.2). However, the patient exit survey results showed that insured patients were less likely to report self-medication or to use informal/traditional providers, compared to uninsured patients.

TABLE 7.2. INFORMAL AND FORMAL CARE SEEKING AMONG OUTPATIENTS AT HEALTH FACILITIES: PATIENT EXIT SURVEY DATA

	Pre-post comparison: Outpatient sample for curative care, 24 primary facilities			Endline sample only		
	Baseline sample	Endline sample	<i>p-value</i>	Non-NHIS members N=425	NHIS members N=622	<i>p-value</i>
Used medication at home	41%	44%	0.564	45%	40%	0.072
Sought care from informal providers	40%	36%	0.159	46%	32%	<0.001

The patient exit survey showed that NHIS-insured individuals were less likely to perceive their medical condition as serious or very serious, compared to uninsured patients (Table 7.3). This finding is in line with anecdotal reports from DMHIS managers and staff at surveyed health facilities that the uninsured tend to seek care only when their condition is fairly serious, whereas those insured by the NHIS often seek care for minor illnesses.

TABLE 7.3. PERCEIVED SEVERITY OF ILLNESS: PATIENT EXIT SURVEY DATA, 2007

	Not insured <i>N=425</i>	NHIS insured <i>N=622</i>	<i>p-value</i>
Not serious	14%	23%	<0.001
Serious	54%	53%	
Very serious	33%	25%	

Table 7.4 presents additional information from the household survey on formal care-seeking patterns among individuals who sought care for illness or injury in the two weeks before the survey. Overall, there was a slight increase in the proportion of patients who sought care at public facilities (64 percent at baseline and 66 percent at endline), and an increase in mission facilities (23 percent v. 31 percent), compared to a significant decrease in the proportion seeking care at private facilities (12 percent vs. 3

percent). There were no significant changes in the timing of seeking care: the majority of patients sought formal care within 1-3 days after the onset of illness.

There were no significant changes from baseline to endline in the types of health services received. The level of satisfaction with health care services increased, although the change was not statistically significant.

Individuals insured under NHIS were somewhat less likely to delay seeking care, although this result was not statistically significant. There were no significant differences between insured and uninsured in the type of provider visited, in the type of services received at the health facility, or in the level of satisfaction with the care received.

TABLE 7.4. FORMAL CARE-SEEKING PATTERNS AMONG THOSE REPORTING ILLNESS AND SEEKING FORMAL CARE IN THE PAST TWO WEEKS: HOUSEHOLD SURVEY DATA

Variable	Pre-post comparison			Endline sample only		
	Baseline sample	Endline sample	<i>p</i> -value	Non-insured	Insured under NHIS	<i>p</i> -value
	N=177	N=309		N=93	N=216	
Timing of formal care seeking after onset of illness			0.736			0.649
1-3 days	77%	73%		65%	75%	
4-6 days	11%	13%		16%	12%	
7 or more days	12%	14%		18%	13%	
Type of facility			0.050			0.273
Public	64%	66%		61%	68%	
Mission	23%	31%		33%	31%	
Private	12%	3%		7%	1%	
Services received during this visit						
Consultation	100%	100%	0.405	100%	100%	0.562
Lab test	22%	24%	0.741	35%	21%	0.085
Drug prescription	98%	98%	0.319	99%	98%	0.711
X-rays	4%	3%	0.607	3%	4%	0.710
Satisfaction with services received			0.316			0.278
Very satisfied	88%	93%		98%	91%	
Somewhat satisfied	6%	3%		1%	3%	
Not satisfied	7%	4%		1%	5%	

Analysis of the patient exit data shows that there was a slight increase in satisfaction with services over the study period: 90 percent at baseline reported they were fully satisfied with the services received, compared to 95 percent at endline ($p=0.02$)

Among patients interviewed at endline, there was no significant difference in the types of services received by insured and by uninsured outpatients (Table 7.5). Overall, both insured and uninsured

patients in this survey reported similar levels of satisfaction with the care that they had received. However, reported waiting times were slightly longer for insured than for uninsured patients (60 vs. 51 minutes); 27 percent of uninsured were seen by a provider within 15 minutes, compared to 19 percent of insured.

TABLE 7.5. FORMAL CARE-SEEKING PATTERNS AMONG INSURED AND UNINSURED OUTPATIENTS: PATIENT EXIT SURVEY DATA, 2007

	Endline sample only		p-value
	Non-NHIS members N=224	NHIS members N=317	
Services received during this visit			
Consultation	100%	100%	0.40
Lab test	8%	12%	0.11
Drug prescription	98%	99%	0.39
X-rays	1%	1%	0.73
Other	25%	19%	0.14
Satisfaction with services received			0.46
Satisfied	93%	90%	
Somewhat satisfied	5%	7%	
Not satisfied	2%	3%	
Waiting time to see health provider (minutes)	50.8	60.5	0.072
Waiting time to see health provider			0.077
less than 15 minutes	27%	19%	
15-29 minutes	6%	10%	
30-59 minutes	21%	24%	
60 minutes or more	46%	47%	

7.2 EFFECTS OF NHIS IMPLEMENTATION ON HOSPITALIZATION

As was shown in Table 5.2, the proportion of individuals with a hospitalization in the past 12 months in Nkoranza and Offinso decreased slightly between 2004 (2.4 percent) and 2007 (1.9 percent), but not by a significant margin ($p=0.15$). We do not have a measure of the need for hospitalization, so the interpretation of these results is ambiguous: it might be due to a number of possible factors, including increased use of preventive care, earlier care seeking for illness, or increased use of preventive care associated with the NHIS.

The average number of nights spent at the hospital decreased significantly, from 11 nights at baseline to 5 nights at endline, and there was a significant decrease (from 9 percent to 1 percent) in the proportion of hospitalized individuals reporting that they were kept at the hospital longer than medically necessary due to inability to pay their bill (Table 7.6).

At endline, the hospitalization rate in past 12 months among those insured by the NHIS was significantly higher than for the uninsured (2.7 percent and 1.4 percent, $p=0.001$); there were no differences between these two groups in the number of nights spent at the hospital or in the proportion detained at the facility due to inability to pay (although these results rely on very small sample sizes), Table 7.6.

TABLE 7.6. CHARACTERISTICS OF HOSPITALIZATION IN PAST 12 MONTHS: HOUSEHOLD SURVEY DATA

Variable	Pre-post comparison			Endline sample only		
	Baseline sample	Endline sample	<i>p-value</i>	Non-insured	Insured under NHIS	<i>p-value</i>
	N=203	N=208		N=70	N=138	
Average number of nights spent in hospital	11.5	5.1	0.023	5.6	4.7	0.302
Median number of nights spent in hospital	5.0	4.0		4.0	4.0	
Kept in hospital longer than medically necessary due to inability to pay bill	9%	1%	<0.001	2%	1%	0.475

In the patient exit survey of inpatients, results from six hospitals indicate that there was some increase in the average number of days at the hospital, from 5.6 to 6.5 days, although this increase was not statistically significant (Table 7.7). The proportion reporting they were detained due to inability to pay was halved, from 8 percent to 4 percent. There was no change in the level of satisfaction with the services received: the proportion reporting they were fully satisfied remained at 84 percent.

At endline, while none of the NHIS-enrolled inpatients had been detained due to inability to pay, about 12 percent of those who were not insured at time of hospitalization reported this had been the case (Table 7.7). Waiting time reported by insured patients at the inpatient wards was somewhat shorter, compared to the time that the uninsured had waited: 29 percent of uninsured were seen within 15 minutes, compared to 22 percent of the insured. The level of satisfaction with services was similar among insured and uninsured, with 85 percent and 86 percent respectively reporting they were fully satisfied with services received at the hospital.

TABLE 7.7. CHARACTERISTICS OF HOSPITALIZATION: PATIENT EXIT SURVEY DATA

	Pre-post comparison: Outpatient sample for curative care, 6 hospitals			Endline sample only		
	Baseline sample	Endline sample	<i>p</i> -value	Non-NHIS members N=201	NHIS members N=305	<i>p</i> -value
Average number of nights spent in hospital	5.6	6.5	0.29	5.6	6.6	0.349
Median number of nights spent in hospital	6.3	7.2		4.0	4.0	
Kept in hospital longer than medically necessary due to inability to pay bill	8%	4%	0.34	12%	0%	<0.001
Waiting time to see health provider (minutes)	n/a	n/a		50.7	44.1	0.317
Waiting time to see health provider						0.011
less than 15 minutes	n/a	n/a		29%	22%	
15-29 minutes	n/a	n/a		8%	8%	
30-59 minutes	n/a	n/a		6%	16%	
60 minutes or more	n/a	n/a		56%	54%	

7.3 EFFECTS ON UTILIZATION OF MATERNAL CARE

Overall, maternal care patterns remained largely unchanged pre- and post-NHIS implementation. There were no significant changes in the proportion of women who received any prenatal care, or in the average number of reported prenatal care visits between baseline and endline (Table 7.8), indicating that the NHIS did not increase utilization of prenatal care. This may be due to universally high rates of prenatal care found in the baseline survey. The proportion of women who had four or more prenatal care visits decreased from 75 percent to 68 percent though this change was not statistically significant. Both at baseline and endline, nearly all women who received prenatal care had seen a nurse/midwife.

At endline, insured women had a significantly higher number of prenatal visits, compared to uninsured women (six and four visits, respectively).

TABLE 7.8. CHARACTERISTICS OF PRENATAL CARE AMONG WOMEN WHO DELIVERED IN PAST 12 MONTHS: HOUSEHOLD SURVEY

Variable	Pre-post comparison			Endline sample only		
	Baseline sample	Endline sample	<i>p</i> -value	Non-insured	Insured under NHIS	<i>p</i> -value
	N=282	N=313		N=178	N=135***	

Variable	Pre-post comparison			Endline sample only		
	Baseline sample	Endline sample	<i>p</i> -value	Non-insured	Insured under NHIS	<i>p</i> -value
At least one prenatal visit	96%	94%	0.49	90%	100%	0.93
Average number of prenatal visits	5.2	4.7	0.24	3.9	5.8	<0.0001
Number of prenatal visits						
0	4%	6%	0.53	10%	0%	0.002
1-3	22%	26%		32%	16%	
4-5	30%	32%		34%	28%	
6+	44%	36%		24%	56%	
Location for prenatal care			0.47			0.51
public	61%	64%		63%	65%	
mission	34%	32%		32%	33%	
private	4%	1%		1%	2%	
other	1%	2%		4%	0%	
Provider of prenatal care			0.90			0.32
doctor	4%	4%		3%	5%	
nurse/midwife	96%	96%		97%	95%	

There were no significant changes in the location of delivery, presence of skilled attendant at delivery, or in the rate of a cesarean-section delivery between 2004 and 2007 (Table 7.9). The proportion of deliveries that took place in a health facility was 54.5 percent in 2004, and remained virtually unchanged (54.9 percent) in 2007. Multivariate analyses controlling for a number of socioeconomic characteristics known to be associated with maternal care seeking showed no evidence that implementation of NHIS was associated with a change in the likelihood of delivering in a health facility. Among deliveries that took place in a health facility, the distribution among public, mission, and private for-profit facilities also remained unchanged. The results for facility deliveries closely matched those for delivery with a skilled birth attendant (defined as a doctor, nurse, or midwife): 56 percent of deliveries at baseline and 55 percent at endline were with a skilled attendant.

Results from the endline survey show that insured women were significantly more likely than uninsured women to deliver in a health facility, to have a trained birth attendant at delivery, and also to deliver by cesarean section. Women who were covered by the NHIS at time of delivery were significantly more likely to have a facility-based delivery: 46 percent of uninsured women compared to 68 percent of insured women. The proportion of deliveries by cesarean-section also remained unchanged (6.9 percent at baseline and 6.4 percent at endline). However, insured women were significantly more likely to deliver by cesarean-section, compared to uninsured women.

Multivariate analyses of endline data found that women enrolled in NHIS at time of delivery but did not deliver in a health facility were more likely to be poorer and multiparous (i.e., have more than one living child).

TABLE 7.9. CHARACTERISTICS OF DELIVERY AMONG WOMEN WHO DELIVERED IN PAST 12 MONTHS: HOUSEHOLD SURVEY

Variable	Pre-post comparison			Endline sample only		
	Baseline sample	Endline sample	p-value	Non-insured	Insured under NHIS	p-value
	N=282	N=313		N=178	N=135	
Location of delivery			0.344			0.019
Home	44%	43%		52%	31%	
Public facility	29%	28%		25%	32%	
Mission facility	21%	25%		21%	33%	
Private facility	4%	2%		1%	3%	
Other	1%	2%		2%	1%	
Delivery attendant			0.132			0.005
Doctor	7%	10%		5%	18%	
Nurse/midwife	49%	44%		41%	51%	
Trained TBA	30%	22%		22%	24%	
Untrained TBA, relative, self	14%	23%		33%	8%	
Type of delivery			0.825			0.004
Normal	93%	94%		98%	87%	
Cesarean	7%	6%		2%	13%	

In the baseline survey, we observed the phenomenon of women being detained in hospital due to inability to pay their hospital bill, particularly a problem for women who delivered by cesarean section. During the study period there was a slight decrease in the proportion of women reporting that they were kept at the hospital longer than medically necessary for lack of payment, from 8 percent to 6 percent, but this difference was also not statistically significant. At endline, none of the NHIS-enrolled women were detained at the hospital due to inability to pay, compared to 18 percent of uninsured women ($p < 0.001$).

8. EFFECTS OF NHIS IMPLEMENTATION ON OUT-OF-POCKET EXPENDITURES FOR HEALTH CARE

The study aimed to assess whether implementation of NHIS results in lower out-of-pocket expenses for health care, using both household and patient exit survey data.

All expenditures reported here are in 2004 Ghanaian cedis amounts (the amounts from the endline survey were adjusted for inflation, which was 40 percent in the three years between baseline and endline). All amounts presented are in old Ghanaian cedis.¹¹

8.1 EFFECTS ON EXPENDITURES FOR RECENT ILLNESS OR INJURY: HOUSEHOLD SURVEY

Overall, OOP expenditures for patients seeking care for an illness in the past two weeks were significantly reduced during implementation of NHIS from 2004 and 2007, driven primarily by significantly lower payment for drugs (Table 8.1). Payment for services such as labwork and consultations were lower, but not by significant margins.

In the endline sample, total OOP expenditures were significantly lower among the insured. OOP payments for drugs, comprising the bulk of expenditures, were significantly lower among insured than non-insured individuals; costs for consultations, labs, and hospitalization were also lower for NHIS-insured patients although these differences were not statistically significant (likely due to the small sample size).

TABLE 8.1. OOP HEALTH EXPENDITURES FOR ILLNESS EPISODE IN PAST TWO WEEKS AMONG THOSE WHO SOUGHT FORMAL CARE AT HEALTH FACILITIES: HOUSEHOLD SURVEY DATA (CEDIS)

Variable	Pre-post comparison			Endline sample only		
	2004	2007	<i>p</i> -value	Non-insured	Insured under NHIS	<i>p</i> -value
	<i>N</i> =177	<i>N</i> =309		<i>N</i> =93	<i>N</i> =216	
Consultation	3,802	2,658	0.514	10,871	103	0.139
Lab	3,504	937	0.091	2,015	602	0.087
Drugs	27,290	10,160	<0.0001	30,672	3,778	<0.0001
X-rays	0	636	–	2,679	0	0.326
Hospitalization	427	666	0.746	2,491	98	0.354

¹¹ Effective July 1, 2007, the Ghana cedi was re-denominated and is now worth 10,000 old cedis.

Variable	Pre-post comparison			Endline sample only		
	2004	2007	<i>p</i> -value	Non-insured	Insured under NHIS	<i>p</i> -value
Other	3,502	612	0.356	729	575	0.856
Transportation to facility	3,643	3,876	0.833	6,699	2,998	0.068
Informal payment to provider	1,437	352	0.408	602	275	0.567
TOTAL	43,604	19,898	0.004	56,760	8,429	<0.0001

Note: Sample size too small at baseline for *p*-value estimation

8.2 EFFECTS ON EXPENDITURES FOR OUTPATIENT CARE: PATIENT EXIT SURVEY

Table 8.2 compares changes in OOP expenditures based on the patient exit survey of outpatients. Overall OOP expenditures among those seeking outpatient care in formal health facilities decreased substantially, from 21,293 cedis in 2004 to 13,748 cedis in 2007. This change was driven by the reduction in payment at the health facility, as transportation costs increased slightly. At endline, total OOP expenditures for patients covered under NHIS were about 20 percent of the amount paid by the uninsured, and this difference was also primarily due to the much lower expenditures at the health facility.

TABLE 8.2. OUTPATIENT OOP EXPENDITURES: PATIENT EXIT SURVEY (CEDIS)

Variable	Pre-post comparison: 24 primary care facilities			Endline sample only		
	2004	2007	<i>p</i> -value	Not insured	NHIS insured	<i>p</i> -value
				<i>N</i> =224	<i>N</i> =317	
Total official payment at current health facility	15,915	8,111	0.000	38,425	2,625	<0.001
Informal payment to provider	191	509	0.21	1,723	830	0.2789
Payment at other (prior) health facility	1,095	588	0.38	3,772	568	0.003
Transportation	1,391	2,181	0.18	6,786	3,535	0.203
Informal/traditional care	2,702	2,358	0.37	4,085	3,268	0.271
TOTAL	21,293	13,748	0.001	54,791	10,825	<0.001

8.3 EFFECTS ON EXPENDITURES FOR INPATIENT CARE

For household respondents who were hospitalized in the past year, there was a significant decrease in the proportion paying OOP and a significant drop in actual expenditures from baseline to endline (Table 8.3). Still, at endline nearly a third of those hospitalized did not have sufficient funds to pay their bill.

Insured respondents at endline reported paying only nominal amounts for their hospital care, whereas their uninsured counterparts paid on average 473,713 cedis. Nearly two-thirds of uninsured respondents at endline did not have adequate cash resources to pay their bill, and were forced to sell agriculture or borrow money.

TABLE 8.3. OOP EXPENDITURES FOR HOSPITALIZATION IN PAST 12 MONTHS: HOUSEHOLD SURVEY DATA

Variable	Pre-post comparison			Endline sample only		
	Baseline sample	Endline sample	p-value	Non-insured	Insured under NHIS	p-value
	N=203	N=208		N=70	N=138	
Asked to pay for hospitalization	87%	45%	<0.0001	99%	5%	<0.0001
Mean OOP expenditures (cedis)	359,518	195,370	0.068	473,713	7,753	<0.0001
Median OOP expenditures (cedis)	120,000	0		285,714	0	
Did not have enough cash at home to pay bill	47%	30%	0.2211	69%	2%	<0.0001
Source of funds for hospital bill			<0.0001			<0.0001
No charge/insured	13%	56%		0.3%	96%	
Sold agricultural produce	7%	3%		7%	0%	
Sold assets (household, tools)	0.1%	0%		0%	0%	
Took money from savings (bank)	0.1%	3%		7%	0%	
Took money from susu	0.1%	0%		0%	0%	
Borrowed from friend or relative	31%	12%		26%	1%	
Borrowed from money lender	6%	3%		6%	0%	
Received a gift	1%	7%		17%	1%	
Paid bill in installments	2%	2%		5%	0%	
Cash on hand	40%	14%		31%	2%	

Data from the patient exit survey shows that average OOP costs for inpatient care decreased significantly between 2004 and 2007 ($p=0.046$) (Table 8.4). At endline, expenditures were significantly lower among NHIS-insured individuals compared to uninsured individuals ($p<0.001$). Costs for drugs and medical supplies purchased outside of health facilities were higher for uninsured individuals, but by a less significant margin.

TABLE 8.4. INPATIENT OOP EXPENDITURES: PATIENT EXIT SURVEY (CEDIS)

Variable	Pre-post comparison: Inpatient sample, 6 hospitals			Endline sample only		
	2004	2007	<i>p</i> -value	Not insured <i>N</i> =201	NHIS insured <i>N</i> =305	<i>p</i> -value
Total official payment at health facility	269,294	114,994	0.046	511,140	10,952	<0.001
Informal payment to health provider	1,658	5,728	0.195	4,403	3,377	0.638
Drugs/supplies purchased elsewhere	11,441	15,896	0.629	27,874	15,852	0.159
Payment at other (prior) health facility	14,730	3,070	0.145	11,606	508	<0.001
Transportation	8,296	9,251	0.695	15,219	12,841	0.363
Informal/traditional care	5,686	4,715	0.373	8,473	6,669	0.233
TOTAL	311,105	149,112	0.043	578,715	50,199	<0.001

Among inpatients in the patient exit sample, there was a significant decrease in the proportion who were asked to pay for the hospitalization, from 80 percent to 37 percent (Table 8.5). The proportion detained at the hospital due to inability to pay their bill was halved, from 8 percent to 4 percent, although this change was not statistically significant.

TABLE 8.5. PAYMENT FOR HOSPITALIZATION: PATIENT EXIT SURVEY

	Pre-post comparison: Outpatient sample for curative care, 6 hospitals			Endline sample only		
	Baseline sample	Endline sample	<i>p</i> -value	Non-NHIS members <i>N</i> =201	NHIS members <i>N</i> =305	<i>p</i> -value
Kept in hospital longer than medically necessary due to inability to pay bill	8%	4%	0.34	12%	0%	<0.0001
Asked to pay for hospitalization	80%	37%	0.01	89%	2%	<0.0001
Did not have enough cash at home to pay bill	32%	23%	0.33	50%	5%	<0.0001

At endline, none of the insured inpatients in the patient exit survey had been detained at the hospital for delayed payment, compared to 12 percent of those who were not insured (Table 8.5). While only 5 percent of NHIS-enrolled inpatients reported that they did not have enough cash at home to pay for the hospitalization, this was the case for 50 percent of the uninsured.

8.4 EFFECTS ON EXPENDITURES FOR MATERNAL CARE

Overall, OOP payments for delivery decreased by about one-third after the NHIS was implemented. Adjusting for inflation, average delivery expenditures declined from 111,570 cedis to 75,418 cedis (Table 8.6). There were significant changes in how women paid for delivery care: while 30 percent at baseline said they had to sell agricultural produce to pay for the delivery, only 3 percent at endline reported having to do so. Overall, the proportion of women who did not have to pay for their delivery increased from 28 percent to 52 percent. Among women who delivered in a health facility, 9 percent did not have to pay at baseline, compared to 51 percent at endline.

Average expenditures on prenatal care also declined, but the relative change was smaller (15 percent) and not statistically significant (49,238 to 42,789 cedis, $p=0.44$). However, the proportion of women who did not have to pay anything for their prenatal care increased from 8 percent in 2004 to 43 percent in 2007 ($p<0.001$).

TABLE 8.6. OOP EXPENDITURES ON DELIVERY CARE

Variable	Pre-post comparison			Endline sample only		
	Baseline sample	Endline sample	<i>p-value</i>	Non-insured	Insured under NHIS	<i>p-value</i>
	N=282	N=297		N=163	N=134	
Expenditures on delivery*	111,570	75,418	0.100	115,189	17,138	<0.0001
How paid delivery bill			<0.0001			0.0016
Cash on hand	25%	33%		44%	16%	
Sold agricultural produce	30%	3%		4%	0%	
Sold assets (household, tools)	0%	1%		1%	0%	
Took money from savings (Bank)	3%	1%		2%	0%	
Took money from susu collector	3%	0%		0%	0%	
Borrowed from friend or relative	9%	6%		8%	3%	
Borrowed from money lender	0%	1%		2%	0%	
Received a gift	0%	1%		1%	1%	
No charge	28%	52%		34%	80%	
Other	0%	2%		3%	0%	
No fee for delivery (all deliveries)	28%	52%	<0.0001	34%	80%	<0.0001
	N=183	N=211		N=102	N=109	
No fee for facility delivery (deliveries in modern facility only)	9%	51%	<0.0001	8%	95%	<0.0001

At endline, women enrolled in the NHIS spent considerably less than non-enrolled women (17,138 cedis compared to 115,189 cedis). Whereas over 90 percent of uninsured had to pay a fee for delivery, only 5 percent of insured women paid anything.

Tables 8.7 and 8.8 present information on the expenditures associated with prenatal care and delivery care, respectively, based on data from the patient exit survey. The sample of health facilities where prenatal care patients were interviewed was too small for a pre-post comparison of prenatal care expenditures. At endline, OOP expenditures for prenatal care at health facilities were significantly lower for insured than for uninsured women (Table 8.7).

TABLE 8.7. PRENATAL CARE EXPENDITURES: PATIENT EXIT SURVEY (2007)

Variable	Endline sample only		
	Not insured	NHIS insured	p-value
	N=50	N=18	
Total payment at health facility	18,440	1,000	<0.001
Transportation	5,130	4,056	0.508
TOTAL	23,570	5,056	<0.001

Average expenditures for delivery in the patient exit sample decreased from 166,135 cedis to 117,462 cedis, although this change was not statistically significant (Table 8.8). While 62 percent of women at baseline were asked to pay for the delivery, this proportion had decreased to 33 percent at endline (although this change was not statistically significant, likely due to the small sample size; $p=0.36$). There was no significant change in the proportion of women who reported that they did not have enough cash at home to pay for their delivery (15 percent at baseline, 17 percent at endline, $p=0.84$).

At endline, insured women in the patient exit survey paid substantially less for their delivery, compared to uninsured women, 546,406 and 37,134 cedis, respectively (Table 8.9). While 49 percent of uninsured said they did not have enough cash at home to pay for the delivery, only 1 percent of insured women said this was the case ($p<0.001$).

TABLE 8.8. PATIENT EXIT SURVEY RESPONDENTS: DELIVERY EXPENDITURES (2007)

Variable	Pre-post comparison: Deliveries sample, 8 facilities			Endline sample only		
	2004	2007	p-value	Not insured	NHIS insured	p-value
				N=75	N=93	
Total official payment at health facility	154,301	97,606	0.41	522,746	54	<0.001
Informal payment to health provider	3,134	3,800	0.594	4,987	6,000	0.566
Drugs/supplies purchased elsewhere	1,064	11,199	0.154	4,933	22,613	0.211
Transportation	7,636	4,857	0.137	13,740	8,468	0.019
TOTAL	166,135	117,462	0.454	546,406	37,134	<0.001

9. CONCLUSIONS AND POLICY IMPLICATIONS

This study, based on household survey results from two districts and patient exit survey results from seven districts, is one of the first to assess the effects of national health insurance in Ghana. The evaluation focused on NHIS implementation at the district level, factors associated with enrollment, and trends in health care utilization and expenditures. The results from this evaluation lead to several important policy implications, which are summarized below. It is hoped that these findings will assist the Government of Ghana in making necessary reforms to improve the performance of the NHIS and as a result, improve health and economic outcomes for all Ghanaians.

Towards equitable enrollment

Study results showed that age-based exemptions, such as those for children under 18 and elderly adults over 70, have worked well. Exemptions for the indigent have rarely been provided and have not been consistently allocated to the poorest households. According to our household survey in two districts, whereas 52% of those in the top wealth quintile were enrolled in the NHIS, only 18% in the poorest quintile were enrolled. These findings indicate that premium exemptions for the poorest socioeconomic groups need to be strengthened and more uniformly applied, and efforts to enroll the poorest groups (including communications and outreach) should be stepped up.

Addressing adverse selection

To counter the potential for adverse selection, a situation in which those with poorer health status are more likely to enroll in and use health insurance programs, the intent of the National Health Insurance Act is for all Ghanaians to be enrolled in one of the three insurance options. While national coverage as of December 2008 was an impressive 61%, there is still a considerable proportion of the population not enrolled. Among those covered by NHIS, the study found higher rates of chronic illness, an indication of adverse selection. Scaling up of efforts to encourage all residents to enroll in NHIS, as suggested by the DMHIS managers interviewed for this study, may help address this problem.

Uneven gains in health care access

According to our surveys, the introduction of the NHIS in Ghana was associated with significant increases in use of formal medical services for illnesses, and significant decreases in self-treatment and informal care-seeking. Insurance has been very effective at reducing OOP expenditures for outpatient and inpatient care.

Conversely, our results indicate that the introduction of the NHIS was not associated with changes in use of maternal health services (prenatal care, skilled attendance at delivery, facility-based births, or cesarean deliveries), although out-of-pocket expenditures for maternal care decreased significantly.

Prenatal care utilization was high in our baseline survey – over 90 percent of women reported having at least 1 prenatal care visit, and women reported on average 5 prenatal visits, a number which surpasses the minimum WHO recommendations. Even uninsured women in the endline survey reported an

average of 4 prenatal visits. However, high utilization of prenatal care services did not translate into skilled attendance at delivery. The fact that there was no improvement in the proportion of women delivering in a health facility between 2004 and 2007 is cause for concern. While our household survey was only conducted in two districts, national statistics validate this concern, noting increases in maternal and infant deaths in recent years (GHS 2007).

There is a general recognition that low utilization of maternal health care services in Ghana is a significant problem, and anecdotal evidence as to its causes. These may include understaffed facilities, negative provider attitudes and biases, transportation challenges, cultural preferences (e.g. for delivering at home or for particular delivery positions), fear of hostile providers, and cost. However, these barriers to maternal health care-seeking have not been studied systematically in Ghana. Given the evaluation findings showing no improvement in rates of seeking formal delivery care since NHIS implementation, despite an 18 percentage point increase in NHIS coverage among recently delivered women, the non-financial barriers warrant particular examination.

Ongoing support to DMHIS

It will be important to ensure that DMHIS receive adequate support and guidance, and that field registration sites and fund collectors are properly managed. Some registration-related challenges include delays in issuance of cards, inadequate and unmotivated staff, and lack of awareness and acceptance by district residents of the need for health insurance. DMHIS managers indicated that delays in the reimbursement of service providers not only sours their relationship with the providers, but also may jeopardize access to services for NHIS enrollees. In order to reach the goal of universal coverage, these operational problems must be addressed.

Maximizing resources

According to our surveys, implementation of the NHIS in Ghana has increased access to health care services, and our evaluation confirmed that enrolled individuals are more likely to seek care from formal providers for illness or injury. While this result demonstrates progress towards the goal of universal access, it also signals increasing burden on the public-sector health infrastructure in Ghana. There are rising concerns about the ability of the public health system to respond to the growing demands. In addition to maintaining and improving public facilities, the Government of Ghana may wish to consider the potential benefits of further engaging private providers in the NHIS.

Evaluation results showed a decrease in utilization of private sector health care between 2004 and 2007, likely associated with the onset of the NHIS and the slow process of accreditation for private facilities. Given demands on the public health care system, private providers can be viewed as additional service delivery outlets, and as such, an avenue for increasing access to care. Accreditation of private facilities to participate in the NHIS is now on the rise and this should continue. Applying uniform accreditation standards for public and private facilities may streamline the process and put participation more within reach for private facilities. Working through health franchises or professional associations, which could certify that member facilities meet accreditation standards, may be a cost-effective way to scale-up private sector participation in the NHIS, and thus relieve the burden on public facilities and staff. In addition to expanding access to care, full private sector participation in the health insurance system can also raise the quality of care through healthy competition with public facilities for clients.

Ghana has made great strides in increasing access to essential health services for its populace. The evaluation shows that the NHIS has contributed to increased utilization of health care from formal health sector facilities, and has drastically reduced OOP payments for these services. Positive impacts

on maternal health care seeking, and in particular skilled attendance at delivery, have been elusive, although a significant decrease in OOP expenditures for these services was associated with NHIS enrollment. Despite some operational challenges, registration in district-run schemes is growing, and by increasing consumer awareness of the NHIS, improving targeting of the poor, and ensuring timely reimbursements to health providers, DMHIS performance can be enhanced.

ANNEX A: SAMPLE SIZE CALCULATIONS: HOUSEHOLD SURVEY

The sample size estimates assume two districts. The study aims to compare differences in the socioeconomic characteristics and health care utilization of the insured and uninsured population groups within each district, and also examine differences between districts. To determine the sample size needed to select from each group within each district, a certain percentage point difference in population percentages between groups for the specified characteristic of interest need to be detected (e.g., home ownership). Sample size calculations are then made in terms of the number of households, assuming that household characteristics are of interest.

Table A-1 shows the required sample size from each group to detect differences of 5 or 7 percentage points between two population percentages (with 80 percent power using a two-sided statistical test at the 5 percent level of significance). For this determination, we will assume that the population percentage of the characteristic of interest is around 50 percent.

Table A-1: Required Sample Sizes for Different Levels of Attribute in Population

Difference	Sample size from each group (Number of households)
5 percentage points	1,233
7 percentage points	627

We are testing the hypothesis that there is no difference in the population percentages between the insured and uninsured groups. The table shows that if there is a real difference of 7 percentage points in the population percentages, a sample of 627 households from each group (insured and uninsured) will be needed to detect a difference and to reject the hypothesis of no difference (with 80 percent power using a two-sided statistical test at 5 percent level of significance).

Due to budget limitations, the baseline survey was designed to detect a difference of 7 percentage points. For the endline survey, a sample of approximately 1,250 households for each district was obtained, for a total of 2,500 households, to detect differences at the 5 percentage point level.

ANNEX B: BIBLIOGRAPHY

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