EFFECTS OF CONSUMER AND PROVIDER MORAL HAZARD AT A MUNICIPAL HOSPITAL OUT-PATIENT DEPARTMENT ON GHANA'S NATIONAL HEALTH INSURANCE SCHEME

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SUMMARY

Background: In 2003, Ghana introduced the national health insurance scheme (NHIS) to promote access to healthcare. This study determines consumer and provider factors which most influence the NHIS at a municipal health facility in Ghana.

Method: This is an analytical cross-sectional study at the Winneba Municipal Hospital (WHM) in Ghana between January-March 2010. A total of 170 insured and 175 uninsured out-patients were interviewed and information extracted from their folders using a questionnaire. Consumers were from both the urban and rural areas of the municipality.

Results: The mean number of visits by insured consumers to a health facility in previous six months was 2.48 +/- 1.007 and that for uninsured consumers was 1.18 +/- 0.387(p-value<0.001). Insured consumers visited the health facility at significantly more frequent intervals than uninsured consumers (χ^2 = 55.413, p-value< 0.001). Overall, insured consumers received more different types of medications for similar disease conditions and more laboratory tests per visit than the uninsured. In treating malaria (commonest condition seen), providers added multivitamins, haematinics, vitamin C and intramuscular injections as additional medications more for insured consumers than for uninsured consumers.

Conclusion: Findings suggest consumer and provider moral hazard may be two critical factors affecting the NHIS in the Effutu Municipality. These have implications for the optimal functioning of the NHIS and may affect long-term sustainability of NHIS in the municipality. Further studies to quantify financial/ economic cost to NHIS arising from moral hazard, will be of immense benefit to the optimal functioning of the NHIS.

Key words: Social health insurance, low-income countries, Ghana, consumer moral hazard and provider moral hazard.

INTRODUCTION

Providing adequate health care in low-income countries continues to be a challenge. These countries face 56% of the global disease burden but account for only 2% of global health spending.[1] Additional challenges arise when providing their citizens with essential health services and financial protection against the impoverishing effects of catastrophic illness.[2] Given this serious situation, the problem of finding the most cost effective way of financing health care continues to beleaguer governments especially in developing countries[3], and this continues to be debated as resources for state health expenditure continue to decline[4]. This debate has engaged attention of most governments in Ghana since independence. [5-8]

In Ghana user fees for health care were introduced in the early 1980s, resulting in a sharp and significant reduction in utilization of health care and prevented access for the poor.[9] To overcome the financial difficulties experienced by the elderly, women and children and the very poor in accessing vital health services, a fee exemption policy was instituted. The policy failed to work because, applying and enforcing such targeting for the most vulnerable in the population, was shown to be difficult in practice.[10-12]

To improve access to health care, health insurance with the potential to increase utilization and better protect people against (catastrophic) health expenses was a preferred option to user fees.[2,13-15] In an effort to offer health insurance, the Government of Ghana in 2003, introduced the National Health Insurance Scheme (NHIS) as the main health financing system.[16] Prior to establishment of NHIS, a few community-based mutual health insurance schemes were operational in some districts in Ghana (e.g. the Nkoranza District in the Brong Ahafo region of Ghana) on pilot basis.[17]

The NHIS is aimed at reducing financial barriers to accessing health care, so as to improve health of the population.[16]

This insurance is designed to capture persons in all sectors of the economy. The main characteristics of NHIS are that it is mutual, with ownership resting with the subscribers (not Government) and emphasizes solidarity[18]. The scheme currently operates in 145 districts of the more than 160 districts in Ghana and covers over 95% of disease conditions that afflict the population.[19]

Social health insurance such as NHIS poses peculiar challenges especially in developing countries.[2] In these countries, national incomes are generally low[20,21], informal sectors are huge with preponderant rural populations[2,22,23], margins to increase labour cost are limited[24] and administrative capacity to organize universal health financing system is most often lacking.[24-28] In the face of all these peculiar challenges, Ghana has implemented a functional health insurance scheme.[16, 19]

However, the NHIS continues to face major challenges that threaten its long-term sustainability.[19] Challenges regarding changes in health seeking behaviour of insured (user moral hazard) and practices of health providers (provider moral hazard), greatly influence financing and sustainability of most health insurance schemes and their ability to provide quality health care in the long-term.[2,14,24] Earlier studies in Ghana have indicated unmet health needs due to decreases in clinic attendance as a consequence of the introduction of user fees.[5] With the removal of user fees as a barrier to health care, changes in health seeking behaviours may be expected. The NHIS is already experiencing galloping cost escalations. Cost of claims nationally have escalated over the life of NHIS with almost a doubling of cost between 2008 and 2009 from 165million Ghana cedis in 2008 to almost 372 million Ghana cedis.[19]

The aim of this study is to determine the effect of consumer and provider moral hazard on the functioning of NHIS at the district health level in Ghana. The study identified differences in socio-demographic characteristics, health care utilization and provider services among insured and uninsured consumers, and the critical challenges these factors pose to the adequate functioning of the NHIS in the municipality.

MATERIALS AND METHODS
This was an analytical cross–sectional study undertaken at Winneba Municipal Hospital (WMH) over a five week period from January 2010–March 2010.

Site of study
WMH is in Winneba, a town in the Effutu Municipality, which is one of 19 districts in the Central region of Ghana. In 2009, the total population of the Municipality was 53, 331.[29]

Winneba is the capital of the municipality and is renowned for its higher educational institutions. WMH is the main referral centre within the municipality and adjoining districts. It is a 130 bed-capacity hospital, offers both in and outpatient services, and operates a 24-hour service. As of 2009, the hospital had a total staff strength of 222 (which included 5 medical officers, 2 medical assistants, 38 professional nurses, 19 midwives, 10 auxiliary nurses, 100 health extension workers and health aids, 75 paramedics and support staff and 34 casual workers).[29] In addition to WMH, two other main public health facilities in the municipality are Winneba Health Centre and Gyangyenadze Health Centre.[30] WMH started implementing NHIS in November 2006.

Consumers who are registered with NHIS access health care at WMH and the Effutu Municipal Mutual Health Insurance Authority then reimburses the health facility, usually on quarterly basis.[16] WMH sees 80 to 120 consumers a day. Of these about 55% are insured with NHIS.[29]

Sampling Methods
The study compared two populations, insured and uninsured consumers who used the facility. Sample size in this study was determined to have 95% power (Z_β=1.645) to detect a 20% effect on utilization of health service, assuming a two-sided type1 error of 0.05% ($Z_{1-\alpha}$=1.96). The proportion of uninsured population of consumers was $\prod_1$=0.5, (based on per capita hospital visitation per year in the municipality in 2008), that of insured population was $\prod_2$=0.7 All P values reported are two sided; statistical significance in this study is defined as P <0.05.

Adjusting for refusals and rejections due to poor data quality in consumers' folders, 170 insured outpatient consumers and 175 uninsured consumers were interviewed for the study. A systematic sampling procedure was used to select insured and uninsured consumers visiting the facility during the study period. Ten folders each were selected for insured and uninsured consumers from an initial 30 eligible folders for each group through a systematic random technique each day. The process was repeated every day, (except on weekends) until sample size was obtained. All consumers attending the out-patient clinic were eligible for the study except those who required emergency care. Previously selected consumers coming for revisits within the study period were excluded.

Data collection and analysis
A structured questionnaire was used to interview consumers at the out-patients as well as to review medical records in their folders.

The structured questionnaire was designed to obtain information on: basic socio-demographic characteristics, out-patient attendance patterns, disease conditions presented, treatment received, and access to medications and laboratory results by consumers. Outcome measures for this study included, number of out-patient visits in previous six months, average length of time (in months) between visits, types of diseases presented, treatment received for similar disease conditions (e.g. number and category of drugs prescribed, based on the Essential Drug List of the National Health Insurance Scheme of Ghana) and proportion of consumers who received haematinics or multivitamin/food supplements as additions to their treatment. Other outcome measures were, the number of laboratory tests done per consumers per visit, the number of consumers referred by providers, and the proportion of consumers able to access all medications and laboratory results in the health facility. The diseases presented were based on ICD-10 classification and within specific age range.[31]

These outcome measures were compared between the two groups for the index/current visit to the health facility. However, access to prescribed medications and laboratory test results were based on last visit to a health facility within the previous six months. Differences were examined for significance at α=0.05 significant level and 95% confident intervals using Chi – square for categorical variables and t-tests for means.

Logistic regression was performed to indicate the probabilities of consumers receiving different treatments based on their insurance status (using Odds ratio and p-values). Insurance status was the dependent binary variable and 8 binary covariates were used for the analysis. The covariates were , addition or otherwise of multivitamin/ food supplement, haematinic, vitamin C, antibiotics, NSAIDS, and intramuscular medications to treatment of consumers, and whether consumers were referred, or had laboratory test done. The estimated model used was: $In[p(insured)/(1- p(insured)] = In [p(insured)/ p(uninsured)]$, where p(insured) = probability of being insured, and p (insured)/ p(uninsured) = odds of being insured.

Data were entered into Microsoft Excel 2007 and imported into SPSS version 19 for analysis. Double entry technique was used to improve consistency in the data entry process.

Ethical issues
Clearance was obtained from the Municipal Health Authorities, WMH authorities and University of Ghana Medical School. Written informed consent was obtained from each participating individual.

Assumptions and limitations
The study assumed that any changes in patterns of health care utilization by insured consumers were significantly due to the introduction of the national health insurance, and ignored other factors that may have influenced their health care utilization pattern. The study was limited to out-patients, and thus valuable information on challenges of in-patient factors on NHIS at the municipal level could not be ascertained. The authors also agree the study was limited by not considering severity of illnesses presented by consumers for which treatments were given by providers. However, with the sample size used for the study, findings on the differences in management of consumers by providers are to a large extent important for policy considerations.

RESULTS
Basic socio-demographic characteristics of insured and uninsured consumers
Table 1 shows the age-sex characteristics of all 345 consumers interviewed and indicates that, 211 of which were females and 134 of which were males. Male to female ratio (M: F ratio) among insured consumers was 1: 1.4 and was 1:1.8 in uninsured consumers. The age characteristics in Table 1 shows that a significantly higher number of uninsured consumers, 123 (70.3%) were in the age range 15-44 years compared to insured consumers, of whom only 48 (44.0%) were in this age range. Relatively more insured consumers were in the older age groups, i.e. 45-64 years and above 65 years. These age differences between the two groups were significant (p-value<0.001)

Table 1 Age and sex distribution of 345 consumers interviewed for study.

Age Group (years)	Uninsured (175)			Insured (170)		
	Male (%)	Female (%)	Total (%)	Male (%)	Female (%)	Total (%)
0-4	5 (6.8)	2 (2.0)	7 (4.0)	9 (14.8)	10 (9.2)	19 (11.2)
5-14	4 (5.5)	7 (6.9)	11 (6.3)	6 (9.8)	10 (9.2)	16 (9.4)
15-44	51 (69.8)	72 (70.6)	123 (70.3)	27 (44.2)	48 (44.0)	75 (44.1)
45-64	8 (11.1)	16 (15.7)	24 (13.7)	9 (14.8)	24 (22.0)	33 (19.4)
65+	5 (6.8)	5 (4.9)	10 (5.7)	10 (16.4)	17 (15.6)	27 (15.9)
Total	**73 (100)**	**102 (100)**	**175 (100)**	**61 (100)**	**109 (100)**	**170 (100)**

Results on other demographic characteristics of consumers in the study showed that, majority of them resided within the municipality, 116 (66.3%) of insured and 130 (76.9%) uninsured. Most consumers had at least primary or basic education 148 (42.9%), (this included any level achieved in Primary, junior secondary/Junior high and Middle schools) and 69 (20%) had tertiary education. However, insured consumers constituted slightly more of those without any formal education 27 (15.9%) in contrast to uninsured 17 (10%).

Among consumers, trading (i.e. small scale buying and selling) was the commonest occupation 68 (20%) followed by Artisans (i.e learned trades) 51(15%) and Professionals 30 (9%). Additionally, 16 (4.7%) were farmers, 4 (1.2%) were fishermen, 8 (2.3%) were fishmongers and 23 (6.7%) were unemployed. Those ineligible for employment (i.e. pre-school children, pupils and students) constituted 38.5% of all consumers. In both groups of consumers, Christians were in the ma-

jority, i.e. 166 (94.9%) of uninsured and 157 (92.4%) of insured. The Akan ethnic group of consumers were in the majority, 84 (48.0%) of the uninsured and 77 (45.3%) of the insured, followed by the indigenous Effutu/ Awutu ethnic group, 61 (34.9%) uninsured and 65 (38.2%) insured. Only four (amongst all 345) consumers were non-Ghanaians from neighbouring West Africa.

Out-patients clinic attendance patterns in insured and uninsured consumers
As indicated in Table 2, there were significant differences in the patterns of utilization of health care services between insured and uninsured consumers. Of 79 clients visiting WMH for the first time, 52 were uninsured (30% of all uninsured consumers) and only 27 were insured (16% of all insured consumers).

Table 2 Patterns of outpatient clinic attendance by insured and uninsured consumers in last six months prior to study at WMH, Ghana

Characteristics of health care utilization	Insurance Status (%)		Total (%)	χ^2value	P-value
	Uninsured	Insured			
First ever visit to the WMH					
Ever visited	52 (29.7)	27 (15.9)	79 (22.9)		
Never visited	123 (70.3)	143 (84.1)	266 (77.1)	9.3	0.001
Total	175 (100)	170 (100)	345 (100)		
Visited any health facility					
Visited	95 (54.3)	145 (85.3)	240 (69.6)		
No visits	80 (45.7)	25 (14.7)	105 (30.4)	39.2	0.001
Total	175 (100)	170 (100)	345 (100)		
Number of visits					
Once	78 (81.9)	26 (17.9)	104 (43.1)		
Twice	17 (18.1)	53 (36.6)	70 (29.3)		
Three times	0 (0.0)	37 (25.5)	37 (15.5)	10.3	0.001
Four times or more	0 (0.0)	29 (20.0)	29 (12.1)		
Total	95 (100)	145 (100)	240 (100)		
Minimum time interval between current and last visits					
Less than one month	9 (9.5)	35 (24.1)	44 (18.3)		
One to three (1-3) months	24 (25.3)	84 (57.9)	108 (45.0)	55.4	0.001
Four to six (4-6) months	62 (65.3)	26 (17.9)	88 (36.7)		
Total	95 (100)	145 (100)	240 (100)		

A total of 240 consumers had used a health facility within the last 6 months, 145 (85.3%) were insured and 95 (54.3%) were uninsured. Many more uninsured consumers, almost half i.e. 80 (45.7%) had not used any health facility within the previous six months compared to just 25 (14.7%) of insured consumers. Insured consumers had visited a health facility or the WMH many more times in the previous six months, as many as 66 (28%) had visited more than three times.

Specifically, 29 (20.0%) insured consumers had visited a health facility four or more times in six months. The majority of the 95 uninsured consumers, who had visited a health facility, had done so only once 78 (81.9%). The mean and standard deviation (SD) of number of visits in previous six months   was 2.48+/- 1.007 among insured consumers and 1.18+/- 0.387 among the uninsured.

The difference in mean number of visits was statistically significant (p-value<0.001, 95% confidence interval (CI) = 1.081-1.509).

Table 2 also indicates that of 145 insured consumers, as many as 84 (57.9%) had visited a health facility in the previous 1-3 months. Unlike the insured, as many as 62 (65.3%) uninsured consumers had not visited any facility in the previous 4-6 months. The mean and SD of time interval between visits (in months) for the previous six months was 1.94+/- 0.648 among insured and 2.56+/-0.664 among uninsured. The mean difference in time intervals between visits was also significant. (p-value <0.001, 95% CI= 0.450-0.790)

Differences in management of insured and uninsured consumers by health care providers at WMH
The top 10 disease conditions (main diagnosis) presented by insured and uninsured were analyzed within age specific groups (age ranges used are as indicated in Table 1) but no significant differences in the two groups were found. The top 10 disease conditions (in Table 3) had similar patterns as the top 10 diseases recorded in the annual report of WMH in 2008[29]. Malaria was the most common condition presented in both groups of consumers 132 (38.2%) of the 345 consumers, as indicated in Table 3.

For each disease condition, (in terms of absolute number of different types of medications given) insured consumers received more medications per visit than uninsured (χ^2 = 34.5, p-value< 0.001). The mean number of different medications prescribed for all conditions presented by insured consumers was 3.91+/-0.093 and that for uninsured consumers was 3.35+/-0.078. The difference in means was significant (p-value< 0.001, 95% CI = 0.320 - 0.795).

Table 3 Top ten diseases, number of medications supplied and insurance status of consumers

Disease condition presented by clients	Insurance Status	Number of clients seen with disease on index visit Uninsured=175, Insured= 170		Number of different medications given for treatment of disease on index visit		
		Number (%)	Total (%) N= 345	Mean	Standard deviation	Significance (p-value)
Malaria	Uninsured	57 (32.6)		3.70	1.149	.001
	Insured	75 (44.1)	132 (38.2)	4.27	1.018	
Upper Respiratory. Tract Infection	Uninsured	12 (6.9)		3.25	0.754	0.272
	Insured	16 (9.4)	28 (8.1)	3.50	1.366	
Hypertension	Uninsured	12 (6.9)		3.58	1.025	0.121
	Insured	14 (8.2)	26 (7.5)	4.29	1.157	
Skin disease	Uninsured	8 (4.6)		3.13	1.126	0.964
	Insured	10 (5.9)	18 (5.2)	4.00	1.333	
Gynaecological disorders	Uninsured	11 (6.3)		3.09	0.701	0.175
	Insured	3 (1.8)	14 (4.0)	3.67	2.082	
Ear infection	Uninsured	7 (4.0)		2.57	0.787	0.010
	Insured	3 (1.8)	10 (2.9)	3.00	1.000	
Diarrhoea	Uninsured	8 (4.6)	13 (3.8)	3.62	0.744	0.643
	Insured	5 (2.9)		4.00	1.000	
Accidents and injuries	Uninsured	14 (8.0)		2.79	0.699	0.002
	Insured	3 (1.8)	17 (4.9)	2.67	2.082	
Eye infection	Uninsured	4 (2.3)		2.50	0.577	0.013
	Insured	9 (5.3)	13 (3.8)	3.00	0.707	
Dental conditions	Uninsured	7 (4.0)		3.14	0.378	0.039
	Insured	7 (4.1)	14 (4.0)	2.86	0.378	

As indicated in Table 3, there were significant differences in mean number of medications given for treatment of malaria, ear infection and eye infection, (insured had higher means), whilst uninsured had higher means for, accidents/ injuries and dental conditions .

The frequency with which prescribers gave different types of medications to consumers is shown in Table 4 (i.e. how many times a particular type of medication was written for insured or uninsured consumers on the index visit). As can be seen significant differences existed in use of antibiotics, multivitamin/food supplements, antihistamines, haematinics, vitamin C and peptic ulcer medications. In all these instances, apart from antibiotics, frequencies were significantly higher among the insured than among the uninsured consumers. Interestingly, there were no significant differences in frequency of prescribing for anti-malaria and anti-hypertensive medications in the two groups.

Table 4 Types and frequencies of medications prescribed and insurance status of consumers

Category of Medication	Frequency at which medicines were prescribed per visit			Significance (p-value)
	Uninsured (%) N=175	Insured (%) N=170	Total (%) N=345	
Antibiotics	104 (59.4)	75 (44.1)	179 (51.9)	0.004
Artemisinin-based combination drug (for malaria treatment)	78 (44.6)	88 (51.8)	166 (48.1)	0.181
Paracetamol	76 (43.4)	80 (47.1)	156 (45.2)	0.498
Multivitamin / Food supplement	62 (35.4)	84 (49.4)	148 (42.9)	0.009
NSAIDS	82 (46.9)	65 (38.2)	147 (42.6)	0.105
Antihistamine	15 (8.6)	32 (18.8)	47 (13.6)	0.006
Anti-hypertension	19 (10.9)	26 (15.3)	45 (13.0)	0.221
Haematinics	11 (6.3)	34 (20.0)	45 (13.0)	0.001
Eye / ear drops	17 (9.7)	15 (8.8)	32 (9.3)	0.776
Anti-fungal	15 (8.6)	15 (8.8)	30 (8.7)	0.934
Antitussives	10 (5.7)	17 (10.0)	27 (7.8)	0.134
Vitamin C	4 (2.3)	16 (9.4)	20 (5.8)	0.005
Anti-helminths	13 (7.4)	5 (2.9)	18 (5.2)	0.061
Peptic ulcer medicines	4 (2.3)	12 (7.1)	16 (4.6)	0.035
Anti-diarrhoea	7 (4.0)	7 (4.1)	14 (4.1)	0.956

Overall, almost half 84 (49.4%) of insured consumers were given multivitamin/food supplements by providers as part of their treatment; while a lesser number of uninsured consumers 62 (35.4%) had this treatment, as in Table 4 (the difference was significant, $\chi^2 = 6.9$, p-value< 0.009). Haematinics were added to the treatment of 45 consumers overall, of these 34 (20%) were insured and only 11(6.3%) were uninsured ($\chi^2 = 14.3$, p-value< 0.001). Furthermore, the addition of vitamin C (Ascorbic acid) to the treatment of consumers differed significantly. Among 20 consumers given vitamin C, 16 (80%) were insured consumers and only 4 (20%) were uninsured ($\chi^2 = 8.0$, p-value< 0.005).

Non-steroidal anti-inflammatory drugs (NSAIDS) were the only type of medication in which uninsured consumers received higher numbers than insured consumers, as in Table 4.

Regarding treatment of malaria, Table 5 clearly shows more insured consumers received multivitamin/food supplements, haematinics, NSAIDS and vitamin C as additional medications to their treatment than uninsured consumers. These differences were significant in the case of haematinics and vitamin C (table 5). Furthermore, data from the study showed that, 24 consumers in all received injections as part of treatment for malaria. Of these, 19 (79.2%) were insured and only 5 (20.8%) were uninsured ($\chi^2 = 6.7$, p –value< 0.010).

Table 5 Additional medications given for treatment of Malaria and insurance status of consumers

Medication added to Malaria treatment of clients	Insurance Status (%)		Total (%)	χ^2 value	P-value
	Uninsured N= 175	Insured N= 170			
Multivitamin/Food supplement					
None	22 (38.6)	26 (34.7)	48 (36.4)		
Given	35 (61.4)	49 (65.3)	84 (63.6)	0.2	0.642
Total	57 (100)	75 (100)	132 (100)		
Heamatinic					
None	50 (87.7)	57 (76.0)	107 (81.1)		
Given	7 (12.3)	18 (24.0)	25 (18.9)	11.2	0.001
Total	57 (100)	75 (100)	132 (100)		
NSAIDS					
None	35 (61.4)	45 (60.0)	80 (60.6)		
Given	22 (38.6)	30 (40.0)	52 (39.4)	0.3	0.870
Total	57 (100)	75 (100)	132 (100)		
Vitamin C					
None	56 (98.2)	66 (88.0)	122 (92.4)		
Given	1 (1.8)	9 (12.0)	10 (7.6)	4.9	0.028
Total	57 (100)	75 (100)	132 (100)		

Other Differences in Services Provided For Insured and Uninsured Consumers
Referrals: Forty-seven (14%) of all consumers seen during the index visit were referred to see a specialist or go to a specialist clinic. Slightly more insured 26 (55.1%) than uninsured 21 (44.9%) were referred. Most of the referrals were to the Ear, Nose and Throat (ENT) clinic, 15 (31.9%), Dental clinic, 11 (23.4%) and Eye clinic, 8 (17.0%). The rest were referred to Orthopaedic surgeons, Obstetrician/ Gynaecologists and General surgeons. This referral pattern was not significantly different between the two groups.

Laboratory tests: Seventy (20%) of all consumers had laboratory investigations done during the index visit. Among these, equal number, 35 (20.6%) were insured and 35 (20.0%) were uninsured. The mean and SD of number of different laboratory tests requested was 2.37+/- 1.437 for insured and 2.14 +/-1.033 for uninsured. The mean number was higher for insured than uninsured consumers even though it was not statistically significant. (P-value = 0.45, 95% CI = - 0.825-0.368). The commonest test requested was Full blood count (haematological investigation) in 46 clients. Of these 22 (47.8%) were uninsured and 24 (52.2%) were insured.

Results on laboratory tests done with regards to thick and thin blood film tests as laboratory confirmation for malaria showed that, in the 132 consumers diagnosed with malaria, only 20 had the test. Ten (5.9%) were insured and another 10 (5.7%) were uninsured.

Remarkably as many as 112 (84.9%) of malaria conditions seen were diagnosed clinically without laboratory confirmation.

Access to prescribed medications and laboratory results: In the 151 insured consumers who made visits in previous six months, not all of them received all medicines prescribed. Fifty (33.8%) consumers did not receive all medications prescribed at health facility visited. A lesser percentage, 11 (13.2) of 91 uninsured consumers did not get prescribed medications. The main reason was the lack of medication at the health facility, as cited by 41 of 50 insured consumers and 9 of 11 uninsured consumers. Almost all 69 consumers who underwent laboratory tests on previous visits got their laboratory results (66 out of 69 consumers). Among these, 49 (74.2%) were insured and 17 (25.8 %) were uninsured.

Significant predictors of insurance status of consumers: A logistic regression was performed with insurance status as dependent variable and 8 covariates (including addition or otherwise of multivitamin/ food supplement, haematinic, vitamin C, antibiotics, NSAIDS, and intramuscular medications to treatment of consumers, and whether consumers were referred, or had laboratory test done). The results indicated that, based on insurance status, receiving vitamin C, haematinic, multivitamin or being referred were significant predictors of provider treatment given to insured consumers.

DISCUSSION

Considerable debate has surrounded the peculiar challenges of social health insurance in developing countries. This study compared consumer factors among insured and uninsured consumers and provider factors which affect the functioning of Ghana's national health insurance scheme at a municipal health facility. Age was found to be the main difference in demographic characteristics of the two groups. More uninsured consumers were in younger age groups (15-45 years) whiles more insured consumers were in the older age group (greater than 45 years).

This finding agrees with a previously published study by Pisarek et al who found more uninsured consumers to be younger than insured consumers in the pattern of emergency room usage.[32] Many older persons being insured in this study may suggest that, older persons get insured so their families, especially children less than 18 years can also benefit from the NHIS.[22] This view agrees with findings of a study in Ogun State Nigeria, which indicated that rural households were more willing to pay for national health insurance if they know the scheme would cover the entire household members.[33] A more recent study in Ghana also demonstrated that insured households had more positive views on the benefits of the NHIS than uninsured households.[34]

Other demographic characteristics such as sex, level of education, occupation, ethnicity and religion did not show differences in the two groups which contrasts findings from other studies indicating that race and occupation are significant demographic differences between insured and uninsured consumers. [35,36,37 38]

This study showed that insured consumers used outpatients services more often and at shorter time intervals than uninsured consumers. Other studies have shown though, that utilization of health services may be influenced by choice and availability of other facilities apart from insurance status.[39] This study determined the use of all health facilities within and outside the municipality in the previous six months by consumers, and still found that insured consumers used health services more than the uninsured. Evidence of consumer moral hazard can certainly be inferred from this finding. The increased visit by insured consumers, poses challenges to the ability of Municipal NHIS to cope with the financial implications of the multiple visits and the capacity to cater for the increased numbers optimally.

Risk and uncertainty associated with contracting an illness and the individual not knowing timing of health consumption or expenditure induces the individual who is risk averse to seek insurance; insurance thus restores certainty.[40] Once insurance is bought however, the consumer or agent has no financial inducement to constrain their consumption. This poses a challenge to the functioning and sustainability of any universal social health insurance scheme.[40]

Studies have shown that elasticity of demand for health service is negative[41], which implies that with the removal of user fees and subsequent introduction of a pre-payment scheme in Ghana, this elasticity of demand for health care may become significant. Elsewhere in Africa (Kenya and Uganda), evidence support the existence of consumer moral hazard exerting an enormous strain on the health system.[42] In Uganda when user fees were abolished, a marked increase in utilization occurred in all population groups[42] while government health care services in South Africa have also faced a galloping moral hazard, a trend with huge challenges to the health system.[43]

Furthermore, studies in other middle income countries (e.g. Jordan where over 60% of the population are insured), indicate increased intensity and utilization of health care by the insured population.[44] The phenomenon of consumer moral hazard is not limited to low and middle income countries, it occurs in high-income countries as well. A multi-country assessment in the developed world indicated that moral hazard has led to rising health care expenditures and had steered progress of medicine and medical technology in the wrong direction.[45]

Findings from this study suggest that consumer moral hazard for NHIS at district/municipal level may be real in Ghana. Assistance from national level to sustain district level insurance schemes to function adequately may not be sufficient enough to cope in the long run if this trend of consumer moral hazard persist.[19] Some national health systems are using innovative ways of limiting or combating the phenomenon. For instance, the Thailand health insurance scheme is minimizing moral hazard through incentives given to discourage multiple usages of services. Specifically insured consumer's subscription are renewed free of charge if individual did not use their health insurance card in the previous year. Also the insured may choose to pay user fee at the time when health service is sought with a 10% discount for minor illness and retain the insurance card for use should a major illness occur.[43]

Apart from consumer moral hazard, this study identified that health providers added more medications to the treatment of insured consumers at the municipal health facility.

Overall, health providers on average gave more different types of medications for similar disease condition per unit visit for insured consumers compared to the uninsured. The management of consumers with malaria was significantly different for insured and uninsured consumers. In treating malaria, insured consumers were given multivitamins/food supplement, haematinics, NSAIDS, vitamin C and intra-muscular medications (injections) by providers as additional medications more than they did for uninsured consumers.

It is interesting to note that, there were no differences in the use of the core anti-malaria medications and anti-hypertensive in the two groups. In the authors view, it seems likely that health providers in the facility may comfortably add extra medications in conditions such as malaria, but would not add extra anti-hypertensive medication to the treatment of a hypertensive consumer due to the potential medical consequences.

Continuing on the practices of health providers, most cases of malaria (112 out of 132) were diagnosed without laboratory confirmation (i.e. 85% of all malaria cases seen were diagnosed only clincally). The potential for over diagnosis of malaria in clients at district health facilities in Ghana may be real. This practice by providers could make it practically difficult to curb frequent use of health services by insured consumers and could potentially overburden the NHIS; especially when malaria is the commonest OPD condition seen in Ghana.[46]

The differences in hospital management for insured and uninsured consumers seen in this study agree with findings from other studies. For instance the Institute of Medicine (IOM) in the United States has revealed that differences in care exist for hospitalized patients on the basis of insurance.[47] Another study in China involving 1232 out-patients at health care facilities showed that health financing systems appeared to influence antibiotic prescribing in out-patient care, in terms of frequency and types prescribed.[48] The study concluded that, antibiotic prescribing by health providers might be biased by the consumer's mode of payment for health care.[48]

Another important observation from this study was that more than a third of all insured consumers who had visited a health facility (in the six months prior to data collection) did not obtain all medications. This was due to unavailability of prescribed medications at the pharmacy. The inability of NHIS to supply consumers with prescribed medications from the essential drug list of the NHIS may undermine the insured's confidence and belief in the workability of the scheme. Consumers

are willing to pay premiums if they are able to receive basic health care packages promised by the scheme.[2,33]

Conclusion: The existence of consumer moral hazard and health provider over-servicing of insured consumers in one municipal hospital in Ghana has been demonstrated (a phenomenon that may be occring in many other districts/municipalities). The challenges of consumer and provider moral hazard on the functioning and long term sustainability of NHIS is critical.

The NHIS is already experiencing galloping cost escalations. Cost of claims nationally have escalated over the life of NHIS with almost a doubling of cost between 2008 and 2009 from 165million Ghana cedis in 2008 to almost 372 million Ghana cedis.[19] Clearly at this rate the scheme is unsustainable in the long term.
To sustain the long term functioning of the health insurance scheme, policy makers and managers of the NHIS may need to compute the real economic cost of moral hazard to the scheme in Ghana.

Also, to reduce consumer moral hazard, some incentive measures need to be considered i.e. reward mechanisms for non-frequent visits and possible introduction of co-payments for minor illnesses and for multiple visits. To combat effect of provider moral hazard, adherence to standard clinical guidelines and protocols by health care providers (prescribers) coupled with the introduction of specially designed NHIS prescription forms (with names of prescriber and health facility) are policy measures worth pursuing.

ACKNOWLEDGEMENT

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