

## CHALLENGES IN PROVIDER PAYMENT UNDER THE GHANA NATIONAL HEALTH INSURANCE SCHEME: A CASE STUDY OF CLAIMS MANAGEMENT IN TWO DISTRICTS

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### SUMMARY

In 2004, Ghana started implementing a National Health Insurance Scheme (NHIS) to remove cost as a barrier to quality healthcare. Providers were initially paid by fee – for - service. In May 2008, this changed to paying providers by a combination of Ghana - Diagnostic Related Groupings (G-DRGs) for services and fee – for - service for medicines through the claims process.

**Objective:** The study evaluated the claims management processes for two District MHIS in the Upper East Region of Ghana.

**Methods:** Retrospective review of secondary claims data (2008) and a prospective observation of claims management (2009) were undertaken. Qualitative and quantitative approaches were used for primary data collection using interview guides and checklists. The reimbursements rates and value of rejected claims were calculated and compared for both districts using the z test. The null hypothesis was that no differences existed in parameters measured.

**Findings:** Claims processes in both districts were similar and predominantly manual. There were administrative capacity, technical, human resource and working environment challenges contributing to delays in claims submission by providers and vetting and payment by schemes. Both Schemes rejected less than 1% of all claims submitted. Significant differences were observed between the Total Reimbursement Rates (TRR) and the Total Timely Reimbursement Rates (TTRR) for both schemes. For TRR, 89% and 86% were recorded for Kassena Nankana and Builsa Schemes respectively while for TTRR, 45% and 28% were recorded respectively.

**Conclusion:** Ghana's NHIS needs to reform its provider payment and claims submission and processing systems to ensure simpler and faster processes. Computerization and investment to improve the capacity to administer for both purchasers and providers will be key in any reform.

**Keywords:** claims management, claims process, claims rejection, health insurance

### INTRODUCTION

In 2001, Ghana started the process of developing a National Health Insurance Scheme (NHIS) to replace out-of-pocket fees at the point of service delivery.<sup>1</sup> In 2003, NHIS Act 650 was passed and became operational in 2004.<sup>2</sup> By June 2009, coverage stood at 55% of the population from a total of 145 District Mutual Health Insurance Schemes (DMHIS).<sup>3</sup>

Joseph Kutzin's<sup>4</sup> framework for country led analysis of health care financing arrangements suggests four main system functions namely revenue collection, fund pooling, purchasing of services and provision of services. Purchasing of services refers to "the transfer of pooled resources to service providers on behalf of the population for which the funds were pooled". The Ghana NHIS has a purchaser provider split, with the DMHIS, and increasingly, the National Health Insurance Authority (NHIA), being directly responsible for entering into purchase agreements with providers and reimbursing them. Healthcare providers at the district submit claims to DMHIS managers (referred to as scheme managers).

All provider payment at the start of implementation in 2004 was by itemized fee for service. In May 2008, a reformed provider payment system of diagnostic related groupings for services and fee for service for medicines was introduced to replace itemized fee for service at all levels.<sup>5</sup>

The schemes have an established claims process that vet the claims against provider eligibility, compliance with the Ghana Diagnostic Related Groupings (G-DRGs), Standard Treatment Guidelines and Insurance Drug List. Scheme managers at the DMHIS approve the claims for payment.

The process within the schemes is almost entirely manual. The purchasing function under the NHI has been beset with problems of delay in provider payments. According to the 2008 health sector review, health facilities nationwide were owed a total of GH¢ 49 Million (\$32.6M), most of it in unpaid claims while health providers themselves reported a 2-6 month delay in having their bills settled.<sup>6</sup> In the Upper East Region, the study area, the Regional Health Directorate estimated that at the time of this study in 2009, provider facilities under its jurisdiction were owed an outstanding balance of GH¢2.8 million (\$1.87M) for services rendered. The exchange rate was \$0.66 to GH¢1.00

The literature on health insurance claims processes generally makes little mention of work done in developing countries. Though rejection rates of claims submitted by providers on a national scale are not documented in Ghana, the Korle-Bu Teaching Hospital recorded range of rejected claims of 9-22% in 2008 according to the NHIA Claims manager.<sup>7</sup> Studies in Gujarat, India by Ranson<sup>8</sup> and Sinha *et al*<sup>9</sup> where a direct fee for service was operated among Self Employed Women's Association revealed claims rejection rates of 11% and 10-14% respectively and in the former, mean reimbursement rate of 76.5%<sup>8,9</sup> A 2002 survey by the Health Insurance Association of America showed that on average, 14% of claims received were denied for payment.<sup>10</sup> Using similar methodologies in 2002 and 2006, the American Health Insurance Plan showed varying levels of rejection of claims with no record of rejected or denied claims in 2006. Rather, 14% of claims were "pending" or delayed for reasons including submission of duplicate claims, lack of complete information or other information needed to justify the claim, invalid codes or coverage issues, including no coverage based on date of service, non-covered or non-network benefit or service, coordination of benefits, or coverage determination.<sup>11</sup>

The existence of a time schedule for either submitting or reimbursing claims is documented. In Ghana, Legislative Instrument 1809 stipulates a 60 day period to providers and 28 day period to Scheme managers to submit and reimburse claims respectively. The same 60 day timeline is stipulated for some providers under the United States' federal system of health insurance for those requiring financial assistance- Medicaid- with the slight variation of an ill defined timeline for reimbursements in Washington State.<sup>12</sup> In 2006, America's Health Insurance Plans (AHIP) released a report in which it emerged that 98% of "clean" claims were processed within 30 days.<sup>11</sup>

To address identified delays, electronic claims processing has increasingly been deployed in many countries. In the US, this has been progressive with electronic claims submission accounting for 2% of claims in 1990, 44% in 2002 and 75% in 2006.<sup>13,11</sup> One US based company, TMG, with over 30 years experience in claims management claims to have a software system that "processes more than 40,000 claims a day, 365 days a year."<sup>14</sup> In Ghana, by December 2009, the NHIA planned to roll out a nationwide integrated ICT programme with the major objective of providing "a robust uniform technology platform for the District Mutual Health Insurance Schemes to operate effectively, efficiently and economically."<sup>5</sup>

There has been no formal documented study focusing on the challenges accounting for delays in provider payment and claims rejection. Questions arise as to the administrative and management challenges related to managing claims as part of strategic purchasing within the NHIS. A study by Aikins<sup>15</sup> examining the challenges confronting some of the Community Health Insurance Schemes in Ghana that preceded and greatly informed the design of the National Health Insurance Scheme observed that "Majority (99%) of the schemes have no clearly defined organizational structure, and no defined job descriptions and responsibilities for their permanent staff. None of the Schemes have an instituted career development structure."

This paper reports the evaluation of claims management processes in two districts in the Upper East Region of Ghana. Its aims were to describe the claims processes of providers and schemes, identify the challenges, determine the proportion of claims rejected, factors associated with rejection and their respective financial costs to enable recommendations for a more effective and efficient claims management system at a time when the NHIA itself is piloting computerised claims processing systems and capitation provider payment methods.

## METHODS

### Study sites

**Kassena Nankana:** The Kassena Nankana District (KND) is in the Upper East Region of Ghana with a mostly rural population. It has a population of 163, 164 occupying a land area of 1, 658 square meters. The District has 27 Community Health Compounds, 5 Health Centres, 3 clinics and 1 Hospital called the War Memorial Hospital which serves as a referral point. The Kassena Nankana DMHIS started operating on 1<sup>st</sup> November 2005.

Coverage, using the number of people listed in the scheme register as at the time of the study was 66.4%. Out of the total of 52, 214 claims received by the DMHS in 2008, 18.6% were from the War Memorial Hospital.

**Builsa:** Builsa District (BD) is bordered on the North by the Kassena Nankana District out of which it was carved in 1975. The total population is 82, 269 spread over an area of 2, 230 square meters. It has 11 Community health compounds, 5 health centres, 2 clinics and 1 district hospital called Sandema Hospital. The Builsa DMHIS started actual operations on 7<sup>th</sup> November, 2005. Current coverage is 84.7% using same criteria above. Out of the 27, 833 claims received in 2008, 39.9% were from the Sandema Hospital.

### Study design

This was a cross-sectional study of DMHIS claims management process and its associated costs. It retrospectively examined all claims submitted and reimbursed for both districts from January to December 2008 and prospectively observed the claims process in operation.

### Sampling and data collection

For the retrospective secondary data analysis of claims, all the 40 health facilities in Kassena Nankana and the 20 in Builsa Districts operating the Scheme constituted the study population. From this group, the two District Hospitals that have the largest outpatient attendances were purposively selected. All claims submitted from January – December 2008 from both District Hospitals to the schemes were analysed.

Additionally, a desk review of claims data submitted by both district hospitals in 2008 was conducted. Information gathered enabled the estimation of the total number of claims submitted, the proportion of claims rejected and their respective costs.

A total of four in-depth interviews were done in both districts involving the two district DMHIS claims managers and the focal persons for health insurance in the two hospitals using an interview guide developed to address the study's objectives. Information gathered using the in depth interview guide included the background of the schemes, claims processes and their associated challenges and the factors associated with the rejection of claims.

Observation of the claims process was done using a checklist. The same checklist was applied twice at the provider and scheme ends for both districts.

The application of the same checklist twice per scheme/ provider (in one week and repeated in the next), enabled validation of the information gathered initially. In other words, the checklist observed clients undergoing identity verification and the various service points, what forms claims officers used in submitting, verifying and reimbursing claims and whether these steps were reliably adhered to.

### Analysis

*Qualitative analysis:* The interviews and observations were coded and analysed according to themes for commonalities and contrasts in terms of technical, human resource working environment and financial factors. These were then summarized in a tabular form.

*Quantitative analysis:* Quantitative data which was made up of number of submitted claims, amount reimbursed, number of rejected claims etc, were entered into a developed Microsoft Excel template and cross verified with original data captured. The following analyses were undertaken: proportion of rejected claims, claims reimbursement rates and cost proportion of rejected claims

*Proportion or rejected claims:* A rejected claim was defined as a claim which was not reimbursed, while rejected claims cost was defined by any amount withheld on part or all of a claim arising from whole rejection or partial deductions on the submitted claims. The proportion of individual claims rejected out of the total submitted was calculated by dividing the number of claims rejected in 2008 by the total number of claims submitted in the same year to get the percentage of rejected claims for each district scheme.

*Claims reimbursement rate:* Two indicators of claims reimbursement were measured namely the Total reimbursement rate (TRR) and the Total timely reimbursement rate (TTRR). The TRR measured the rate at which the scheme reimbursed all claims submitted in 2008. This was estimated by dividing the total amount reimbursed by the total claims submitted. The TTRR measured the rate at which claims submitted on time (i.e. within 60 days) are reimbursed on time (i.e. within 28 days). This was also calculated by dividing the total claims reimbursed on time by the total claims submitted on time.

The frequencies of timely submissions and reimbursements by both schemes and facilities in line with the timelines spelt out in the Legislative Instrument, were also determined. Data from the qualitative and quantitative portions of the study were triangulated for complementary effect.

*Cost proportion of rejected claims:* The value of rejected claims as a percentage of the total value of claims submitted in 2008 was calculated to obtain the cost proportion of rejected claims.

*Test of hypothesis:* The null hypothesis was adopted that no differences existed between both schemes in terms of specific parameters measured. The region to which both Districts belonged was conveniently chosen and both Districts were selected given their comparable experience in the implementation of health insurance. The claims data analysed was not sampled as the entire population of claims submitted and reimbursed was analysed. As a result of using the whole population, with normally distributed parameters, we decided to use a z test to conduct a test on the significance of the differences observed for Kassena Nankana (KND) and Builsa (BD) for the following: proportion of claims rejected, cost proportion of claims rejected, timely claims submission frequency, timely claims reimbursement frequency, total reimbursement rate and total timely reimbursement rate. Null Hypothesis  $H_0$ :  $P_{knd}-P_{bd} = 0$  i.e. no differences exist.  $H_1$ :  $P_{knd}-P_{bd}$  does not equal zero. For the  $H_0$  to be accepted, the z test statistic must fall in the acceptance region of (-1.96 to +1.96). Where the  $H_0$  was accepted, it implied that both districts had similar parameters and where  $H_0$  was rejected, it implied that real differences existed in both populations.

*Testing difference between 2 population proportion using the z test*

Let

$P_{knd}$  = Proportion observed in Kassena Nankana District (KND)

$P_{bd}$  = Proportion observed in Builsa District (BD)

$H_0$ :  $P_{knd}-P_{bd} = 0$  i.e. no differences exist in the population proportions

$H_1$ :  $P_{knd}-P_{bd}$  does not equal zero i.e. differences exist in the observed proportions

If  $H_0$  is true, then it is used as a basis to compute a pooled estimate for the hypothesized proportion  $P =$

$$\frac{X_{knd} + X_{bd}}{N_{knd} + N_{bd}}$$

Where

$X_{knd}$  &  $X_{bd}$  represent numbers in KND and BD respectively possessing the characteristic of interest

$N_{knd}$  &  $N_{bd}$  represent the total populations in both districts respectively.

The pooled estimate  $P$  is used to compute the estimated standard error of the estimator as follows;

$$\sigma_{pknd-pbd} = \sqrt{P(1-P)/N_1 + P(1-P)/N_2}$$

The test statistic under  $H_0$  becomes

$Z = \frac{P_{knd}-P_{bd} - 0}{\sigma_{pknd-pbd}}$  which is distinguished as approximately standard normal for sufficiently large minimum values ( $N_1, N_2$ )

$H_0$  is accepted if calculated Z test statistic falls in the acceptance region of -1.96 – (+) 1.96

### Limitations of the study

Reasons for partial and total claims rejection were known but not quantified. Secondly it was not possible to separate the cost of partially and fully rejected claims because of constraints related to data availability and time.

### Ethical considerations

Ethical approval for the study was obtained from the Ghana Health Service Ethical Review Committee. Permission was also sought from the Regional Directorate of Health Services and the DMHIS managers of Kassena-Nankana and Builsa districts prior to data collection. They were assured of data confidentiality, data safety and appropriate data usage.

## RESULTS

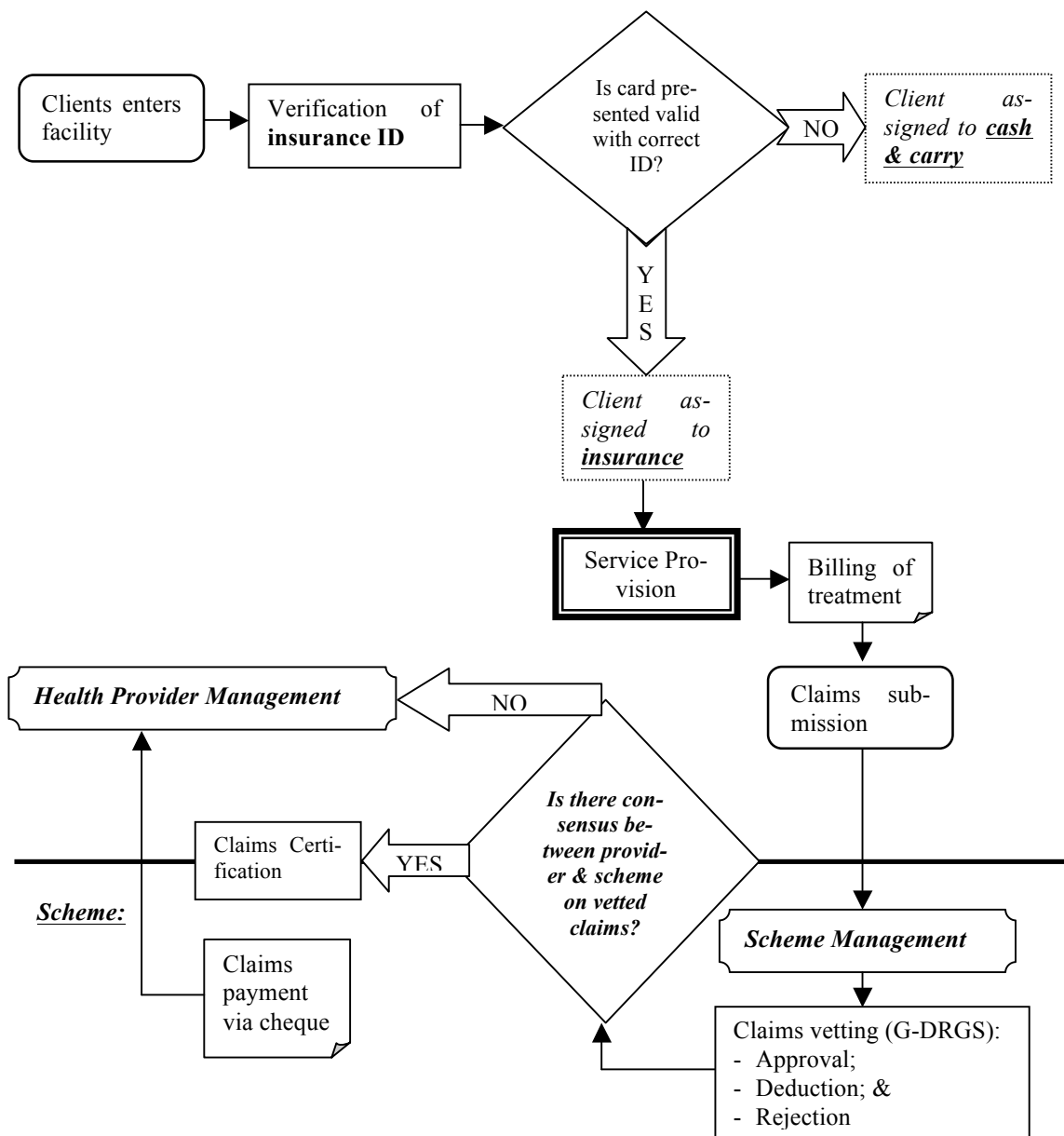
### Claims management processes

Figure 1 is a flowchart of the claims process from when a client enters the health facility to when a claim is submitted to the scheme for reimbursement of the services rendered. At the facility, a potential client's insurance identity card is verified for validity. If invalid, the client accesses care via a fee-for-service payment mechanism. Otherwise, he/she accesses care at all the relevant service points during which all services rendered are documented on a claims form. The completed claims form is a cost sheet of the DRG, the medication provided and all the diagnostics/ laboratory investigations done for the client. Costing is done in line with approved tariffs. It is then supposed to be submitted to the scheme within 60 days of a client's visit. At the scheme, the claim is vetted against approved tariffs and adherence to approved standards and protocols. The claims manager may then recommend an approved claim to the scheme manager for payment, usually with a cheque.

Otherwise claims may be queried and pencilled in either for deduction or total rejection subject to further deliberation and the final decision of a joint scheme-provider claims certification committee. The claims management processes for both Kassena Nankana and Builsa Districts were similar.

They only differed in the number of officials involved in claims processing at the providers end; eight in the case of War Memorial Hospital (WMH) in KND and six in the case of Sandema Hospital in Builsa District.

***Service provider***



**Figure 1** Flowchart on NHIS Claims process

Also at Sandema Hospital, data entry officials started entering client data from the records office, sometimes even before the client had finished accessing the service. Additionally in Sandema Hospital, based on work flow, it was observed that officials entering client data into the computer could be reassigned to assist the revenue officers in billing.

The processes in both districts had an innovative feedback mechanism (claim certification committee) where all deductions and rejections proposed by the Claims Manager were discussed between the Claims Manager and the provider's claims vetting committee. After all outstanding issues were resolved, both parties signed a Claim Certification form on which all approved claims, deductions and rejections were documented. The Claims Manager then wrote a memorandum to the Scheme Manager recommending the amount to be paid. This arrangement was observed to have facilitated cordial working relations quite different from the previous disputes on deducted claims.

#### *Scheme claims management challenges*

In 2008, the Kassena Nankana DMHIS processed 52,214 claims whilst the Builsa DMHIS processed 27,833 claims. Scheme claims management challenges identified can be classified as technical, human resource, working environment and financial challenges as shown in Table 1.

Main technical challenges were inappropriate computer software utilization for claims processing due to inherent delays in executing commands and limited ability to verify written diagnosis due to non-medical background of claims officials.

Human resource challenges were reflected in unmet staff training needs and severe manpower shortages complicated by the rapid annual turnover of national service personnel. The staff numbers of both schemes were comparable although KND scheme processed almost twice as many claims as BD. All outpatient claims were processed without verification from folders unlike inpatient claims where because of the larger tariffs involved, saw the claims officer verifying the folder of every inpatient claim submitted i.e. matching the claims submitted with the actual record of treatment as contained in the in-patient folder.

Working environment challenges were over crowded offices, perceived work overload ("over work"), lack of a comprehensive conditions of service document and

stress from increased predisposition to file for financial distress with the introduction of the new tariffs.

Financial Challenges began in May 2008, which marked a departure from the old tariffs using itemized billing with the introduction of the new tariffs using DRGs. In both schemes, this resulted in an approximate fourfold increase in the tariffs paid to the providers. This posed a challenge, as schemes were not always adequately resourced to pay providers.

#### *Provider claims management challenges*

Claims management challenges identified in the two provider facilities were classified as technical, human resource, working environment and financial challenges.

Technical challenges from the provider's perspective resulted in the rejection of unverifiable claims mainly as a result of poor filing systems resulting in missing folders of treated clients. Claims forms were often incompletely filled especially portions on 'claim number', 'procedures done' and 'ICD 10, G-DRGs'. There were challenges with verifying compliance with Standard Treatment Guidelines for non medical billing officers e.g. transcription of doctor's diagnosis of "Enteritis" as "Enteric Fever" on claims form by accounting officers.

Working environment challenges reflected in stress of work from delayed reimbursement resulting in delays in paying off hospital suppliers and poor information flow between the scheme and providers leading sometimes to conflicts e.g. the process of reimbursement was stalled for two months in Builsa because of a dispute between providers and scheme from scheme decision to pay lower tariff (GH¢89.00, from the initial GH¢552.00) for the treatment of severe anaemia in children after receiving communication from NHIA, which communication was unavailable to the provider. The US Dollar (\$) : Ghana Cedi (GH¢) exchange rate was 0.66:1 at the time of the study.

In addition to above, the other provider financial challenge was chronic income loss from two main conditions: the non-inclusion of quinine syrup on the insurance drug list (for treating severe malaria in children) and Sandema Hospital's policy of supplying quinine syrup for free. There was also low and unrealistic drug tariffs of some drugs e.g. while an ampoule of Quinine injection was reimbursed by the scheme at GH¢0.28; it was purchased by the provider from the Regional Medical Stores at GH¢0.68.

**Table 1** Identified challenges of claims management processing

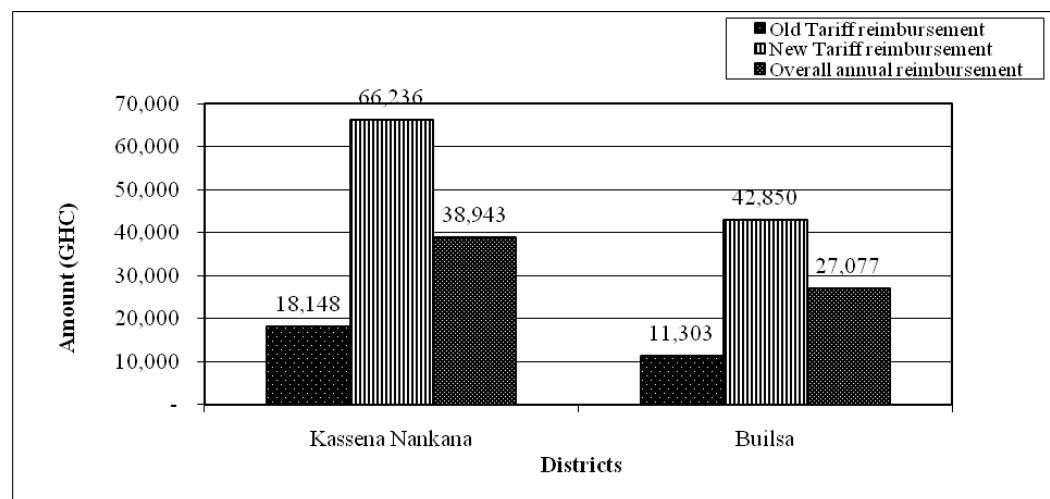
Issues	Challenges	
	Scheme	Providers
Technical	<ul style="list-style-type: none"> <li>- Inappropriate use of ICT</li> <li>- Limited capacity at scheme level for verification of diagnosis</li> <li>- Low understanding of medical terminology</li> </ul>	<ul style="list-style-type: none"> <li>- Rejection of unverifiable claims</li> <li>- Poor compliance of the Standard Treatment Guidelines</li> <li>- Incomplete filled claims form</li> </ul>
Human resources	<ul style="list-style-type: none"> <li>- Severe shortage of qualified personnel</li> <li>- Unmet training needs</li> <li>- Rapid turnover of national service personnel</li> </ul>	<ul style="list-style-type: none"> <li>- Severe shortage of qualified personnel</li> </ul>
Working environment	<ul style="list-style-type: none"> <li>- Overcrowded offices</li> <li>- Dilapidated buildings with cracks</li> <li>- Perceived high workload</li> <li>- Lack of comprehensive document spelling out condition of work</li> <li>- Poor filing system results in missing folders</li> </ul>	<ul style="list-style-type: none"> <li>- Poor information flow between the scheme and providers</li> <li>- Poor filing system results in missing folders</li> </ul>
Financial	<ul style="list-style-type: none"> <li>- Change to new tariffs using DRGs resulted in differential billing in the same year due to changes in tariffs</li> <li>- Delays in reimbursement</li> </ul>	<ul style="list-style-type: none"> <li>- Delay reimbursement</li> <li>- Low and unrealistic drug tariffs</li> <li>- Non-inclusion of some medication on the insurance drug list</li> </ul>

*Mean monthly reimbursement rate (GH¢)*

For Kassena Nankana, the mean monthly reimbursement by the DMHIS to its district hospital prior to May 2008 was GH¢18,147.79 and the mean monthly reimbursement from May to December 2008 was GH¢66,236.11. This translated to an average cost of claims reimbursement of GH¢4.74 per claim and GH¢14.40 per claim pre and post May 2008 respectively. For Builsa, the mean monthly reimbursement by the DMHIS to the district hospital prior to May 2008 was

GH¢11,303.29 and the mean monthly reimbursement from May-December 2008 was GH¢42,850.22.

This also translated to an average cost of claims reimbursement of GH¢5.82/claim and GH¢17.08/claim pre and post May 2008 respectively. These represented fourfold increases respectively (i.e. 3.65 and 3.79). Subsequently while Kassena Nankana actually filed for distress in the last quarter of 2008, Builsa escaped financial distress through savings made in the first two quarters prior to the commencement of the new tariff as shown in Figure 2.

**Figure 2:** Mean reimbursement monthly rate by districts (GH¢)

**Table 2** Claims rejection, reimbursement rates and its associated costs

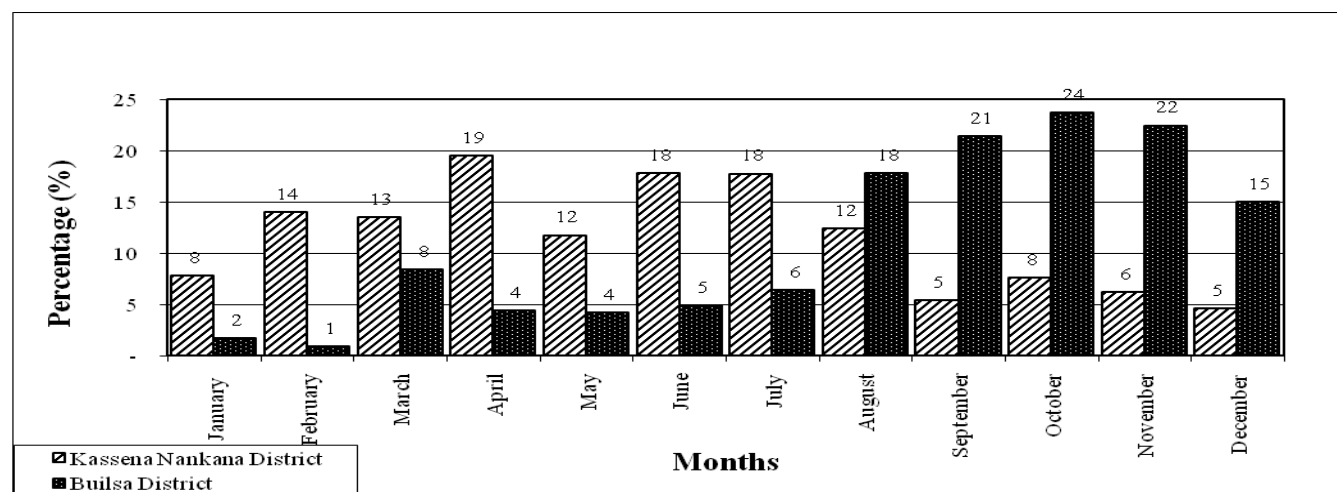
Parameter	Districts	
	Kassena Nankana	Builsa
Total claims processed	52, 214	27, 833
In-patient clients (%)	10.31	13.5
Claims rejected (%)	0.63	0.60
Total Annual Cost of Claims submitted (GH¢)	593, 873.10	453, 7120
Total Annual Claims Reimbursement (GH¢)	530, 608.90	388, 014.90
Total Cost of Claims Rejected (GH¢)	63, 264.15	65, 697.13
Total Cost of claims rejected (%)	10.65	14.48

*Claims rejection-reimbursement indicators*

Table 2 shows selected claims rejection and reimbursement indices. 10 – 14% of claims are in respect of

in patients and there is over 85% total reimbursement. Significant differences exist between the proportion of claims rejected (at < 1%) and their value (12.5%) using Z scores to test the significance of the observed differences between two populations.

Kassena Nankana scheme processed 1.88 times the number of claims as Builsa. Although there is no significant difference in the proportion of claims rejection for both schemes, the differences in the cost proportion of deductions are significant at 14% for Builsa and 10% for Kassena as are the differences in the total reimbursement rate at 86% and 89% respectively. Figure 3 is a comparison of the mean monthly cost proportion of claims rejected for both schemes over time. It shows that claims deductions are a monthly occurrence with the highest deductions occurring in three consecutive months towards the last quarter.

**Figure 3** monthly mean cost proportions of rejected claims**Table 3** Estimated claims reimbursement rates of the districts

Districts	Reimbursement rates (%)			
	Total reimbursement rate (TRR)	Total timely reimbursement rate (TTRR)	Timely claims submitted	Timely claims reimbursed
Kassena-Nankana	89.34	47.82	84.21	46
Builsa	85.52	28.40	100	50

In Kassena Nankana, rejected claims costs were highest between April and July 2008 gradually decreasing towards the end of the year. Builsa Scheme shows a sharp rise in the cost proportion of rejected claims in the last quarter of 2008 between August and November. These inversely related trends correspond to acrimonious periods before the introduction of the joint claims certification committee for Kassena Nankana

and a period of dispute between the Builsa Scheme and the Sandema Hospital over which tariffs to apply.



### *Claims submission and reimbursement frequencies*

Providers in both districts have better records of timeliness of claims submission (84 – 100%) compared to the schemes (46 – 50%). The gaps between the total reimbursement rate (86 – 89%) and the total timely reimbursement rates are also significant statistically (28 -48%) as shown in Table 3

In Kassena Nankana, 84% of claims submissions were timely while 46% of reimbursements were timely. Alternatively, for 2008, all claims from the Sandema District Hospital were submitted on time while 50% of those claims were reimbursed on time. Kassena Nankana has both a higher total reimbursement rate (89%) and total timely reimbursement rates (48%). Sandema Hospital in the Builsa District has a perfect record of timely claims submission (100%) compared to War Memorial Hospital's 84%. It was observed however that claims submission is followed by a provider application for 50-100% advance payment of the claims submitted. Any deductions due the Scheme after the vetting were then effected in subsequent claims

### *Factors associated with claims rejection*

As far as rejection of claims is concerned, there is need to differentiate between total rejection of a whole claim as opposed to partial rejection of claims submitted. A claim is said to have been rejected totally if none of the amount claimed is reimbursed. Two main reasons given by the Scheme Managers for total rejection of claims are no evidence of service being rendered and client ineligibility through expiration of NHIS card or the submission of an insurance number which is unknown to the scheme by provider.

The reasons for partial rejections or deductions are drugs not on insurance drug list, overcharging of drugs, overcharging for particular diagnosis, quoting wrong diagnosis e.g. bill for severe malaria while G-DRG quoted is for simple malaria and arithmetical errors. Similar factors are associated with both Schemes for the rejection of claims.

### *Test of significance of claims process indicators*

Table 4 subjects a number of claims indicators to a test of significance using the z test. Calculated z scores that fell within the range of -1.96 and +1.96 led to acceptance of the null hypothesis that no differences existed between the indicators. Scores outside this range implied significant differences. Three indicators showed significant differences between the two districts; cost proportion of claims rejected, total reimbursement rate and total timely reimbursement rate, all previously reported.

**Table 4** Z-test of claims parameters of the districts

Parameter	Kassena Nankana	Builsa	Z scores (-/+1.96)	Inference
Proportion of claims rejected	0.63	0.60	0.52	Insignificant
Cost proportion of claims rejected	0.11	0.14	-59.08	Significant
Timely claims Submission frequency	0.84	1.00	-1.85	Insignificant
Timely claims reimbursement frequency	0.46	0.50	-0.30	Insignificant
Total reimbursement rate	0.89	0.86	59.07	Significant
Total timely reimbursement rate	0.45	0.28	191.20	Significant

## DISCUSSION

This study has identified several factors that challenge and constrain claims management under the Ghana NHIS and explain some of the observed problems. They hold lessons for other Low and Middle Income Countries (LMIC). Firstly, the largely manual nature of claims processing limited the speed of claims processing in both districts. And over 50% of claims could not be reimbursed within the stipulated 28 days. This contrasts with the AHIP report in which over 98% of claims were processed within 30 days because of computerization. Using the named computer software with a processing capacity of over 40, 000 claims in one day both district schemes could have processed all the claims received from all facilities in the district in approximately two days.<sup>14</sup>

Secondly, worker motivation and the inadequate numbers as well as skills of claims management staff in relation to the work to be performed were major challenges. Work done by Aikins<sup>15</sup> among the pilot CBHI that preceded the NHIS noted the absence of “defined organizational structure, job descriptions and an instituted career development structure.” While the current study revealed better organizational structures and job descriptions for scheme management staff, as compared to the situation in 2003, there remained lack of clarity on a career development plan and the terms and conditions of their service. This will not serve as a motivator for staff.

Claims management staff numbers in the two schemes investigated had remained unchanged despite heavy and increasing workloads with limited capacity of schemes to employ additional staff. The poor working environments with overcrowded offices appeared to compound the problem. The challenge Claims officers faced in verifying compliance with STG in treatment was a good illustration of the non-alignment between skills and job requirements.

Thirdly the financing of the district schemes does not appear to have kept pace with the rate of cost escalation leading to an increased predisposition of both Schemes to file for financial distress. While the amounts reimbursed had seen an upward trend under DRGs, the premiums had remained static. This phenomenon probably also influenced the problem of delayed provider reimbursement.

#### *Claims rejection*

The cost proportion of claims rejected in both districts at 10-14% proved to be a far more significant consideration for providers and scheme managers than the proportion of individual claims rejected at less than 1%. The latter had however formed the focus of previous work done in America and India where individual claims rejection rates of 14% and 11% respectively had been found. Individual claims rejection did not therefore constitute a significant problem as was found in both countries above. Unlike the proportion of claims rejected however, differences in the cost proportion were significant and resulted in the rejection of the null hypothesis. This significant difference was explained by periods of disputes between scheme and providers over which tariffs to apply leading to heavy deductions. Issues of administrative and technical capacity can however be addressed to further reduce both the cost and number of claims rejected as a reflection of greater efficiency in claims management.

#### *Claims Reimbursement*

The study revealed significant gaps between the total reimbursement rates (85-89%) and the total timely reimbursement rates (28-45%) for both schemes thus confirming our hypothesis. This represents a significant finding given the conclusions of Agyepong and Nagai<sup>16</sup>, of negative reactions and modifications in policy arrangements by frontline providers when the financial viability of their facilities were threatened by reimbursement uncertainty and delays. Though this study did not set out to document this phenomenon, a few such coping mechanisms were observed and could be studied further. Further, it provides cause to question the feasibility of the timelines proposed in the Legislative Instrument given the overly manual nature of the claims process.

The mean reimbursement rate of 87% recorded for both schemes is higher compared to the 76.2% recorded by Ranson.<sup>8</sup> Ranson further distinguishes between fully and partially reimbursed claims in his study, recording 53% for the latter. To the extent that every claim reimbursed in this study does not distinguish between full and partial reimbursements, the reimbursement rates of 87% recorded could be said to be the best comparison to Ranson's figure of 76.2%.<sup>8</sup> The differences in total timely reimbursement rates must be also be examined within the context of its inverse relationship with the amounts in claims submitted on time.

Thirdly, the data given by the Schemes in respect of reimbursements may also not be reflective of the reality of their inability to reimburse on time. The reality may be masked by local arrangements of advance reimbursements found in both Schemes and mentioned earlier. In other words, advance reimbursements gave the impression of prompt reimbursement when in fact had the required vetting preceded claims reimbursement; some additional time will probably have been required. These arrangements notwithstanding, both schemes recorded low timely reimbursement rates.

## **CONCLUSION**

The claims processes are thus elaborate, labour intensive and similar for both districts in terms of design and challenges. Also the cost proportion of claims rejected is a bigger challenge than the proportion of individual claims rejected with facilities posting a better record on timely submission of claims compared to the timeliness of claims reimbursement. Finally, both schemes recorded significant gaps between total claims reimbursement rates and total timely claims reimbursement rates which have unexamined implications for quality of care.

Attention to the capacity to administer as an essential part of strategic purchasing appears to be a neglected part of the current interest in national health insurance as an alternative to out of pocket payment. The Ghana National Health Insurance Scheme needs to reform its provider payment system to ensure simpler claims submission and processing systems, computerization and investment to improve and support the capacity to administer for both purchasers and providers.

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Nankana and Builsa District Mutual Health Insurance Schemes.

## REFERENCES

1. Agyepong I, Adjei S. Public Social Policy Development and Implementation: A case study of the Ghana National Health Insurance Scheme. *Health Policy and Planning* 2008; 23: 150-160
2. Government of Ghana, National Health Insurance Act 2003. Act 650. Accra, Ghana, NHIA, 2004, NHIS Policy Framework for Ghana
3. Jehu-Appiah C, Aryeetey G, Spaan E, de Hoop T, Agyepong I, Baltussen R.. Equity aspects of the National Health Insurance Scheme in Ghana: Who is enrolling, who is not and why? *Social Science & Medicine* 2011;72;157e165
4. Kutzin J. A descriptive framework for country-level analysis of health care financing arrangements *Health Policy* 56 2001;56:171–204
5. NHIA 2008, NHIS Tariff and Benefits package manual
6. Ministry of Health, Ghana, 2009 Pulling together, achieving more. Independent Review, Health Sector Programme of Work, 2008, (Draft)
7. NHIA Claims manager<sup>6</sup> (2009)
8. Ranson MK. Reduction of catastrophic healthcare expenditures by a community-based health insurance scheme in Gujarat, India: current experiences and challenges. *Bulletin of the World Health Organization*. 2002;80: 613-21
9. Sinha T (2005). Barriers to accessing benefits in a community-based health insurance scheme: lessons learnt from SEWA insurance, Gujarat. Oxford University Press in Association with London School of Hygiene and Tropical Medicine
10. HIAA (Health Insurance Association of America), March 2003: Results from an HIAA Survey on Claims Payment Processes
11. America's Health Insurance Plans (AHIP), Centre for Policy and Research, An Updated Survey of Health Care Claims Receipt and Processing Times, May 2006
12. Dolan A & Moscovice I, A 1980, Comparison of Hospital and State Agency, Efficiency in Processing Medicaid Claims
13. HIAA (Health Insurance Association of America), 2002: Results from an HIAA Survey on Claims Payment Processes
14. TMG Health 2009. Posted online <http://C:\Documents and Settings\user\My Documents\nhis claims\TMG Health Services Claims Management.mht>
15. Aikins M, 2003, Emerging Community Health Insurance Schemes/Mutual Health Organizations in Ghana: DANIDA's Achievements and Challenges
16. Agyepong I and Nagai R, "We charge them; otherwise we cannot run the hospital" front line workers, clients and health financing policy implementation gaps in Ghana. *Health Policy* 2011;99:226–233

